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**FUNCTIONS OF WORD ORDER IN ENGLISH POPULAR
SCIENCE DISCOURSE**

BACHELOR THESIS

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INTRODUCTION

Language has been studied for many years and from different perspectives. It is urgent to accent the importance of the language because it functions not only as a means of communication - it also operates as a sense of gaining knowledge and experience. To be able to express our ideas in a written and spoken form it is essential to be acquainted with the main rules and aspects of linguistics. One of the most important features in linguistics is word order because it is an urgent key in understanding and using any language correctly. Song (2012:1) claims that word order can be described as the manner which is used to arrange words in a specific way in a sentence. In general, linguists describe word order as a specific ordering of the syntactic elements in the utterance. Many linguists as Leitner (1991), Birner (1996), Kobrina et al. (1999), Chen (2003), Williams (2005), Joshi (2013), Halliday and Mathiesen (2014), Sweet (2014), Hepper (2015) and others have analysed word order in the English language by different aspects in order to understand how language varies. Linguists as Leitner (1991), Birner (1996), Chen (2003), Kreyer (2010) investigated peculiarities of inversion in the English language. While Kobrina et al. (1999) examined functions of word order of the English language in general, some other linguists focused their researches on a particular functions of word order of the English language, e.g.: Halliday and Mathiesen (2014) were concerned about emphatic function; Williams (2005) examined linking function; Hepper (2015) put a special emphasis on a grammatical function and Joshi (2013) investigated peculiarities of the communicative function.

This research is focused on word order of the English language and how it functions in English popular science discourse. Linguists as Osherson (1995), Langenhoff (2002) and others claim that word order in the English language is comparatively strict – it is much less flexible, as for example to be compared to Lithuanian or Russian. It could be generally said that word order in the English language has some exclusive features which are not found in other languages.

The **object** of the present paper is the main functions of word order and its features in the English popular science discourse.

The **aim** of the present paper is to analyse the main functions of word order and their features in English popular science discourse.

To achieve the aim the following **objectives** have been raised:

1. To present the theoretical material concerning functions of word order and their features in the English language.
2. To discuss the main features of word order in the English language and to reveal how these aspects function particularly in English popular science discourse.
3. To determine what functions of word order are the most common in English popular science discourse and to illustrate it by examples.

The research methods used in the present study are the following:

1. The descriptive-theoretical literary analysis. It was used to review various issues concerning functions of word order in the English language and its features.
2. The descriptive-analytical method. This method provided a possibility to analyse the examples of different functions of word order in English popular science discourse.
3. The statistical method. It was employed to show the relative frequency of different functions of word order in English popular science discourse.

The **material** of the paper was drawn from popular scientific magazine *National Geographic*.

The **scope** of this research is 524 examples. The examples in theoretical part are drawn from different authors. The number of collected examples (524) was sufficient to make a clear and precise analysis of the research.

The relevance and novelty of the research:

Many linguists are concerned about word order and its functions in the English language. It is obvious that word order and its functions in the English language is a relevant issue because it has been studied by different aspects by various linguists as: Leitner (1991), Birner (1996), Kobrina et al. (1999), Chen (2003), Williams (2005), Joshi (2013), Halliday and Mathiesen (2014), Sweet (2014), Hepper (2015) and others. However, it would seem that further investigation is needed in making a research of how word order in the English language functions in a particular literature contexts, for example in popular science discourse.

The hypothesis of the research may be raised: grammatical, emphatic linking and communicative functions of word order are the most present in English popular science discourse.

The structure of the present paper:

The present paper consists of the main body in which the research and the results are arranged in several sections, all sections are subdivided into subsections. Introduction defines the object, aim, objectives, research methods, material, scope, relevance and novelty, hypothesis and structure of the research paper. Theoretical part reveals the theoretical background of the functions of word order in the English language. Practical part examines the usage and the frequency of different functions of word order in English popular science discourse. Conclusions summarize the results of the research and reveal the accomplishment of the objectives. References, dictionaries and sources demonstrate the materials which were used in writing the present paper.

The dissemination of the research results:

On the basis of the material of the present research I participated in the conference “Student’s Works – 2017” at Šiauliai University, the Faculty of Social Sciences, Humanities and Art, on April 5, 2017

I. THE THEORETICAL REVIEW OF THE FUNCTIONS OF WORD ORDER IN ENGLISH POPULAR SCIENCE DISCOURSE

An online dictionary *The Oxford Dictionaries* defines word order as “the sequence of words in a sentence, especially as governed by grammatical rules and as affecting meaning”. In other words, word order is a specific arrangement of the components of the statement in diverse sequences. Structure and meaning of any sentence is highly influenced by a specific word order. Word order affects not only the relationship of the elements of the utterance but also the relation between the sentences of a whole text. What is more, it is an urgent key of providing additional expressive colouring to the statement. Word order of the English language is extremely important because elements of the sentence do not express their relations by inflexions (e.g., like in the Lithuanian language) or by any other means: relations between parts of the utterance in the English language can only be shown by a considerably strict word order. Understanding how word order affects the meaning of the sentences is crucial because it assists in a correct usage of a written and spoken language. The aim of this work is to study functions of the word order in the English popular scientific texts. Analysis of the popular scientific texts was chosen because it has a particular style of language which differs, for example, from fiction texts.

Style of popular science discourse has some peculiarities and differs from the style of the scientific discourse or any other discourse. For this reason, the main aim of the present research is to analyse functions of word order and its features in this particular discourse. As Roikienė (1987:1) stated, functions of word order distinguished by various linguists are various. According to some linguists, functions of word order in the English language may be:

- 1) To express grammatical relations between the parts of the sentence;
- 2) To single out the communicative centre of an utterance;
- 3) To express the communicative type of a sentence;
- 4) To connect sentences of a text;
- 5) To express emphasis;
- 6) To make sentence to sound more rhythmical;
- 7) To improve the style.

