

UDC 811.111

## Voicing authorial opinion in scientific discussions

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### Abstract

Discussion as a central scientific practice to the construction and translation of knowledge is at the core of scientific communication. On the other side, scientific register of communication features formal, functional, genre, style and discourse specific peculiarities due to communicative goals and ethos of science discussion. Thus, non-native novice scientists face cognitive, rhetoric as well as ethical challenges in communicating their opinion in English. This sociolinguistic aspect should be taken into account when teaching students to voice their opinionated statements and making them think through grammatical correctness, communicative context and pragmatic functions. Growing interest in manifestation and extraction of personal state in languages have given rise to studies on grammar and semantics of opinionated utterances. However, little research has been made into communicative functions of these subjectivity elements from the author's perspective. This paper focuses on communicative and pragmatic functions of the most frequent language resources used to introduce authorial opinion in the course of scientific discussion. The language data comprises published proceedings of scholarly discussions, theses, reviews and research papers. Our research shows that these devices allow the author to solve various communicative goals and tasks, affect argumentative power of the utterance as well as formulate, differentiate and translate various types of knowledge into the text.

### For citation

Makhmutova A. (2017) Voicing authorial opinion in scientific discussions. *Kul'tura i tsivilizatsiya* [Culture and Civilization], 7 (2A), pp. 301-311.

### Keywords

Scientific communication, English language, speech, opinionated text, authorial opinion.

## Introduction

In science as a social practice exchange of opinion motivates authentic construction of knowledge that is uniquely scientific. Discussion is at the core of how scientific theories gain acknowledgment, i. e. scientists are constantly engaged in the exchange of their ideas, a process that happens informally during collaboration, lab meetings, and symposia and, formally, as part of the process of peer review [Latour, Woolgar, 1986, 152-153]. But scientific discussion involves not only negotiation of validated knowledge but also their critical re-evaluation, contestation or comparison of conflicting opinions. Therefore, ethos of discussion as a central scientific practice to new knowledge endorsement is of great interest in communicative language teaching. It is claimed that the "societies that sustain their competitive edge in the coming decades will be "post-scientific" societies. In such a society, skills that are highly valued will be the ability to draw on a range of disciplinary knowledge, to think creatively, and to evaluate and discuss new ideas" [Kind, Osborne, 2017, 9]. Thus, participating in scientific discussions needs to be skilled and assessed in universities.

Nowadays discussions in science involve both oral and written interactions. In particular, written forms are more favorable, since discussions through publications could improve authorial reasoning, consistency and credibility. Lazar highlights the benefits of written argumentation, "in written disputes, in response to an article or book, there is an opportunity to provide more convincing counterarguments, arguments, etc. Moreover, reading texts enhances possibilities for all forms of dialogic interaction, since it allows any scientist choose a circle of disputants, followers and possible opponents, conduct interlocutory discussions with them and simultaneously stay alone with their own thoughts" [Lazar, 2011, 244]. Accordingly, in our research we refer to scientific discussion as an ongoing struggle of opinions in both oral communication and scientific publications.

One way to invite the addressee of the text/speech to a dialogue with the author is either to refer to someone else's opinion or voice your own judgement. Due to language devices introducing one's opinion into scientific texts, authors could express their attitude to the report as well as their intention to enter into a scientific debate with the addressee of the speech. When making a particular statement on the matter, participants of scientific discussions want to communicate their viewpoint and receive the feedback or gain support of research community.

In the sociology of science *scientific opinion* is often used as a synonym to *scientific consensus* and implies some consistently accepted position at a certain time by most scientists specialized in a given field. In this way it can be related to *public opinion*. However, spotting consensus is not an easy task, as science is often "partial, temporally contingent, conflicting, and uncertain" [Wynne, 1991, 119]. Moreover, some level of contestation is a fundamental aspect of the knowledge construction process. Scholars dispute previous findings or point to literature gaps to establish their own footholds in the field [Shwed, Bearman, 2010, 818]. Therefore, materials focused on

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the practices of explanation and argumentation have recently permeated teaching of English for academic purposes. However, many of these materials focus exclusively on construction of arguments and critique and tend to neglect the language to voice them.

