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Ona Petrėnienė

# SPECIFICS OF SCIENCE POPULARISATION TEXT LANGUAGE

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Ona Petrėnienė

# MOKSLO POPULIARINAMŲJŲ TEKSTŲ KALBOS YPATYBĖS

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# INTRODUCTION

**Subject, goal and objectives of work.** The subject of this dissertation is science popularisation texts (SP texts) aimed at general public. In the document, science popularisation is perceived as communicational interaction between a scientist and the general public, as presentation of basic knowledge and facts about science and technology to the public in a popular and understandable way. In SP texts, statements and concepts are presented considering the key non-linguistic element – the cognitive activity of a person.

The goal of this paper is to identify the linguistic qualities of SP texts aimed at general public that distinguish the texts in question from other kinds of texts and allow considering SP texts a separate type of text.

For that purpose, the following objectives have been set:

1. Gather empiric research material and prepare it for analysis.

2. Identify the most typical qualities of SP texts and disclose how they can function in a text.

3. Evaluate the morphological and syntactical structure of SP texts based on quantitative methods and discuss the tendencies for SP text differentiation and integration in terms of the common parameters.

**Novelty and relevance of work.** The novelty of the paper has to do with the subject of analysis. The specifics of SP texts have not been studied much in linguistic literature. This thesis is the first substantial study that addresses SP texts aimed at general public.

The relevance of this work primarily stems from the fact that science popularisation has been gaining significance in Lithuania recently. Science and technology popularisation activity is aimed at providing the society with unbiased information about scientific novelties, promoting the trends and prospects of the development of the society of knowledge.

The material and statements as well as the findings of the dissertation can be of significance for further research into functional stylistics, and the scientific style in particular, narrowing down the definition of the concept of interaction among individual variations of language or functional styles, revealing tendencies of changes in functional

styles. The results of the study might be applied to teach stylistics, typology of texts, textual linguistics.

**Work material and methods of study.** The material of this work has been randomly selected from SP articles and books by Lithuanian authors, which are aimed at general public. A common selection of sentences has been compiled to identify the linguistic characteristics of SP texts, with new selections formed in line with the criteria of statistical reliability to test individual hypotheses. The key selection was stratified taking account of the approved classification of fields of science. Analysis of Lithuanian language SP texts has showed that SP texts falling into the category of technological sciences are particularly few. A qualitative assessment of these texts has led to a conclusion that they are designed for specialists of other scientific fields and their content and expression makes them resemble the theoretical scientific style. Therefore, for the purposes of this work the subject selection has been made of texts from four scientific categories: biomedicine, physics, humanities and social sciences.

The unit of selection is a sentence, because the stylistic value of relevant linguistic units that carry professional information becomes apparent in a context. The statistical study was based on a rather formal definition of a sentence – a section of text from one full stop to another, or any other punctuation mark denoting the formal end of a sentence. The unit to measure the length of a sentence was a word, i.e. a line of graphemes or a single grapheme separated with spaces on both sides. These concepts of sentence and word are followed in the majority of works based on statistical approaches (Mistrík, 1985; Тулдава, 1987; Bitinienė, 1997).

For the purposes of this work, the descriptive analytical approach was used; this approach helps explaining and disclosing the realisation if the means of expression in SP texts in a structured manner. The contrastive approach is equally important as it helps contrasting SP texts against the scientific style and disclosing the dissemination of linguistic qualities based on the topic of the text, i.e. its scientific domain.

When it comes to interpreting the data obtained, the study follows the principle of unity of quantitative and qualitative analysis, which depends on the essence of functional styles. Qualitative analysis provided a basis to select sentences that had their resolution and correlation tested against individual themed groups of texts. The syntactical and morphological structure of SP texts has been evaluated on the basis of

quantitative approaches.

To examine the syntactical structure of sentences, a selection of 2,000 sentences has been made and analysed (a total of 29,000 units of calculation have been evaluated). The selection was stratified considering the scientific fields of the subject texts. The following syntactic properties of SP texts have been analysed: the frequency of usage of different types and length of sentences, the average length of a sentence, sentence groups by length. Specific attention has been given to the tendencies of differentiation and integration of SP texts in order to determine the degree of variegation between the texts of one scientific field and texts pertaining to other domains of science. In terms of the common sentence length parameters, the study has addressed texts from different scientific fields. In order to obtain more details about the breakdown of sentence length groups, sentences have been split at intervals of two words, or even just one word, the way it was done with really short sentences. This kind of breakdown might help identifying the diversity of sentences of texts from different fields of science. Speaking of distribution parts of speech in a sentence, the aforementioned selection was augmented with new data (2,000 sentences, 28,730 units of calculation). For the purposes of analysing the attributes of scientific subjects, an additional selection of 500 sentences (7,271 units of calculation) has been made and scrutinised. The data are presented as percentages. To reveal the semantic types of composite sentences, two-component composite sentences have been analysed. A selection of 1,200 sentences (19,416 units of calculation) has been formed and examined.

The statistical analysis covered a total selection of 5,700 sentences, and 84,417 units of calculation have been evaluated. The sentences were examined using the statistical analysis software *Paula* (Битинас, Паулавичюс, 1987). The degree of reliability of the difference of the statistical data obtained considering the nature and size of the parameters was assessed with criterion $\chi^2$ (about methods of study cf. Bitinas, 1974, 1998, 2006).

**Defensive statements:**

1. The constructive principle of SP texts is a contamination of the means of expression with varying stylistical value.

2. The linguistic expression of SP texts is heavily affected by the non-linguistic element of the addresser (the general public). If the addresser affected in a focused way,

the subject texts display the function of impact, which is created using expressive means. In SP texts, the means of expression relates to realisation of objective intellectual content and perform the function of information (carrying the message).

3. Focusing on the addresser (the general public) eliminates the boundaries among scientific information from different fields. In terms of their morphological and syntactical parameters, Lithuanian language SP texts of different science fields are homogenous.

4. Speaking of the common sentence length parameters, SP texts hold the middle ground between scientific and publicity texts. The morphological structure of SP texts confirms their proximity to scientific texts.

**Approval of work.** The outcomes of the study carried out in the dissertation have been presented in four scientific articles (see the list of publications) and five reports at international science conferences.

The dissertation was mulled at a sitting of the Department of the Lithuanian Language of Vilnius University on September 22, 2011 and was recommended for defence.

**Structure of work.** The dissertation consists of an introduction, two recital parts: "Characteristics of Science Popularisation Texts" and "Means of Linguistic Expression and Their Functioning in SP Texts", conclusions, a list of sources and references.

The introductory part presents the subject of the work, its goal and objectives, and the defensive statements, touches upon the novelty and relevance of the work, the subject material and other general matters.

Part one deals with the concept of SP texts, discusses the functional properties of SP texts. In this section of the document, the results of major studies in the field of the dissertation are listed and theoretical statements that are significant for this work are presented.

In part two, the usage of linguistic expression means in SP texts is analysed. Chapter one deals with the uniqueness of lexical expression and usage of terms, attributes of scientific subjects and colloquial language. Chapter two is aimed at discussing the functioning of specific means of expression (figures of speech) in SP texts and analyses the functioning of semantic figures and tropes, syntactical figures in SP texts. Chapters three and four reveal the qualities of linguistic structures of SP texts and

analyse the syntactical and morphological data of the subject texts.