However, as considered by Kobrina et.al. (1999:275) primary and most relevant functions of word order are these: grammatical, emphatic, communicative and linking. Only these four functions of word order were chosen to be analysed in the present research because some of the

functions which are mentioned by other linguists overlap and their features are quite similar. What is more, functions of word order distinguished by Kobrina et al. (1999) are most likely to be found particularly in this type of discourse. Therefore, the hypothesis may be raised: grammatical, emphatic, linking and communicative functions of word order are the most present in English popular science discourse. Considering a raised hypothesis, a further research was made according to classification of functions of word order by Kobrina et al. (1999).

1.1 Popular science discourse

Journals of popular science become more and more popular recently. The main reason of its approval by the audience lays in its particular style and accessibility for a simple audience. Sušinskienė (2012:135) states that the style of writing in science popular texts is different from the style of science texts. The main difference is exposed by the audience to which the text is addressed. Sušinskienė (ibid.) adds that popular science texts are adapted to readers who are not specialized in any particular sphere of science: “<...> popular science writing is a process of simplification from academic language to ordinary language by means of avoiding technicalities” (Halliday and Martin, 1993). Noruzi (2008) admits the fact that popular science is addressed to public and not to professionals of a particular sphere of science. According to the author, the essential goal of the popularization of scientific texts is to make science understandable and acceptable for a simple reader. Reading and understanding a text of popular science does not require any specific knowledge of the particular subject. So, the style of popular science texts is less complicated, more attractive and less standardized. It could be said that the main function of popularized science text is to entertain and to provide some particular knowledge for the reader at the same time. An elaborate and clear approach about the difference of styles of science and popularized science texts is revealed by Knittlová (1990) cited in Vogel (n.d.:3): she distinguished main characteristics of lexis of each style:

1) Inherent features of **a science text** are: conceptualization, deficiency of expressive words and phrases, extensive usage of adjectives and nouns, usage of terms with a plain and simple connotation, repetitiveness of particular words which effects extensiveness of hackneyed lexicon and preference for noun groups.

2) Specific features of **popular science text** are: terminology which does not require any specific knowledge, drawing in a spoken language utterings, a frequent phenomenon of paraphrase, expressive and personal language.

According to the study of Knittlová (1990) it could be said that lexicon of science popular texts is much more flexible and colourful than of science texts. It can be added that various stylistic devices can be used in popularized science texts to make the style more impressive and more attractive to the reader. Some stylistic devices (e.g. emphasis) can be achieved by placing words in a particular sequence in utterance. Generalizing mentioned ideas, it can be presumed that word order and its peculiarities can function as a powerful device in creating and improving the style of popular science texts.

1.2 Direct word order

In order to understand the importance of word order in the English language, we should pay attention to its essential function which is communication. Many linguists as Birner (1996), Kobrina et al. (1999), Vickers (2013), Halliday and Mathiesen (2014), Sweet (2014), Hepper (2015) and others have analysed the main functions and features of word order as its helps to be able to communicate and use language in written and spoken forms in an appropriate way. According to Kobrina et al. (1999:277), the major function of word order is to show grammatical relations and resolve the grammatical status of a word by establishing its position in the sentence. There are two approaches of organizing words – **direct word order** and **inverted word order**.

Kobrina et al. (ibid.) stated that the most prevalent model for the arrangement of the basic parts in a declarative sentence is **Subject – Predicate – (Object)**. It is the principal not-extended sequence of words in the sentence and it is called **direct word order**. Valeika (1974:6) pointed out that scholars characterizing the structure of sentences in English language lay particular stress on a comparative inflexible word order: "...as compared to languages like Lithuanian or Russian, word-order in English is much less flexible". Hopper (1986:58) added that in English solely verbs and many pronouns have several forms of a particular word, while nouns have only singular and plural forms and adjectives and adverbs are solely of one form – that is why a place of a particular word in an utterance plays a very important role in understanding the meaning of a sentence. Relations of words in a sentence are shown by their particular position. It is urgent to mention relations between main parts of the sentence: subject and predicate because all meaningful sentences have both of these components. As it is argued by Mathesius (1975:160), emphasis of the relations between the subject and the predicate is essential to mention: when the predicate takes place after the subject - in that case, a common word order **Subject-Predicate** is applied as general and this occurrence is identified as direct word order. For

example, the construction *play John* has no meaning and is incorrect because the predicate comes before the subject. This example clearly shows the main difference between more flexible (e.g. Lithuanian) and less flexible (e.g. English) languages – in Lithuanian the sentence *žaidžia Jonas* is correct and has a clear meaning. It is urgent to add that not only the main parts of the sentence have a fixed pattern (then speaking about a direct word order). Secondary parts of the sentence also have a fixed position but they can have more variations and their place in sentence is not so strictly set. According to Kobrina et al. (ibid.), direct word order allows of only few variants in the set model, and then only for the second parts. Therefore, if there is more than one object, the indirect one precedes direct object or, in other words, prepositional goes after the direct object. This occurrence is extremely important in the English language – direct object must come before indirect object, otherwise sentence will have no fluent meaning. The phenomenon of relation between direct and indirect object is analysed in more profound way by Hopper (1986:58): he distinguishes 3 main ways of ordering direct and indirect objects:

1) In most cases, direct objects are set before indirect ones. (1) *We gave **the check** to **him*** (ibid.).

2) If solely the indirect object takes a role of a pronoun, it can come before the direct object but without the preposition. (2) *We gave **him** **the check*** (ibid.).

3) In that case if both – direct and indirect objects serve as pronouns, then the direct one comes before the indirect object. (3) *We gave **it** to **him*** (ibid.).

