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About some lexical-semantic and structural-syntactic peculiarities of English scientific medical articles

S.R. Nedbailik
Petrozavodsk State University, Petrozavodsk, Russian Federation
E-mail: snedbailik@mail.ru. ORCID: http://orcid.org/0000-0002-0567-1378
E.A. Yakovleva
Petrozavodsk State University, Petrozavodsk, Russian Federation
E-mail: yakowlewa85@yandex.ru. ORCID: http://orcid.org/0000-0002-2229-0403

Abstract: This work concerns the problem of English scientific medical articles which present a separate trend, known for its peculiar lexical cast and structural-syntactic, compositional features. The abundance of special terminological nominations, high preciseness, strict logical order, clarity of material exposition and data presenting, large use of different type discourse-text 'transitions' for structural-semantic and lexical-syntactic organizing are most significant features of special scientific texts. All this approves for medical scientific discourse specific character, claiming for a large variety of its concepts in American and European linguistics, which, in its turn, provokes problems in treating basic multi-level language units. Thus, one can state a high actuality of regarding poly-functional text-forming elements in a multi-aspect, complex way. Just for this reason scientific texts lexical-semantic-syntactic peculiarities studying has become the objective of our research. The results of complex structural-compositional, lexical-semantic, syntactic-stylistic analysis fulfilled in the frame of given work give full grounds to state a certain specificity of multi-level organizing, structuring, lexical-terminological filling of poly-thematic scientific medical articles taken from original English-language sources.
Key words: special field of knowledge; style; scientific medical article; meta-language; lexical unit; stratification; structural-compositional feature; discourse-text 'transition', material analysis; context.
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Sabina R. Nedbailik – Candidate of Philological Sciences, associate professor, associate professor of the Department of German and French Languages, Institute of Foreign Languages, Petrazovodsk State University, 33, Lenin Avenue, Petrazovodsk, 185910, Russian Federation.
Ekaterina A. Yakovleva – Candidate of Pedagogical Sciences, senior lecturer of the Department of German and French Languages, Institute of Foreign Languages, Petrazovodsk State University, 33, Lenin Avenue, Petrazovodsk, 185910, Russian Federation.

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О некоторых лексико-семантических и структурно-синтаксических особенностях оригинальных англоязычных научных медицинских статей

С.Р. Недбайлик
Петрозаводский государственный университет, г. Петрозаводск, Российская Федерация
E-mail: snedbailik@mail.ru. ORCID: http://orcid.org/0000-0002-0567-1378
Е.А. Яковлева
Петрозаводский государственный университет, г. Петрозаводск, Российская Федерация
E-mail: yakowlewa85@yandex.ruORCID: http://orcid.org/0000-0002-2229-0403

Аннотация: В данной работе затрагивается проблема оригинальных англоязычных научно-медицинских статей, которые представляют оригинальный жанр, отличающийся спецификой лексического состава и структурно-композиционными особенностями. Обилие специальных терминологических номинаций, высокая точность, строгая логическая последовательность, наглядность изложения материала и представления данных, широкое использование разнотипных дискурсно-текстовых 'переходов' в целях структурно-семантической и лексико-синтаксической организации являются наиболее значимыми характеристиками специальных научных текстов. Все это подтверждает специфический статус (медицинского) научного дискурса, обусловливающий широкую вариативность его концепций в американской и европейской лингвистической литературе, что, в свою очередь, создает сложности в трактовке его базовых многоуровневых языковых единиц. Таким образом, можно утверждать о высокой актуальности комплексного многоаспектного подхода к исследованию

функциональных текстообразующих элементов. Именно по этой причине изучение основных лексико-семантико-синтаксических особенностей научных текстов стало целью данной работы. Результаты комплексного структурно-композиционного, лексико-семантического, синтаксически-стилистического анализа, выполненного в рамках данного исследования, дают все основания констатировать определенную специфику многоуровневой организации, структурирования, лексико-терминологического наполнения политематических научных медицинских статей, взятых из оригинальных англоязычных источников.

Ключевые слова: специальная область знания; функциональный стиль; научно-медицинская статья; метаязык; лексическая единица; стратификация; структурно-композиционная особенность; дискурсно-текстовой ‘переход’; анализ материала; контекст.

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Информация о конфликте интересов: авторы заявляют об отсутствии конфликта интересов.

Сабина Рудольфовна Недбайлик – кандидат филологических наук, доцент, доцент кафедры немецкого и французского языков, Институт иностранных языков, Петрозаводский государственный университет, 185910, Российская Федерация, г. Петрозаводск, пр. Ленина, 33.

Екатерина Анатольевна Яковлева – кандидат педагогических наук, старший преподаватель кафедры немецкого и французского языков, Институт иностранных языков, Петрозаводский государственный университет, 185910, Российская Федерация, г. Петрозаводск, пр. Ленина, 33.