In philosophy *opinion* is defined as one of the most important manifestations of social and individual consciousness; a set of interrelated judgments that include hidden or explicit attitude, evaluation of phenomena, processes, events and facts of reality. Opinion is perceived as an ambiguous and paradoxical phenomenon of consciousness since it is simultaneously objective and subjective, cognitive and axiological, logical and psychological, theoretical and moral [Ivin, 2004, www].

In epistemology of science *opinion* refers to the expression of the idea of a fragment of reality, not having a sufficiently complete and reliable justification. [Kasavin, 2009, 1197–1198]. But in science alternative or standalone opinions, especially those that are only being formed, could often serve as a regulating idea, a vague hypothesis or a hint of direction chosen "by the feel, etc." [Comte-Sponville, 2001, 316]. M. Dmitrovskaya also underlines neutralisation of knowledge/opinion opposition in science discourse, "In the works on scientific knowledge the second member in the opposition *knowledge vs. opinion* is replaced by such terms as *hypothesis, theory, assumptions, idea*, etc. At the same time boundaries between them and scientific knowledge become unstable, and, respectively, the use of the words is blurred" [Dmitrovskaya, 2003, 51-55].

Linguists define *opinion* as a judgment in which the speaker expresses his point of view on the "state of things" in the world [Ivanova, 2007, 26]. As a mental unit, opinion is manifested as a process and the result of thinking; consequently, linguistic means introducing opinionated judgments reflect person's awareness of thinking and represent its result [Ivanova, 2008, 128]. These means express relationship that links the subject of the opinion to all variety of judgments (attitudes, assessments) which can further make up the gist of the opinion. On the other hand, opinions are closely connected with the socio-cultural situation, because they reflect "a set of ideas, views, "feelings" of the community of people of a certain era, geographical area and social environment, unique psychological structure of society" [Goroshko, 2003, 28]. Therefore, it is necessary to study these means within the framework of the cultural context contributing to formation of the linguistic personality as a subject and object of evaluation.

Thus, analysis of linguistic means articulating personal opinion in the text of scientific discussions contributes to deeper understanding of interrelation between mental spheres of language and the system of social attitudes and norms including communicative values of scientific and academic community. The present study includes analysis of language devices introducing authorial opinion and which are readily used by the speaker/writer in scientific debates, in addition to grammatical expressions of opinion.

The scope of research is limited to English scientific texts. The language data comprises published proceedings of scholarly discussions, theses, reviews and research papers in natural sciences. Our main task is to examine structural, semantic and pragmatic properties of English

language devices introducing the author's opinion into the utterance. For the purpose of this work, we follow conceptualization of *scientific opinion* as a description of the problem or phenomena proposed as possible, therefore, validity of it in the framework of accepted norms (for knowledge) is considered either missing or incomprehensive [Meshcheryakov, Zinchenko, 2008, 402].

### Expression of personal opinion

Ongoing scientific discussion involves various situations for communicating personal opinion such as expressions of doubts, objections, approvals, agreement and disagreement or clarifications, commenting, confirming, etc. Discussants can either switch to a new topic or move to the next stage of the discussion, correspondingly, express their opinion, summarize what has been stated earlier, frequently at end of the discussion. For example, in (1) the speaker expresses his attitude at the start of the dialogue (*I just wanted to say*) and *really excellent* expresses emotional evaluation of the report of the other scientist: (1) *Well, I just wanted to say this is a really excellent report that contributes a lot to this overall issue. I'm going to piggyback with my research.*

Throughout discussions one can make an addendum to previous statements by a phrase like *to add a comment* or clarify by a more extended structure: *I want to offer a clarification*: (2) *If I may, I will add one more comment in relation to an earlier statement made by Dr. D.* (3) *I want to offer, if not a definition of a key term, at least a clarification of it. Style has been characterized in terms of a contrast between the variable and a constant. But this constant is variable.* Similarly, in the course of discussion speakers tend to express their approval and agreement: (4) *I agree basically with Mr. J., I think your suggestion, is a good one and one which should be fairly easy to test.* Alternatively, they can articulate disapproval, opposition or objection: (5) *Research is frequently classified as either basic or applied. This seems to me an improper classification.*