As noted by Kobrina et al. (ibid.), the position of secondary parts of the sentence, such as attributes and adverbial modifiers, is much more flexible. Secondary parts of the sentence refer to their headword – are placed near to them, or are included into, or can border them up: “Adverbials and different form words seem to be the most movable parts in the sentence. Their mobility is partly accounted for by their varied reference to different parts of the sentence”. Kobrina et al. (ibid.) distinguishes the most important aspects of the place of adverbials in the sentence:

1) Front position: (4) ***Again** he was lying* (ibid.).

2) Contact preposition: (5) *He **occasionally** meets her* (ibid.).

3) Interposition between the elements of a composite verbal part: (6) *He has **never** been late* (ibid.).

4) Contact post-position. (7) *They are **always** late* (ibid.).

5) End position: (8) *Are you married **yet**?* (ibid.)

Examples 4-8 justify the idea that the most movable parts of the sentence are various adverbials (in this case – adverbials of place, time and circumstance). Even though adverbials can be placed in various positions in utterance, it does not cause any ambiguity of the meaning of a sentence. Hopper (1986:59) highlighted that the most common place of modifiers as adverbs and adjectives is as close to the word they denote: (9) *He runs **fast*** (ibid.). In most cases, adjectives are placed before their headwords: (10) *The **tall** building* (ibid.). Modifiers which denote some kind of quality or characteristic, must be placed as near as possible the word they modify in order to understand which part of the sentence is described by the modifier.

Kobrina et al. (1999:278) stated that a common position of a preposition is among the relation it marks. Nevertheless, the place of prepositions in the sentence is not always so strict – in some options it may be put at the end of sentence, in other occurrences it can be put at the start of utterance. As it is argued by Vickers (2013:37), the place of prepositions is set by the information they add to a sentence. According to Vickers (ibid.), the place of prepositions in a sentence is subdivided by these criteria:

1) Phrases with prepositions of place (or, at, in, over, under, though, off, behind, by, into, etc.) are usually set at the end of utterance: (11) *The mysterious figure ran **behind** the old house* (ibid.).

2) Phrases with prepositions of time (at, before, during, in, after, before, etc.) have no fixed model and can be more variable than phrases with prepositions of place – they can be located either at the end of sentence or at the start: (12) *Erin should be home **by** midnight* (ibid.). or (13) ***By** midnight, Erin should be home* (ibid.). Both cases do not cause any ambiguity to the meaning of a sentence so despite the opposite (front and end) positions of prepositions, the meaning does not change.

1.2.1 The grammatical function of word order

Kobrina et al. (1999: 277) stated that the most essential function of word order is **the grammatical function**. “The main function of word order is to express grammatical relations and determine the grammatical status of a word by fixing its position in the sentence”. Hepper (2015:379) states a clear approach about grammatical function of word order in the English language: according to this author, if words in a sentence would not follow each other according

to some strict grammatical rules, it would cause a lot of ambiguity in a sentence because the English language is not inflected – or in other words, words in English do not have certain endings of nominative and accusative case (as in Latin or Greek). According to Roikienė (1987:1), word order in the English language has various particular features which developed as a result of the special way the language has elaborated through the years. Linguists who are analysing word order in the English language highlight the fact that it is relatively strict, if to compare with some other languages. For example, if to compare with the inflective languages (e.g., Lithuanian language), word order in English is much less flexible. So, the major principle of word order in English is grammatical. Jespersen (2013:98) claims that the English language: “...has developed a tolerably fixed word order which in the great majority of cases shows without fail what is the subject of the sentence” . As has been already mentioned, the grammatical function of word order has an essential meaning in the English language. Word order demonstrates grammatical relations between the elements of the utterance. According to Roikienė (1987:2), foremost it differentiates the subject from the object, for example: (14) *James loves Kathleen* – on the contrary – *Kathleen loves James* (ibid.). As it can be seen from a given example, both nouns in the sentence (James and Kathleen) can play both roles – either of a subject or of an object. Word order is the only occurrence which makes sentence clear and free of ambiguity. It is also important to mention the fact which is noted by Roikienė (ibid) that grammatical function of word order in the English language also differentiates the direct object from the indirect object: (15) *I gave **the girl** **the book*** (ibid). In this example the fixed position of the indirect object is between the predicate and the direct object. Roikienė (ibid.) also claimed that word order in the English language compensates the deficiency of inflexions and this is the main reason why every part of a statement has its fixed and rather strict position.

1.3 Inverted word order

One more general structure of word order is **the inversion** (or inverted word order). Mathesius (1975:160) argued that if a construction Subject-Predicate is considered as a normal word order, then a structure Predicate-Subject must be considered as **inverted word order**. Obviously, it is not the only way of how inversion can be realized. Similar approach is expressed by Birner (1996:11): “The term “inversion” traditionally refers specifically to the appearance of the logical subject to the right of the main verb and its auxiliaries”. Kobrina et al. (1997:279) stated that there are two main types of inversion:

1) Full inversion (when the predicate comes before the subject): (14) *Here comes the storm* (ibid).

As it can be seen from the example above, predicate *comes* is located before the subject *the storm*. This occurrence is opposite to direct word order so that is why this process is called inversion. In this example of full inversion whole predicate is put in prior position (before the subject).

2) Partial inversion (as only part of the predicate comes before the subject). (15) *Never have I been in Europe* (ibid.). In this case, only a part of predicate is located before the subject *I* – solely the auxiliary *have* is located in prior position to subject and the rest of the predicate *been* is located in position which is inherent to a direct word order.

A more expanded classification of inversion in the English language is presented by Chen (2003). According to McCawley (1973) and Huddleston (1993) cited in Chen (2003:2) there is **the exclamatory inversion** which can be illustrated by the following examples: (16) *Boy, is syntax easy!* (ibid.); (17) *Is syntax easy?* (ibid.) Green (1985) cited in Chen (ibid.) stated that there is one more possible way of inversion – **the negative declaration inversion**: (18) *Can't nobody read that* (ibid.). Both of these occurrences are inversions of two main elements of the sentence – the verb and the subject – in this case, no other component of the utterance is located at the leftmost place (ibid.). According to Chen (ibid.), inversions in which components of the sentence occur before the verb are subdivided into five classes:

1) Wh-question inversion (19) *Where did he go?* (ibid.)