Introduction

As it is known, any text presents a complex poly-functional system, a unity of systemic and individual, organized according to one of the abstract models that exist in the language. The content in relation to the text as a kind of complete message acquires its own terminological use, different from the general concept of ‘meaning’. Being an object of a high complexity and various approaches, every text is characterized by such essential distinctive features, as delimitation, completeness, cognition, nomination, communication, integrity, etc. The deepening of knowledge of the text as an object, its treating from different points of view naturally evokes its new and alternative definitions, as well as possible controversies appearing. High individuality of every text is the result of an endless variability of the material form that bears the author`s conceptual image. Within the framework of text linguistics, the whole speech work is mainly the object of text stylistics study, although the functional-stylistic component surely manifests itself at the level of super-phrasal units (SPU). Thus, any parts, paragraphs or chapters of a literary work or a scientific monograph, thesis, article as compositional forms of a corresponding genre cannot be considered as special linguistic units [Clarke-Kennedy 1995].

The semantic-communicative integrity of every text is expressed in the relationship of continuity between its components, lexical units, micro-segments, or SPU (micro-texts) [Pastukhova 2001; Nedbailik 2015]. In other words, each subsequent sentence in a SPU is communicatively based on a previous one, which leads to forming various thematic-rhematic chains building up a statement in a direction from the known to the new. Thus, all the sentences that make this or that (micro)text can be interconnected not only by the unity of a theme and relationships of communicative progression, but also by various external signals that mark a certain total structural unity being created. On the whole, we can characterize every unity in terms of coherence and cohesion [Hall P. & Harriel M. 1994; Tayupova 2018].

As far as scientific texts are concerned, they present one of most fixed concepts, and the very need to single it out among many others is beyond any doubt. The most important and specific feature of this style is that any scientific text has a trend for certain objectivity and high clearness of expression, logic and strictness of presentation, is rather abstract and generalized. Moreover, within the frame of scientific genre one can define numerous subgenres: a treatise, a monograph, a journal article, a review, a textbook, etc. and different subsystems: scientific and technical presentation, popular science presentation, biology, mathematics and other spheres of human knowledge [Tayupova 2020]. Being an object of numerous discrepancies in the theory of linguistics, the concept of scientific texts has been studied for decades by European and American researchers, who were focusing attention on its various aspects: stylistic, communicative, pragmatic, semantic, etc. Acknowledging its specific and polyphonic nature, they kept to different approaches to scientific discourse interpreting. Speaking about modern text concepts existing in linguistic theory, one should also mark their variety. In this connection one can`t bypass such prominent and world known scientists as N. Arapoff [Arapoff 1998]; I.R. Galperin [Galperin 1991]; P. Hall, M. Harriel [Hall P. & Harriel M. 1994] and others. Many of them tried to put accent in their works on lexical-terminological cast of scientific texts, pointing out the importance of thematic lexical units (LU) which are treated as key, or support signals providing semantic integrity and coherence and often serving as a valuable means of stylistic expression [Lebedeva 2001].

As far as structural- compositional aspect of special scientific texts is concerned, it has been studied mostly as a separate subject in terms of syntactic coherence and specific means of its providing: grammar copulas, lexical-grammar conjunctive elements of various types, etc. [Hall P. & Harriel M. 1994; Kosycheva, Khorokhorina 2019]. One can easily guess that this distinction of approaches doesn`t allow to regard the matter in a complex, multi-aspect way and to point out

a poly-functional character of different language units, often acting in the whole text space as certain bearers of semantic coherence and cohesion means in parallel [Tayupova 2020]. This visible gap proves quite evidently **a high actuality** of regarding functional features of multi-level text structure elements in a combined, complex way. Just for this reason scientific texts lexical-semantic-syntactic peculiarities studying has become **the objective (aim)** of given research. Considering various special types of scientific literature, we have chosen for this study its medical trend as one of most significant in theoretical and practical aspects, well accentuated terminologically, widely acknowledged among researchers.

The need to point out a special meta-language of medicine is due to the fact that the object of research is a person as a whole, which cannot but be reflected in specific language features of scientific material used. This focus on a person, i.e. essence, worldview is applied in line with a current scientific trend – anthropology, which has become rather popular in many fields of human knowledge, but is evidently peculiar for natural sciences. After all, these are primarily medicine and biology that, by their nature, can be treated as the parts of a person «environment».

It is easy to suppose that the very features of scientific speech in all its genres (abundance of terms, presence of general scientific vocabulary, impartiality of data presentation, consistency, high degree of preciseness, clarity of formulations and conclusions, patterns prevailing, etc.) are the same for all languages, but in each specific case the general style of speech and thinking of a native bearer of any particular language is to be reflected. Thus, the English-American scientific style differs much from scientific presentations made in Russian and other languages, which is confirmed by a number of contrastive studies dating back to the 1980s of XX century. In particular, compactness, simplicity of native English speakers` style can be opposed to heaviness, formality, emotional detachment of Russian-language literature. It is quite obvious that the language of scientific prose in general and medical literature in particular can be studied in several directions, i. e. the study of special scientific texts vocabulary, their lexical and syntactic, structural and compositional features, etc. Such a multi-aspect approach can be explained by the wish to optimize the language of scientific communication both in terms of its application and teaching practice. After all, it is in the course of teaching English to medical students that there is a constant necessity for reading, interpreting, translating articles of this style, which is inevitably associated with a constant need for direct observation of new progressive and alternative methods of diagnostics and treatment, testing and using newest drugs, technical aids, devices, etc.

