Variation of the Types of a Popular Scientific Online Article’s Subject Organization as a Way to Involve the Reader in its Subject Content

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1. Introduction

The target of the popular scientific sphere of communication is to deliver scientific knowledge to non-specialists. The researchers of the popular scientific (sub)style of the Russian language write about this (M.N. Kozhina, G.Ia. Solganik, etc.). The researchers, taking into account the actual functioning of modern popular scientific texts (for example, V.G. Kostomarov, L.K. Graudina, E.N. Shiriaev, I.I. Baranov), identify the second target that is the impact, or the awakening of interest in the reader. In fact, the transformation of the channels of communication in recent decades, the emergence of online communication...
have led to the appearance of popular scientific texts in non-specialized spaces, such as the news feeds of social networks, the results of search queries, etc. In this regard, the characteristics of potential readers of popular scientific texts have also changed. Today, the community of the readers includes people with very different communicative goals and models of the world, apart from the educated people looking for scientific knowledge. An additional factor complicating popular scientific communication is the emergence of a large number of pseudo-scientific texts, creating competition with scientifically based texts.

Now the text needs to be something more than just “covering a theme” or “an answer to the question” to be read. It should motivate the addressee to raise the question, and this problem comes to the fore. In addition, the scientific content itself (“the answer”) must be understood even by an incompetent reader, which requires additional efforts on the part of the text’s author.

Currently, there are two ways of delivering scientific knowledge in popular scientific literature. They are the subject-object and the subject-subject ways. The first, traditional, way is similar to knowledge translation in the scientific field of communication. The scientific object appears to be a closed model of the Saussure’s type, similar to the models of the object of other sciences, describing the language separated from the situation of communication and from man in general. The other object of a popular scientific linguistic text except the language can be a procedure of a linguistic research. In this case, the story gets kind of a subject-subject character, when it is not about an object, separated from the man, but about the action of the latter. However, these actions can be described as dependent on “the laws of science” (e.g., Visual stimuli, namely, static images of objects (pictures or photos) or videos are presented to the testee either on the screen of a separate computer, or live, in the form of real objects ...).

The subject-subject way of narrating about the linguistic object is based on the current models of the language, which include it in a communicative situation. That gives a number of additional opportunities to the author of a popular scientific article. Firstly, a native speaker (if we mean the Russian language, and there is no reference to the specific language) are a priori the author and the addressee. This makes it possible to demonstrate the properties of the language through the example of communicants’ actions or the situation of popular scientific communication itself, in which the text is included. This ensures a greater visibility, and the addressee’s interest is more reliably supported. A similar effect is achieved by the self-positioning of the author as a scientist in the description of research procedures. First of all, a story from the first person seems to be more reliable than from the third person. Secondly, as the communicative situation is included in the object, the author can manipulate the image of the current situation, completing a dialogue with the addressee (e.g., question-answer, or polemic dialogues). That is how the distance between the communicants is reduced if the reconstruction of the reader’s perceptions is successful.

In this light, it seems urgent to study popular scientific texts in the framework of the approach that takes into account the peculiarities of the sphere of communication and its individual genres. Characteristics of the communicants are the most important among these features for our research.

The purpose of this article is to describe authentication and addressing mechanisms, implementing the strategy of the author of the popular scientific text, which allows the reader to identify oneself with the characters of the text.
2. Methodology

This section describes the methodology used in our analysis of the subject organization of popular scientific articles. The purpose of this analysis is not to trace the actual process of the reader’s relating oneself and the author to text subjects (it is impossible without experimental data), but rather to identify the range of possibilities for such a relation defined by these mechanisms. Thus, the result of the analysis is to describe the types of a potential intratextual interaction of the author and the reader with the phenomena of the language, presented as facts or mediated by text characters (by a linguist and a native speaker). The technique is demonstrated in B. Iomdin’s article «How do the everyday language and the official language interact?».

