

**DISTINCTIVE DISCOURSE FEATURES IN SCIENTIFIC LANGUAGE:
INSIGHTS FROM NANOTECHNOLOGY**

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<https://doi.org/10.5281/zenodo.14205253>

Abstract. *The article looks at the problem of scientific language discourse parameters, in which new discourse characteristics of scientific language have been identified in relation to the time, space and communication settings on the sample of nanotechnology science. The findings of the study will provide further research in linguistics for discourse analysis related with science disciplines.*

Key words: *discourse, science language, terminology, nanotechnology, features, parameters.*

Annotatsiya. *В статье рассматривается проблема параметров дискурса научного языка, в которой новые дискурсивные характеристики научного языка были выявлены в связи со временем, пространством и коммуникативными предпосылками на примере науки о нанотехнологиях. Результаты исследования послужат основой для дальнейших исследований в области лингвистики для анализа дискурса, связанного с научными дисциплинами.*

Ключевые слова: *дискурс, язык науки, терминология, нанотехнологии, особенности, параметры.*

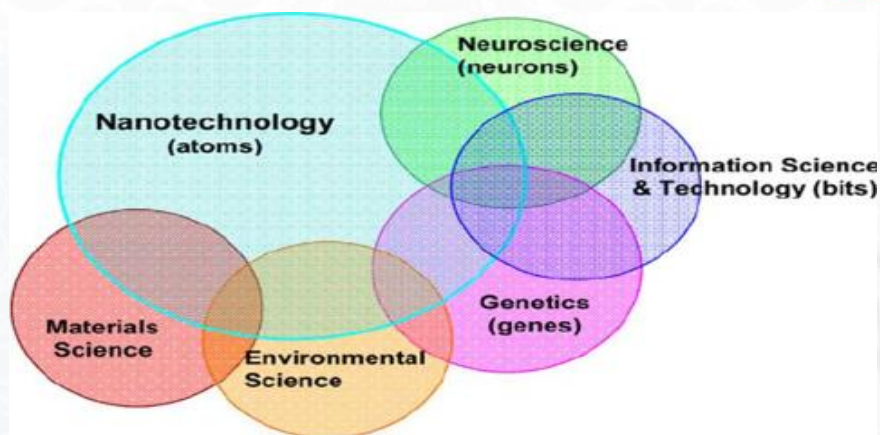
For a long time, humanity has sought to know the unknown things in the world. Such interest shown by people since ancient times has changed from time to time; new discoveries have turned into scientific and technical progress, and inventions that have penetrated into all spheres of human activity. It is known that progress in all areas of scientific knowledge inevitably affects changes in the language system, first, its lexical level.

The expansion of the terminology of a certain field is a factor indicating the level of scientific and technological development. One of the most promising technologies of the 21st century, developed on the basis of the effective application of the theory of nanoscience, is nanotechnology, which is currently being used in natural and artificial research in almost all fields as a rapidly developing fundamental and applied science [12]. Discourse studies first started to develop in France, where it is

known as *analyse du discours*, a name which goes back to an article by Zellig Harris [6]. Other scholars such as N.Chomskiy, M.Bakhtin, J.Sinklair, D.Hymes were also credited as pioneers of discourse studies [6, 3, 1, 12]. Discourse of scientific language is investigated in the works of Thomas Kuhn, M.A.K. Halliday, B.Bernstein, J.Swales, G.Myers, Bruno Latour and S.Woolgar, M.Foucault, approached the discourse of scientific language from various perspectives, contributing to our understanding of how science as a field shapes, organizes, and communicates knowledge [8, 5, 2, 13, 10, 9, 4]. For example, register, genre and moves in research settings (1990), functional grammar [Halliday] are worth of attention. However, Russian linguist V.Karasik, who developed parameters determining the notion of scientific discourse, only revealed the concept of scientific discourse itself. In this study, we matched Karasik's parameters of scientific discourse with nanotechnology and revealed its further research opportunities for linguistics.

Russian linguist V. Karasik [15], the founder of the concept of scientific discourse, considers scientific discourse to be a large sum of various discourses determined by three major parameters. The first of these parameters is *relativity to scientific field or fields* - scientific discourses in different disciplines have their own style, which is closely related to the relevant field, for example, physics and mathematics texts are significantly different from humanities. The second parameter is the *genre* characteristics of the texts, which are determined stylistic diversity - the type of information presented and the purpose of presentation. The third parameter is to show in the new model the existence of a terminological phrase, combination, cliché, etc., which represents a whole *system of communicative character*.

