

NEW CONVERSIVES IN THE ENGLISH SCIENTIFIC AND TECHNOLOGICAL SPHERE

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Summary

English as a language of analytical system has a great creative power for the development of conversion, which is highly productive way of word formation. In the framework of transposition theory, we regard the interpretation of conversion as a morphological transposition with a word-forming character. The topic of our study are the new conversives in the English scientific and technological sphere. For the study, 572 examples of neologisms were selected from the dictionaries "The Facts on File Dictionary of New Words", "The Morrow Book of New Words", which presents neologisms of the 1950-1970s, as well as "The Oxford Dictionary of New Words" and "Webster's New World Dictionary of American English", which provide neologisms of the early twenty-first century.

The research shows that conversives to denote new concepts in the space industry prevailed in the 50-70s of the last century, while new developments in the field of science and new technologies are more typical for the beginning of the XXI century. The field of science and new technologies has a higher number of new conversives (86.7%), while the field of space exploration has the lowest growth of conversives (13.3%). Given the uneven distribution of conversives, it can be concluded that conversion is not only one of the ways of replenishing the vocabulary of the language, but also a mean of reflecting the conceptual picture of the world of the English-speaking society at a certain historical period.

Key words: conversion, neologism, science, technology, space industry, linguistic creative potential.

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1. Introduction

In everyday life, changes are continuously taking place, which people comprehend in the course of their practical activities and to denote which new concepts arise as elements of consciousness. They naturally require their expression through language, where the word reflects changes in the structure of knowledge about the denoted and partially preserves the experience of previous generations. There is no doubt that the boundaries of language are expanding most

intensively in the field of vocabulary, which leads to the formation of neologisms. "The Encyclopaedia Britannica" defines a neologism as "a) a new word or usage; b) a usual compound word coined by a psychotic and meaningless to the reader" (www.britannica.com/topic/language/Neologisms#ref1049484). All neologisms begin as slang, except in those branches of terminology where there is an established tradition of word coinage or redefinition. We suggest the following definition: neologisms are words and expressions whose appearance in the language is caused by the need to name new realities and to designate new concepts (common and usages neologisms), as well as the need for new expressive means (individual-author neologisms, contextual neologisms, occasionalisms).

The current level of development of society and the expansion of business and cultural ties with foreign countries require a high level of English language proficiency. It is crucial to understand new words that appear in the language, as well as new trends in language development, in particular, conversion. Following the cognitive view of the nature of language, it can be argued that the world is not reflected directly in language, the world is reflected in consciousness, and consciousness fixes, records, encodes this reflection in conceptual signs. Naturally, not everything perceived and cognised by a person takes on verbal forms. The picture of the world is reflected in facial expressions and gestures, in fine arts and music, in certain rituals. The world picture depicted by a person in his or her imagination is a more complex phenomenon than the linguistic world picture. Nevertheless, the part of the human conceptual world that is tied to language and refracted through language forms is of great interest to linguists, since the study of language is an indirect study of cognition. It is also necessary to realise that the linguistic world picture is not a mirror image of the world, but a world picture, i.e. an interpretation of the worldview, an act of world understanding, which can be likened to a geographical map with states and cities, settlements and areas, entire regions. In this study, we examine neologisms-conversions that have emerged in the scientific and technical sphere of the British version of English.

2. Socio-economic prerequisites for the emergence of new conversives

According to the triad that exists in classical rhetoric, any new word arises as a result of one of three reasons: 1) the need to name things that have not yet been named; 2) the desire for greater expressiveness; 3) the need for beauty, i.e. the aesthetic pleasure of speech (*Ward, 1967: 420–422*). It can be argued that neologisms arise in the language in accordance with these three reasons.

Transformations of the world picture, which are recorded on the linguistic map, can have completely different forms and different ways of replenishing the vocabulary of a particular language, which is constantly evolving, losing something, but gaining something new instead. This process is quite natural and inevitable. Faced with new phenomena, the realities of the world around us, gaining life experience, developing new ideas, a person feels the need for new words to describe all this. As a result, new words or meanings of words appear in the language.