2) Quote inversion (20) *"That's right," said John* (ibid.).

3) There inversion (21) *There's a knock at the door* (ibid.).

4) Subject-auxiliary inversion (22) *Never have I seen such an interesting person* (ibid.).

5) Full-verb inversion (23) *On my left was Tom Lopez* (ibid.).

Functions of inversion and their usage in English also require a brief discussion. According to Kobrina et al. (1999:279), in several situations inverted word order can be understood as a regular word order of words in structures with a particular communicative denomination, and is free of any specific colouring. In other cases, inverted word order is a sort

of rearranging for a stylistic impact or for accentuation. A similar approach is expressed by Green (1980) cited in Kreyer (2010:29): “Inversion in general may be exploited for many purposes, ranging from facilitating fluent speech to creating a variety of rhetorical effects”. This author also claims that there are three main functions of inversion: 1) the introductory function; 2) the connective function; 3) the emphatic function. The author states that the introductory and the connective functions of inversion can be assumed as a focus building device of speaker/hearer. Both of these functions can be considered as: “<...> textual or structure-building functions” (Kreyer, 2010:31). The author describes emphatic function as: “<...> the resolution of some apparent disorder in the narrative structure”. Inversion plays a role of an emphasizing a particular part of the sentence. As it is noted by Mathesius (1975:165), emphasized constituents are mostly located at the beginning of utterance. Emphasis is achieved by locating particular components in a frontal position of sentence. It can be argued that one of the main functions of inversion in English is to attract reader’s/hearer’s attention and to drag the focus on an emphasized constituent. Kobrina et al. (1999:279-280) presented more brief and complex analysis of most common types of the use of inversion by categorizing them in 6 types:

1. To distinguish between the communicative types of sentences. With this function, it is employed in:
 - a) General questions, polite requests and in tag questions: (24) **Was** *it really she?* (ibid.)
 - b) Pronominal questions: (25) **What** *are the police after?* (ibid.)
 - c) *There*-sentences with the introductory non-local *there*: (26) **There** *has been a fire* (ibid).
 - d) Exclamatory sentences expressing strong emotions: (27) **Come** *what may!* (ibid.)
 - e) Exclamatory sentences which are negative in form but positive in meaning: (28) **Have** *I not watched that film! (I have watched that film!)* (ibid.)
 - f) Negative imperative sentences: (29) **don’t** *do this* (ibid.).
2. Inversion is used as a grammatical measure of subjection in some complex sentences linked without connectors:
 - a) In conditional clauses: (30) **Were you strong enough**, *you wouldn’t hesitate* (ibid.).
 - b) In concessive clauses: (31) **Proud as she was**, *she had to agree to our proposal* (ibid.).
 - c) In the second part of a sentence of proportional agreement: (32) *The more they thought of it, the less clear was the whole point* (ibid.).
3. Inverted word order is used in sentences beginning with adverbs denoting place:

(33) **Here** is one more example (ibid.).

4. Inversion is used in stage directions: (34) **Enter the King, the Queen** (ibid.).
5. Inverted word order may be used in sentences indicating whose words or thoughts are given as direct or indirect speech: (35) “*That’s him,*” **said Tom**. (*Tom said*) (ibid.).
6. Inversion is used in statements showing that the remark applies equally to someone or something else: (36) *I am happy!* – **So am I!** (ibid.)

1.3.1 The emphatic function of word order

Kobrina et al. (1999:281) noted that the next major function of word order is to make prominent or emphatic that element of the statement which is more relevant or gives more information in a speaker’s view. Mathesius (1975:159) added that emphasis can be described as a process of laying particular prominence on some constituent of an utterance. In the English language, emphasized elements are usually located at the beginning of a sentence. According to Roikienė (1987:4), prominence and emphasis are attained by putting the word in an unconventional position: for example, words which usually are put at the beginning of the statement (mostly subject) are located toward the end and words which normally are placed nearer the end of the sentence (for example, predicates and object) are transferred to the outset of a statement. Leitner (1991:187) described emphasis in English word order as a process then frontal location in the sentence is occupied by constituent which is not subject or “<...> a situational or anaphoric adverbial”. Mathesius (1975:163) distinguished two types of highlighting selected constituent of the sentence: **strengthening** and **emphasis**. According to the author, these occurrences should be differentiated because there is a major distinction between them: “Strengthening affects the meaning of words, while emphasis relates to their contextual meaning”. Strengthening will not be discussed in the present paper because the main object of this chapter is to expose features of emphasis expressed by word order in the English sentence. Mathesius (1975:164) revealed the same approach about emphasis as previously mentioned linguists: the author declares that word which is accentuated is mostly located in a frontal position of utterance. To add, Mathesius (ibid.) distinguished that emphasis can also be expressed by the particular English feature which has developed from French: fronting introductory it. This way of emphasis is shown by the example: (37) **It** is not conscience that makes me do so, **it** was he who advised the King to do so (ibid.).