Therefore, according to Karasik's first parameter regarding the relativity to scientific field or fields, the integration of nanotechnology in both theory and application has a special meaning in the scientific discourse of nanotechnology. Research of nanotechnology involves multidisciplinarity whereas its application involves crossdisciplinarity, which for discourse analysis the first is considered more important than the latter one (see figure 1).



Rasm 1. Relationship between nanotechnology and other sciences¹

As the second parameter of the scientific discourse, Karasik identifies the genre, where the type and the purpose of information presented for a particular communication setting.

Scientific discourse is a product of mental activity, created by researchers (that is, individuals). Scientific texts with a cognitive function are distinguished by consistency and clear presentation of the text. French linguist O. Regent [11] states that it is only because of research scientists that any object and subject can be viewed from a scientific point of view, and only the discourse of a researcher can give it a scientific tone and characteristics and create a scientific discourse. Regent expresses this idea through the figure 1 below.

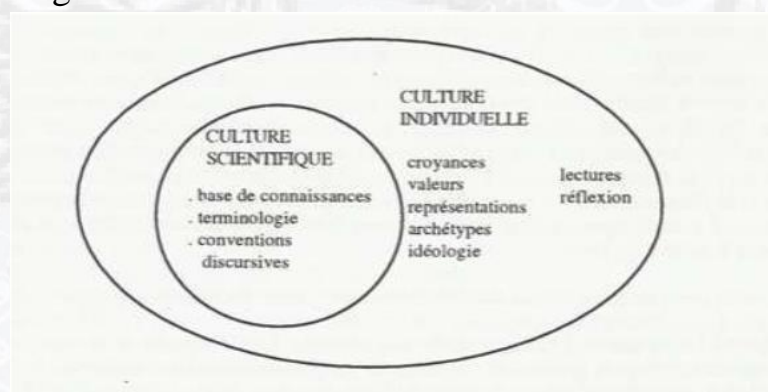


Figure 1. Regent's picture of "Scientific Discourse"

¹ Sh.Alpert. Neuroethics and Nanoethics: Do We Risk Ethical Myopia? *Neuroethics*. Springer Science + Business Media 2008. 1:55–68. p. 58.

This study of Regent is important for the development of science, especially new science, in a certain period and country. It is not an exaggeration to say that it first appeared in certain continents and a certain group of scientists, that is, in communication, and formed its own terminology, and at first esoteric communication, and then with other scientists in publication or the resulting communication creates a unique scientific exchange, resulting in exoteric communication. Regent's opinion also applies to the new science of nanotechnology, and it can show not only its transcultural scientific discourse, but also its unique scientific picture of the world.

In this study, we identified how the type of communication forms scope for communication and auditory:

