NOMINALIZATION AS A LEXICO-GRAMMATICAL COHESIVE DEVICE IN SCIENCE POPULAR TEXTS

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1. Introductory observations

The organization of discourse as one of the central issues of discourse analysis has been an object of interest of many linguists: Halliday and Hasan (1976), Beaugrande and Dressler (1981), Swales (1990), Martin (1992), Beaugrande (1996), Goutsos (1997) to mention the most prominent ones. The term 'organization' manifests itself as "the sum of relations which hold between the units of text <…> and between each unit and the whole" (Goutsos 1997, 138). Meanwhile the term 'discourse' refers to verbal communication in its situational and social context. Discourse organization consists of three levels: cohesion, coherence and genre. It has been widely discussed that both cohesion and coherence are necessary for the organization of discourse and are analyzed in the individual texts. Consequently, these texts belong to a certain genre, which places them into context.

Cohesion is one of the text properties that contributes to the organization of discourse: it is related to the connectedness of the surface elements in the text. Thus cohesion refers to the semantic relations in the text, whereas coherence refers to semantic and pragmatic relations between parts which are interpretable against the background of specific world knowledge (Beaugrande and Dressler 1981). Halliady and Hasan (1976, 299) emphasize that cohesion is sensitive to different discourses, "it is the continuity provided by cohesion that enable the reader or listener to supply all the missing pieces, all the components of the picture which are not present in the text but are necessary to its interpretation". The concept of genre refers to the pragmatic knowledge shared by the members of a discourse community about a more or less conventionalized class of communicative events with common communicative purposes (Cf. Swales 1990).

Research articles on the genre of science have been the subject of much investigation (see Swales 1990; Halliday and Martin 1993; Beaugrande 1996; Banks 2003).
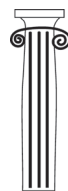
Popular science texts function as narratives of research reporting on new knowledge claims and not endorsed as fact by the research community. To put in simpler terms, they focus on people's knowledge: what they say and think. As noted by Myers (1990a, 1990b), popular texts use different cohesive devices, construct a different narrative of science, and present a different view of scientific activities. Moreover, Halliday (2004, 162) emphasizes the importance of studying the language of science, due to the fact that science and the language of science are two indissoluble entities.

The difficulty of the scientific language is not limited to the lexical level but it also applies to a range of specific grammar structures that characterize this discourse. Nominalization is one of the lexico-grammatical structures causing a higher degree of complexity in scientific texts, i.e. these structures serve as complex encodings of processes into nouns and they contribute to the increase of complexity in texts. Thus the aim of the present study is to analyse English science popular texts with regard to lexico-grammatical cohesive device – nominalization.

Nominalizations is a feature of written English, particularly a feature of scientific English. In the scientific discourse, nominalization as a process is used to "create technical taxonomies; it helps the writer to relate one process to another and thus create chains of reasoning" (Halliday 1988, 195). Last but not least, nominalization contributes to language economy. Thus we hypothesize that nominalization as a cohesive device plays a pivotal role in structuring of science popular texts as well.

2. Materials and methodological considerations

In our pilot study, we would like to stress the importance of the embedding of these cohesive relations when dealing with nominalizations as text building devices. For the investigation of the research question we built a corpus comprising science popularization text genre. A quantitative analysis based on the on-line English magazine *Popular Science* (see http://www.popsci.com/) sheds some light on the patterns with embedded nominalizations in the texts. *Popular Science* is an American monthly magazine founded in 1872 carrying articles for the general reader on science and technology subjects. It has been translated into over 30 languages and goes out to at least 45 countries. It deals with the topics on Military, Gadgets, Technology, Science, Medicine, etc. each covering a variety of subtopics.

The analysis is based on a corpus of 150 articles drawn from the mentioned on-line magazine covering the period from January, 2011 to March, 2012. The corpus has been designed to contribute to nominalization patterns which function in such texts. Still under compilation, the articles are not ranked under different subcorpora, i.e. according to different fields of science.

For the purpose of this study, the descriptive-analytical method was used in order to explain and disclose the nominalizations as cohesive devices. As the present work is not a transformational account of nominalizations in English, the transformational method was only employed to show the relationship between the underlying
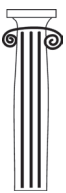
proposition and the respective nominalization. Thus the direction of our analysis is from the proposition to the nominalization and from the nominalization to its textual functions.