Uncertainty tends to be stated by the verb *to doubt*: (6) *In the sea, I rather doubt that many species are transported by means other than the currents, but we know that fresh water species may be distributed by other means.* The end of discussions is regularly signaled by a phrase like *In conclusion, I should like to, let me conclude*: (7) *Let me conclude by arguing that it is a mistake to see the high welfare use rates of immigrants as a moral failing on their part...*

As we can see (1)-(7) represent situations that necessitate expression of opinion or comparison of different views, in other words, participation in discussions leading to the truth or knowledge elicitation.

Let us consider language resources participants of scientific discussions use for communicating their personal opinion. For the purposes of this study, we distinguished lexical, grammatical and stylistic means of expressing authorial opinion.

Lexical means of opinion expression mainly include various classes of verbs. Opinion predicates introduce a proposition, the proposition is a product of the mind, i. e. opinion belongs to the field of reason. But, as truly noted by N.D. Arutyunova, in our inner world there are no clear

boundaries separating mental and emotional spheres, will and desire, perception and judgment, knowledge and belief [Arutyunova, 1989, 7-31]. Judgment can be result of any kind of research activities: observations, impressions, feelings, comparisons and contrasts, mental operations, subjective inclinations, tastes and interests of the individual. Thus, it is not surprising that opinion in scientific communication could be expressed by predicates of different classes such as verbs of communication: *say, tell, suggest, object, agree (disagree)*; verbs of thought and cognition: *think, believe, suppose, consider, understand (see), doubt*, etc.; verbs of sense perceptions and feelings: *see, feel, etc.* These verbs can be used in positive and negative forms.

Speakers in scientific discussions mainly introduce their opinion by verbs of communication; the most frequent ones are *say, suggest, agree/disagree*: (8) *I would like to say that at higher energy we have found that sometimes the Born approximation is actually a better absolute fit than the distorted wave approximation.* (9) *I do not say that such animals will have a hierarchical mechanism.* With the verb *to suggest* the speaker puts forward the idea as in: (10) *I am suggesting that the linguist and literary man have very different professional roles.*

In the following dialogue, three participants of the discussion express agreement with the opinion of the fourth speaker using various lexical means: (11) *H.: Mr. S.'s point is **very well** taken. W.: Yes, I **saw** the relevance in that. B.: I also **agree** with what Mr. S. said about the necessity of bringing in the considerations of meaning.*

While denying the verb *agree* is used either in the negative form or in the form of *disagree*: (12) *I don't quite agree that the action spectrum of phototaxis is the same in all organisms. B.'s experiments with desmide indicate a very different spectrum.* (13) *B.: I would like to disagree with that slightly.*

In addition to verbs of communication, the next frequent class in scientific communication comprise verbs of thought: *think, believe, consider*. For example, when using verbs *think* and *consider*, scientists explicitly state their personal opinion: (14) *I **think** that one could accomplish this task in from one to four weeks depending upon one's knowledge of the mites involved.* (15) *G.: There must be another way of patterning it besides the simple interaction of neurons and axons. C.: I **don't think** so.* (16) *Investigations on the biology of ground water mites have revealed several factors that I **consider** to be limiting in the dispersal of these animals.* By *believe* they tend to express their conviction: (17) *I **believe** N. is mistaken in dividing speech acts so decisively. W.: This is based on some very simple assumptions of what memory is.* (18) *P.: Simple combinatorial assumptions that I think are not convincing at all. As a matter of fact, I **don't believe** it.*

Verbs of cognition and sense perception *understand, see* and *feel* are also frequent, especially in oral communication: (19) *I can't quite **understand** how it is possible to count flagellates that are moving. V.: Loss of myofibrils and building up of myofibrils is going on continuously in normal skeletal muscle cells – so I **do not see** that the word "degeneration" can apply here solely on the basis of loss of myofibrils.* (20) *The small size of mites makes them especially vulnerable to humidity changes and I **feel** that such forms of regulation and restriction over water loss are of prime importance in clover mites and undoubtedly in most other Acarina as well.*