If to talk about emphasis in a sentence expressed by word order, the attention should be drawn to **the theme and rheme structure**. Halliday and Mathiesen (2014:89) describes theme as a constituent which operates as an outgo of a further developed thought and rheme is described as a component in which theme is developed and explained. In other words, theme is always followed by rheme. According to Halliday and Mathiesen (ibid.), theme has an urgent prominence and no matter which constituent of the sentence is chosen as a theme it should be placed at a frontal position. Valeika (1974:53) stated that if the rhematic (or a thematic) part of the sentence will be moved to the place of a thematic (or a rhematic) constituents, then this occurrence can be described as an emphatic sentence: “Emphatic sentences derive from the corresponding unemphatic sentences by reversing the order in the constituents”. This occurrence can be explained by the following examples: (37) *She looked at me* (theme). ***Her look was indulgent and severe*** (rheme) (ibid.). (38) ***Indulgent and severe*** (rheme) *was her look* (theme) (ibid.). It can be seen from the example above that the thematic constituent shifted its position to the rhematic constituents place. Emphasis is achieved by fronting the rhematic part of the utterance. Valeika (ibid.) noticed an urgent fact: even though any component of sentence (no matter whether it is thematic or rhematic) can be made prominent, in most cases rhematic constituents are made emphatic. According to the author, this can be explained by the fact that rhematic components of sentence always carry new message: principally, speaker is concerned about new or unknown information.

It is also urgent to distinguish emphasis and its features of particular parts of sentence and to examine how it affects the meaning and stylistic features of the utterance. Kobrina et al. (1999:281) claimed that subject always has a relevant meaning at the end position. In many cases this reordering is made to make a special prominence to subject. For example: (39) *Must have cost a lot, **this shirt of yours!*** (ibid.) Valeika (1974:57) distinguished two more ways of expressing emphasized subject in the sentence. According to the author, subjects in English are made prominent by a special construction **it is + subject + who/what/which + predicate**: (40) ***It is the barrister who pleads the case before the judge in court*** (ibid.) Valeika (ibid.) considered one more way of emphasizing subject – adding emphatic particles (e.g. even, only, the one, etc.): (41) ***Only some rise to the top*** (ibid.). As noted by Kobrina et al. (ibid.), it is important to notice that front position is emphatic for adverbials (of time, place, cause, manner, degree) commonly added to the predicate. In many cases, it is attended by the inversion. For example: (42) ***Lots of times*** *has he given me a good advice* (ibid.); (42) ***Not so well*** *do I remember that day* (ibid.).

Kobrina et al. (1999:282) stated that accentuation and prominence are sometimes attained not by rearranging particular constituents but by using particular structures. One of the ways used to highlight the subject is the introductory **non-local there + verb + noun**, followed by an attributive clause. For example: (43) ***There was a dog** which he kept for ten years* (ibid.); (44) ***There comes a time** when a person should start the family* (ibid.).

As noted by Kobrina et al. (ibid.), one more way of replacing the emphatic meaning is the structure with the introductory **it**, the major material provided by the subordinate clause. Using this structure, emphasis may be shifted on whichever part of the statement, excluding the predicate. Sentences like these are called **cleft sentences**. Spratt and Taylor (2000:252) added that cleft structures allow to concentrate on a particular constituent or a specific information which is expressed in a particular part of sentence. For example: (45) ***It is people's value systems** that advertising affects not their buying habits* (ibid.).

Kobrina et al. (ibid.) also noticed that: "Special emphasis on words functioning as direct or indirect object may be achieved by the use of the passive construction, in which the words to be emphasized are moved either to front position or closer to the end". This is shown by the following examples: (46) *The mother gave the kids **some candies*** (ibid.); (47) *The kids were given **some candies** by the mother* (ibid.); (48) ***Some candies** were given to the kids by the mother* (ibid.). To add, Valeika (1974:61) distinguished one more way of emphasizing object in sentence by the use of a contrastive construction, e.g.: (49) *I want **an apple**, not a pear* (ibid.).

1.3.2 The linking function of word order

Kobrina et al. (1999:282) claimed that the role of the linking function of word order in the English language is to show continuity of an idea in statements (or clauses) following each other. In other words, it is the linking function of word order. This sequence of thoughts is frequently supported by demonstrative or personal pronouns and various conjunctions. Here are some examples: (58) *Women are more intelligent than men. **Such** is his theory* (ibid.); (59) *Some people are extremely envious. **Those people** she simply hated.* (ibid.); (60) *Domestic animals are harmful. **So** are many wild ones, as well* (ibid.). Given examples demonstrate that there are many ways to link sentences, clauses or thoughts. No matter which linking word is used to connect sequence of thoughts, it is important to highlight that a linking word always play a role of connecting it. That is why the common place of a linking word in sentence is frontal. Clarke (2003) provides an example: (61) *Tick up **the book** and then give **it** to me* (ibid.). The author

explains that in the first clause *the book* is the object and in the second clause *it* is an anaphoric (repeated) object: “<...> “it” serves to link the second imperative in the sequence to the subject of the first”. The phenomenon of linking ideas is also explained by Williams (2005:142-143): the author indicates that relative clauses are connected to independent clauses by the help of a linking word. The author puts a special emphasis on relative pronouns – according to the author they alter the same noun or noun phrase in an utterance. Moreover, relative pronouns take a role either of a subject or of an object of the relative clause. Williams (2005:143) indicates the most general relative pronouns: who, which, when, whom, whose, why, that, where. The author highlights an urgent fact how word order of linking words function in a sentence: “A relative clause must always begin with a relative pronoun because it needs to be linked to the independent clause”. For example: (62) *Bugsy bought **the house** **that** had belonged to Liberace* (ibid.); (62) ***The boy** **who** drove the van played the blues* (ibid). Williams (2005:143-144) notices that related pronouns play an important role to make sentence clear and free of ambiguity. If related pronoun which links clauses would be omitted, it would make a lot of unclearness and opacity.