The factors we need to take into consideration are: the patterns of the lexico-grammatical cohesive relations in which nominalization takes place and the textual and semantic distance between the lexical items and the type of relation.

3. Theoretical prerequisites
3.1. The genre of science popular texts

In the last few decades, the increasing number of science articles are categorized as "science popularization" or "science popular texts" i.e. popular science for the public. The most considerable difference between the genres of popular science and specialized science is in their target audience. The genre of popular science is different from specialized (i.e. research or academic) science in its predominant features of interaction between writers and readers. The writing is rather personalized, and the main purpose is just to present the information to the readers while in specialized writing the author communicates accurate information to the readers. According to Hyland (2005, 37), "<…> academic papers written for specialists and popularized accounts of this research differ in their purposes and audiences, and so in their use of language". Popular science texts are written for the people who are not professional in some definite field of science, and this difference tends to lead to the conclusion that popular science writing is a process of simplification from academic language to ordinary language by means of avoiding technicalities (Cf. Halliday and Martin 1993).

However, the studies of linguistic features in popular science texts in recent years have altered the traditional view that it is a process of simplification based on academic science. Rather, popular science is regarded as a sub-genre in science writing, with its own unique linguistic features of interaction (Varttala 1999; Meyers 1989, 1990a, 1990b, 1991; Calsamiglia 2003; Parkinson and Adendorff 2004 to mention a few). For instance, Myers (1989) compares linguistic strategies such as hedging, pronouns, jokes, etc. and relates them to the different politeness strategies used between expert-expert communication and expert-lay audience communication. He finds that in science popular texts more writer's personal (i.e. subjective) features can be seen. Referring to the usage of language in popular science texts, Calsamiglia (2003, 142) reminds language researchers to be aware of "conceiving the linguistic representation of science as rhetoric-free, maximally informative and transparent". Parkinson and Adendorff (2004) compare the different writer-reader relationship in academic science writings, popular science writings, and textbook writings. They draw the conclusion that the writer of popular science, in order not to treat the readers as outsiders, has to use some definite language patterns. Furthermore, Hyland (2005, 49) categorized the linguistic resources into two rhetorical goals:
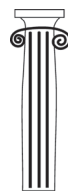
1) to guide the reader via the text : the linguistic resources available are cohesive devices , such as conjunctions and deixis;

2) to involve the writer and reader in the text: the linguistic resources available are attitudinal markers, such as hedges and boosters as well as first and second personal references.

Generally speaking, popular science texts depend mainly on repetition, but they can use replacement, conjunctions, pronouns, and other devices as well. To cite Myers (1991, 5), "the range of devices in the popular texts makes for explicit cohesion that allows the links between sentences to serve as a basis for inferences about the meanings of any unfamiliar terms".

On a surface structure level, the sense relations between the text-sentences must be realized using appropriate structural signals. These signals form four groups: 1) grammatical, 2) lexico-grammatical, 3) lexico-syntactic and 4) lexical. Grammatical cohesive devices include reference, substitution and ellipsis; lexico-grammatical cohesive devices include articles, pronouns, conjunctives, conjunctive adjectives, particles, modal words, quantifiers, nominalizations; lexico-syntactic cohesives include periphrasis and parenthesis and, finally, lexical cohesive devices include lexical repetition, synonyms, antonyms, general nouns (superordinates), hyponyms, meronyms, paronyms and converses (Cf. Halliday and Hasan 1976; Valeika 1985, 73–102). As can be seen, nominalizations are only one of the relatively large group of the cohesives.

However, in scientific research articles as well as in science popular texts nominalizations as cohesive devices play a significant role and contribute to understanding of the text. Nominalization is a key linguistic device in the study of language change in scientific registers and, as Halliday asserts: "there has been a steady drift towards the nominalizing region" (2004, 175).