In order to distinguish between the types of interactions, it is required to introduce a number of concepts. Firstly, it is necessary to introduce the overall concept of the subject, from whose person a piece of text may be pronounced or an action can be performed, because the reader potentially identifies oneself and the author exactly with these subjects. Secondly, it is necessary to specify the subject-object and subject-subject methods of representing the object up to the level of text units with their form (including “identifying marks”) and the content (a typical referent that is a model of the situation, in which the interaction of communicants with language phenomena occurs). Such fragments are the basic units of the analysis, the sets of which constitute “micro plots” that are typical interactions of communicants and the linguistic object.

There is the term of a point of view in linguistics in order to indicate the first concept (the text subject). The term and the very division of the text into fragments, pronounced by different subjects, emerged in the researches of fiction (narratology and so on) to differentiate types of narrators. Subsequently, the concept was used in narratology studies, grammatical descriptions of the genre of fiction, etc.

The distinction between points of view in the text was detailed in the writings of B.A. Uspenskii, Iu.D. Apresian, E.V. Paducheva, etc. The primary subject of speaking (located in the “canonical speech situation” in the direct contact with the addressee) and various types of secondary subjects (the image of the author presented in the text) were countered in the three aspects. They are the space-time aspect (the subject of deixis and the subject of perception), the aspect of the semantics of speech acts (the subject of speech), and the cognitive, emotional and voluntative aspect (the subject of consciousness) [Paducheva, 2010, 262-265]. Each aspect reflects in the text with varying degree of uniqueness, namely, in modal, deictic, evaluation elements, predicates with the meaning of similarity and likeness, generalizations, words with an attitudinal meaning, etc. [Apresian, 1986, Paducheva, 2010, 266-291, etc.].

The principal difference of a point of view of the “pragmatic” narrator (from whose person the work is presented that is as a default similar to the pragmatic author) is substantiated in the poetic theory of the narrative. S. Patron in the review of the theories of the narrative to the article Unspeakable Sentences: Narration and Representation in Benedetti’s’ Five Years of Life’ writes about one of the terminological nominations of the fragments “from the author” (from the third person) that is “objective” statements, “Narrative or objective sentences cannot be seem as the representation of a separate point of view from that of the characters. They do not represent any point of view and cannot be false. They establish the elements constituting the facts in fictional world” [Patron, 2013, 246]. A. Banfield, developing the theory of the narrative from the perspective of generative grammar, identifies a particular class of sentences that are not subject to the rules governing “objective” and
“subjective” statements, which are embedded, unspoken sentences that do not perform any communicative or expressive functions and that are possible only in written texts. A typical example of such a sentence is experienced speech [Banfield, 1982].

Popular scientific texts are not narrative, as their main goal, which is communication, does not provide the reader’s immersion in the fiction world. However, a large number of contemporary popular scientific texts have a similar structure: the “objective” story about a scientific object includes the fragments that make it possible to present communicators as participants of the plot. This allows borrowing the above distinctions to describe the relationship between text fragments.

Due to the fact, that apart from the subject of consciousness, perception and speech, we highlight the subject of action, it is necessary to distinguish two planes in the subject organization of the text. They are dictum and modus planes. The actors (the exploring linguist and the talking native speaker), being the subject of an article or part of it, are included in the first dictum plane. The subjects of consciousness, perception and speech (the linguist, having a scientific representation of the object, and the native speaker with an unprofessional representation of the object and a relation to it) relate to the modus plane, presenting a “clear” point of view.

The fragments of the text with the subject-object way of presenting the language in its semantic structure potentially contain an internal communicative situation that is a situation similar to a pragmatic one, in which the author, similar to pragmatic, who possesses some knowledge of the object, passes it to the reader interested in obtaining this knowledge as facts. In the poetic theory of the narrative the similar fragments are called narrative-zero sentences, as if they set “the reference point” and “the reference system”, in which the facts of the fiction world (the features of the language or speech in the case of the linguistic popular scientific text) are described. Since the popular scientific text is not narrative, we call this type of situation object (hereinafter referred to as OS), in accordance with the method of the presentation of the language in it, i.e. the situation, in which the object does not include the subjects of the communicative act.