The question of how long a new word remains a neologism has no clear answer. The frequency of the word's use plays a significant role here: the more frequent it is, the faster it loses its connotation of novelty. Lexicologists and lexicographers consider new words to be units that appear in the language later than a certain time limit taken as the initial one. Each researcher of neologisms decides in his or her own way which time period to take as a basis. Some proceed from the general idea that the sixties were a new era in Western society, as J. Greene in his "Dictionary of New Words" (*Green, 1993*), and consider the period from the 1960s to the present.

Others analyse the fifty-year period starting from 1941 and ending in 1991, as J. Algeo in "Dictionary of Neologisms: Fifty Years Among New Words" (Algeo, 1991). The public linguistic consciousness reacts to a word as a new one within a few years. However, from the point of view of a person for whom English is not their native language, and for people living outside English-speaking countries, the 20-year period is the time period during which certain words do not have time to lose their novelty for them (Kiyko, Rubanets 2022: 16–17). In addition, this time period allows us to clearly trace the dynamics of the neologism's entry into society and the language system.

The authors of neologism dictionaries usually try to register all newly formed words, but this is not as easy as it seems. During the compilation of a neologism dictionary, it may happen that a word that was of interest as a neologism and was understood by a narrow circle of people suddenly becomes commonly used and universally understood. And vice versa, some neologisms that are registered in dictionaries for the first time will be short-lived in the language. In addition, sometimes we are dealing not with completely new words, but with those that appeared in the language even decades ago, but have only been in the focus of attention for the last two or three years. In some cases, words that were neologisms hundreds of years ago suddenly get a second life and return to the category of neologisms.

All of the above allows us to conclude that the source of neologisms can be either the creation of a new word, reinterpretation of an old word or borrowing of a certain word. According to the ways of formation, we divide all neologisms into five groups: phonological, morphological, semantic, syntactic and borrowing. Words formed by conversion can be classified into two groups: semantic and syntactic neologisms. The new form naturally focuses the listener's attention to a greater extent than the already known one. However, in syntactic and semantic innovations there is a hypothetical speculation that encourages the listener to make an intellectual and emotional effort, i.e. to be creative. Thus, semantic innovations, being weak neologisms in terms of external form, are quite strong in terms of internal form, as they have a strong impact on the communication partner. The use of a new word in speech creates an intellectual tension, with the help of which the listener (reader) is drawn into a common cognitive space. Neologisms make the listener think about the possible, often unusual, meaning of the word, thus creating a cognitive stimulus for communication.

Despite the blurred boundaries of neologisms, we study neologisms-conversions recorded in dictionaries of new words (for certain time periods). It is worth noting that the subject of this section's analysis is primarily the conversion of the $N \rightarrow V$ and $V \rightarrow N$ models, since the presence of rather clear morphological markers of their part-of-speech affiliation in nouns and verbs ensures their high word-formation productivity by conversion.

Sharing the views of other researcher on the time period of the perception of the word as a neologism, we single out the 50-70s as a reflection of the life of a person in the mid-twentieth century. This period was marked by enormous changes in society as a result of the Second World War and rapid post-war economic development. This period is also characterised by a huge leap in the social, scientific and technological development of society on a global scale. Describing the beginning of the 21st century as a period marked by another leap in the development of society, we single out the 2000–2020s as an era of advanced computer technology and global cataclysms faced by modern man.

It should be emphasised that previous studies of neologisms in general and neologism conversions in particular have mainly focused on the structural characteristics of this vocabulary. The modern stage of language research sets other tasks for linguists, so the socio-economic, historical and cultural prerequisites for the emergence of neologisms come to the fore.

Thus, the focus of modern language researchers is on the cognitive and discursive features of neologisms. It is from this point of view that the linguistic units under study are considered in the next paragraph.