3.2. The concept of nominalization

Language is a flexible system. Its flexibility manifests itself in the ability of its units to adapt to changing needs by making the units assume new functions – semantic, syntactic and informational-pragmatic. In assuming 'new duties', language units – words, sentences – undergo appropriate modifications, or transpositions. Both the functional and the generative grammarians have tried to produce a consistent theory of nominalization. Within the generative tradition, nominalization is defined as a process that transforms a verbal phrase into a nominal form (Cf. Chomsky 1970; Fillmore 1968; Lakoff 1970). A fresh impetus to the study of nominalizations was given in the 1980s by the work of functional grammarians. Functional linguists produced two markedly different directions in the study of nominalizations: one , more theoretical, represented by Jackendoff (1981), Givón (1984), McCawley (1999), who focused their analysis on the study of nominalizing transformations, the other, a less 'formalist' direction, which leads towards Halliday's general theory of the phenomenon of nominalization, referred by him to as grammatical metaphor (1994).
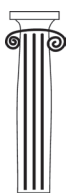
To Halliday, a nominalization is the result of the metaphorization of the process. Nominalization, then, is a linguistic mechanism whereby the process is realized as an entity. A nominalization, however, is not an autonomous unit; it arises in the text and is based on an underlying proposition which is a set of the relationships of the verb with its actants. Downing and Locke (1992, 149) argue that "here grammar borders on lexis, and different languages have different means of visualizing one semantic function as if it were another". According to Ravelli (1988, 144–145), a nominalization, or metaphorical expression, "which construes processes as nominal groups, makes it possible for two process meanings to be linked to each other within a clause; this type of incongruent construal leads to a higher lexical density (more lexical words in the same clause) and a lower grammatical intricacy (the systems of clause complexing are avoided)". Processes construed as entities create new possibilities for the textual organization of a clause: a process meaning can now function as the Theme of the clause whereas in the congruent pattern, the Theme function is restricted to participants and circumstances; it can also become the Rheme of the clause (Cf. Ravelli 1988, 145).

Banks (2003, 129) argues that there are a number of options available in a language creating nominalized forms of processes, though not all options are necessarily available for an individual verb: nominalizations which are morphologically identical with the agnate verb (e.g. *haul, estimate, change*); 2) nominalizations which have no agnate verb, but which nevertheless indicate a process (e.g. *trend, occasion*); 3) nominalizations which have an agnate verb, but are not morphologically identical (e.g. *growth, preference, reading*).

Nominalizations or, put simply, the use of abstract nouns, facilitate the taxonomy of scientific terms, enhance the compressive expression of complex information, allow the smooth development of the arguments and allow the formation of new conceptual entities (Halliday 1994; Pueyo and Val 1996).

4. Research findings

The text is not a simple collection of sentences: the sentences used in the text are integrated logically-semantically what makes the coherence of the text. The coherence is realized by cohesion, i.e. linguistic means. The logico-semantic integration means two things: 1) the adjacent text-sentence must be connected through a constituent expressing the same meaning, i.e. the constituent that appears in the succeeding sentence must be related semantically to the preceding sentence; 2) the meanings of the sentences used must be compatible semantically. Meaning compatibility means that sentences making up the text must express meanings that do not contradict one another; it also means that the meanings do not reiterate one another – they must complement each other.

In the corpus under analysis, nominalizations functioned in two patterns of cohesive relations: implicitly and explicitly. The use of the two patterns of cohesion significantly contribute to the general coherence of the popular science discourse.
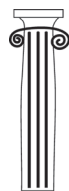
Whether the stretches of a text include or not include underlying propositions, the presence of a nominalization is generally conceived of as a text-unifying factor: the reader automatically establishes a link between the nominalization (i.e. an element of the surface structure) and the underlying proposition (i.e. the deep structure of the nominalization). Consider:

1) *It's perfectly conceivable that future **developments** in physics would conflict with scalable quantum **computing**, in the same way that relativity conflicts with faster-than-light **communication**, and the Second Law of Thermodynamics conflicts with perpetuum mobiles.*

2) *The most ambitious have used Minecraft's voxels to build working computers and replicas of Star Trek the Next Generation's Enterprise. But the activity loop of **exploration, resource gathering and creation** has proven entertaining for gamers of all stripes.*

As already has been mentioned, nominalization belongs to lexico-grammatical cohesive relations. The cohesion of the text is generally realized by linguistic devices which help the reader to see the logico-semantic ties better. Consider the following examples:

3) ***An air shock** followed several seconds later, lofting these nanodiamonds and other carbon particles into the atmosphere, spreading them around. Mega mammals starved, unable to forage on the scorched earth, and human populations dwindled. **The shock** on the atmosphere was enough to lower global temperatures for a thousand years.*

4) *This is according to **a new study** of ancient Mexican nanodiamonds, and it's another salvo in a longstanding ancient-climate dispute. **The study** bolsters the controversial argument that an asteroid impact might have chilled the planet during the Younger Dryas, an abrupt and very short cold interval that started about 12,900 years back.*