In order to solve their problem, and also to compensate for complicating circumstances of the pragmatic situation (the lack of motivation of the reader), the author includes those fragments in the text, in which the characters perform actions in the “object world of the text”: linguists explore the language, including the speech of native speakers, and have a scientific view of them, while native speakers use the language and often have their own opinion or assessment of the language and language or speech phenomena. The similarity of these situations with the reader’s experience allows the addressee to identify oneself with the native speaker denoted in the text. On the other hand, the reader who knows the specificity of the sphere of communication and the genre understands that the author of the text in reality is also both a native speaker (of one or more languages) and a researcher. Besides, in the same way this gives the addressee the opportunity to relate the author to the positions of the native speaker and the linguist in the text.

The reader’s opportunity to relate oneself or the author to text characters allows calling such situations subject (hereinafter referred to as SS).

Authorization and addressing are a linguistic mechanism, which increases the chances of such a correlation, and marks it on a formal level. We use these terms in the meaning ‘the reference to the source of information, the subject of a point of view’, as indicated in the works of G.A. Zolotova, who divides the text into the plane of information about the objective reality, the plane of specifying
the subject, reporting that information [Zolotova, 1973, 273], and T.V. Shmeleva, who considers authorization as a qualitative category of modus [Shmeleva, 1994, 32-33]. The need for the correlation of the parameters of the author’s model and the addressee’s model in the text of any genre, approved by N.D. Arutiunova [Arutiunova, 1981, 357-358] and the purpose of our analysis allow us to speak about addressing that is analogous to authorization as a mechanism that allows relating the reader to the text subject.

The means providing these mechanisms include nominations of subjects (e.g., a native speaker), personal and tensed deictic elements (I, we, and then, three years ago and aspectual-tensed forms), nominations of mental states of subjects (evaluation, expression of opinion, doubt: unconvincing, according to, it is unlikely, etc.), nominations of speech reflection (means organizing the content: opening words, etc., such as first of all, so to speak, in other words, etc.). The change of the nomination of the subject or “the reference point” of deictic elements and mental actions indicate the change of the subject of action, speech or perception. They are the indicators of the initial boundaries of text fragments, namely, the units of the analysis with various types of SS as a referent. In order to determine the final boundary of the fragments, we used “the principle of an authorization key” (“If the source of information is set at the beginning of the text, this signal applies to all the sentences of this text to the switching sign” [Shmeleva, 1994, 29]), the principles of coordination of subjects and tenses and the specific rules resulted from them for determining the unity of a point of view, for example, “The coreference of the proper name and the third person pronoun is optional in principle, but in practice it is obligatory if no other relevant antecedent for ‘him’ is supplied by a larger context” [Banfield, 2001, 9-10].

Subject situations differ in the following characteristics:

1) the fact, which of the participants in the pragmatic situation (the author or the addressee) is related to the text subject;

2) the position of the character in relation to the language (the linguist or the native speaker);

3) the level of the presence of the subject in the text (a modus subject, a bearer of a point of view or a dictum subject, a party).

Since the subject organization of the text in its entirety has four levels (1 - pragmatic communicants, the author and the addressee; 2 - modus subjects (bearers of the points of view, who have the potential to get closer to the author or the addressee), the linguist, potentially correlating with the author, and the native speaker, potentially correlating with both parties of the pragmatic situation, 3 - the dictum linguist and 4 - the dictum native speaker studied by them) and the subject situation may be limited to two or three levels of interaction, it is necessary to introduce one more distinctive feature:

4) the number of levels involved in the situation.

Each level has its own set of indicators.

The parties of the pragmatic situation are usually denoted by personal pronouns in the deictic function. The denotation of the modus and dictum subjects is not particularly different, both may be denoted by a noun (a linguist, a native speaker) and a personal pronoun in an anaphoric function, however, the modus subject is represented, as a rule, by mental and evaluative predicates (it seems, I wonder, etc.), parenthetical structures with similar values (first of all, apparently, it seems, etc.), as well as hidden indicators of the change of a point of view (e.g., conversational elements). However, the similar indicators could also represent the parties of the pragmatic situation, which creates the effect of
uncertainty, actively used by the author to make the text more intrigue.