3. Material and research methods

For the study, 572 examples of conversives were selected from neologism dictionaries "The Facts on File Dictionary of New Words" (*The Facts*, 1985), "The Morrow Book of New Words: 8500 Terms Not Yet in Standard Dictionaries" (*The Morrow*, 1982), which presents new conversives of the 1950-1970s, as well as "The Oxford Dictionary of New Words: A popular guide to words in the news" (*The Oxford Dictionary*, 2010) and "Webster's New World Dictionary of American English" (*Webster's*, 2016), which cite the new conversives of the early twenty-first century. The main method of their analysis is semantic interpretation with elements of cognitive discourse analysis. As mentioned above, we distinguish two time periods in our work.

The beginning of the first period, namely the 1950s, was not chosen by chance. The Second World War, which engulfed a number of countries, including English-speaking countries, had a significant impact on their post-war development and, consequently, on the language. The 50-70s of the twentieth century were a significant period of human life, full of various social and political events. It was a time of discoveries in various fields of science and technology, the development of medicine and the emergence of the problem of drug addiction, achievements in nuclear physics and nuclear testing, space exploration and the invasion of marketing, business and the media into society. All of these realities are reflected in the English language, which, like any other developed language in the world, is constantly evolving and enriching.

The 2000–2020s are a modern stage in our lives. The latest computer technologies are now more widely developed than ever before, extraordinary discoveries have been made in the field of science, and people are particularly interested in the political side of our lives, which is reflected in the linguistic picture of the world. It is the comparative analysis of new words formed by conversion within the framework of cognitive discourse studies that clearly reflects the human worldview, the global and at the same time daily changes that have taken place in various spheres of human society.

For a comprehensive study of conversions, the paper uses the structural method, which is a system of methods and techniques used to study language as an integral structural-systemic, hierarchical formation that allows to identify the regularities of the structural organisation of language and the systematics of its elements. The purpose of the structural method is to learn the language as an integral functional structure, the elements and parts of which are correlated and connected by a strict system of linguistic relations. The structural method includes such techniques as oppositional analysis, distributional analysis, analysis by direct components, transformational analysis, component analysis. In the paper, we use structural and descriptive methods to carry out semantic analysis of conversives. The task of the descriptive method involves a detailed description of the units of a particular language, explanation of the peculiarities of their use.

The analysis of dictionary definitions makes it possible to compare the denotative meanings of the conversives and to establish differences in their semantics. Component analysis makes it possible to decompose the semantic structure of conversives into minimal significant units. The semantic-cognitive analysis is used to explain the cognitive processes that determined the formation and development of the semantics of new conversives.

4. Neologisms in the scientific and technical field

Science and technology in the twentieth and twenty-first centuries have become real engines of history, giving it unprecedented dynamism, allowing for a sharp increase in the scale of human production activity, changing the structure and nature of social processes and the entire way of life. The development of physics in the 50-70s, in particular the study of the atomic nucleus, led to the emergence of a number of conversions. For example, the verb *to fission*, formed by conversion from the noun *fission* "to split, split, divide", acquired the meanings "1) to divide (of a nucleus); 2) to cause fission (of a nucleus)". The noun *autoradiograph* was converted into the verb *to autoradiograph* with the meaning "to send an autoradiograph".

The English language has a number of words that initially meant only a brand name, then became common words, and then formed the corresponding verbs by conversion. For example, the emergence of the Xerox copier in the 1960s led to the fact that all copiers were called *xerox*, and then the corresponding conversion *to xerox* appeared, meaning "to reproduce on a photocopier, to photocopy", e.g: *Acy Thompson wondered if I would xerox those copies for tomorrow? (Economist, June 1969); Their home study is most often combined with their bedroom and looks more like an office: a computer (sometimes more than one), other office equipment that allow to xerox documents for their personal agenda, etc. (Economist, January 2000)*. Nowadays, photocopiers are widely used in everyday business activities, so the noun *xerox* and the verb-converter *to xerox* no longer belong to the layer of neologisms, but have become common words.