A cohesive item of the referential cohesion always points backward or forward to another specific item with identity of reference. Lexico-grammatical cohesion should be investigated as a network of relations. To put in other terms, this type of cohesion relates to the semantic relations between the lexical items in the text; thus it provides information about the way lexemes are organized in the discourse. See example (5) where lexical relations hold among the lexical items *decay* in the text:

5) *In a perfect experiment, the neutrons would always **decay** precisely at a rate equal to the beta **decay** rate, but this is never the case because neutron bottles aren't perfect - the rate of **decay** is always a bit faster, presumably because some of the neutrons escape by means other than **decay**.*

When the writer wants to put forward a claim, impersonal structures expressed by nominalizations help to shift the readers' focus onto the claim itself rather than onto the process of making this claim. Consider:

6) ***The ability** to heal-to repair oneself repeatedly and thus sustain damage repeatedly-is one of biology's greatest tricks, and one that humans have been trying to replicate in synthetic materials for years.*
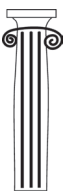
7) *The best **space images** are the ones that put our humble place in perspective, whether it's **an image** from the moon or a particularly stunning nebula.*

As it is seen in the examples above, the grammatical structure determines the use of the nominalizations. The author has to choose whether to keep the congruent verb realization and make the structure of the text more complicated or keep the structure simpler but resort to a metaphorical realization (i.e. to use nominalizations in nominal word phrases). Consider two more examples:

8) *LEED (Leadership in Energy and Environmental **Design**) Certification is an internationally-recognized third-party verification system developed by the U.S. Green Building Councilto confirm that a building – or community, for that matter – was designed and constructed with the aim of improving energy savings, water **efficiency**, CO_2 **emissions,** indoor environmental **quality**, and intelligent resource **management**.*

9) *For the new WTC complex to qualify for the LEED Gold Certification – the second highest attainable below Platinum status – it must meet **a number of requirements**, among which include achieving a Net Zero CO_2 **footprint** for all base building electricity **consumption** and **reduction** of the complex's energy **consumption** to 20 percent below New York State's energy code **requirements**.*

At the deep level, sentences including a nominalization present two propositions: one embedded in another. The proposition that includes the nominalization is the matrix proposition. As noted by Gorrel and Laird (1972, 54), "The process of composing is not simple, but at some stage it emerges as the very practical matter of putting one word after another, one sentence after another. Words and sentences must be produced in some kind of sequence that leads the thought of the reader. Each word or sentence relates in some way to what has preceded and points to what is to follow". Typically the author begins with a general statement which is then followed by sentences that respond to the general statement, i.e. we move from general information to specific information. Consider:

10) *During construction, the complex is requiring its contractors to use only ultra-low sulfur diesel fuels – a "clean diesel" that reduces nitrogen oxide and particulate emissions and is considered one of the cleanest fuels available. **This implementation** is so effective that New York City and State now require that non-road construction equipment used on public construction projects by public agencies use ULSD.*

11) *Safety standards, thankfully, have progressed significantly since then. At today's standard, 100 parts per million or less, just one of those old soldiers contains enough lead to render several million toys unfit for sale in the U.S. Although **such safety requirements** have no doubt helped reduce the number of leadpoisoning cases, they may not be stringent enough.*

12) *The balloons go up to around 130,000 feet, right at the edge of space, so they can be very useful for testing technologies and ideas in an atmosphere that very closely mimics what's in space – but at a fraction of the cost. **Construction***
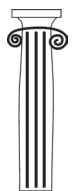
on the facility is set to begin in the fall of this year, and will include your stan-
dard suborbital balloon infrastructure.

The structure of implicit nominalizations is highly unpredictable because it has to meet the requirements of the sentence in which it is embedded. Furthermore, this kind of nominalization condenses information so as to make it fit in a context and serves as a simplifier of complicated grammar structures or taxonomies, making the contents of popular science texts, where any complexness is avoidable, more easily accessible to the readers. When the nominalizations were used without their source structure (i.e. implicitly), the logico-semantic ties took on a different character: the logico-semantic ties are established between the 'pre-text' or the 'deep text' (not an actually occurring text) and the stretch of the actually occurring text.