Chapter three is concerned with the morphological properties of SP texts, while chapter four deals with the syntactic structure of the subject texts, presenting the general characteristic of the length of a sentence, the length and structure of simple sentences and the length and types of composite sentences. The statistical data of the subject texts obtained are matched against data of scientific and, on some occasions, publicity texts and a comparative analysis of SP texts from different scientific fields is presented.

The main outcomes of the work are provided in the conclusions. The document ends with lists of sources and references. The results of the study are presented in 5 tables and 20 pictures.

## MEANS OF LINGUISTIC EXPRESSION AND THEIR FUNCTIONING IN TEXTS

**Uniqueness of lexical expression of SP texts.** This chapter deals with the means of lexical expression in SP texts. The special scientific lexis – terminology and its usage – is addressed first and then the analysis moves on to attributes of scientific subjects as a stand-alone lexical variation. The usage of a different stylistical registry (colloquial lexis) is discussed separately.

Terminology is the key and the most informative part of the scientific language vocabulary. Terms are used in all varieties of the scientific style, aiming to take advantage of their stylistic feature, i.e. professional precision, yet with every style they function differently. When scrutinising SP texts, one can observe a tendency for using only the terms that are necessary to convey scientific information in the text, prioritising on established terms, while new, dubious terms and new words are avoided. All of the terms used in SP texts can be categorised as those that do not require an explanation and terms that may not be understood or understood correctly by the reader unless an explanation is provided.

SP texts do not elaborate the common category concepts (like *law*, *hypothesis*, *method*, etc.), which are equally important for all sciences, or the terms pertaining to specific branches of science that the reader should be generally aware of (like *vowel*, *consonant*, *noun*, etc.). SP texts mostly focus on specific terminology of certain branches

of science. For the information that is being presented to be accessible to everyone who wishes to read it, ways are sought to explain such terms in a simple and easy-to-understand manner.

When it comes to SP texts, terms can be explained:

1) by giving a description of the object, phenomenon or action that the term denotes (e.g., *Castle mounds are fortresses to defend the dwellers of the surrounding land.* GimbBPL 116);

2) by disclosing the origins of the term (e.g., *Another similar form of anaemia that affects dozens of millions of people in malaria-infested regions is known as the Cooley anaemia (named after the doctor) or the thalassemia (after the Greek words "thalassa" – the sea, which points that the disease is most wide-spread in coastal areas, and "haima" – blood).* SinkGLŽ 40);

3) with synonyms (e.g., *The only chemical substance that can provide energy in this system is hydrogen. Its electrons are carried by biological catalysers, or ferments, to the oxygen cell.* JasGE 9);

4) with figurative means of expression (e.g., *If you watch the sky longer, you will spot "falling stars", or meteors, the odd satellite against the backdrop of the starry skies, or even the imposing Northern Lights, rippling in greenish-red tones.* SvidŽ 19);

5) with means of extra-verbal expression (charts, pictures), and so on.

Usually SP texts employ several different ways to elaborate terms, rather than just one.

The scientific world-views of the general public is moulded not just by introducing people into cognitive activities or their results, but also by presenting scientific subjects, or individuals engaged in cognition. The subjects of scientific cognition of SP texts could be defined in a broadest variety of senses – all of them are individuals who are getting to know, in one way or another, the reality related to the cognitive activity described. Contrary to texts of the scientific style, where subjects of cognition are merely mentioned, speaking of SP texts we can identify unique usage of SP texts subjects: mentions are accompanied by additional information, the so-called attributes.

Considering the frequency of attribute usage, we can identify main (dominating) and additional attributes that are used to define information more accurately or enhance

it. The main attributes of SP texts possess the following characteristics: 1) nationality or place of residence (specifying the country, city, etc.); 2) scientific or professional activity (specifying the scientific degree, profession, job title, etc.). A combination of these attributes is the most common tool to identify science subjects (e.g., *On the night of March 13, 1781, English astronomer William Hershel pointed his telescope towards Gemini constellation.* KalonSEŽ 72).

In view of the nature of the information supplied, additional attributes can be classed as neutral and subjective. Neutral attributes denote basic facts (e.g., specify scientific discoveries, acknowledgements of scientific activity, kinship, time), while subjective attributes point to the author's personal views or estimates.

To present information so that scientific knowledge can be understood by a reader who has very little grasp of the subject domain, SP texts use words from the stylistical tier of the colloquial vocabulary.

The boundaries of the semantic field of the words that belong to the stylistical tier of the colloquial vocabulary are not defined as clearly as those of words that carry a bookish tint. That is one of the reasons why, for the purposes of professional precision, units from the colloquial tier are avoided in texts of the scientific style. Words with the stylistical tinge of colloquial language when used in written scientific works are often seen as motiveless and falling outside the requirements of the functional style. Nonetheless, an exploratory analysis of SP texts has showed that, if the sphere of using colloquial units is limited to a great extent, colloquially tinted words could be used in SP texts. The contrast of colloquial and bookish language in such texts still remains obvious, and means that carry a stylistical undertone tend to be put into quotation marks. The quotation marks clearly point to the foreign nature of such elements and thus in a way justify the usage of such linguistic means that belong to a different stylistical registry.

Means from the stylistical tier of colloquial language are used in subject texts to realise the function of impact. Elements of the colloquial vocabulary when used in SP texts help attain an impact of a lively, emotional, down-to-earth contact. For instance: *On clear moonlit nights, nightingales of the evening sing their songs, their voices rising above the murmur of rivers.* ŽiūrPV 17. At the same time, this helps design a story that any reader of any educational background could understand, even if the reader in

question is not a specialist of the field. The text is adapted to the daily life experience of the reader, attempting to convince them that the text is not complicated at all and is actually quite easy to understand. An impression is made that experience of life is all that it takes. For instance: *So far, we have no information whether any of them* [dangerous asteroids] *will get into the Earth's way over the nearest years or decades.* StraižPA 11. This helps understand and memorise the information that is being presented more easily.

**The functioning of figures of speech and special means of expression in SP texts.** SP texts are defined by a "typical concept of the addresser" (Бахтин, 1979; p. 276), i.e. explicit focus on the reader, who has the apperception to say "no". The knowledge landscape of the SP text's author and the reader (the so-called non-specialist) differs, and therefore, to create an adequate effect, such texts must aim for feedback as clearly as possible. In other words, the strategy of the subject's language must guarantee potential feedback, creating a relationship based on a dialogue (cf. Арутюнова, 1981). The emphasised focus of SP texts on their addresser affects the selection of the means of expression. A dialogue is created by constantly using relevant means of expression.

Usage of means of expression is aligned to the content, purposes, communicative intention of SP texts and therefore the application of such means next to units of speech that underline the principle of scientific nature is quite justified. In SP texts, expressive units of speech are not just a necessary condition for efficient communication – they also help fortify arguments, grasp complex content. Means of expression are used to define information presented more accurately, making it easier to understand and persuading, which is very important whilst aiming at an undefined addresser.

This thesis benefited significantly from K. Župerka's (1997; p. 57–77) classification of figures of speech by tiers of language. This classification suits the goals and the structure of this work best. Analysis of texts has showed semantic figures to be the most wide-spread, while other types of figures, even those of syntactical nature are less frequent. The term of figures is used in a conditional way: when we speak of an epithet that is typical of the artistic style, we primarily refer to its aesthetical function, however this function can apply to SP texts only to a certain extent and it is not a key feature of such texts. Therefore, when speaking about the actualised means of expression that are used in SP texts, we cannot say that they perform the same aesthetical function

as in artistic texts. The means of expression actualised for SP texts are usually very figurative, but they are designed to affect the reader and to portray the reality in an accurate and unbiased way. Therefore, as it was already mentioned above, in SP texts, actualised means of expression first of all perform the function of impact, and the aesthetical function comes second. Analysing such means of expression is difficult because of the existing stereotypes, focus on "kitchen-sink" understanding of the world, which is typical of the addresser of such texts.