Material and methods

Speaking of some specific lexical features of scientific (experimental) medical articles language, it is necessary, first of all, to note a certain conservatism in selecting expressive means, namely, in using a special set of lexical units (LU) and their combinations. That`s why the first stage in studying lexical casts of scientific texts should be their stratification. To collect and review the data needed in our research we used the methodology of random searching (selecting) and statistical evaluation of lexical material, taking as the practical base original editions of two last decades, such as: 'Archives of medical research' (USA); 'Endocrine reviews' (USA): 'Lancet' (USA); 'Medical imaging' (USA). While working with practical data obtained we used the elements of such methods as structural-semantic analysis; contextual analysis; stylistic analysis; comparative analysis [Harris 1994].

Surely, it is possible to divide the vocabulary of any scientific medical text into three main layers: common, general scientific and terminological LU. Still, there are no impassable borders between these layers, because an inevitable 'shift' of LU exists: generally, literary words can frequently acquire terminological meanings [Galperin 1991]. So, it is known that commonly used lexical layer is made up of words that have a maximum frequency, without which no speech in natural language can be realized. As for terminology, as a rule, it does not present any difficulties for perception and understanding by scientists who are working out certain problematic field, since, according to the words of a famous Russian linguist A.A. Reformatskiy, «…the unity of terminology, even with different phonetic and grammatical arrangement of terms in each individual language, gives a prerequisite for understanding the essence of the matter when reading any work in given special field, even if it is written in a language unknown for the reader» [Razinkina 1998]. To get an adequate idea of a text material stratification into above-mentioned LU layers, we can take as an example an annotation of one scientific article printed in the original American medical journal:

(1) *In a randomly controlled trial, twelve matched pairs of patients with chronic obstructive pulmonary disease received traditional Chinese acupuncture or placebo acupuncture. After three weeks' treatment the traditional acupuncture group showed significantly greater benefit in terms of subjective scores of breathlessness and six-minute walking distance. Objective measures of lung function were unchanged in either group. Whether those differences are mediated by endogenous opiate and/or pep-tide release remains speculative* [Johnson 2017].

It is quite obvious that numerals *twelve*, *three*, *six*, pronouns *either*, *those*, the verb *to be* (*were*, *are*) can be attributed to the layer of commonly used LU. As for the words *pairs*, *group,* which in theory should be also referred to this strata, they are used in this context in groups, or combinations: *matched pairs of patients*, *traditional acupuncture group*, which adds a special scientific (medical) component. At the same time, these lexical groups can`t be considered as terminological ones in a full meaning of this word. We can treat as

«pure» medical terms in this context the following ones: C*hinese acupuncture*, *placebo acupuncture*, *breathlessness*, *endogenous opiate*, *peptide release*. The poly-lexical unit *chronic obstructive pulmonary disease* can also be considered as a term, because using three special LU at once influences the meaning of a commonly used word *disease*. The word cluster *lung function* is to be attributed to a special-scientific lexical cast, since it is formed by the model: «special word + common scientific word». The rest of LU can be defined as basic scientific ones, i.e. words and expressions, by means of which are defined and characterized different phenomena and processes in various sciences. These are: *randomly controlled trial*; *matched pairs*; *objective measures*; *subjective scores*; *remains speculative* [Platonova 2005].

The analysis of original language material shows that it is special scientific vocabulary that makes it rather difficult to read and understand texts in English, as well as in any foreign language, so a thorough study of this layer plays a crucial role in optimizing the language of scientific communication [Hall P. & Harriel M. 1994; Tayupova 2020]. In this regard, it should be noted that special vocabulary used in scientific texts is to be classified into six thematic groups in conformity with existing successive stages of a study itself, which corresponds to the very structure of a scientific article [Ryabtceva 2000; Kulik 2018].Thus, LU of the type: *foreseeing and prospects, acquisition of knowledge, organizing and systematization of material, verification, conclusion, summary, transfer of knowledge, demonstration,* etc., are in a certain way correlated with standard subtitles of a scientific (experimental) article. In particular, the part «Summary» usually gives a brief description of the essence of an experiment carried out in the frame of research, summarizes its results, suggests conclusions, respectively, it contains common scientific vocabulary that correlates with the conceptual meanings, for example: *to conclude*, *conclusion*, *to analyze*, *analysis*, *to characterize*, *characteristics,* etc. [Platonova 2005]. The part, presented under the title «Introduction», is devoted, as a rule, to the (pre)history of problems touched upon in the research, the prospects of an experiment *(to assume, assumption, to postulate, to propose, to suggest, suggestion, etc*.). As it follows from the very name of the part «Material and methods of research», it should offer the readers a description of some patients and their groups, participating in the experiment (*to observe*, *observation*, *to identify*, *to assess*, *assessment,* etc.).The part «Results» acquaints the readers with experimental (practical) data obtained (*to confirm*, *to indicate*, *to obtain,* etc.). In the section «Discussion» some problematic or similar results of previous experiments are usually considered, and equally some conclusions are presented (*to associate*, *associations*, *to compare*, *comparison*, *to corroborate*, *to postulate*, *to receive,* etc.) [Platonova 2005].