The nominalizations were used with their source structure (i.e. explicitly) in the corpus under investigation as well. The text began with a relatively specific proposition and moved on to a relatively general proposition. Such texts are called analytic, where the writer operates with facts which are later generalized. Logically, the reader should expect to find a nominalization in the generalizing proposition. Consider:

13) *Children didn't just play with these little chunks of neurotoxin; they often* <u>*cast*</u> *them in their own kitchens, using kits that came with a melting pot, a ladle, some sticks of lead alloy and a selection of soldier molds.* ***After casting***, *kids filed them smooth.*

14) *The blame lies with a fiber-optic cable used* <u>*to connect*</u> *a GPS receiver, which corrects the timing of the neutrinos' flight, and a computer card that reads the receiver. As part of the efforts to replicate the results, a team member appa-rently tightened the* ***connection*** *and then measured the length of time it took the* timing data *to travel down the fiber.*

15) ***A change*** *in the gravitational potential should also affect the rate of matter swapping, and the gravitational potential her on Earth* <u>*changes*</u> *as the planet moves around the Sun.*

16) *Still, Google argues that its* ***consumption*** *really isn't so bad. Its data centers carry out billions of operations-a billion searches per day alone-and many of those save fuel. Google searches save trips to the library or the travel agent, for instance, offsetting the power* <u>*consumed*</u> *by its processing farms.*

As it is seen from the examples above, the congruent realization of the process functioning as Rheme in the preceding sentence can be turned into a nominalization in the Theme of the following sentence or at the end of the paragraph. This nomina-lization also serves as a lexico-grammatical cohesive device, repeating and summari-zing the information. Sometimes it is merely a matter of requirements of text connec-tedness: if a verb appears several times, it is common that verb may be replaced by a synonym verb or a nominalization.

Furthermore, the explicit nominalizations are usually found in the contexts in which there is a high frequency of synonyms or near-synonyms and words from the same lexical group in the same and preceding paragraphs, as can be seen in the fol-lowing examples:
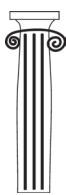
16) *A team of British researchers are thinking more along the lines of a giant balloon the size of a soccer stadium and a 12-mile garden hose that can pipe chemicals into the stratosphere to slow global warming. And they're planning to test their hypothesis soon, sending a scaled down version of their sky-hose-balloon-thing skyward in the next few months. It's a pretty audacious **attempt** at geo-engineering, and one that very well might not work.*

17) *To test the stratospheric particle **injection** for climate engineering (that's right: SPICE) project, the team will first send a smaller hose-augmented balloon up just over half a mile, pumping plain water into the air just to test the feasibility of piping particles into the sky. If it looks like they can reasonably stabilize a balloon and hose system at that altitude, work could go ahead on the real deal: a balloon that could be some 650 feet in diameter that would soar all the way into the stratosphere, elongated garden hose in tow.*

However it may be, the presence of a nominalization, with or without an explicit source, contributes to the general coherence of the text. Thus both patterns are cohesive: nominalizations occurring with explicit underlying propositions and nominalizations occurring with implicit underlying propositions.

To put everything into a nutshell, the use of a nominalization is a free choice of the writer and it belongs to the domain of text style. The author could choose congruent realization of the sentences (i.e. without nominalizations) or may resort to the non-congruent realization (i.e. with nominalizations). As can be seen, the nominalization has many aspects of usage in science popular texts: summarization of information, language economy, conciseness and packing of information, backgrounding and forwarding of information (related to Theme and Rheme). The condensing of information and the dynamism nominalizations add to the structure of a sentence are perhaps the most salient features of popular science texts.

5. Concluding remarks

Both cohesion and coherence contribute to discourse organization: cohesion being the matter of the surface level of the text, whereas coherence being the underlying phenomenon in the text.

The aim of science popular texts may not be to introduce new ideas, but to arouse the interest of readers and involve them in the world of science. The popular science is not simply to explicate accurate scientific information, thus the writings are not always objective and detached. However, as the analysis proved the abstractness, i.e. the usage of nominalizations, is unavoidable.

Popular science is a sub-genre within science genres; it has its own rhetorical purposes and therefore employs different linguistic strategies one of which is lexico-grammatical cohesive device – nominalization. The pattern of this type of cohesion is a network which results from the multiple relations of the lexical items either implicitly or explicitly. In such cohesive relations we look at the occurrence of the preceding element that forms a relation with the following element.
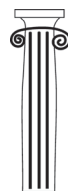
This study was an attempt to examine the cohesive relations in popular science texts. The scientific content is important, but the way it is communicated through the use of nominalization as a lexico-grammatical cohesion device is no less important. The linguistic features that are used in texts for writer-reader interaction are worthy of more in-depth analysis.