Another example is that the verb *to kodak* has come to mean "to take pictures with a Kodak camera", and the noun *Hoover*, referring to a brand of vacuum cleaner, has come to mean any vacuum cleaner and has been used to form the conversion method of the verb *to hoover* with the meaning "to clean with a vacuum cleaner". It has become so ingrained in the English language that it is now synonymous with the word "clean" and is part of the colloquial vocabulary, such as: *I was trying a Hoover and I felt the need to hoover around the shop a bit (New Musical Express, April 2001)*.

The twentieth century saw radical changes in the means of communication. The radio, telephone, television, tape recorder, video recorder and, finally, the computer have made the greatest contribution to the creation of the modern world. The idea of the dominant role of electronics and computer science has been developing since the late 1960s. However, it was only in the early 2000s that the term "information society" became established. The boom in computer science and commercial advertising, which portrays the computer as a kind of passport to the future, contributed to this in no small part. The rapid development of electronic technologies could not but affect the linguistic map of the modern world. A large number of neologisms-conversions are produced in the sphere of the latest electronic technologies. The first computer is known to have appeared in 1946 in Pennsylvania. Immediately afterwards, a significant number of new terms emerged to denote new realities. There is an interesting trend in this semantic group: most of the neologisms belong to the two time periods we have identified, since, having appeared in the first time period, they became the most used only after 2000 due to the spread of relatively inexpensive personal computers and laptops.

It should be noted that until the early 1990s, i.e. before the advent of the personal computer, this technology was the property of only a narrow circle of people, and therefore the computer language was inaccessible to the vast majority of people. It was only with the widespread use of computers among ordinary users that this vocabulary became common knowledge. For example, the verb *to keyboard* (or its shortened form *to key*), formed by converting the noun

keyboard back in 1961, became most popular in the early 2000s. Its meaning is directly related to the purpose of the keyboard, namely "to enter information into the computer using the keyboard", e.g: *An ATC centre can request the crew to keyboard in data, but most oft he exchanges between ground und aircraft will be automatic (PC World, November 2003).*

The converseive *to boot* was also first recorded as a neologism in the 60s and became the most used in a new meaning associated with the computerisation of society forty years later, in the early 2000s. For example, the new meaning of the verb *to boot* "to start working on a computer by loading an existing system into working memory" stems from the meaning of the noun *boot* "car boot", since the boot is designed to be loaded with any objects. It is also possible that this verb is formed by converting the first part of the compound noun *bootstrap*, which is widely used in the computer industry.

In the 70s, the noun *port* "port, harbour" in computer terminology acquired the meaning "a part of a computer to which another, peripheral part of equipment, hardware (for example, a printer) is connected for inputting and outputting information". The noun with this meaning was later used to form the verb *to port*, which means to transfer software to another system without any modifications, e.g: *We wanted a product that increases our output of systems, and we wanted to port those systems across different enviromnts (Computer Weekly, March 1978).*

The verb *to image*, converted from the noun *image*, has acquired a new meaning "to convert information, data into a graphic representation". It means that a graphic representation in the form of a drawing or graph gives a more visual, vivid idea of a certain object or concept.

The converted verb, derived from the noun *window*, has acquired several new meanings in modern English, both of which relate to computer work. One of the new meanings is "to divide a computer screen into windows/parts", which has been recorded in dictionaries of neologisms since 2005. The second meaning of the verb *to window* is probably derived from one of the modern meanings of the original noun, namely, from the designation of the Windows programme used in a computer network. This is where another meaning of the converted verb *to window* comes into play, namely "to put information into a particular system", e.g: *Roto NT means differentiate approach to window information across an entire organization (Computer Weekly, October 2006).*