Analysis of SP texts has revealed that semantic figures have the highest degree of usage. In SP texts, semantic figures (comparison, metaphor, metonymic, etc.) are aiming not only for an emotional effect – in the subject texts, the potential of such means of expression to convey factual information in a concise manner is equally important.

The reader of SP texts knows the objects of comparison very well from their daily activities. Comparisons differ in the nature of the relationship that is expressed. The following comparisons are used: 1) comparisons based on exterior similarities of objects, phenomena or actions (e.g., *Let your feelings rise and fall, just like sea waves.* JašinskKM 15); 2) correlative comparisons, which are constructed on the basis of shapes, dimensions and other such parameters of the objects being compared (e.g., *A litre of air weighs as much as water in a thimble.* MikalKRO 5); 3) parallel comparisons and analogies. In SP texts, comparisons are usually used on a stand-alone basis, they function directly, with no explanations on the side. Comparisons perform the following functions in SP texts: explanatory, illustrative, expressive, aesthetically impacting and speech economy.

Metaphors serve different purposes in SP texts. Traditionally, a metaphor is a medium of expression. At the same time, it has a decorative function. Still, metaphors, just like any other actualised means that are used in SP texts only perform a supporting role – what matters in the subject texts is not how figurative they are, but rather the possibility to convey (and help the reader understand) the factual information in a concise manner. Therefore, metaphors in SP texts are typically used as an essential way of cognition, one that reveals the essence of things unknown, which help understand the research subject anew. In texts aimed at the general public, scientific concepts are tied via metaphors to examples of daily experience that the reader knows so well. There is a clear trend of favouring "kitchen-sink" metaphors, thus implementing the principle of

accessibility.

The metaphorical models used in SP texts from different branches of science reveal a common tendency of conceptualising and verbalising popularisation knowledge. It helps identifying universal strategies of use of metaphors in the subject texts. There are two areas in which metaphors make sense in SP texts: *Man* and *Nature*. The metaphoric model of *Man* is the more active in SP texts. *Man,* his daily life is more familiar to the reader from the natural, necessary, ordinary daily life activity, from physical cognition (e.g., *When a virus particle makes enters a cell, nucleic acid "s t r i p s" and separates itself from the protein membrane.* TamošLV 46). Quite often *Nature* itself can be the object of SP texts. Metaphors tend to be used to denote only those elements of *Nature* that are obvious, well-known and automatically create the right image in the consciousness of a person (e.g., *Isn't the oncogene theory too pessimistic? Seeing as it claims that every human being carries the "s e e d" of death.* TamošLV 26).

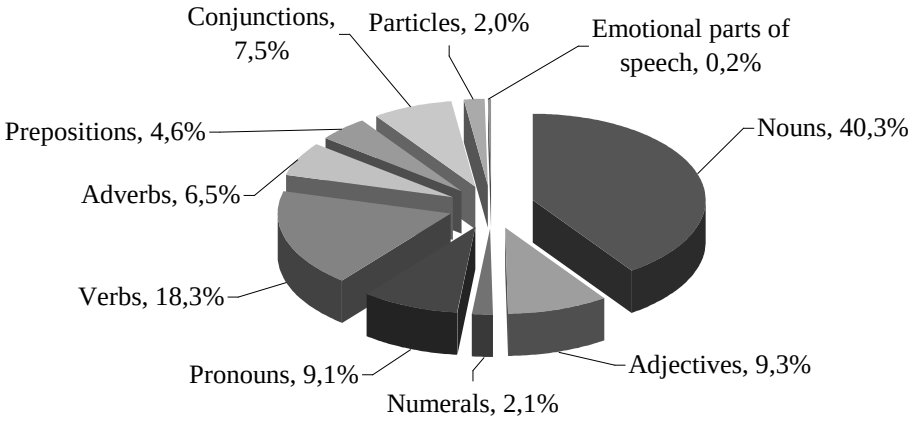
Metonymic methods of transfer of meaning help understand new information, identify similarities of objects, phenomena or attributes and correlate them. Metonymic transfer of meaning usually relies on physical experience (communication, mundane items, actions, events, and so on). In SP texts, metonymy can perform an expressive, informative and euphemistic function. All these functions are closely related to one another.

Syntactical figures (interrogative sentences, exclamatory sentences, ellipsis, reticence, repetition of lexical and syntactical means, etc.) in SP texts are used both to create an expression of the mind, and to reveal pragmatic attitudes.

The function of impact in SP texts is carried out to provoke an intellectual, sometimes evaluative response in the reader. The subject texts have their function of impact modified, its content differs from the regular emotional impact, which is typical of direct communication in a colloquial language setting. Therefore, we can speak both of an emotional and an intellectual impact that can also be found in science texts. The function of impact embraces both a definite number of actualised means of expression and interaction with the addresser – some expressive means have a pragmatic attitude.

**Morphological properties of SP texts.** The unique character of SP texts could also be revealed through yet another linguistic property, which is the frequency of usage of

parts of speech (see Picture 1).




*Pic. 1. Frequency of usage of parts of speech.*

The discussion of the frequency of usage of parts of speech in SP texts was aimed at taking account of the distribution of parts of speech in a sentence, ignoring any notional and syntactical ties among speech parts. While designing part two of the study, thought was given to the fact that parts of speech as variables can carry information of several types of sentences. Group one can consist of sentences in which the parts of speech that are described here are not used. Group two covers sentences in which the subject parts of speech are used to perform their typical syntactical functions within the sentence. The study sought to discover a relationship between the distribution of parts of speech in different types of sentences in an attempt to determine the tendency of different word class distribution in the sentence and how such distribution depends on the structure of a sentence.

It has been established that the part of speech that is most common in SP texts is the noun (40.3 per cent). The noun masculine occurs in SP texts with significantly higher frequency than the feminine (60.8 per cent and 39.2 per cent), and singular prevails (63.8 per cent). The category of noun case is based on genitive and nominative (68.2 per cent).

The second most frequent part of speech is the verb (18.3 per cent). Inflective forms of verbs are used in SP texts most commonly. The subject SP texts are dominated by the present tense (62.6 per cent of all inflective verbs that possess the category of tense), indicative mood (93.7 per cent). In SP texts, as many as 88.0 per cent of all

inflective forms of verb that have the category of person are verbs expressed in third-person form. Verbs in singular are predominant (53.2 per cent).

Participles used in SP texts tend to be in present tense (52.3 per cent of all participle forms), masculine (50.2 per cent). Most participles are used in singular (53.2 per cent) and in the nominative case (68.6 per cent).

Masculine adjectives are the most common (57.0 per cent). Adjectives used in singular prevail (56.5 per cent). The cases with the higher degree of prevalence are the genitive, the nominative and the accusative. The usage of locative, ablative and dative differs from that of the above cases substantially.

Of all the pronouns found in the subject SP texts, 89.4 per cent possessed the category of gender. 51.9 per cent of them were masculine pronouns. SP texts are dominated by pronouns in singular (49.4 per cent).

Conjunctions are used nearly as frequently as pronouns (7.5 per cent). Adverbs in SP texts account for 6.5 per cent of all parts of speech.

The usage of prepositions in the subject texts (4.6 per cent) first of all relates to the frequency of using verbs, as SP texts quote often use specific verbs that govern the accusative or the genitive of the preposition.