1.3.3 The communicative function of word order

Communication is the major aim of the language itself. It can even be said that language is a communication. Individuals express their ideas and thoughts by ordering words in a particular sequence in a sentence. This ordering is based on which part of information is more relevant to the idea which is expressed. As it was discussed in previous chapters, the most relevant information in the utterance is emphasized. The communicative function of word order is achieved the same as emphatic function: words are put in unconventional position to make some special emphasis, or as Roikienė (1987:4) stated it makes the communicative centre of the sentence. So, it can be said that communicative and emphatic functions are quite the same in their purpose: both these functions of word order convey some special (or emphasized) message of sentence. Kirkwood (1969:87) distinguished that order of constituents of a sentence is governed by the communicative function: “<...> the positioning of the elements has the function <...> of assigning communicative value to the elements in the utterance”. According to the author, communication usually evolves from information which is already known (or may be understood from previously expressed thoughts) to new and unknown information. Firbas (1959) cited in Kirkwood (1969:88) described the previously mentioned occurrence as a main dispersion of a communicative vitality. Kirkwood (ibid.) explained that speaker can introduce the sentence by

using elements which are already known and do not convey any new information. Transitional constituents of the sentence evolve information to the communicative centre. Kirkwood (ibid.) explained this occurrence as “<...> a relaxed speech” (or as Fourquet (1962) cited in Kirkwood (ibid.) distinguished: “<...> neutral order of elements”). Kirkwood (ibid.) also distinguished the fact that in more emotional utterances (e.g. exclamatory sentences, sentences with prominent elements, etc.) order of constituents may be different: e.g. the communicative centre may be emphasized and put in an unconventional position.

The aim of a present theoretical chapter is to distinguish and later to analyse peculiarities of the communicative function of word order. The theoretical material of the present chapter conveys information which were not analysed in previous chapters considering emphatic function of word order in the English language. For this reason, the main interest of theoretical chapter is word order and its functions of exclamatory, interrogative and imperative sentences. The structure and peculiarities of word order of such type of sentences is analysed by Hopper (1986), Joshi (2013) and Sweet (2014). According to Hopper (1986:60), exclamatory sentences have a specific word order. Usually, exclamation is expressed by fronting *what* and *how* in utterance. Hopper (ibid.) presented the structure of a sentence with an exclamatory *what*: **what + noun or adjective + (declarative sentence)**. The author puts a special prominence on a fact that *an exclamatory what* must be instantly followed by noun or adjective, e.g.: (50) ***What beautiful clouds!*** (ibid.) Hopper (ibid.) demonstrated that word order of utterances with *exclamatory how* uses very similar pattern: **how + adjective or adverb + (declarative sentence)**. E.g.: (51) ***How beautiful the weather is here in Hawaii!*** (ibid.) It can be noticed from the provided examples that sentences with *an exclamatory what* and *how* share a common rule: exclamatory words are fronted and they are instantly followed by other constituents of the utterance. This word order conveys the message of a particular emotional information, that is why some elements are put in an unconventional position. Hopper (1986:62) claimed that word order in questions also have some peculiarities. First point to mention is that subject is always located immediately after the initial word of a verb phrase, e.g.: (52) *Does **he** know the way?* (ibid.); (53) *Will **Paul** come to dinner?* (ibid.) In other words, subject in a question sentence does not take an initial position but is placed after first word of a verb phrase. The author also noticed that a question utterance can end with a negative form. This structure is used to gain listener’s agreement to an idea or thought which is expressed by speaker, e.g.: (54) *They all have gone to the movies, **haven’t they?*** (ibid.) Hopper (1986:63) added that some questions can be expressed by a normal (Subject-Predicate-

(Object)) word order. In these cases, declarative sentences are indicated as questions by particular punctuation marks or by a specific intonation, e.g.: (55) *He is arriving tonight?* (ibid.) Imperative sentences also have some peculiarities if considering word order of such type of utterances. These peculiarities are examined by Joshi (2013) and Sweet (2014). Joshi (2013:1) states that initial position of sentence is always occupied with a first form of a verb. One more point to mention is that subject is omitted in imperative sentences. According to the author, this happens because subject “you” is understood logically. What is to add, the author (ibid.) states that imperative verb is immediately followed by the object which expresses the will of the speaker. For example: (56) *Attend the meeting* (ibid.); (57) *Book the hotel room* (ibid.). Sweet (2014:12) agrees about the fact that pronouns are omitted in imperative sentences. Sweet (2014:5) also adds that verb is always fronted in imperative sentences: (58) *Come ye!* (ibid.) The author (ibid.) explains this as a result of emphasizing the predicate in previous forms of English sentences.

To conclude this chapter, it could be said that word order in the English language is very important for fluent communication and for gaining and examining the information. Word order in the English language is less flexible if to compare with Lithuanian, Russian and many other languages. For this reason, it is important to be aware of the peculiarities of word order in the English language. What is more, it is important to mention that word order in the sentence has different functions, there are four main functions which are distinguished as the most relevant: 1) grammatical; 2) emphatic; 3) linking; 4) communicative. In this chapter features of the main functions of word order were presented from the theoretical point of view. In the sequent chapter these functions of word order are examined and presented by a deeper analysis of the realization of these functions of word order in the English scientific discourse.

II. THE ANALYSIS OF THE FUNCTIONS OF WORD ORDER IN ENGLISH POPULAR SCIENCE DISCOURSE

2.1 Methodological considerations

The analysis of the present paper is based on the positions of different elements of the utterance taken from the online English magazine *National Geographic* (see the website <http://nationalgeographic.com/>). *National Geographic* is an American magazine which is released monthly. This magazine was founded in 1888 and it has a worldwide circulation in nearly 40 languages. Moreover, *National Geographic* magazine has a global circulation of 6.8 million per month. It is a magazine of popular scientific literature and it mainly contains articles about history, geography and world culture. 524 examples were drawn and examined from 45 articles covering the period from November 2014 to December 2016. Articles which were used to collect the examples cover various topics (history, world culture, geography), no specific topic was chosen. 113 examples were chosen to analyse and present in detail.

