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## **Argumentative patterns of specialized academic discourse produced in English by Russian scholars**

Since English is the international *Lingua Franca* in research institutions all over the world today, linguistic analysis of academic discourse produced by the representatives of different cultures and language groups in English gains special importance to make scientific communication possible and successful. Different traditions of academic writing call for different linguistic representation of the same material, which can become an obstacle for understanding of the content.

One of the features of academic discourse that is very important for its understanding is its argumentative structure that enables the reader to follow the writer's reasoning, assess its validity and consequently accept or reject his/her ideas. The overall persuasive effect of academic discourse depends on how acceptable the writer's argumentation is for the addressee.

The present research is devoted to the analysis of argumentative patterns used in the academic discourse of research articles in physics and biology produced by Russian scholars in English for the international audience.

The corpus consisted of 40 texts of research articles written in English by the Russian scholars: 20 articles in physics and 20 articles in biology. The articles were taken from international scientific journals (Journal of Experimental and Theoretical Physics, Molecular biology, Annals of Human Genetics) and edited volumes published by international publishers.

The theoretical framework of the argumentative analysis of the articles in the corpus was the pragma-dialectical approach of the Amsterdam school of argumentation (Eemeren, van, and Grootendorst 1984, 1992). The classification of the types of arguments used is based on the typology elaborated by Russian argumentation scholars (Алексеев 1991; ИВИН 2000, Хазагеров, Ширина 1999) and the general logical definitions of arguments. The types of arguments used in the corpus were distributed into groups according to classification suggested by A. Ivin (ИВИН 2000), that includes the following:

- Empirical argumentation
- Theoretical argumentation
- Contextual argumentation
- Epistemological argumentation

The results of classification of the arguments of our corpus according to the above typology are presented further in more detail.

### **Empirical argumentation**

According to Russian standards of academic writing, in order to sound convincing a theory or a conclusion shall be preferably based on the collected data. That is why in the analyzed research articles the dominating form of reasoning was empirical proof. This type of argumentation is dependent on evidence produced by observation or experiment that are observable by the senses. Arguments of this group include direct empirical proof, indirect empirical proof, induction, analogy, examples and statistics.

In the articles written in English by Russian scholars, the dominating argumentation pattern of this group of arguments was direct empirical proof, a variety of inductive reasoning whereby the thesis is confirmed by direct observation of the phenomena. Other argument types in this group are much less favoured by Russian writers of academic discourse in English.

### **Contextual argumentation**

The second in frequency group of arguments in the analyzed corpus is contextual argumentation. The arguments in this group are based on existing conventions, that is why acceptability of such arguments depends on the context and on the audience. The two varieties of this type of argumentation registered in our corpus of academic discourse produced in English by Russian scholars are the argument to authority and the argument to fear.

In the analyzed articles, the first in frequency type of proof in this group is the argument to authority. In specialized academic articles it is presented as references to previous research and opinions of other

scientists, and is actually a compulsory element of any research article. On the contrary, argument to fear is not recognized by the standards of scientific writing. However, our analysis showed that Russian scholars do use this argument in their academic discourse in biology and physics, the disciplines dealing with life and death of humankind.

### **Epistemological argumentation**

Epistemological argumentation that deals with the proof of normative and evaluative utterances, also proves important for the academic discourse produced in English by Russian scholars. Proof of the value, importance and feasibility of the conducted investigation was a compulsory component of each analyzed research article, and so were the arguments proving the necessity of the actions taken to study the chosen subject. In our corpus epistemological argumentation included teleological proof, facts used as proof of evaluations and facts used as proof of actions.

The dominating position in this group is occupied by the teleological proof, where the end justifies the means. Facts used as proof of evaluations and actions are prohibited by the laws of formal logic that strictly divides the sphere of facts on the one hand and evaluations and prescription of actions on the other. However, informally, in everyday reasoning this type of proof is used very frequently, and these arguments were also included by Russian writers into their specialized academic discourse.

### **Theoretical argumentation**

Theoretical argumentation is the core of classical formal logic. Correct use of such arguments guarantees a valid conclusion independent of sense experience. However Russian writers of academic discourse in English consider them too abstract or too complex, as this group has a low frequency of use in the analyzed corpus. In the analyzed articles theoretical argumentation was represented by methodological proof, deduction and systemic proof.

Specialized academic discourse includes as an obligatory component the information on the methodology used, which is at the same time a methodological proof of the main thesis, whereby the claim is proved by a reference to the absolutely reliable method by which it has been obtained. This group also includes such rigid forms of reasoning as deduction and systemic proof, both were used in our corpus in an insignificant number of cases.

Thus, analysis of the compiled corpus revealed a significant empirical bias of the writers. The largest group of the arguments used was based on the direct observation of phenomena (empirical argumentation). Contextual argumentation and epistemological argumentation normally considered inferior by classical logic are also frequently used in the academic discourse in our corpus. On the contrary, formal theoretical argumentation had the lowest frequency rate and limited sphere of use.

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