

## PRAGMATIC CHARACTERISTICS OF SCIENTIFIC AND TECHNICAL TEXTS

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This research paper outlines the main peculiarities of scientific and technical text in terms of pragmatic science. Communicative and pragmatic characteristics of scientific and technical texts are considered in present article as well as other important constituents of pragmatic relations, such as communicative intention, content, composition, participants of scientific communication and signature style. Theoretical principles of pragmatic text research on the basis of national and foreign researchers' concepts have been analyzed. The main participants of scientific and technical communication, namely addresser and addressee have been considered as key constituents required for establishing communicative and pragmatic situation, communicative intention conveying and realization of communicative and pragmatic potential. It has been noted that the process of scientific communication is closely connected with pragmatic aspect and speech communication and should be considered in terms of its main participant – an individual, who acts as a key element of pragmatic meaning actualization. The emphasis has been put on pragmatic functions, namely informative, cognitive, persuasive, explanatory, communicative and didactic as well as their actualization in scientific text. Being in the scope of our interest, scientific and technical texts are built under the influence of extralinguistic factors such as background information or diversified interests of the participants of communication. A great attention has been also paid to pragmatically-notional elements of scientific and technical texts, in particular, metatextual mental performatives whereby pragmatic meaning of the particular message is realized.

**Keywords:** pragmatics; scientific style; communicative and pragmatic relations; pragmatic potential; communicative intention.

**Introduction.** In terms of science and technology, technological advances and development of human's activity aimed at ranging objective knowledge, scientific communication plays a significant part since it performs cognitive function aimed at accumulating, transmission and presentation of information. The means of their realization is scientific and technical text that has been in the scope of interest of many national and foreign scientists, in particular, T. V. Radzievska, F. S. Batsevyeh, N. I. Formanovska, B. Y. Norman etc. Along with studying the main functions and characteristics of the scientific and technical style of speech, the great attention has been paid to the communicative and pragmatic characteristics of scientific and technical texts, their pragmatic potential and subjects of the pragmatic situation.

**The topicality** of the article is envisaged by necessity for further studying of scientific and technical texts in terms of linguistic, cognitive, communicative and pragmatic aspects as well as by the importance of analyzing pragmatic characteristics of scientific texts in the contexts of scientific and technical revolution and in terms of entry of new terms, notions, subjects and phenomena as well as information exchange between national and foreign scientists.

**The aim** of the present research is the analysis of the different ways of pragmatic studies of the text as a result of scientific and technical communication and the study of its pragmatic characteristics.

The main **tasks** are: to analyze theoretical grounds of text pragmatics; to consider the main categories of text pragmatics; to outline and describe pragmatic functions of scientific and technical texts; to study pragmatics aspect of scientific and technical texts.

**Scientific novelty** of this paper lies in the communicative component of the origin of scientific and technical texts as a subject of pragmatic investigation.

**Theoretical grounds of text pragmatics.** Pragmatics is one of relatively new directions of linguistics that comprises achievements of rhetorics, stylistics, sociolinguistics, and psycholinguistics; it is closely connected with the theory of speech acts and communicative technologies as well. Linguistic pragmatics studies language realization with an account of age, sex, public, status and professional characteristics of speech subjects as well as particular conditions, objectives and tasks of speech acts [6, p. 5].

Charles Pierce was the originator of pragmatics and the term itself was firstly used in scientific meaning by Charles Morris in the late 30<sup>th</sup> of the 20<sup>th</sup> century. According to the linguist, the sign theory consists of three parts: semantics – the study of the relation between signs and reality objects, syntactic – the study of the relations between signs and pragmatics – the study of relations between signs and their interpreters. Thus, according to Charles Pierce, pragmatics studies sign behavior in real communication processes and deals with all psychological, biological and social phenomena realized in the course of signs functioning [1, p. 3].

Pragmatic aspect of communication is of great importance, especially in the process of translation, since language is aimed at rendering intentions of the addresser and making particular communicative or pragmatic effect. According to V. N. Komisarov, pragmatic aspect or pragmatic potential of the text is “ability of a text to make a particular communicative effect, evoke pragmatic relations to the content of communication, in other words, to make a pragmatic effect on the addressee” [5, p. 209].

The spheres of interest of pragmatic as a science are: analysis of explicit (overt) and implicit (covert) objectives of utterance; the ability of addressee to understand the content of message; the study of communicative behavior types: communication strategy and tactics, rules for dialoging, application of “indirect” speech acts. Pragmatics relates to both communication interpretation and the selection of its forms under particular conditions [6, p. 8]. This statement has two points of view regarding pragmatic aspect: the position of a subject of communication and the position of an object of communication.