Our observation of LU belonging to this layer in the frame of scientific and experimental articles makes it possible to note the following pattern: a number of English verbs, entering into lexical and phraseological relations with nouns: *a patient*, *a child, a man*, *a woman*, endure some changes of meaning, while their combinations with other nouns, such as: *methods*, *problems*, *effects*, *results,* etc., don`t involve any semantic shifts. So, let us turn to some practical data. The basic scientific term – verb *to assess* is included in a thematic group '*conclusions'*. In the material being analyzed, this verb is found in the sections «Introduction» and «Materials and Methods» in the following phrases: *to assess wellbeing; to assess general level of breathlessness; to assess the oxygen cost of exercise.* Obviously, in this context the LU realizes its basic meaning, which, according to *Cambridge dictionary*, is «*to judge or decide the amount, value, quality, or importance of smth.».* In this connection, the word group *to assess a patient* also realizes the vocabulary meaning of this verb, since it means *to examine a patient.* So, in current speech context we can see the meaning concretizing, i.e. a certain narrowing of the word semantic scope, which is caused by its lexical-phraseology compatibility without a visible semantic shift. Obviously in special distributions the verb can acquire in given phrases a concrete scientific semantic-lexical nuance. The commonly used verb *to accept* (thematic group 'knowledge acquisition'), forming a phrase with the noun *a patient*, passes to the group of special-scientific LU with a partial change of its meaning: *'to admit participating in the experiment; to allow participation'* [Platonova 2005].

Study and results

As it is mentioned above, any scientific text, including a medical one, is a form of speech that reflects the rational activity of a person, and therefore it is invariably characterized by such properties as logic, argumentation, clearness. This is a highly organized system, a kind of complete message that has its own content, is structured according to one of the abstract models that exist in the language, and is characterized by its own distinctive features, existing due to a certain set of categories [Zaitseva 2001]. The content itself in relation to a text acquires its own terminological usage, different from the concepts of 'sense' and 'meaning' [Arapoff 1998]. The integrity and coherence of scientific texts are not only semantic phenomena, because 'they are manifested in the form of structural, semantic and communicative integrity, which correlate with each other as 'form, content and function' [Razinkina 1998; Tayupova 2018]. Speaking of syntactic structure of sentences that make up a scientific text, it should be noted that it is greatly influenced by their localization. In other words, it is the communicative task, or intention that plays a very important role in the choice of one or another syntactic organization of a sentence in question. So, almost every noun in a phrase has a pre-positive or post-positive attribute, or both at once, for example: *the controlled group*, *general practice records*, *chronic sinus infection*, *the seasonal pattern*

of the attacks, *initial cranial ultrasound examination*, *the results discussed*, *the patients examined, etc.* [Platonova 2005].

In the section «Summary», the authors of medical texts can use simple common sentences, which is explained by their principal communication task: to convey the essence of an experiment as briefly as possible, for example:

(2) In an analysis of general practice records the rate of chronic sinusitis was significantly greater in 92 patients with multiple sclerosis than matched controls (p <0.0001) [Barbel 2018].

In the section «Introduction», the number of simple sentences (compared to «Abstract») is to be lower, more typical is using complex sentences with one or two subordinate clauses, often complicated by participle, gerund or infinitive constructions:

(3) The fact that many techniques are available for the measurement of cardiac output in man indicates that none is completely satisfactory [Nicols 2014].

(4) Although it seems logical to assume that postprandial angina is related to an increase in cardiac output, it has been claimed that this is not the case [Nicols 2014].

(5) Many of these requirements are met by a technique in which mass-spectrometric measurements of expired carbon dioxide provide the information required to calculate cardiac output by the indirect Flick principle [Nicols 2014].

In the sections «Materials and Methods»; «Results», attaining main communication goals (listing the groups of patients examined, the methods of treatment used, as well as the results obtained) is facilitated by using simple common sentences – often with infinitive, gerundial and participial phrases, for example:

(6) Patients walked over a measured distance at their own pace for six minutes on the flat, stops being allowed if necessary [Johnson 2017].

(7) The preoperative examination showed 18% to have sufficient psychiatric morbidity to make a diagnosis, usually a combination of anxiety and depression [Barbel 2018].

As it is known, the largest part of scientific medical articles is the section «Discussion». Justifying the right choice of drugs or a new method of treatment, summing up the results of a study, comparing the results of an experiment with the data of other scientists involved in similar trials – all this necessitates using a large number of compound and complex sentences with a number of subordinate clauses, simple common sentences with homogeneous members, complicated by various types of constructions:

(8) However, those patients ineligible for the random trial because they already owned peak flow meters required much more medical intervention during the year to maintain their pulmonary function, implying that their asthma was either more severe or more difficult to treat than those eligible for randomization [Barbel 2018].