OS includes the smallest number of levels, namely the level of pragmatic communicants (only one level), for example:

1. In addition, the language is constantly changing, as well as the way of life that is the sphere of the most intense changes: new items appear over and over again, new names are born, old words change their meaning...

2. The word kolgotki [tights in English - the translator’s note] comes from the Czech kalhoty, and the Russian word borsetka derives from the Italian word borsetta (a small bag)...

3. the initial form of the word also changes.

In the fragments the author characterizes the object (the dynamics of everyday language, the history of language units) as a linguist (language mobility in the domestic sphere, the origin of a particular word, the features of the changes of language units). The position of the reader as a less-informed subject is not directly observed, but there is a language tool that is typical of the interaction of the scientist with the layman (“the addressee factor” by N.D. Arutiunova) in the fragment (1) that is the colloquialism over and over again, but it is not typical of the scientific sphere (cf. *new items appear regularly that is typical of the scientific sphere, etc.*).

The number of levels in SS varies from two to four.

4. It seems that borsetka will share the same fate of tights, but in tights “a” gave way to “o”, in contrast to “barsetka”.

The situation in the fragment (4) comprises two levels of the subject organization of the text: the pragmatic author, who speaks from the person of the modus linguist (the indicator of a point of view is the parenthetic structure it seems) about language units that are the object.

5. [I will give examples of the problems that arise when working on a dictionary of everyday vocabulary, which I have been dealing with together with my colleagues and students.] First of all, it is necessary to determine the spelling.

The situation presented in the fragment (5), involves the three levels: the pragmatic author tells about the difficulties from the person of the modus linguist, which arise in the work of the dictum linguist with the object that is everyday vocabulary.

6. ... it is necessary to handle the recording of speech and conduct large-scale surveys ...

In the situation of the fragment (6) the four levels are presented: the pragmatic author from the person of the modus linguist (necessary) says what actions the researcher needs to perform (the dictum linguist (to handle)) with the dictum native speaker (indicators: speech (of native speakers), surveys (of them as well)).

During the analysis, the text of the article was divided into fragments that are the units of the analysis, which then were grouped into micro plots, where there was a potential interaction between communicants and the object, namely, the controversy (if two different views or relations to the object collide), joint activities (for example, if a linguist explores the speech activity of the speaker), etc. The following section provides excerpts of the analyzed articles, presenting different micro plots.

### 3. Results

The first micro plot we consider that is the controversy of the linguist with the native speaker (7) includes 12 cases, SS of five types and two types of OS.

7. (SS₁) It may seem that (SS₂) studying and describing such words is not difficult and of little interest - (SS₁) how much better, for example, (SS₂) is the names of animals and plants, all kinds of shades of colors or legal terms, which are as
clear as mud. (SS₃) However, precisely because (OS₁) everyday vocabulary is the most frequent and vernacular, (SS₁) the linguist who explores it faces difficulties: (SS₃) each native speaker has their own strong view of (OS₁) what name is given to this or that subject, and (SS₃) forming the only right opinion that should be placed in the dictionary from this palette (SS₃) of opinions (SS₃) is very difficult.

In SS₁ the pragmatic reader is potentially identified with the modus linguist, having a representation of the object. The indicators of the modus subject are it may seem that is the predicate of the mental state, and the phrase how much better, expressing the relation. At the same time the subject can only be the linguist, because the subsequent part of the sentence contains the internal assessment of the researcher’s actions (not difficult and of little interest). Basing on the following However, spoken from the person of the modus linguist, we understand that in SS₁ the author cannot relate to the subject, the reader makes it. In these fragments the object is not detailed, therefore the dictum subjects are not included in the structure of the situation.

In SS₂ the reader is identified with the dictum linguist working with the object (verbal nouns studying and describing): the estimated predicates not difficult and of little interest characterize actions rather than the object; the colloquial phrase as clear as mud describes the language in relation to the actions of the researcher as well.