Adverbs *surely* and *hardly* can enhance the speaker's attitude, e. g.: (21) *K.: The published illustrations are hardly convincing on this, point.* (22) *A: The lamp surely doesn't emit very much UV. It is a tungsten filament lamp.*

Another category of devices used to introduce authorial opinion includes conversational formulas such as *I am afraid, I fear, to my knowledge, as far as I can see, as far as I can judge* etc. They constitute lexico-syntactic level of language resources. These conversational formulas refer to so-called ready-made units and they are often found in scientific discourse. Let us have a closer look at them and analyze their functions in scientific debates. For instance, *I am afraid* in (23) is used to mitigate the denial; *to my knowledge* in (24) facilitates toning down. (23) *So far microbiology has contributed little to the present political tension. Apparently it has not easily lent itself to evil purposes. Will it remain a politically indifferent science? I am afraid not. There are danger signals ahead, plainly visible to everybody.* (24) *J.: Would it be possible to measure the binding sites for LRF in the pituitary in the course of development? G.: To my knowledge, it has not been done. It will not be simple, but the technology is available.* The similar meaning of toning down have *as far as I know, as far as I can see* in (25) – (26). On the other hand, *so far as I can judge* expresses mere opinion of the speaker with no claim to indisputability (27): (25) *G: Is there any information as to how anaerobic black spruce bogs really are? L.: Not as far as I know, but our willow bogs are very anaerobic.* (26) *B: That is the criticism K. made of the oxone theory. But as far as I can see, it is incorrect.* (27) *So far as I can judge, there are two psychological shifts that must be made.*

As we can see these formulas soften the speakers' statements. In this paper we analysed only one type of them, which have been frequently found on scientific discussions. In fact, there are much more in the English language. On the one hand, these formulas seem to complicate the speech and do not convey any substantial information. But it is not always true. This case represents natural language redundancy and parenthetical remarks such as *I mean to say, so far as I can judge*, etc. are referred to "speech fillers" which tend to perform phatic function.

Oxford Dictionary of English [Oxford dictionary, 2010, www] defines *phatic* as denoting or relating to language used for general purposes of social interaction, rather than to convey information or ask questions. According to *Encyclopedic Reference Dictionary of Linguistic Terms and Concepts*, phatic function of the function of speech, that maintains verbal contact by different means of pragmatic insertions such as parenthetical words, phrases or clauses [Tikhonova, Khashimov, 2008, 353]. O.S. Akhmanova describes this function as contact-making refers it to situations where the speaker is not immediately seeking to convey information to the listener but only prepares the listener to perceive information, draws their attention, etc. [Akhmanova, 2004, 508].

From communicative perspective phatic formulas can be classified into four groups: 1) for activating the listener's attention; 2) for activating the listener's brainwork in order to provoke the necessary associations and connections; 3) for creating an emotional uplift, enhancing interest in listening; 4) outlining the issues in question, so-called self-limiting formulas. Thus, (28) demonstrates the first function of the phatic formulas, i. e. drawing listeners' attention to the issue dis-

cussed: (28) *I mean to say that growth inhibition after brain possible is not caused by the placenta that lacks growth hormone.*

Double negation, i. e. the use of the particle *not* before the word with a negative prefix, can be considered the morphological-syntactic way of expressing authorial opinion. For example, (29) shows the speaker's full agreement with the opinion of the dialog partner: (29) *Mr F. and I are not in disagreement.*

The use of subjunctive refers to a morphological means, which contributes to cautious, non-intrusive articulation of one's opinion. Such language is sometimes known as "hedging". As seen from (30) – (32) such "hedging language" is used to politely disagree with the opponents since it softens disagreement. Common structures for hedging include modal verbs *should* and *would*. Let us consider some examples below: (30) *I should not like to use the term "degeneration" either. "Resorption", perhaps, might be a better term.* (31) *Well, I see things there that look like viruses. I would doubt that they are causing the tumor.* (32) *Dr. S., are you making or do you plan to make an investigation on the microflora that may be invading the raw litter? If so, I would assume that the substrate differences involved with dogwood oak and so on, concern this food source which may be giving the preferential attitude of the arthropods.*