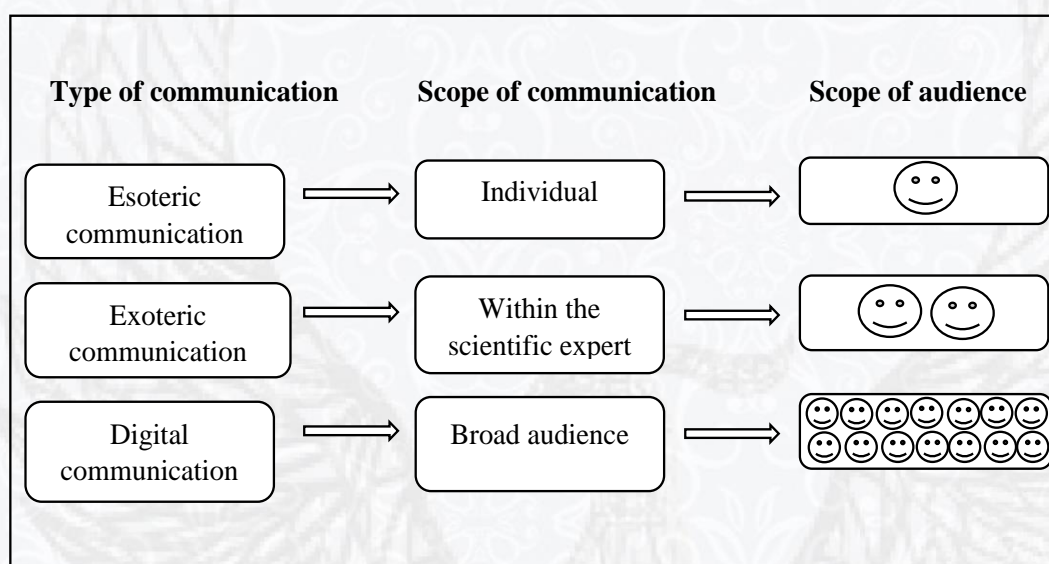


Figure 2. Scientific discourse communication and its scope

The third parameter determines how terminological, phrase, compound, cliché, etc., represents the whole system of the communicative character in the scientific discourse. The system involves the cyclic processes illustrated in figure 3.

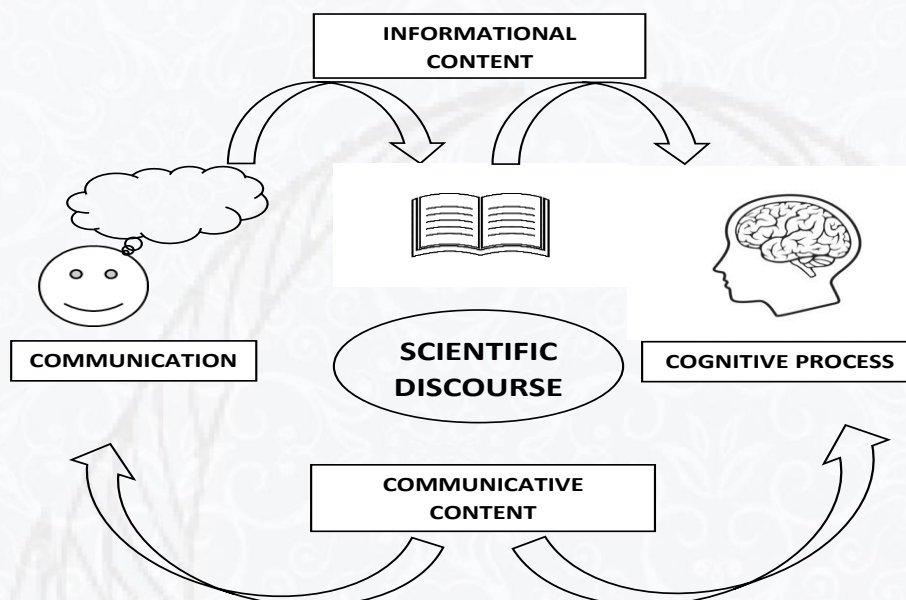


Figure 3. Communicative cycle scheme of scientific discourse

Communicative intention is an esoteric communication formed by a person/individual in his time and space, with the intention of sharing his ideas and concepts with the scientific community. In the formation of this process, the scientific concepts formed in the mind of that person in relation to the studied object and process are formed under the influence of the environment and culture of their place, time.

Informative content is the process of bringing scientific ideas and thoughts into written (text) or oral (speech) form for the purpose of sharing and/or popularizing.

Cognitive process - understanding and understanding the content and essence of information presented in written (text) or oral (speech) form.

Communicative content is a stage that covers all processes and creates a scientific discourse - communicative content between the sender and receiver.

Here, not only the coherence of all processes, but also the value, consistency, accuracy, and use of terminology of the scientific information constituting the scientific discourse in each process is determined. Thus, we have described the integrity of the scientific discourse in the cyclic scheme of Fig. 1, and it is necessary to focus on the lexical units that ensure this integrity - terminology and its features.

Therefore, we determined the features of the nanotechnology discourse according to the parameters of the scientific discourse. The first parameter was

determined by the level of specialization, multidisciplinary in the discourse of nanotechnology and its application in many fields. The second parameter focused on the establishment of scientific communication in the nanotechnology genre and its form. As the communication has changed from the esoteric communication of an individual to the exoteric communication and to the present day digital communication determines the speed of popularization of the scientific discourse. The cyclic scheme analyzed according to the third parameter of the scientific discourse created a solid basis for analyzing the terminology of any scientific, including nanotechnology in the discourse aspect.

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