In SS₁ and SS₂ it is the author who is related to text subjects. The indicator is a contrastive union however, separating the first sentence of the passage from its subsequent part. In other respects SS₁ is similar to SS₂: apart from the fact of the opposition of these situations’ content, SS₃ contains the nomination of the acting (dictum) subject and the actions, namely, the linguist who ... explores, forming, the modal predicate that is related to these actions, namely, should be placed [in the dictionary]; evaluative predicates, namely, faces difficulties, very hard.

In SS₃ the pragmatic author tells about the object, which includes a native speaker (the direct nomination every native speaker) and their relation to language units (has their own view). There are no indicators of the presence of the modus linguist in the situation. In the same SS the reader, in fact being a native speaker, can relate oneself to one’s representation in the text.

OS₁ and OS₂ have only the participant of the pragmatic situation and the linguistic object in their structure. Both fragments are complement clauses that are subject to predicative units representing SS₁ and SS₄. The difference between the object situations is caused by the fact that the author is related to the subject of SS₁ (subjecting the fragment with OS₁), and in SS₄ (subjecting the fragment with OS₄) the reader is related to the dictum subject (the native speaker). Accordingly, the OS₁ structure includes the pragmatic author, while the OS₂ structure includes the pragmatic reader. The explicit opposition of opinions of the linguist and the native speaker enhances this difference in this micro plot further.

In SS₃ and SS₄ the probability of identifying the addressee with text subjects is great. Firstly, in this situation, the author cannot hold a native speaker’s position, and secondly, the evaluativity of the markers of points of view and the polemical nature of the interaction of subjects provide an additional opportunity for the emotional connection of the reader to one of the participants of the dispute.

The fragment (8) contains the micro plot “the linguist explores the speech acts of native speakers”. It is almost identical to the part of the fragment (7): (8) (SS₃) Every native speaker has their own view of (OS₃) the meaning of words, (SS₃) and linguists sometimes have difficulty choosing the only right opinion from this palette (SS₃)
of opinions (SS₁) that should be placed in the dictionary.

In this micro plot the native speaker has certain ideas about the language elements, while the linguist working with these ideas faces difficulties due to their character. In SS₁ and SS₂ the positions of the carrier and the linguist are respectively differentiated by the means of different nomination (each native speaker, linguists) and individual predications (own view – have difficulty choosing, should be placed). The phrase have difficulty is a subjective qualification of the researcher’s actions, which can be given only by the linguist who performed these actions. Therefore, in the above fragment the author can be related to the dictum position of the linguist. Unambiguous markers of the reader’s relation to the native speaker’s dictum position are not observed, but they may relate themselves to the speaker like it was in the previous example.

Another type of interaction of the author and the reader in the positions of the linguist and the native speaker is more ambiguous:

(9) (SS₁) First of all, it is necessary to determine the spelling. (SS₂) And what if (OS) the word has only recently been borrowed from a foreign language? Original spelling is not always kept ...

(10) (SS) However, in order to make a full dictionary, reflecting (OS) all aspects of the use of colloquial vocabulary, (SS) these texts should be considered as well.

The fragments (9) and (10) with a certain degree of probability represent the micro plot that is “an experienced linguist instructs a less experienced one how to conduct a research”. An alternative version is “a linguist demonstrates the process of their own (potential) research”.

In SS₁ of the fragment (9) and SS of the fragment (10), the author is related to the modus linguist who tells how the dictum linguist should study the object. The indicators are modal predicates with a meaning of obligation, namely, it is necessary to determine, should be considered (they can be interpreted as an instruction for the modus native speaker who is the future researcher), the parenthetical structure first of all pointing to the sequence of narration (and, perhaps, the actions of the instructed), and the dialogic structure of the whole fragment (the question following in SS₂–SS₃, and then the answer).

If a micro plot is a demonstration of the procedure of a “live” research, then the question contained in SS₂–SS₃, can be asked by a linguist. This blurring of interpretation contributes to the convergence of the roles of the author and the reader.