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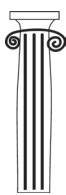
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NOMINALIZACIJA KAIP LEKSINĖ-GRAMATINĖ RIŠLUMO PRIEMONĖ MOKSLO POPULIARINAMUOSIUOSE TEKSTUOSE

Santrauka

Pagrindiniai žodžiai: *nominalizacija, mokslo populiarinamieji tekstai, leksinis-gramatinis, rišlumas, eksplicitinis, implicitinis.*

Šio straipsnio tikslas yra išnagrinėti nominalizacijas (t. y. abstrakčiuosius daiktavardžius, išvestus iš veiksmažodžių ir būdvardžių) mokslo populiarinamuosiuose tekstuose. Pavyzdžiai buvo renkami iš mokslo populiarinamojo žurnalo *Popular Science* internetinio varianto (http://www.popsci.com/). Iš viso peržiūrėta 150 straipsnių nuo 2011 m. sausio iki 2012 m. kovo mėnesio imtinai. Šiame darbe taikyti du metodai: nominalizacijų realizacija nagrinėjamuose tekstuose aptarta taikant aprašomąjį analitinį metodą, o transformaciniu metodu naudotasi atskleidžiant ryšį tarp nominalizacijos ir jos pamatinės propozicijos.

Mokslo populiarinamųjų tekstų tikslas kuo aiškiau pateikti sudėtingas mokslines sąvokas plačiajai visuomenei. Mokslo populiarinimas neatsiejamas ir nuo *diskurso* sąvokos. Nominalizacija yra viena iš šių tekstų paviršinio rišlumo priemonių. Į mokslo populiarinamąjį tekstą įeinantys sakiniai turi būti integruoti struktūriškai: lingvistinės priemonės privalo skai-

tytojui padėti geriau įžvelgti loginius ryšius. Atlikus tyrimą paaiškėjo, kad teksto rišlumas realizuojamas keturių kategorijų priemonėmis: gramatinėmis, leksinėmis-gramatinėmis, leksinėmis-sintaksinėmis ir leksinėmis. Nominalizacija yra vienas iš leksinių-gramatinių teksto rišlumo tipų. Ji suteikia galimybę sutrumpinti tekstą ir taip padaryti jį veiksmingesnį. Nagrinėjamuose tekstuose nominalizacija funkcionavo kartu su eksplicitine ir implicitine pamatine propozicija.

Apibendrinant galima teigti, kad nominalizacija yra itin svarbi kuriant mokslo populiarinamąjį tekstą: ji padeda glaudžiau susieti mintis, sutrumpina tekstą, taigi yra svarbi gramatinio-leksinio teksto rišlumo realizavimo priemonė.

Solveiga Sušinskienė

NOMINALIZATION AS A LEXICO-GRAMMATICAL COHESIVE DEVICE IN SCIENCE POPULAR TEXTS

Summary

Keywords: *nominalization, popular science texts, lexico-grammatical, cohesion, explicit, implicit.*

The aim of the present study is to analyse English science popular texts with regard to lexico-grammatical cohesive device – nominalization. The analysis is based on a corpus of 150 articles drawn from the on-line magazine *Popular Science* (http://www.popsci.com/) covering the period from January, 2011 to March, 2012. The corpus has been designed to contribute to nominalization patterns which function in such texts. For the purpose of this study, the descriptive-analytical method was used in order to explain and disclose the nominalizations as cohesive devices. As the present work is not a transformational account of nominalizations in English, the transformational method was only employed to show the relationship between the underlying proposition and the respective nominalization.

The genre of popular science is different from specialized (i.e. research or academic) science in its predominant features of interaction between writers and readers. The writing is rather personalized, and the main purpose is just to present the information to the readers while in specialized writing the author communicates accurate information to the readers. On a surface structure level, the sense relations between the text-sentences must be realized using appropriate structural signals. These signals form four groups: grammatical, lexico-grammatical, lexico-syntactic and lexical. Nominalization belongs to lexico-grammatical cohesive devices. In the corpus under analysis, nominalizations functioned in two patterns of cohesive relations: implicitly and explicitly.

The results of the present study have demonstrated that nominalization plays an important role in the organization of science popular texts: it significantly increases the general volume of information in an economical way and contributes the lexico-grammatical cohesion of the text.