Numerals are quite rare in SP texts (2.1 per cent). These words are used to denote units of quantity and therefore the frequency of their usage basically depends on the topic of a text.

The particle (2.0 per cent), just like emotional parts of speech (interjections and such, 0.2 per cent) that are typical of rhetoric questions and addresses is used to express a standpoint on an object, to draw the reader's attention.

In order to obtain detailed information about SP texts, an effort was made to compare the distribution of parts of speech in sentences of SP texts from different fields of science. The distribution of the more frequent parts of speech (nouns, verbs, adjectives and pronouns) in a sentence has been analysed. The distribution of these parts of speech has been found not to be pointing to any significant changes in the structure of sentences across texts from different scientific areas.

The generic data of the frequency of usage of speech parts in the subject texts that were obtained during the study have been matched against the general data of the scientific style as published by A. Bitinienė. The study relied on the analysis of data of

the frequency of speech part usage in scientific style based on statistical approaches, which analysis is available in A. Bitinienė's study "Functional Styles: Length and Structure of the Sentence" (Vilnius, 1997).

**Syntactical properties of SP texts.** The unique nature of individual texts as well as those that fall into categories of different functional styles and variations thereof can be described on the basis of certain linguistic properties. Informative linguistic properties include the length of the sentence, which also is an indication of the sentence structure (Bitinienė, 1997; p. 3). Sentence length parameters may be important to disclose the syntactical structure of SP texts as well. The dissertation deals with the average length of sentences, sentence length groups and discusses the prevalence of different types of sentences and the length of such sentences.

It has been established that the average length of a sentence in SP texts is 14.5 words (*s*=8.2 words). The variation range is quite large: from 1 to 85 words. Very long sentences are not a typical structure of science popularisation texts. One might say that the length of these sentences depends on the individual style of the author.

For the purposes of a more thorough sentence length analysis, sentences should be assigned to groups and the frequency of usage of each group of sentences should be calculated. Sentences are grouped at intervals that reflect the dispersion of different types of texts (and functional styles): very short sentences are considered to have 1–8 words, short sentences are deemed to consist of 9–17 words, average-length sentences have 18–30 words, long sentences contain 31–46 words, and very long sentences come with over 46 words (Bitinienė, 1997; p. 19). There were only a few very long sentences in the SP texts studied and therefore, while discussing the breakdown of sentence lengths, long and very long sentences should be considered as a whole.

*Table 1. Breakdown of sentence length groups*

| **Field of science** | **Sentence length groups (%)** | | | |
|---|---|---|---|---|
| | **very short (1–8 words)** | **short (9–17 words)** | **average-length (18–30 words)** | **long and very long (31 words and more)** |
| Biomedicine | 22.4 | 49.0 | 23.8 | 4.8 |
| Physics | 24.2 | 50.4 | 22.0 | 3.4 |
| Humanities | 23.0 | 42.6 | 27.4 | 7.0 |
| Social sciences | 24.6 | 49.0 | 22.8 | 3.6 |
| Common parameters | 23.5 | 47.8 | 24.0 | 4.7 |

After sentences have been grouped by length, it turned out that SP texts are dominated by short sentences, which account for nearly a half (47.8 per cent) of all the sentences examined. One might think that they offer the best means to convey information, as sentences of this length are easy to understand. Short sentences make a certain neutral background in a text and carry factual information. For instance: (11 words) *Water is the source of life and health needed for the man that could not be replaced with anything.* JuodkVDD 45.

The frequency of usage of average-length sentences, which place second, is quite similar to that of short sentences. At the same time, they are used almost as frequently as short sentences on the first place (cf. 47.5 per cent and 47.8 per cent). Average-length sentences convey rather detailed information that does not need to be supplemented. For instance: (29 words) *After consulting psychologists, British businessman Simps started to advertise a map, where North was shown at the top of one page, as usual, yet at the bottom of another.* NavKSJ 22–23.

Very short, concise sentences underline parts of the text that are significant, important, need emphasising. For instance: (8 words) *If you don't want your files to be read, encrypt them.* JaudKP 30. Very short sentences in SP texts create an impression that the author is talking directly to the reader as well. For instance: (2 words) *What else?* (7 words) *Right now let's return to multi-charge ions.* (7 words) *But let's begin slightly at a distance.* RudzDTK 3. Sentences like that reflect optimal interaction between the author and the reader of the text. All at once, such sentences help strengthen reasoning, understand complicated episodes of recital.

Long sentences are not a typical feature of SP texts, accounting for only 4.7 per cent of all sentences. With the sentence growing in length, its structure changes, and long, clumsy sentences might prove hard to decode. When it comes to using long and very long sentences, the humanities hold the first place (7.0 per cent). This proves the idea that, compared to other fields of science, the results of the humanities are easier to understand for the society (Karazija, 2003), and the reader is able to adequately grasp the essence of the text, even if the sentence is quite complicated.

The differences among the groups of lengths of sentences in texts from different fields of science (see Table 1) is statistically meaningful, because $\chi^2$=16.8, $p < 0.05$. However, the dynamics of group distribution do not show any material changes in the

lengths and structures of sentences, but rather uncover the general inclination to shun long sentences with complicated structures in SP texts of all scientific domains.

The paradigm of sentence length groups is made more accurate by the details of length of simple and composite sentences (see Table 2).

SP texts are dominated by simple sentences, which account for more than one-half of the total selection (56.9 per cent). Most of the simple sentences cover the interval of 1 to 17 words. Short sentences prevail, with very short sentences placing second in terms of prevalence.

*Table 2. Groups of simple and composite sentence lengths*

| **Type of sentence** | **Sentence length groups (%)** | | | | **Sentence total (%)** |
|---|---|---|---|---|---|
| | **very short (1–8 words)** | **short (9–17 words)** | **average-length (18–30 words)** | **long and very long (31 words and more)** | |
| Simple | 37.8 | 49.5 | 11.5 | 1.2 | 56.9 |
| Complex | 4.6 | 45.5 | 39.6 | 10.3 | 43.1 |

Short simple sentences that account for nearly a half (49.5 per cent) of all short sentences are particularly handy to convey specific information about facts and events. The structure of sentences this long is rather uncomplicated, and therefore a text made up of short simple sentences is clear and easy to understand. For instance: (12 words) *Phlyctis argena is also one of the most common lichens in Lithuania.* (14 words) *It grows on deciduous trees and very often can be found on aspen trees.* (16 words) *Aspens growing in shadier places of a forest sometimes can be all covered in white patches.* MotiejK 45.

The usage of very short sentences (37.8 per cent) in SP texts relies very much on the segmentation of the sentence. When it comes to the subject texts, both simple sentences and elements of composite sentences can be segmented (it is segments of simple sentences that usually gain the informative character of an independent saying). Stemming from colloquial language, segmentation of syntactical units delineates breaks in thoughts, activation and actualisation of subjective elements of additions (Abaravičius, 2002; p. 17). For instance: (1 word) *Paradoxical.* (3 words) *And somehow terrible.* (3 words) *Can't be helped.* GrigŠDP 42.

Average-length simple sentences of 18–30 words are rather scarce in SP texts

(11.5 per cent), long and very long simple sentences of 31 words and more are not a defining feature of such texts either (1.2 per cent). It is safe to assume that the expansion of simple sentences that are very long and have a complex structure is checked by the internal potential of such structures to expand.