The intention of this chapter is to analyse the functions of word order in English popular science discourse and to determine its features. In order to make more fluent and deeper analysis, the examples of distinguished functions were classified by subdividing samples into smaller groups. The collected examples were analysed and various occurrences were distinguished by the cases mentioned above. This chapter is dedicated to discuss the functions of word order and its importance in details. In order to interpret and examine functions of word order the descriptive – analytical method was applied. What is more, the statistical method was used for systemizing and generalizing the results of the research.

Firstly, applying the descriptive - analytical method 524 examples of different functions of word order were identified and classified. Secondly, all 524 examples were categorized according how the sequence of words in the sentence affects its meaning. The statistical method was applied by counting all the examples and drawing the figures to establish the visualization of the collected material.

2.2 Analysis of the grammatical function of word order

One of the most common and frequently met functions of word order is the grammatical function. Words in the English language do not have inflexions so the fixed pattern of the word order is very important – it reveals the grammatical relationships between the parts of the sentence. The examples which are analysed in this paper broadly expose the relationship between the subject and the object. Even though English language is not inflected, the fixed sequence of words in a declarative sentence provides the ability to understand the meaning of an utterance in an appropriate way. Consider these examples:

(48) *So **he** (S) rigged **a cell phone** (O) to stay charged by solar cells, attached **an extra microphone** (O), and put **it** (O) high up in the trees to listen.* (Christina Nunez, *How Old Cell Phones Are Being Used to Save the Rainforest*, November 2016).

(49) ***Ennis** (S) knows **the island well enough** (O) to suspect that these changes are under way.* (Michelle Nijhuis, *How The Parks of Tomorrow Will Be Different*, November 2016).

(50) *On the south end of the island, **storms** (S) destroyed **the parking lots** (O) six times in 10 years.* (Michelle Nijhuis, *How The Parks of Tomorrow Will Be Different*, November 2016).

Examples 48, 49 and 50 show how the fixed pattern of a declarative sentence assists in providing the appropriate meaning of the sentence. The relation between subject and object was chosen as a unit of analysing the grammatical function of word order. The analysis above was made by denoting the grammatical class of subjects of the collected examples. According to Kobrina et al. (1999:230-233) on the basis of grammatical classification of the subject, it may be *notional* or *formal*. The notional subject is subdivided into a person and a non-person; the formal subject is only a structural part and it fills the place of a subject – it is subdivided into impersonal and introductory.

2.2.1 Notional subject: person

Kobrina et al. (1999:230) claimed that: “The notional subject denotes or points out a *person* or *non-person*, that is, various kinds of concrete things, substances, abstract notions or happenings”. The great number of examples of notional subjects was found in the analysed corpus, especially non-person. Firstly, consider the examples of notional person subjects:

(51) *Stephenson and his field crew* (S) *are finishing a season of forest surveys* (O), *adding to a decades-long record of forest health*. (Michelle Nijhuis, *How The Parks of Tomorrow Will Be Different*, November 2016).

(52) *Richard Mödl* (S) *had recently broken his heel* (O), *but in 2003 he was determined to complete his first pilgrimage from Regensburg to Altötting, Germany*. (Erik Vance, *Unlocking the Healing Power of You*, November 2016).

(53) *Mike Pauletich* (S) *first noticed he had a problem* (O) *in 2004*. (Erik Vance, *Unlocking the Healing Power of You*, November 2016).

(54) *Some scientists* (S) *believe the dichotomy between male orangutans arose in part* (O) *because of the differing geologic histories of Sumatra and Borneo*. (Mark Jenkins, *How a Remote Peak in Myanmar Nearly Broke an Elite Team of Climbers*, September 2015).

(55) *We* (S) *owe this feast* (O) *to them*. (Scrivani, *Native American Cuisine Returns to Its Roots*, November 2016).

(56) *She* (S) *raised bears* (O), *comforted bears* (O), *taught bears* (O), *learned from bears* (O), *had bears communicate their needs to her, and nursed bears* (O) *back to health*. (Laurel Neme, *Remembering the Woman Who Helped Bears in Distress*, April 2016).

Examples above show the relationship between the subject (S) and the object (O). As it can be seen from these samples, subject always takes the priority in the statement if considering its relation with the subject.

2.2.2 Notional subject: non-person

Notional subjects of non-persons may include animals, whose names can be changed by *it* or *they*. Non-person subjects also include various types of nouns in a common case or a nominal phrase with a noun. The examples below show the variety of notional non-person subjects:

(57) *A national park in Botswana* (S) *is struggling to support the staggering number of animals fleeing from poaching in other countries* (O). (Christine Dell'Amore, *Elephant Refugees Flee to Last Stronghold in Africa*, November 2016).

(58) ***The ice** (S) helps cool **the Arctic** (O) by reflecting most incoming sunlight back to space— so as it shrinks, the warming and the melting accelerate.* (Tim Folger, *Santa's Home Is Melting. Will We Ever Bring It Back?* November 2015).

(59) ***The Paris climate agreement** (S) aims to keep **global warming** (O) below 2 degrees Celsius.* (Tim Folger, *Santa's Home Is Melting. Will We Ever Bring It Back?* November 2015)

(60) ***The animals** (S) will risk **their lives** (O) to feed here before fording the Chobe River again, back to the safety of Botswana's Chobe National Park.* (Christine Dell'Amore, *Elephant Refugees Flee to Last Stronghold in Africa*, November 2016).

(61) ***The drive to the site** (S) took **12 hours** (O) from her base near Calgary, followed by a two-mile hike.* (Gary Strauss, *Unearthing a Giant Marine Reptile*, November 2016).

The aim of the analysis of grammatical function of word order is to emphasize the importance of the subject's place in the sentence. The object is a secondary part of the sentence and it is never placed before the subject. If the word order would be mixed (e.g., if subject's position would be after object) it would not be possible to understand the meaning of the utterance in an appropriate way because English language is not inflected.