(9) One may speculate that, since the performance of the impaired cardiac pump at maximum stimulation is lower than that expected to sustain a normal sedentary existence, such cardiac insufficiency leads to other organ failure and eventual death [Barbel 2018].

A large use of simple sentences is due to solving the following communicative tasks:

a) reporting the most actual ideas of the author:

(10) On theoretical grounds, however, maximum cardiac output is preferable [Barbel 2018].

B)introducing arguments, enumerations. For example:

(11) However, few data exist on the link between birth weight and later cognitive function [Barbel 2018].

c) presenting experimental results or data obtained:

(12) None gave a history of pink disease in childhood [Barbel 2018].

d) making links to given tables, graphs, charts, etc.:

Figure 2 shows the average yearly age specific and sex specific death rates over the study period (13) [Barbel 2018].

e) summing up chains of reasoning, motivations, etc.:

(14) On the whole, we found no differences in the pulmonary function of patients after 1–2 months [Barbel 2018].

One can see that most of the examples cited above contain parenthesis-modal elements of different types, which evidently introduce special accents in the whole utterance semantics. Thus, they can be considered to be the markers of modal assessment, as well as so called signals of actual segmentation, for example:

(15) No study reported an association between risk of infection and duration of breastfeeding, even though numbers were too small to state the absence of such an association. ***However****, all 10 exclusively bottle-fed children escaped infection, so the results of the study should accord with the hypothesis of appreciable transmission via breast feeding* [Farengs 2016].

It`s evident that in this case the parenthesis-modal adverbial element *however* plays the role of a lexical modifier adding to the phrase semantics some nuances of contradiction, opposition, as well as in the above cited examples [Hall P. & Harriel M. 1994]. At the same time, it surely accents the main idea, expressed in the utterance, bearing a certain charge of a contextual-logical marker and actual segmentation signal. Regarding the structural position of this LU, we can mark its possible functioning as an inter-sentence connector, bonding two predicative parts of the phrasal complex and at the same time, programming its understanding by a ‘communicative recipient’ [Lebedeva 2001]. Such poly-functionality of the word in question is probably due to its initial semantic relativity, being common for most adverbial elements. Just for this reason they have got different terminological nominations and treatings in linguistics: ‘logical operators (markers)’, ‘discourse-text transitions’, ‘deductive connectors’ [Pastukhova 2001; Pravikova 2001; Zaitseva 2001], etc.

Let us take another example:

(16) In infancy bronchial viral activity persists as recurrent cough and wheeze. ***On the whole,*** *many affected children are found to be a-topically asthmatic, especially those with genetic predisposition…* [Nicols 2014].

It`s easy to guess that in this case, as well as in the above cited example (14), the parenthesis-modal element *on the whole* adds to the general semantic of the complex possible nuances of generalization, summing up, conclusion. Besides, it has a certain charge of a logical segmentation marker, definitely emphasizing most relevant, important information contained in the utterance and bonding two predicative parts of the syntactic complex, thus implicating the type of semantic-syntactic interrelations and providing the semantic-structural integrity of the micro-text in question.

It is quite obvious that, depending on the thematic focus of a medical scientific text, the number and cast of such markers can vary significantly with a possible prevalence of their certain subtypes. For example:

(17) The clinical result is associated with a progressive increase in the prevalence of organ specific and non-organ specific auto-antibodies… ***Above all,*** *we have measured thyroid auto-antibodies in healthy centenarians without other age-related diseases* [Johnson 2017].

One can easily see that the parenthesis-modal word group *above all* introduces in the whole semantic-syntactic complex some lexical nuances of addition, supplementing, complementing, 'consequence', 'subsequence', 'logical order', 'conclusion', 'result' etc., at the same time functioning as a logical or actual segmentation operator. As far as its syntactic charge is concerned, the element probably implements the role of an inter-phrasal connector and actual 'sin-semantic signal, or marker of so called 'left-hand context', linking two components of the micro-utterance in question. All this shows quite clearly a high functionality of different compound lexical groups and complexes playing the role of semantic-structural (inter)phrasal and (inter)sentential links in the frame of text unities. Among some popular in special texts clichés one can also mention such units as: *to begin with; to sum up; to continue; to tell the truth; frankly speaking; by the way; to be honest; from one side… from the other side; to wind it up; first…second…third; to conclude,* etc. Of course, the scope and variability limits of using these fixed word groups depend on the text thematic content, structural-compositional characteristics, etc.