The main constituent of pragmatic communication is the position of addresser in speech environment. The core elements here are ego strength with local and time coordinators as “here”, “now”. Such principle of egocentrism can be realized in speech and all particular speech units and constructions are influenced by pragmatics.

According to the Soviet scientist V. N. Komisarov, any message has a communicative potential, that provides particular information that is passed from the source to the recipient and it has to be interpreted correctly. Receiving information, a recipient enters into relationships with the text that are called here pragmatic. These relations may have different characters – purely intellectual, for instance, that is typical for scientific and technical texts that act as sources of information, facts, data etc. not relating to the recipient personally [5, p. 209].

Pragmatic potential of a text is determined by three factors: a form, a message content and a recipient having no relation to the addresser of the message. It is worth noting that pragmatic relations of recipient towards particular text depends not only on text pragmatics, but the personality of recipient, their background knowledge, previous experience, mental condition, age and status characteristics.

One of the most important factors of text pragmatics is the participants of speech activity, namely subjects of communication and communicative roles. According to I. P. Susov [10], there are two main roles distinguished – the sender of the message (addresser) and the receiver (addressee). It is necessary to note that in the course of speech activity, communicative roles are not equal by their status; they create so-called speech hierarchy headed by addresser. Addressee has lower rank in this hierarchy. In the process of communication, addresser produces communicative and pragmatic environment with an author and their communicative intentions as a core element.

Considering that the text of scientific and technical orientation is in the scope of our research, one should distinguish its dominant function aimed at making a pragmatic effect on the text recipient. This function is counted into consideration by the text author in the process of its creation as in the case of public and polytechnic orientation with its main function to influence the audience.

Thus, since the subject of our present research is pragmatics of scientific and technical texts, the pragmatic aspect of this particular type of communication in details should be considered.

**Pragmatic characteristics of scientific and technical texts.** Taking into consideration scientific achievement of prominent scientists we may state that any text, regardless its style has its

main objective to perform the particular communicative task. Communicative structure of any text, in its turn, depends greatly on external linguistic factors, namely the content and intention of the message, type and way of communication act, addresser and their individual recognition of the objective reality.

To proceed with this thesis, one should turn to the point of view of linguist E. S. Aznaurova, who distinguishes three main levels of pragmatic realization of a text: intention, composition and style [2, p.11].

In the scope of compositional structure of scientific and technical texts pragmatics, the emphasis is put on consideration of content (the message in the utterance) and consideration of personal intention of a message as an individual statement. According to other researchers, in particular N. Pilgui [8], texts of scientific and technical literature has been considered as a type of “institutional discourse” that is connected with formal characteristics of scientific and technical style that is characterized by accuracy, consistency, wide application of technical terms, fixed phrases and stereotype vocabulary [8, p. 118].

Scientific and technical texts are distinguished by the accuracy of propositions, the credibility of conclusions and hypothesis as well as the intention of addressers to show their true position and willingness to convince an addressee. This implies the following formal characteristics of scientific and technical texts: structural completeness and accuracy; formal shortness and consistency; individual author’s style; standard language rules.

According to A. D. Oliinyk, who turns in his research [7] to achievements of G. G. Matveeva, the main formal parameter of scientific and technical texts is planning of text composition that is actualized in its retrocipation (returning to earlier aspects) and anticipation (realization in advance).

Linguistic research proves that scientific and technical texts, as well as any other texts are not devoid of pragmatics since the author of a scientific text establishes a goal to be understood by a reader; in case the goal is not achieved, the communication intention is violated. The author of scientific text has a right to anticipate and even predict the reaction of addresser and “respond” to it, considering it in communication environment and, as a result, the dialogueness is actualized. Thus, to achieve these goals, there are various ways and techniques for expressing scientific meaning in the course of development of functional and stylistic capabilities.

Since the main functions of scientific and technical literature are description, explanation or objective reality indication, pragmatic effect of such a text consists in providing recipients with all necessary information for realizing particular kind of activity of scientific and technical orientation. Thus, if a recipient of a message is able to conduct some experiment or performs some operations with the help of particular device or equipment that were described in the particular text, then it is reputed that the text made an indispensable effect.

Along with informative function of scientific and technical text, researchers, in particular, N. Pilgui [8] distinguish the series of other pragmatic functions, namely informational, cognitive, persuasive, explanatory, referential, communicative and didactic.

Informational function lies in the fact that the participants of communication are experts in particular sphere having special knowledge for understanding and processing information that represent extra linguistic and objective reality.