At present some subjunctive verbal phrases have turned into clichés: *I should like to point out, I should like to suggest, I would like to ask a question, etc.:* (33) *I should like to point out that the traditional metrics can account for Pope's line the proper study of mankind is man.* (34) *I should like to suggest that S.'s interpretation of A.'s problem is very superficial.* (35) *I would like to ask a question about the nature of the autofluorescent cells in the hypothalamus.*

Our language data revealed some common stylistic techniques, which are used to convince the addressee of the authorial opinion. The most typical technique used by discussants is palilogy or repetition of ideas. We differentiated full, partial or synonymic. In the example below the repetition of the word *reason* is reinforced by the attribute: (36) *Now I have a reason, an irrefragable reason, for saying that the film can not keep its tensile strength to 1/100000000th of a centimeter.* Sometimes speakers repeat words with closer meanings: (37) *I say, this is a very great wonder; but I do not admit, I do not feel, that the investigation of the subject is completed.*

Another regular stylistic technique employed to enhance the power of argumentation or engagement of the addressee of the utterance is irony. For example, in (38) the word *plastic* is repeated in a new context, which gives it an ironic coloring: (38) *By the way, the increased number of satellite cells in a denervated muscle may be the morphological aspect of the so called «plastic» state if we adopt the terminology mentioned by Dr. G. this morning. I do not really understand this "plastic" terminology. I think that what the Russian school means is that, if you denervate, you get an increase in the number of free cells in muscle which then allows it to regenerate better than it otherwise would. Is that correct?*

Here are some more examples of using irony: (39) *I cannot suppress a **gnawing doubt that a truly "radical" psychology will need to rest on surer foundation.*** In (40) we can see that words *argued elegantly* and *simple explanation* contrast two different points of view and different explanations of the same phenomenon; with one of them is ridiculed: (40) *Dr. B. has **argued very elegantly** that involuted doughnut shaped cavities arise from the necessity of forming a double connected region in the flow field. Is there any alternative **simple explanation** of why these small high-speed jets penetrating the cavities should occur?*

## Conclusion

Thus, we have considered the most frequent and typical ways of expressing the speaker's own opinion as a participant of scientific discussion. The language data demonstrates they follow universal rules of voicing authorial opinion in the English language, but at the same time, they have a number of peculiar features. In scientific communication these devices allow the author to solve various communicative goals and tasks, affect argumentative power of the utterance and also formulate, differentiate and translate into the text various types of knowledge reflected in them. The goal of foreign language teaching is to make these elements of scientific speech an active background of academics in order to further benefit from them in real scientific discussions, both oral and written.

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## Выражение авторского мнения в научных дискуссиях

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### Аннотация

Обсуждение, будучи центральным элементом формирования научного знания, является основой научной коммуникации. Однако начинающие ученые сталкиваются с когнитивными, а также этическими проблемами в передаче своих мыслей на английском языке. Данный социолингвистический аспект следует учитывать при обучении студентов высказывать свою точку зрения и думать посредством грамматики, коммуникативного контекста и прагматической функции. Растущий интерес к самовыражению в языке увеличил число исследований грамматики и семантики субъективных высказываний. Тем не менее, с точки зрения автора, исследований, посвященных коммуникативной функции этих субъективных элементов, недостаточно. Данная статья посвящена рассмотрению коммуникативно-прагматической функции языковых ресурсов, используемых для того, чтобы ввести авторское мнение в ход научной дискуссии. Языковые данные включает опубликованные материалы научных дискуссий, диссертации, рецензии и научные работы. Исследование показывает, что эти материалы позволяют автору решать различные коммуникативные цели и задачи, а также помогают сформулировать, дифференцировать и перевести различные типы знания в текст.

### Для цитирования в научных исследованиях

Махмутова А. Voicing authorial opinion in scientific discussions // Культура и цивилизация. 2017. Том 7. № 2А. С. 301-311.

### Ключевые слова

Научная коммуникация, английский язык, речь, текст самовыражения, авторское мнение.

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