Discussion

It is natural to assume that just the very position of 'left-hand and right-hand signals of sin-semantics' inherent in these 'discursive elements' [Porchesku, Sergeeva 2021] allows them to mark passing from one (micro) topic to another within the framework of a text unity, as well as to create a well-known parallel gradation of reality assessments, i.e. expressing degrees of reality of any facts stated in each of SPU parts. Thus, these elements can also be considered as a kind of exponents of text statements and, especially, their most informative segments, modal quality assessment, capable of bearing several additional functional charges. Of course, the very possibility of performing several functions in parallel proves a certain independence and largeness of the basic meaning of above presented adverbial and substantive parenthesis-modal elements, with obvious prevalence of a lexical component and a weaker manifestation of a 'conjunction' element in general semantic complex [Pravikova 2001]. The limits of variability and largeness of lexical-syntactic semantic of discourse markers scope, taking into account possible existence of various combinations, phrasal segments and chains: conjunction + conjunctive adverb, conjunctive adverb + parenthesis element, part of a sentence + conjunctive adverb, conjunctive adverb + conjunctive adverb, etc., can be explained by specific features of (micro)texts composition, structuring, as well as by the level of their logical and semantic integrity. Besides, this also defines the possibilities of different language units` functional-synonymic intercrossing. Taking in to account a real scope of randomly chosen scientific medical materials studying, being explained by their topics diversity and heterogeneity, large terminology variability, existing and admitted deviations in composition and structure, as well as formal discrepancies in some matters of practical data treatment, we can`t claim for full completeness and objectiveness of the results obtained (see table).

Table

Forms for summarizing the results of the study

Forms	Narrative review	Regular review	Analysis of published data	Prospective analysis
Creation of a detailed study protocol and evaluation plan	–	+	+	+
Searching for studies in the scientific literature based on certain criteria	–	+	+	+
Quantitative generalization of results	–	–	+	+
Analysis of individual data	–	–	–	+
Protocol of the study and its evaluation	–	–	–	+

Still, our work seems to be a well grounded attempt to apply a complex, combined scientific approach for carrying out a multi-level and poly-aspect research of different lexical-syntactic units potential and actual functional abilities in special discourse-text forming, filling, structuring, accentuation. In conformity with the data and results obtained, these abilities of multi-aspect and poly-functional various language elements use can be observed and most clearly, definitely expressed in the texts of medical scientific articles, which are characterized by such tendencies as: high degree of accuracy, logical order of material presentation, information completeness and density, depth and objectiveness of the analysis carried out. Clear segmentation and linear structuring, high compositional unity of such texts endue constant using of lexical-syntactic markers, or signals, transitions with greater/lesser manifestation of a lexical component in their complex semantics, that provide multilateral (inter)phrasal semantic-syntactic links.

Summary

All the above presented experimental data as well as results of the multi-aspect theoretical and practical analysis carried out on the base of several methods in the frame of given research show quite clearly real potential resources of different language units forming the multi-level structure and lexical-grammar cast of original scientific medical texts. The abundance of common, specialized, terminological LU, organically incorporated into the text canvas individually or in complex groups, their possible functional distribution into different compositional segments and parts, depending on their character, content and purpose, large valence (combinatory) potential of lexical elements constituting various semantic-thematic fields in the frame of text unities present a really specific feature and tendency of special medical discourse genre style-compositional content. As far as possible mixing and intercrossing of different layers and strata language units is concerned, one can state that multi-functional use of LU in different combinations and chains accounts for high discourse-text markers variety and heterogeneity with possible and actual inter-category boundaries disappearance. Thus, we can state a high possibility of using various LU transpositions for providing syntactic bonds and markers in large and non-standard distributions.

In particular, this explains a large functional scope of discourse-text ‘transitions’ of lexical-grammar, parenthesis-modal type, which allows them to play the role of both (inter) phrase connectives and (inter) sentential (phrasal) modifiers, introducing additional lexical nuances of ‘complementing’, ‘addition’, ‘consequence’, ‘logical sequence’, ‘contradiction’, ‘generalization’, ‘opposition’, etc. into total semantics of syntactic complexes and SPU, constituting the base of scientific medical articles texts. It is quite obvious that they can also be considered as markers of text statements and, in particular, their most informatively significant segments, modal quality, capable of bearing the additional functional charge of logical operators, or actual segmentation signals. All this confirms a real poly-functionality of (ad)verbal and substantive parenthesis-modal elements, allowing them to play the role of both ‘lexical-semantic intensifiers’ and ‘modal assessment markers’ within syntactic complexes, structures and SPU that make up the total unity of medical scientific texts.

In general, on the basis of results obtained in the frame of given theoretical and practical research, it is possible to make a full-grounded conclusion that the meta-language of medicine is a special kind of scientific communication, combining a set of both lexical and syntactic specific features with those, common for texts of all scientific genres. Thus, it merits special attention and needs further thorough, multi-aspect and deep study on the base of a large complex of special original English language literature material being used. As far as the findings presented in given research are concerned, they can be also of special interest for specialists working in the fields of functional stylistics, communicative pragmatics, lexicology, discourse analysis.

References

Arapoff 1998 – *Arapoff N.* (1998) The Semantic Role of Sentence Connectors in Extra-Sentence Logical Relationships. *TESOL Quarterly*, vol. 2, no. 4, pp. 243–252. DOI: http://doi.org/10.2307/3585921.

Nicol 2014 – *Nicol A.* (2014) New methods in cancer diagnostics. *Archives of medical research,* 5 (4).

Clarke-Kennedy 1995 – *Clarke-Kennedy A.E.* (1995) The Art of Medicine in Relation to the Progress of Thought. Cambridge, USA: University Press. 50 p. Available at: https://alternativepressreview.org/doc/the-art-of-medicine-in-relation-to-the-progress-of-thought.