Cognitive function. Any genre of scientific and technical text represents human’s cognitive activity. Scientific text and discourse is an essential tool for cognition. The task of scientist, inventor or developer is not only to make some discovery, but to inform about accomplishments, put research results into practice.

Persuasive function. In a text of scientific and technical orientation, the main task is to persuade recipients in the validity of information, conclusions and ideas. With the reference to previous research, E. S. Aznaurova [2], notes that pragmatic intention of scientific texts that lies in proving the validity of scientific facts is realized with the help of a number of logical verbal actions.

Explanatory function. The prototypical examples of this function are instructions, guidelines, and descriptions. This function may be also realized through nonlinguistic material such as pictures, diagrams, graphs, schemes etc. that are used to demonstrate or explain a particular phenomenon in texts of scientific and technical orientation.

Referential function. In fact, all scientific and technical literature performs a referential function but a particular attention is given to reference books to provide the recipient with background information.

Communicative function. It is worthy to note that with the help of scientific and technical texts there is information exchange realized between specialists of various fields. This function initiates the communication process between participants of scientific and technical communication.

Didactic function. Scientific text meets the needs of society to receive information in terms of the development of scientific communication. Scientific and technical texts are applied not only for training specialists of a particular sphere, but also specialists of administrative sphere – managers, administrative officers in the field of science or technology.

As it has been mentioned above, the process of communication is closely connected with pragmatic aspect and as it has been noted by N. Pilgui [8, p. 119], speech communication should be considered in terms of its main participant – *an individual*, thus any student or qualified specialist may act as participants of scientific and technical communication. However, regardless the fact who takes part in scientific or technical communication, its main task is to send a message intelligibly with the help of speech techniques complex regarding the level of communication.

It will be observed that according to motivation and orientation, the addressees of scientific and technical texts differ from addresses of other styles, since unlike others they extract information from the text. To prove it, one should cite a passage by T. V. Radzievska “...reading of a scientific text is an element of any professional activity. The last is frequently connected with solving particular tasks of recipient in terms of which they consider scientific article or monograph. A text is considered as a catalyser in the course of solving particular tasks” [9, p. 17].

Meanwhile, with the reference to T. V. Radzievska, A. Oliinyk outlines some weak points of scientific texts pragmatics: “Composition of a text as a message interferes with indirect character of information, unavailability to target particular addressee and take into account background. Scientific texts target, on the one hand, the plurality of people, and on the other hand – this addressing is envisaged by time. The addresser has to put the material consistently and successively” [7, p. 435] Thus, unlike the oral speech, the author targets unknown, abstract addresses and the lack of immediate contact and feedback is balanced out by scientific argumentation and consistent material order.

Having considered the research results of professor F. S. Bazevyh [3] and A. D. Oliinyk [7], it should be noted that one of the pragmatic characteristics of scientific and technical texts is an individual writer’s style that implies the application of general stylistic patterns and fixed phrases, such as *Supposed that...., Providing..., To start with...* etc.

The communicative feature of such patterns is their ability to act as predicates, that, according to F. S. Bazevyh they are called metatextual mental performatives. It is scientific and technical environment where “so-called verbs predicates perform important functions of indication particular intellectual operations and actualization of the subject of scientific information” [3, p. 196].

Pragmatic influence may be illustrated by the following examples: “**To be sure**, observation is now offered carried out at the output of a complex of devices” [4, p.23].

“Leaving aside the power and simplicity of the theory, I **must** briefly resume the problem” [4, p.24].

“**In fact**, given the assumptions implicit in the analysis, several of Crow’s general conditions seem to give just the wrong results” [4, p. 24].

The author of these statements assures the reader that the information is true and reliable, and that the conclusions and thesis have to be realized with the help of pragmatic elements, meaning that

scientific and technical text is built under the influence of extralinguistic factors such as background information or diversified interests of the participants of communication.

Pragmatic aspects of scientific and technical texts also include dialogical character of scientific and technical texts that manifests in frequent communication with the help of pronouns, imperative mood or questions. Thus, for instance, in English language technical communication personal pronouns are frequently used, unlike Ukrainian scientific literature where their application is not feasible due to genre and style peculiarities.

In English scientific and technical texts one may observe such elements of pragmatic meaning as expressivity, emotional character, figurativeness, application of phraseological units, colloquial vocabulary, dialoging, language patterns and fixed phrases etc. The number of such pragmatic elements in Ukrainian texts is lower since it is characterized with a lack of expressivity and strict style.