The quite widespread noun *network* is also the most widely used in the computer industry and is converted into the verb *to network* with the meaning "to connect together (computers) to form a computer network/communication", e.g: *It's so important to network all components when starting a new programm (Computer Weekly, January 2004).* The verb *to daisy-chain* has a similar meaning, formed by converting the compound noun *daisychain* "wreath (of daisies/daisies)" into a slightly different sphere of human life. Imagining a daisy having both petals (computers) and a centre or core that connects them (a single controlling device), it is quite easy to deduce the meaning of this conversion "to connect computers (or other electronic devices used in them) in series with each other, which are connected to a single controlling device, forming a kind of chain", e.g: *This allowed for faster connection and disconnection, because there was no need to daisy-chain multiple devices (Computer Weekly, June 2012).* The converted verb *to branch*, formed from the noun *branch*, is also a new word. However, the noun *branch* first acquires a new meaning of "part of a computer", and then this meaning is used to form the meaning of the converted verb *to branch* "to follow one, two or more computer programmes", such as: *Use the multi decision node to branch programs to multiple outcomes (Computer Weekly, February 2017).*

The use of computers in the music and entertainment industries has also led to the emergence of a number of neologisms. The verb *to noodle* was formed by conversion from the

noun *noodle*, one of the meanings of which is "a musical call sign on radio or television". This conversion has acquired the meaning "to beat absentmindedly, haphazardly on a computer keyboard", e.g: *The operator plays along by hitting keys on the computer's keyboard, and the program seamlessly integrates the noodling into the music; it sounds like yamming with the band (New Musical Express, October 2008).*

The verb *to log* has been in the language for a long time, but one of its meanings is one of the neologisms of the 2000s. For example, the phrasal verb *to log*, converted from the noun *log* with the meanings "log" and "form (of a device)", has acquired the meaning "to turn on the computer and enter the programme with which one is going to work", e.g: *If you have access to the Internet, log on to www.icnewcastle.co.uk (The Journal, March 2008).* The phrasal verb *to log off* has the same meaning as "to finish working on the computer", e.g: *For the first year he couldn't even log on. In those days he had the personal computer on a table across the office (Independent on Sunday, April 2001).*

An interesting example is the word *hack*. Initially, in the 60s, this noun acquired a new meaning related to the computer industry, namely "using the potential technical capabilities of a computer for fun". At the same time, the verb *to hack* with the same meaning "to make the most of a computer for entertainment" was being formed by conversion, often with illegal intentions, such as: *Ten-year-olds can hack into NATO; a cat can fax to a king (Independent on Sunday, June 2003).* At the same time, the frequently used noun *hacker* was formed, which in the early 2000s became an international word that does not require translation and refers to a computer hacker.

5. Neologisms as a result of conversion in the space industry

A significant place in the linguistic picture of the world of people is occupied by vocabulary denoting the process of space exploration. The military and peaceful use of rocketry went hand in hand, and the arsenal of World War II combat missiles was modified and adapted in the postwar period to launch scientific instruments into the upper layers of the Earth's atmosphere. The most striking achievement of science and technology was manifested during the launch of the first satellite in the history of mankind on 4 October 1957. Spacecraft, in addition to their purely scientific value, have made and continue to make an invaluable contribution to solving many national economic problems. Satellites are used for long-distance telephone, telex and telefax communications and for broadcasting television programmes. Satellites have radically changed the face of modern meteorology. It is therefore quite natural that the neologism *sputnik* appeared in the English language in 1957 at the same time as the new reality was introduced. Almost immediately, this noun was converted into the verb *to sputnik*, meaning "to launch a satellite", e.g: *The spacecraft was sputniked at 10:29 p.m. Moscow time from the Tyuratam launch base in the Kazakh Republic (Independent on Sunday, July 1966).* The launch of the artificial Earth satellite, which became a technological catalyst for the formation of a true global connection of the planetary civilisation, was a symbolic act of the birth of the information age.