Barbel 2018 – *Barbel M.* (2018) On alternative methods of diabetes treatment. *Endocrine reviews,* 4 (4).

Harris 1994 – *Harris M.* (1994) Prentice Hall reference guide to grammar and usage. New Jersey, USA: Englewood Cliffs, 2nd edition, 404 p. Available at: https://archive.org/details/prenticehallrefe00harr_0/mode/2up.

Farengs 2016 – *Farengs C.* (2016) Some observations on thrombosis treatment in elderly patients. *Medical imaging,* 2(3).

Johnson 2017 – *Johnson V.* (2017) Clinical reviews. *Lancet*, 3 (4).

Galperin 1991 – *Galperin I.R.* (1991) Text as an object of linguistic research. Moscow: Nauka, 148 p. Available at: http://library.lgaki.info:404/2017/Гальперин%20И.%20Р_Текст%20как%20объект%20.pdf. (In Russ.)

Kosycheva, Khorokhorina 2019 – *Kosycheva M.A., Khorokhorina G.A.* (2019) Peculiarities of Medical Articles Writing. *Health, Food & Biotechnology,* vol. 1, no. 1, pp. 7–13. DOI: https://doi.org/10.36107/hfb.2019.il.s269. (In Russ.)

Kulik 2018 – *Kulik L.V.* (2018) Composition and functions of scientific vocabulary. Moscow: Progress. (In Russ.)

Lebedeva 2001 – *Lebedeva M.N.* (2001) Semantic and syntactic structure of a coherent text. In: *Romano-Germanic philology*. Pyatigorsk: Izdatel'stvo Pyatigorskogo gosudarstvennogo lingvisticheskogo universiteta, issue 2, pp. 104–116. (In Russ.)

Nedbailik 2015 – *Nedbailik S.R.* (2015) About functional-semantic characteristics of parenthetical-adverbial discourse-text «transitions» of logical type in modern French and English languages. In: *Ancient and New Romania.* Saint Petersburg: Izdatel'stvo Sankt-Peterburgskogo gosudarstvennogo universiteta, pp. 238–245. (In Russ.)

Pastukhova 2001 – *Pastukhova S.E.* (2001) Consecutives in English languages and their functions in natural-scientific written style. In: *Questions of Roman-Germanic and Russian philology: Interuniversity collection of scientific articles*. Pyatigorsk: Izdatel'stvo Pyatigorskogo gosudarstvennogo lingvisticheskogo universiteta, pp. 173–180. (In Russ.)

Platonova 2005 – *Platonova N.V.* (2005) Meta-language features of the medical scientific text. *Lingvisticheskii ezhegodnik Sibiri*, issue 7, pp. 99–107. (In Russ.)

Porchesku, Sergeeva 2021 – *Porchesku G.V., Sergeeva N.A.* (2021) Grammar peculiarities of the text of English scientific articles. In: *Society. Science. Innovations: collection of articles of the XXI All-Russian research and practical conference: in 2 vols. Vol. 1*. Vyatka: Izdatel'stvo Vyatskogo gosudarstvennogo universiteta, pp. 557–563. Available at: https://elibrary.ru/item.asp?id=46138477. EDN: https://elibrary.ru/wpkxnk. (In Russ.)

Pravikova 2001 – *Pravikova L.S.* (2001) Coherent aspects of oral and written discourses. In: *Questions of Roman-Germanic and Russian philology: Interuniversity collection of scientific articles*. Pyatigorsk: Izdatel'stvo Pyatigorskogo gosudarstvennogo lingvisticheskogo universiteta, pp. 181–189. (In Russ.)

Razinkina 1998 – *Razinkina N.M.* (1998) Development of the language of English scientific literature. Moscow: Nauka, 213 p. Available at: https://reallib.org/reader?file=1294851&ysclid=lqnfup7mc1541244830. (In Russ.)

Ryabtseva 2000 – *Ryabtseva N.K.* (2000) English scientific speech. Moscow: Nauka. (In Russ.)

Tayupova 2018 – *Tayupova O.I.* (2018) Text categories and text features. *Vestnik Bashkirskogo Universiteta*, vol. 16, no. 4, pp. 1237–1239. Available at: https://cyberleninka.ru/article/n/kategorii-i-priznaki-teksta/viewer. (In Russ.)

Tayupova 2020 – *Tayupova O.I.* (2020) Modern approaches to texts studying. Ufa: Izdatel'stvo Ufimskogo gosudarstvennogo universiteta. (In Russ.)

Zaitseva 2001 – *Zaitseva O.S.* (2001) Adverbs functional characteristics in sentences and texts. In: *Reunova O.I., Zaitseva O.L., Alimuradov A.R., Alimuradov O.A. Essays on text linguistics*. Pyatigorsk: Izdatel'stvo Pyatigorskogo gosudarstvennogo lingvisticheskogo universiteta, pp. 124–187. Available at: https://elibrary.ru/item.asp?id=25562173. EDN: https://elibrary.ru/vnjuqz. (In Russ.)