Simple sentences are usually expanded with lines of homogenous parts of the sentence (42.5 per cent of the cases). Rather than using isolated elements, there is a clear trend to expand sentences with an entire set of expansion elements (35.2 per cent).

Composite sentences occur in SP texts more frequently than simple sentences (43.1 per cent of all the sentences investigated). The average length of a composite sentence is 19.0 words (with a standard deviation of 8.4 words). Sentences of 9–30 words are most common: short (9–17 word) and average-length (18–30 word) sentences account for as many as 85.1 per cent of the subject texts (cf. 45.5 per cent and 39.6 per cent). One might think that the prevalence of sentences of this length results is driven by the structure of the composite sentence. Composite sentences are used to "convey information not about just one situation (event, fact), as it is with the simple sentence, but rather about two or more situations and the relationship that links them together" (Labutis, 2002; p. 145). For this reason, very short (1–8 word) composite sentences are somewhat scarce in the subject texts (4.6 per cent). Long and very long sentences of 31 words and more account for 10.3 per cent of all sentences in the subject texts. As it was already mentioned above, very long sentences are not a typical occurrence in the structure of SP texts.

Comparison of the frequency of usage of different types of sentences has revealed a tendency to use complex sentences (56.1 per cent of all composite sentences). Generalised or abstract researcher statements are used in the subject texts for the sake of precise, consistent expression, while the logic (as well as consistency, cohesion) of recital is accentuated with elements of subordinate clauses. Furthermore, the prevalence of complex sentences in SP texts apparently is caused by the fact that the precision, explicit definition, lack of ambiguity – the characteristic features of the relationship among the parts of a complex sentence – help understand information that is presented easier. Across the subject texts, short subordinate clauses are most abundant (49.8 per cent), followed by average-length subordinate clauses (37.8 per cent). Directly subordinate explanatory and determinative clauses prevail, accounting for 40.8 per cent

and 34.9 per cent of all subordinate clauses, respectively.

When it comes to distribution of composite sentences, mixed sentences carry a rather large weight (19.0 per cent of all composite sentences). They are not particularly long (average-length mixed sentences are predominant), and therefore they are handy to convey rather complicated information. SP texts are dominated by sentences of a stereotypical structure, which consists of two elements. There is a trend to use sentences composed of two elements in SP texts across all fields of science.

Versatile relations of the reality are expressed with compound sentences, which account for 14.2 per cent of all composite sentences in SP texts. More than one-half of all compound sentences are short (58.2 per cent of all compound sentences), with average-length compound sentences as the runner-up with 31.2 per cent. Compound sentences formed using coordinating conjunctions are predominant, accounting for 51.7 per cent of all compound sentences.

The least common of all composite sentences are asyndetic sentences, making up 10.7 per cent of the composite sentences. Apparently, homogenous, mutually independent elements of an asyndetic sentence "that often have a parallel structure and can interchange easily" (DLKG, 2006, 721) in SP texts tend to be broken into simple sentences of a simpler structure (the above frequency of usage of very short and short simple sentences stands to prove this fact). Most of the asyndetic sentences used in SP texts are short (57.6 per cent of all asyndetic sentences); average-length sentences occur half as frequently and place second (26.1 per cent). Asyndetic sentences that are based on supportive intonation prevail (49.1 per cent of all asyndetic sentences); such sentences are used to denote supportive, causal, explanatory and specifying relations.

The general parameters of sentence length show that sentence distribution across texts of different branches of science is rather even. That means that, judging by the general sentence length parameters popularisation texts in different branches of science are monolithic by nature.

## CONCLUSIONS

1. SP texts use the means of expression that suit the needs of efficient communication best. The constructive principle of SP texts is a contamination of the

means of expression with varying stylistical value. SP texts convey unbiased intellectual content, and its expression is achieved using actualised means.

2. Objective intellectual content is brought about using linguistic methods and means of expression that underline the principle of scientific nature of SP texts. Factual information, which provides the backbone for SP texts is presented following the requirements of accuracy (reliability) and validity and is based on generalised results of scientific research. So, the principle of scientific nature relates to professional precision (reliability), the logic of recital (consistency, coherence), abstractedness, objectiveness. There is a clear bias towards accessibility of content.

2.1. It was been established that SP texts use the special terms and definitions that are needed to convey scientific information. Terms can be explained by a description of the object, phenomenon or action that the term denotes; by disclosing the origins of the term; with synonyms; with figurative means of expression – metaphors and comparisons; with means of extra-verbal expression – charts, diagrams, pictures, etc. Typically, several methods to explain a term are employed.

2.2. SP texts refer to sources of information by identifying subjects of science. Such identification is accompanied by additional information about researchers, specifying their attributes. This information may consist of nationality or place of residence; scientific or professional activity. A combination of these attributes is the most common tool to identify science subjects. Additional attributes can be classed as neutral (e.g., specify scientific discoveries, acknowledgements of scientific activity, kinship, time) and subjective, like the author's personal views or estimates.

3. The dynamic system of the means of expression of impact, which is based on the principle of accessibility and relevance, reveals the following stylistic qualities: expressiveness, concreteness, subjectivity and blatancy. The actualised means that are used to carry out the function of impact belong to different language tiers (semantic and syntactic figures).

3.1. The function of impact in SP texts can be implemented with "kitchen-sink" words. This gives an impact of a lively, emotional, down-to-earth communication and eliminates the boundary of formality between the one who conveys information and someone who is receiving it.

3.2. Semantic figures (comparison, metaphor, metonymy, etc.) are not only used in

SP texts to an emotional effect – in the subject texts, the potential of such means to convey factual information in a concise manner is equally important. In SP texts, objects of comparison are usually the names of items or phenomena that are familiar to the reader from daily activity. Scientific concepts are connected to well-known examples from daily experiences using metaphors as well. Used in SP texts, metaphor enables the reader to develop a new understanding of the research subject, to take a look at the traditional concepts from a different angle; this makes SP texts both stereotypical and individualised all at the same time. There are two areas in which metaphors make sense in SP texts: *Man* and *Nature*, the metaphoric model of *Man* being the more active. Metonymic transfer of meaning in SP texts usually relies on physical experience communication, mundane items, actions, events, and so on).

3.3. Syntactical figures (interrogative sentences, exclamatory sentences, ellipsis, reticence, repetition of lexical and syntactical means, etc.) in SP texts are used both to create an expression of the mind, and to reveal pragmatic attitudes.

4. The unique character of SP texts is supported by their syntactical and morphological qualities:

4.1. Just like scientific texts, SP texts are dominated by short sentences (cf. 42.8 per cent and 47.8 per cent). Compared to scientific texts, the subject SP texts employ rather few average-length, long and very long sentences. This distribution of sentence length groups in SP texts (bias towards using shorter sentences) points to a similarity between SP texts and publicity texts, yet such texts still stand apart in terms of the frequency of using short sentences, which in SP texts can be found in smaller numbers comparing to publicity texts (cf. general data, usage of simple sentence length groups). The general parameters of sentence length and elements of simple and composite sentences indicate that the majority of parameters place SP texts in between scientific and publicity texts (cf. usage of composite sentence length groups).

4.2. Quantitative data on distribution of parts of speech show SP texts to be quite similar to scientific texts in terms of their morphological structure and by the frequency of usage of nouns, numerals, verbs, adverbs, particles, conjunctions.