In the fragment (10), the probability of the realization of the micro plot “instruction” is smaller than in the fragment (9), however, the predicate should be considered complicated by the semantics of obligation without specifying the subject of the action, allows such an interpretation (cf.: we / compilers of the dictionary should consider or have to consider).

The most frequent and the simplest type of interaction of communicants in the analysed article are situations in which the author and the reader “collide” in the position of a native speaker as a modus subject or dictum subject. This means that they have the same relation to the language or its units (for example, the lack of understanding of the official language, ideas about the meanings of words), or have the same characteristics (for example, the prevalence of colloquial vocabulary in the active word stock).

(11) (OS) A significant part (SS) of our (OS) active word stock is made up of the names of different household objects, namely, those, which (SS) we see every day;

(12) ... (OS) [many] words (SS), which now seem to be completely neutral to us, [once were diminutive too] ...;
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(13) ... (OS) [things ... are called or described in All-Union State Standards] not in the way (SS) we got used to.

In the SS of the fragment (11), the reader and the author are more likely to relate to the dictum native speaker with language and speech features (a large number of colloquial vocabulary in the active word stock and a greater frequency of their use in speech). However, in the SS of fragments (12) and (13) the author and the reader are related to modus subjects (mental predicates seem, [we] got used to).

The markers of the author’s and the addressee’s relation to the native speaker’s position are first person singular pronouns and the respective forms of the verb, which are quite reliable indicators.

The types of interactions of the author, the addressee and the linguistic object identified as a result of the analysis can be summarized as follows:

1) micro plot₁: the linguist and the native speaker dispute about a more interesting object to study;

2) micro plot₂: the linguist studies speech actions and language habits of the native speaker;

3) micro plot₃: the experienced linguist instructs the novice researcher;

4) micro plot₄: native speakers have similar language characteristics.

4. Discussion

The study has justified one of the strategies of the author of the popular scientific text. Engaging the reader to interact with the object within the text helps keep their interest and the clarity of explanation. The resulting four-level model of the popular scientific text (direct and indirect (through text subjects) statements of scientific knowledge) can be used as a qualifier of strategies of popular scientific texts.

The inevitable lack of the analysis of the subject organization of the text is a probability of its results. The possible means of partial overcoming this lack is the tools of discourse studies, particularly the concept of focus (Hirst, 1981; Garnham, 1987), which, among others, includes the frequency of using certain language units, etc.

References


Варьирование типов субъектной организации научно-популярной онлайн-статьи как способ вовлечения читателя в ее предметное содержание

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В статье описаны механизмы авторизации и адресации, участвующие в создании эффекта вклюиенности читателя во взаимодействие с лингвистическим объектом (объектом научно-популярной лингвистической статьи). Данный приём рассмотрен как средство реализации вспомогательной задачи научно-популярного текста – пробуждения и поддержания интереса читателя.

Зафиксированы два способа представления лингвистического объекта: как отчуждённого от коммуникаторов и прагматической ситуации (традиционный) и как включающего их в себя. Последний видится более эффективным для выполнения задачи текста. На примере научно-популярной статьи лингвистической тематики продемонстрирована методика анализа.
взаимодействия участников прагматической ситуации и персонажей текста (субъектной организации текста), в результате которого: (1) описаны типы такого взаимодействия (объектный, при котором взаимодействие не происходит, и несколько разновидностей субъектного типа, при котором автор и прагматический адресат выступают потенциальными референтами разных типов персонажей); (2) выявлены средства авторизации и адресации, дающие возможность читателю соотнести себя и автора с персонажами текста, и (3) сделана попытка ранжировать эти средства по вероятности этого соотнесения, которое чаще оказывается потенциальным, а не эксплицитированным.

Ключевые слова: научно-популярная сфера общения, научно-популярная статья, коммуникация, коммуникативная ситуация, точка зрения, авторизация, адресация.

Научная специальность: 10.00.00 – филологические науки