The Moon is the only natural satellite of the Earth. In the decade from 1966 to 1976, the United States launched a total of 40 automated space stations to study the Moon. The data collected by the automated machines made it possible to fly a man to the Moon. The first American lunar landing expedition took place on 16 July 1969, with contact with the lunar surface on 20 July. "One small step for a man, and such a huge leap for all mankind" were the first words spoken on the Moon by the crew commander N. Armstrong. In the same year, 1969, the verb *to moonwalk* appeared, converted from the compound base of *moon* and *walk*, meaning "to walk

on the moon, exploring its surface". However, in the late 70s, this verb acquired a new meaning that was not related to lunar exploration at all. The verb *to moonwalk* began to denote the performance of a special kind of dance, a kind of breakdance, when the dancer seems to glide in one place. This is exactly how Michael Jackson, who was incredibly popular at the time, danced, for example: *Jackson has been credited as renaming the „backslide” to the moonwalk and it became his signature move. He would go on to moonwalk during tours and live performances (The Washington Post, May 1979).*

By that time, not all launches to the moon were successful. In this regard, the verb *to moonoggle* (moon "moon" + (boon)doggle "to do an empty, meaningless thing") even appeared. This verb has come to mean "to explore the moon to no avail" and, more broadly, "to throw money away", e.g: *During the years of Vietnam and the moonoggling the balance of Pentagon prime contracts shifted sharply to the Southern Rim, with the percentages mounting every year (The Washington Post, December 1976).*

The verb *to moonlight*, which is derived from the noun *moonlight*, has acquired new meanings that are indirectly related to the meaning of the original noun, namely: 1) to have a part-time job, usually a second job, without informing the tax police; 2) to perform paid work despite the fact that a person is not officially employed and therefore receives state assistance, such as: *She's been moonlighting as a waitress in the evening (Moran, 1989: 77).* Obviously, both of these meanings stem from the association of moonlight with radiance, in which objects have not very clear outlines and can even become completely invisible. Both actions described by the verb *to moonlight* seem to be in the moonlight, i.e. they are unknown or should not be known to the general public.

There is no doubt that in the first decades of the 21st century, space exploration is very active, primarily within the framework of Elon Musk's space programme. However, there have been no such revolutionary discoveries as there were in the middle of the last century, namely the creation and launch of the first satellites, the first human space flight, and the exploration of the Moon. Thus, it was in the mid-twentieth century that the English language vocabulary was actively replenished with a number of words related to space exploration.

6. Conclusions

Quantitative calculations allow us to give a clear picture of the studied conversions in the scientific and technical field. Our study of new conversives from the two time periods showed that their appearance depends on the field under study (see Table 1).

Table 1

Frequency of occurrence of new conversives in different time periods

Industry	1950–70s	2000–2020s	Together
Science and advanced technologies	165	331	496
Space exploration	64	12	76
Together	229	343	572

Conversives to denote new concepts in the space industry significantly prevail in the 50-70s of the last century, while new words in the field of science and new technologies are more typical for the beginning of the XXI century. The field of science and new technologies has a higher number of neologisms (86.7% of examples), while the field of space exploration has the lowest growth of conversives (13.3%).

Despite such low quantitative indicators, conversion undoubtedly remains in the focus of attention of both native speakers and specialists in the field of English linguistics, since the method of word formation, in which a new word is formed without any word-forming means, is not possible in all languages, but is characteristic of English, where the conditions for conversion are most favourable. It should also be noted that in modern English there is a clear trend towards the increasing use of this particular method of word formation.

Taking into account the uneven distribution of new conversives, it can be concluded that conversion is not only one of the ways of replenishing the vocabulary of the language, but also a means of reflecting the conceptual picture of the world of the English-speaking society at a certain historical period. A comparative analysis of neologisms-conversions of the two time periods outlined above shows that new conversives are a kind of reflection of human development in society and the development of the society in which he/she lives, a reflection of achievements in science and technology, a reproduction of the global problems that man faced in the second half of the twentieth century and the beginning of the twenty-first century.

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