4.3. The unique structure of SP texts is furthermore revealed by the usage of adjectives, pronouns, prepositions and emotional parts of speech. Compared to scientific texts, SP texts use less adjectives (cf. 9.3 per cent in SP texts and 12.5 per cent in

scientific texts), yet they include more pronouns (cf. 9.0 per cent and 6.9 per cent), prepositions (cf. 4.6 per cent and 3.8 per cent), interjections and such (cf. 0.22 per cent in SP texts, and none in scientific texts). SP texts differ from scientific texts by the relative frequency of usage of verb tenses as well. Present tense in SP texts accounts for 62.6 per cent of all tenses and is more prevalent in scientific texts (73.4 per cent).

4.4. Information in SP texts from different fields of science is presented in rather stereotypically sized sentences, with an obvious common bias towards steering clear of long and clumsy sentences (cf. general sentence length parameters). Usage of simple and composite sentence length groups is more or less even across texts of all scientific fields, speech part distribution in a sentence does not point to a significant variation between texts from different fields of science either. The data obtained were evaluated against statistic criteria to show that syntactical and morphological parameters integrate SP texts from different fields of science. This means that, in terms of morphological and syntactical parameters, SP texts are homogenous. The author first of all focuses on the addresser, which eliminates any boundaries among scientific information from isolated areas. This integration of different scientific fields by subject attributes is not a typical feature of scientific texts.

5. The end results support the hypothesis that SP texts are defined by the unique screening of the means of expression, unique ratio of frequencies and organisation of syntactical structures. Therefore, the linguistic properties of SP texts are a frequency measured as a certain interval of distribution rather than a variety of syntactical and morphological structures. The results of the study confirm that SP texts are typically well structured, with elements of different levels interacting and serving the key purpose of communication. SP texts regularly use syntactical and morphological means that are defined by simplicity and clarity. Such adherence to standard creates a speech that helps conveying scientific information in a way that is understandable to mass reader.

## MOKSLO POPULIARINAMŲJŲ TEKSTŲ KALBOS YPATYBĖS

Santrauka

**Darbo objektas, tikslas ir uždaviniai.** Disertacijos objektas yra mokslo populiarinamieji tekstai (toliau – MP tekstai), skirti plačiajai visuomenei. Darbe mokslo populiarinimas suvokiamas kaip komunikacinė mokslininko ir plačiosios visuomenės sąveika, kaip pagrindinių žinių ir faktų apie mokslą ir technologijas pateikimas visuomenei populiariai ir suprantamai. MP tekstuose teiginiai ir sąvokos pateikiami atsižvelgiant į svarbiausią nelingvistinį veiksnį – asmens pažintinę veiklą.

Darbo tikslas – nustatyti ir aprašyti MP tekstų, skirtų plačiajai visuomenei, kalbos ypatybes, kurios skiria tiriamuosius tekstus nuo kitų tekstų ir leidžia MP tekstus laikyti atskiru teksto tipu.

Tikslui pasiekti kelti šie uždaviniai:

1. Surinkti ir analizei parengti empirinę tyrimo medžiagą.

2. Išskirti būdingiausias MP tekstų kalbos ypatybes ir atskleisti jų funkcionavimo tekste galimybes.

3. Remiantis kiekybiniais metodais, įvertinti morfologinę ir sintaksinę MP tekstų sandarą ir bendrųjų parametrų atžvilgiu aptarti MP tekstų diferenciacijos ir integracijos tendencijas.

**Darbo naujumas ir aktualumas.** Darbo naujumas sietinas su darbo objektu. Lingvistinėje literatūroje MP tekstų specifika mažai tyrinėta. Šis darbas – pirmoji didesnė studija, kurioje nagrinėjami plačiajai visuomenei skirti MP tekstai.

Darbo aktualumą pirmiausia lemia tai, kad mokslo populiarinimas Lietuvoje pastaraisiais metais tampa vis reikšmingesnis. Mokslo ir technologijų populiarinimo veikla siekiama visuomenę objektyviai informuoti apie mokslo naujoves, skatinti žinių visuomenės raidos tendencijas ir perspektyvas.

Disertacijos medžiaga ir teiginiai, išvados gali būti reikšmingi tolesniems funkcinės stilistikos (ypač mokslinio stiliaus) tyrimams, konkretinant atskirų kalbos atmainų ar funkcinių stilių sąveikos sampratą, atskleidžiant funkcinių stilių pokyčių tendencijas. Tyrimo rezultatai gali būti pritaikomi dėstant stilistikos, tekstų tipologijos, teksto lingvistikos dalykus.

**Darbo medžiaga ir tyrimo metodai.** Tyrimo medžiaga atsitiktinės atrankos būdu rinkta iš lietuvių autorių MP straipsnių ir knygų, skirtų plačiajai visuomenei. MP tekstų lingvistiniams požymiams nustatyti buvo sudaryta bendra sakinių imtis, o atskiroms hipotezėms tikrinti buvo formuojamos naujos imtys, atitinkančios statistinio patikimumo kriterijus. Pagrindinė imtis stratifikuota atsižvelgiant į patvirtintą mokslo sričių klasifikaciją. Lietuvių kalbos MP tekstų analizė parodė, kad ypač mažai esama technologijos mokslų MP tekstų. Šiuos tekstus įvertinus kokybiškai, padaryta išvada, kad jie skirti kitų mokslo sričių specialistams ir pagal turinį ir raišką yra artimesni teoriniam moksliniam stiliui. Todėl šiame darbe tiriamoji imtis sudaryta iš keturių mokslo sričių tekstų: biomedicinos, fizinių, humanitarinių ir socialinių mokslų.

Imties vienetas – sakinys, nes dalykinę informaciją perteikiančių ir aktualizuotų kalbos vienetų stilistinė vertė išryškėja kontekste. Atliekant statistinį tyrimą, laikytasi gana formalios sakinio apibrėžties. Sakiniu laikyta teksto atkarpa nuo taško iki taško ar kito formalią sakinio baigtį žyminčio skiriamojo ženklo. Sakinio ilgio matavimo vienetas – žodis, t. y. iš abiejų pusių intervalais atskirta grafemų eilutė arba viena grafema. Šių sakinio ir žodžio sampratų laikomasi didumoje statistiniais metodais grindžiamų darbų (Mistrík, 1985; Тулдава, 1987; Bitinienė, 1997).

Šiame darbe taikomas aprašomasis analitinis metodas, kuris padeda sistemiškai aiškinti ir atskleisti kalbos priemonių realizaciją MP tekstuose. Ne mažiau svarbus ir gretinamasis metodas, padedantis sugretinti MP tekstus su moksliniu stiliumi ir atskleisti lingvistinių požymių sklaidą, priklausančią nuo teksto tematikos, t. y. mokslo srities.

Darbe taip pat laikomasi gautų duomenų interpretavimo principo – kiekybinės ir kokybinės analizės vienovės, kuri priklauso nuo funkcinių stilių esmės. Remiantis kokybine analize, atrinkti sakiniai, kurių skiriamoji geba ir koreliacija buvo tikrinta atskirų tekstų teminių grupių atžvilgiu. Remiantis kiekybiniais metodais, įvertinta sintaksinė ir morfologinė MP tekstų sandara.