Библиографический список

Arapoff 1998 – *Arapoff N.* The semantic role of sentence connectors in extra-sentence logical relationships // TESOL Quarterly, 1998. Vol. 2, no. 4. P. 243–252. DOI: http://doi.org/10.2307/3585921.

Nikol 2014 – *Nicol A.* New methods in cancer diagnostics // Archives of medical research, 2014. 5(4).

Clarke-Kennedy 1995 – *Clarke-Kennedy A.E.* The Art of Medicine in Relation to the Progress of Thought. Cambridge, USA: University Press, 1995. 50 p. URL: https://alternativepressreview.org/doc/the-art-of-medicine-in-relation-to-the-progress-of-thought.

Barbel 2018 – *Barbel M.* On alternative methods of diabetes treatment // Endocrine reviews. 2018. Vol. 4 (4).

Harris 1994 – *Harris M.* Prentice Hall reference guide to grammar and usage. New Jersey, USA: Englewood Cliffs. 1994. 2nd edition. 404 p. URL: https://archive.org/details/prenticehallrefe00harr_0/mode/2up.

Farengs 2016 – *Farengs C.* Some observations on thrombosis treatment in elderly patients // Medical imaging. 2016. Vol. 2 (3).

Johnson 2017 – Johnson V. Clinical reviews // Lancet. 2017. Vol. 3 (4).

Гальперин 1991 – *Гальперин И.Р.* Текст как объект лингвистического исследования. Москва: Наука, 1991. 148 с. URL: http://library.lgaki.info:404/2017/Гальперин%20И.%20Р_Текст%20как%20объект%20.pdf.

Косычева, Хорохорина 2019 – *Косычева М.А., Хорохорина Г.А.* Особенности написания медицинских статей // Health, Food & Biotechnology. 2019. Т. 1, № 1. С. 7–13. DOI: https://doi.org/10.36107/hfb.2019.il.s269.

Кулик 2018 – *Кулик Л.В.* Состав и функции научного словаря. Москва: Прогресс, 2018.

Лебедева 2001 – *Лебедева М.Б.* Семантическая и синтаксическая структура когерентного текста // Романо-германская филология. Пятигорск: Издательство Пятигорского государственного лингвистического университета, 2001. Вып. 2. С. 104–116.

Недбайлик 2015 – *Недбайлик С.Р.* О функционально-семантических характеристиках вводно-наречных дискурсно-текстовых «переходов» логического типа в современных французском и английском языках // Древняя и Новая Романия. Санкт-Петербург: Издательство Санкт-Петербургского государственного университета, 2015. С. 238–245.

Пастухова 2001 – *Пастухова С.Е.* Консекутивы следствия английского языка и их функции в естественно-научном стиле письменной речи // Вопросы романо-германской и русской филологии: межвузовский сборник научных статей. Пятигорск: Издательство Пятигорского государственного лингвистического университета. 2001. С. 173–180.

Платонова 2005 – *Платонова Н.В.* Метаязыковые особенности медицинского научного текста // Лингвистический ежегодник Сибири. 2005. Вып. 7. С. 99–107.

Порческу, Сергеева 2021 – *Порческу Г.В., Сергеева Н.А.* Грамматические особенности текста научной статьи на английском языке // Общество. Наука. Инновации: сборник статей XXI Всероссийской научно-практической конференции: в 2 т. Т. 1. Вятка: Издательство Вятского государственного университета, 2021. С. 557–563. URL: https://elibrary.ru/item.asp?id=46138477. EDN: https://elibrary.ru/wpkxnk.

Правикова 2001 – *Правикова Л.В.* Когерентные аспекты устного и письменного дискурса // Вопросы Романо-германской и русской филологии: межвузовский сборник научных статей. Пятигорск: Издательство Пятигорского государственного лингвистического университета, 2001. С. 181–189.

Разинкина 1998 – *Разинкина Н.М.* Развитие языка английской научной литературы. Москва: Наука, 1998. 213 с. URL: https://reallib.org/reader?file=1294851&ysclid=lqnfup7mc1541244830.

Рябцева 2000 – *Рябцева Н.К.* Английская научная речь. Москва, Россия: Наука, 2000.

Таюпова 2011 – *Таюпова О.И.* (2011) Категории и признаки текста // Вестник Башкирского государственного университета. 2011. Т. 16, № 4. С. 1237–1239. URL: https://cyberleninka.ru/article/n/kategorii-i-priznaki-teksta/viewer.

Таюпова 2020 – *Таюпова О.И.* Современные подходы к исследованию текстов. Уфа: Издательство Уфимского государственного университета, 2020.

Зайцева 2001 – *Зайцева О.Л.* Функциональная характеристика наречий в предложениях и текстах // Реунова О.И., Зайцева О.Л., Алимурадов А.Р., Алимурадов О.А. Очерки по лингвистике текста. Пятигорск: Издательство Пятигорского государственного лингвистического госуниверситета, 2001. С. 124–187. URL: https://elibrary.ru/item.asp?id=25562173. EDN: https://elibrary.ru/vnjuqz.