**Conclusions.** Consequently, in the process of present research, we came to the following conclusions.

The main functional characteristics of the texts of scientific and technical orientation are: the way of information delivery – description, consideration or narration; the degree of information completeness – condensation, shortness, completeness; the degree of generalization – highly specialized, generally specialized, science education etc.

Texts of scientific and technical orientation are considered to be the narrative type of communication in the scope of which pragmatic intentions of writers such as narration, description, imaging or characterization are realized. It may be observed that descriptive utterances with particular grammar patterns and semantics are predominant. Scientific and technical text operates within particular intentional categories: definition, proving, argumentation, repetition, narration etc.

Texts of scientific and technical orientation perform the number of pragmatic functions: informational, cognitive, persuasive, explanatory, referential, didactic, etc.

Pragmatic aspect of scientific and technical texts consists in the author's intention to inform readers on the newest achievements and results of studies and put emphasis on the credibility, reliability and trustworthiness of addressee's position, the accuracy of statements and the authority of conclusions and postulates.

The prospective of further research is seen in the analysis of text pragmatics in terms of pragmatic science.

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**Т. В. Батюта. Н. М. Гордієнко. Прагматичні особливості науково-технічних текстів.**

В статті досліджуються основні комунікативно-прагматичні параметри текстів науково-технічного спрямування, розглядаються такі важливі елементи прагматичних відношень, як задум, інтенція та стиль комунікації. Проаналізовано теоретичні засади дослідження прагматики тексту на основі концепцій вітчизняних та зарубіжних дослідників, що дало змогу сформулювати цілісний зміст статті. В даній статті розглядаються також основні прагматичні категорії науково-технічного тексту, а саме форма, зміст та суб'єкти науково-технічної комунікації. Проаналізовано та розглянуто відносини між основними суб'єктами технічної комунікації, а саме адресатом та адресантом, умови для встановлення комунікативно-прагматичної ситуації, передачі комунікативного наміру та реалізації прагматичного потенціалу. У роботі зазначається також, що процес науково-технічної комунікації тісно пов'язаний з прагматичним аспектом, а мовленнєва діяльність розглядається з точки зору основного її учасника – людини, яка виступає ключовим елементом реалізації прагматичного значення. Прагматичний аспект текстів наукового та технічного спрямування пов'язаний також з екстралінгвістичними факторами, такими як фонові знання або різносторонні інтереси учасників комунікації. Розглянуто основні функції науково-технічних текстів, зокрема інформаційну, пізнавальну, аргументативну, експланаторну, комунікативну та дидактичну. Приділено увагу особливостям прагматичних функцій та їх реалізації в контексті науково-технічного тексту. Зосереджено також увагу на прагматично-значущих елементах науково-технічного тексту, зокрема метатекстових ментальних перформативах, за допомогою яких реалізується прагматичне значення конкретного висловлювання. Наведено приклади реалізації прагматичного значення текстів науково-технічного спрямування за допомогою конкретних мовленнєвих актів. Вказано на різницю між прагматичними характеристиками англомовних та україномовних текстів.

**Ключові слова:** прагматика; науковий стиль мовлення; комунікативно-прагматичні відношення; прагматичний потенціал; комунікативна інтенція.

**Т. В. Батюта. Н. Н. Гордиенко. Прагматические особенности научно-технических текстов.**

Данная статья посвящена основным особенностям научно-технического текста с точки зрения прагматики. В работе исследуются коммуникативно-прагматические параметры текстов научно-технического направления, рассматриваются такие важные категории прагматических отношений как коммуникативная интенция, форма, содержание, участники научно-технической коммуникации и индивидуальный стиль адресанта. Проанализировано теоретические принципы исследований прагматики текста на основе концепций отечественных и иностранных исследователей, что дало возможность целесно сформировать содержание статьи. Рассмотрено отношения между основными субъектами научно-технической коммуникации, условия для создания коммуникативно-прагматической ситуации, реализации прагматического потенциала и передачи коммуникативной интенции. В данной статье научно-техническая речевая деятельность рассматривается с точки зрения главного ее участника – человека, который выступает основным элементом реализации прагматического значения. Отмечено, что прагматический аспект научно-технической коммуникации связан также с экстралингвистическими факторами, такими как фоновые знания или разнообразные интересы участников коммуникации. Рассмотрено основные функции научно-технической коммуникации; акцентировано внимание на прагматических функциях и их реализации в научно-техническом тексте. Определены основные прагматически-значимые элементы научно-технического текста, такие как метатекстовые ментальные перформативы.

**Ключевые слова:** прагматика; научный стиль; коммуникативно-прагматические отношения; прагматический потенциал; коммуникативная интенция.