Sakinių sintaksinei sandarai tirti suformuota ir nagrinėta 2 000 sakinių imtis (iš viso įvertinta 29 000 skaičiavimo vienetų). Imtis stratifikuota atsižvelgiant į tiriamųjų tekstų priklausymą mokslo sritims. Analizuojamos šios MP tekstų sintaksinės ypatybės: aptariamas įvairių tipų sakinių vartojimo dažnis ir sakinių ilgis, nagrinėjamas vidutinis sakinio ilgis, sakinių ilgio grupės. Atskirai aptartos ir MP tekstų diferenciacijos ir

integracijos tendencijos: siekta nustatyti, kiek vienos mokslo srities tekstai skiriasi nuo kitų mokslo sričių tekstų. Bendrųjų sakinio ilgio parametrų atžvilgiu darbe įvertinti skirtingų mokslo sričių tekstai. Siekiant gauti išsamesnę informaciją apie sakinių ilgio grupių pasiskirstymą, sakiniai suskirstyti dviejų žodžių intervalu, o labai trumpų sakinių grupei priklausantys sakiniai – netgi vieno žodžio intervalu. Toks skirstinys gali padėti išryškinti skirtingų mokslo sričių tekstų sakinių įvairovę. Tiriant kalbos dalių distribuciją sakinyje anksčiau minėta imtis buvo papildyta naujais duomenimis (2 000 sakinių, 28 730 skaičiavimo vienetų). Tiriant mokslo subjektų atributus papildomai suformuota ir nagrinėta 500 sakinių imtis (7 271 skaičiavimo vienetas). Duomenys pateikiami procentine išraiška. Siekiant atskleisti sudėtinių sakinių semantinius tipus, tirti dviejų dėmenų sudėtiniai sakiniai. Suformuota ir nagrinėta 1 200 sakinių imtis (19 416 skaičiavimo vienetų).

Iš viso statistinei analizei sudaryta 5 700 sakinių imtis, įvertinta 84 417 skaičiavimo vienetų. Sakiniams tirti taikyta statistinio tyrimo programa „Paula“ (Битинас, Паулавичюс, 1987). Gautų statistinių duomenų skirtumo patikimumas, atsižvelgus į parametrų pobūdį ir dydį, vertintas $\chi^2$ kriterijumi (dėl tyrimo metodų ir jų taikymo žr. Bitinas, 1974, 1998, 2006).

Stiliaus figūros buvo rinktos iš visų tiriamų MP tekstų. Joms analizuoti pasirinktas aprašomasis analitinis metodas.

**Ginamieji teiginiai:**

1. MP tekstų konstruktyvusis principas – skirtingą stilistinę vertę turinčių kalbos priemonių kontaminacija.

2. MP tekstų kalbinei raiškai didelę įtaką turi nelingvistinis veiksnys – adresatas (plačioji visuomenė). Tikslingai veikiant adresatą, tiriamuosiuose tekstuose pasireiškia poveikio funkcija, kuriama ekspresinėmis kalbos priemonėmis. Kalbos priemonės, MP tekstuose sietinos su objektyvaus intelektinio turinio realizacija, atlieka informacinę (dalykinio pranešimo) funkciją.

3. Orientuojantis į adresatą – plačiąją visuomenę – išnyksta ribos tarp atskirų sričių mokslinės informacijos. Skirtingų mokslo sričių lietuvių kalbos MP tekstai pagal morfologinius ir sintaksinius parametrus yra homogeniški.

4. Bendrųjų sakinio ilgio parametrų atžvilgiu MP tekstai užima tarpinę padėtį tarp mokslinių ir publicistinių tekstų. Morfologinė sandara patvirtina MP tekstų artimumą

moksliniams tekstams.

**Darbo aprobavimas.** Disertacijoje atlikto tyrimo rezultatai pristatyti keturiuose moksliniuose straipsniuose (žr. publikacijų sąrašą), skaityti penki pranešimai tarptautinėse mokslinėse konferencijose. Disertacija svarstyta Vilniaus universiteto Lietuvių kalbos katedros posėdyje 2011 m. rugsėjo 22 d. ir rekomenduota ginti.

**Darbo struktūra.** Disertaciją sudaro įvadas, dvi pagrindinės dalys: „Mokslo populiarinamųjų tekstų charakteristika“, „Kalbinės raiškos priemonės ir jų funkcionavimas MP tekstuose“, išvados, šaltiniai, literatūros sąrašas. Įvadinėje dalyje pristatomas darbo objektas, iškeltas tikslas ir uždaviniai, pateikiami ginamieji teiginiai, aptariamas darbo naujumas ir aktualumas, tiriamoji medžiaga, kiti bendrieji dalykai. Pirmoje darbo dalyje pateikiama MP tekstų samprata, aptariami funkciniai MP tekstų požymiai. Referuojami svarbesnių tyrimų disertacijos tema rezultatai, nurodomi šiam darbui svarbūs teoriniai teiginiai. Antroje dalyje aptariamas kalbinių raiškos priemonių vartojimas MP tekstuose. Pirmame skyriuje aprašomas leksinės raiškos savitumas. Nagrinėjama terminų, mokslo subjektų atributų, šnekamosios leksikos vartosena. Antras skyrius skirtas specialiųjų raiškos priemonių – stiliaus figūrų – funkcionavimui MP tekstuose aptarti. Nagrinėjamas semantinių figūrų ir tropų, sintaksinių figūrų funkcionavimas MP tekstuose. Trečiame ir ketvirtame darbo skyriuose atskleidžiamos MP tekstų lingvistinių struktūrų ypatybės – nagrinėjami tiriamųjų tekstų statistiniai sintaksės ir morfologijos duomenys. Trečiame skyriuje aptariamos MP tekstų morfologinės ypatybės, ketvirtas skyrius skirtas tiriamųjų tekstų sintaksinei sandarai aptarti: pateikiama bendroji sakinio ilgio charakteristika, vientisinių sakinių ilgis ir struktūra, sudėtinių sakinių ilgis ir tipai. Gauti tiriamųjų tekstų statistiniai duomenys lyginami su mokslinio stiliaus ir atskirais atvejais su publicistinio stiliaus tekstų duomenimis, pateikiama lyginamoji skirtingų mokslo sričių MP tekstų analizė. Svarbiausi darbo rezultatai pateikiami išvadų skyriuje. Pabaigoje pateikiami šaltinių ir literatūros sąrašai. Tyrimų rezultatai pateikti 5 lentelėse ir 20 paveikslų.

**Išvados:**

1. MP tekstuose vartojamos tos priemonės, kurios geriausiai atitinka efektyvios komunikacijos poreikius. Tiriamųjų tekstų konstruktyvusis principas – skirtingą stilistinę vertę turinčių kalbos priemonių kontaminacija. MP tekstais perteikiamas objektyvus intelektinis turinys, o jo raiškos forma realizuojama aktualizuotomis priemonėmis.

2. Objektyvus intelektinis turinys realizuojamas per kalbos būdus ir raiškos priemones, kurios formuoja MP tekstų moksliškumo principą. Faktinė informacija, kuria remiasi MP tekstas, pateikiama laikantis tikslumo (patikimumo), pagrįstumo reikalavimų, ji paremta apibendrintais mokslinio tyrimo rezultatais. Taigi moksliškumo principas sietinas su dalykiniu tikslumu (patikimumu), dėstymo logiškumu (nuoseklumu, rišlumu), abstraktumu, objektyvumu. Pastebimas orientavimasis į turinio prieinamumą.

2.1. Nustatyta, kad MP tekstuose vartojami tie specialieji terminai ir definicijos, kurie yra būtini perteikti mokslinę informaciją. Terminai gali būti aiškinami pateikiant daikto, reiškinio ar vyksmo, kurį terminas žymi, apibrėžtį; atskleidžiant termino kilmę; sinonimais; vaizdingosiomis kalbos priemonėmis – metaforomis ir palyginimais; neverbalinės raiškos priemonėmis: grafikais, schemomis, paveikslais ir kt. Dažniausiai terminas aiškinamas keletu būdų.

2.2. MP tekstuose informacijos šaltiniai reiškiami įvardijant mokslo subjektus. Šalia įvardijimo pateikiama papildoma pažintinė informacija apie tyrėjus (vartojami atributai). Gali būti nurodoma tautybė ar gyvenamoji vieta; mokslinė ar profesinė veikla. Šių atributų junginys – dažniausia mokslo subjektų raiškos priemonė. Papildomieji atributai gali būti neutralieji (pvz., nurodomi moksliniai atradimai, mokslinės veiklos įvertinimai, giminystės ryšiai, laikas) ir subjektyvieji (pateikiamas autoriaus požiūris ar vertinimas).

3. Poveikio kalbos priemonių dinamiška sistema, orientuota į prieinamumo ir aktualumo principą, atskleidžia tokias stilistines ypatybes: ekspresyvumą, konkretumą, subjektyvumą, akivaizdumą. Poveikio funkciją realizuojančios aktualizuotos priemonės yra skirtingų kalbos lygmenų (semantinės ir sintaksinės figūros).

3.1. Poveikio funkcija MP tekstuose gali būti realizuojama buitinio stiliaus atspalvį turinčiais žodžiais. Taip kuriamas gyvo, emocionalaus buitinio bendravimo efektas, ištrinama oficialumo riba tarp pranešančiojo informaciją ir ją priimančiojo.

3.2. Semantinėmis figūromis ir tropais (palyginimu, metafora, metonimija ir kt.) MP tekstuose siekiama ne tik emocinio poveikio – tiriamuosiuose tekstuose svarbu ir šių priemonių galimybė lakoniškai perteikti faktinę informaciją. MP tekstuose palyginimo objektai dažniausiai esti pavadinimai tų daiktų ar reiškinių, kurie skaitytojui gerai žinomi iš kasdienės veiklos. Mokslinės sąvokos su gerai žinomais kasdienės patirties pavyzdžiais tapatinamos ir metaforiškai. Metafora MP tekstuose leidžia naujai suvokti

tyrimo objektą, sudaro galimybę naujai pažvelgti į įprastines sampratas (vienu metu realizuojamas stereotipiškumas ir individualumas). MP tekstuose nustatytos dvi MP tekstų metaforinio įprasminimo sritys: *Žmogus* ir *Gamta* (aktyvesnis yra *Žmogaus* metaforinis modelis). Metoniminis reikšmės perkėlimas MP tekstuose dažniausiai grindžiamas fizine patirtimi (bendravimu, kasdienybės daiktais, veiksmais, įvykiais ir kt.).

3.3. Sintaksinėmis figūromis (klausiamaisiais sakiniais, šaukiamaisiais sakiniais, elipse, nutylėjimu, leksinių ir sintaksinių priemonių kartojimu ir kt.) ne tik kuriama minties ekspresija, bet ir atskleidžiamos pragmatinės nuostatos.

4. MP tekstų savitumą patvirtina sintaksiniai ir morfologiniai tekstų požymiai:

4.1. MP tekstuose (kaip ir moksliniuose tekstuose) vyrauja trumpi sakiniai (plg. 47,8 proc. ir 42,8 proc.). Palyginti su moksliniais tekstais, tirtuose MP tekstuose nedaug vartojama vidutinio ilgio, ilgų ir labai ilgų sakinių. Toks MP tekstų sakinių ilgio grupių pasiskirstymas (polinkis vartoti trumpesnius sakinius) rodo MP ir publicistinių tekstų suartėjimą, tačiau šiuos tekstus skiria labai trumpų sakinių vartojimo dažnis – MP tekstuose labai trumpų sakinių vartojama mažiau negu publicistikoje (plg. bendruosius duomenis, vientisinių sakinių ilgio grupių vartoseną). Bendrieji sakinių ilgio parametrai ir vientisinių ir sudėtinių sakinių duomenys rodo, kad pagal didumą parametrų MP tekstai yra tarsi tarpiniai tarp mokslinių ir publicistinių tekstų (plg. sudėtinių sakinių ilgio grupių vartoseną).

4.2. Kiekybiniai kalbos dalių pasiskirstymo duomenys rodo, kad MP tekstai pagal morfologinę sandarą yra gana artimi moksliniams tekstams. MP tekstus ir mokslinius tekstus integruoja daiktavardžių, skaitvardžių, veiksmažodžių, prieveiksmių, dalelyčių, jungtukų vartojimo dažnis.

4.3. Savitą MP tekstų sandarą atskleidžia būdvardžių, įvardžių, prielinksnių ir emocinių kalbos dalių vartosena. Palyginti su mokslinio stiliaus tekstais, MP tekstuose mažiau vartojama būdvardžių (plg. MP tekstuose sudaro 9,3 proc. moksliniuose tekstuose – 12,5 proc.), tačiau daugiau esama įvardžių (plg. 9,0 proc. ir 6,9 proc.), prielinksnių (plg. 4,6 proc. ir 3,8 proc.), jaustukų, ištiktukų (plg. MP tekstuose – 0,22 proc., moksliniuose tekstuose nevartojama). MP tekstus nuo mokslinių tekstų skiria ir veiksmažodžio laikų santykinis dažnis. Esamojo laiko formos MP tekstuose sudaro 62,6 proc., o moksliniuose ši persvara yra didesnė (73,4 proc.).

4.4. Skirtingų mokslo sričių MP tekstuose informacija pateikiama gana stereotipinio ilgio sakiniais, pastebimas bendras polinkis atsisakyti ilgų ir sudėtingos struktūros sakinių (plg. bendruosius sakinio ilgio parametrus). Visų mokslo sričių tekstuose gana tolygiai vartojamos vientisinių ir sudėtinių sakinių ilgio grupės, kalbos dalių pasiskirstymas sakinyje taip pat nerodo esminio skirtingų mokslo sričių tekstų skirtumo. Gauti duomenys, įvertinti statistiniais kriterijais, atskleidė, kad sintaksiniai ir morfologiniai parametrai integruoja skirtingų mokslo sričių MP tekstus. Vadinasi, MP tekstai pagal morfologinius ir sintaksinius parametrus yra homogeniški. Autorius visų pirma orientuojasi į adresatą, todėl išnyksta ribos tarp atskirų sričių mokslinės informacijos. Tokia skirtingų mokslo sričių integracija pagal tiriamuosius požymius nebūdinga mokslinio stiliaus tekstams.

5. Gauti rezultatai patvirtina iškeltą hipotezę, kad MP tekstams būdinga savita kalbos priemonių atranka, savitas dažnių santykis ir sintaksinių struktūrų organizacija. Todėl MP tekstų lingvistiniai požymiai yra ne sintaksinių ir morfologinių struktūrų įvairovė, o dažnis, kuris matuojamas tam tikru pasiskirstymo intervalu. Tyrimo rezultatai patvirtina, kad MP tekstams būdingas sistemiškumas – įvairių lygmenų elementai sąveikauja ir realizuoja svarbiausią komunikacinį tikslą. MP tekstuose reguliariai vartojamos sintaksinės ir morfologinės priemonės, kurioms būdingas paprastumas ir aiškumas. Dėl šio standartiškumo formuojasi kalbėjimo būdas, kuris padeda perteikti mokslinę informaciją taip, kad ją suvoktų masinis skaitytojas.

## PUBLIKACIJOS DISERTACIJOS TEMA
## (PUBLICATIONS ON THE TOPIC OF DISSERTATION)

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