The relative frequency of person and non-person notional subjects is shown in the table below:

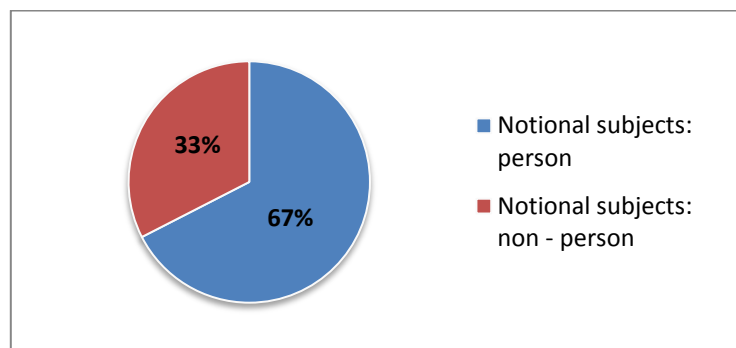


Figure 1. The relative frequency of person and non-person notional subjects.

In the corpus of 524 examples of functions of word order in English scientific discourse, 209 examples of grammatical function were found. Figure 1 shows that the notional person subjects were most common. They accounted for 67% (141 tokens), while notional non-person subjects accounted for 33% (68 tokens).

2.3 Analysis of the emphatic function of word order

One more very significant function of word order is the emphatic function. Emphatic function of word order can be described as emphasizing the element of the statement which is more prominent or provides more information. Emphasis is achieved by placing the word in an unusual position: e.g. words which commonly are located at the frontal position of the statement are put toward the end and words which generally are put nearer the end of the utterance are transferred to the beginning of a sentence. Consider:

(62) ***This month***, two experienced cave divers died at Eagle's Nest, a remote sinkhole ensconced in the pines of the Chassahowitzka Wildlife Management Area in west-central Florida. (Becky Little, *Cave Diving's Mysterious Allure—and Risks*, October 2016).

(63) ***In February of that year***, they visited a small surviving piece of Larsen B—now called the Scar Inlet Ice Shelf—and installed several automatic weather stations on and around it. (Douglas Fox, *Mysterious Winds Cause Rapid Melting of Antarctic Ice*, November 2016).

In the examples 62 and 63 the adverbial modifier of time is transferred to the front position. The common place of any adverbial modifier is at the end of the sentence. By putting adverbial modifier of time in frontal position, the importance of time of the action or an event is emphasized.

Further analysis of the emphatic function of word order was made by classifying the examples by how the emphasis is expressed. Kobrina et al. (1999:281-282) distinguished nine most frequent ways of highlighting the information by transferring it to an unconventional position of the sentence:

- 1) Transferring the subject to an end position;
- 2) Putting in front an objective or a predicative;
- 3) Locating preposition after the verb or a verb-group, or after an entire statement;
- 4) Fronting adverbials;
- 5) Transferring words which have a role of adverbs and of prepositions to a front position;
- 6) Putting an attribute after its headword;

7) By using particular structures e.g., the introductory non-local *there + verb + noun*, followed by an attributive clause;

8) Using the introductory *it*;

9) Emphasis on words functioning as direct or indirect object may be achieved by the use of the passive construction, in which the words to be emphasized are moved either to front position or closer to the end.

2.3.1 Emphasis of adverbial modifiers

In the analysed corpus, there were a great number of emphasized adverbial modifiers (located at a front position of the sentence). There were found adverbial modifiers of time, place, condition and reason. Consider:

(64) ***“By the middle of the 21st century***, we’re going to be seeing mild bleaching on most reefs around the world,” says Eakin. (Craig Welch, *Surprising, Vibrant Reef Discovered in the Muddy Amazon*, April 2016).

(65) ***Three decades later***, it’s not certain how radiation is affecting wildlife—but it’s clear that animals abound. (John Wendle, *Animals Rule Chernobyl 30 Years After Nuclear Disaster*, April 2016).

(66) ***Over the next few decades***, wildlife biologists inside and outside the agency echoed Grinnell, calling for the parks to remain “unimpaired,” in ecological terms. (Michelle Nijhuis, *How the Parks of Tomorrow Will Be Different*, December 2016).

(67) ***In September 1916*** the prominent California zoologist Joseph Grinnell, writing in the journal *Science*, suggested that the Park Service should protect not just scenery but also the “original balance in plant and animal life”. (Michelle Nijhuis, *How the Parks of Tomorrow Will Be Different*, December 2016).

(68) ***On the 400th anniversary of his death***, we examine whether Shakespeare was gay, went to school, or even wrote his own plays. (Becky Little, *Did Shakespeare Hate His Wife? Four Myths About the Bard*, April 2016).

Examples above reveal the emphasis of **adverbial modifiers of time** by placing it in the frontal position of the sentence. By this manner, the significance of time of the action or an event is emphasized.

(69) ***On the south end of the island**, storms destroyed the parking lots six times in 10 years.* (Michelle Nijhuis, *How the Parks of Tomorrow Will Be Different*, December 2016).

(70) ***High in the Sierra Nevada**, floodlit giant sequoias tower into the night sky.* (Michelle Nijhuis, *How the Parks of Tomorrow Will Be Different*, December 2016).

(71) ***At the bottom** they found the tomb's original limestone bed, intact.* (Becky Little, *Unsealing of Christ's Reputed Tomb Turns Up New Revelations*, November 2016).

(72) ***In his research lab in Slavutych**, the surreal little Soviet town built right after the disaster for the physicists, workers, and scientists affiliated with Chernobyl, Sergey Gaschak emphatically agrees.* (John Wendle, *Animals Rule Chernobyl 30 Years After Nuclear Disaster*, April 2016).

(73) ***In the south and central portions of the reef**, seasonal changes in runoff and currents allow light to penetrate at some portions of the year.* (Craig Welch, *Surprising, Vibrant Reef Discovered in the Muddy Amazon*, April 2016).

Samples above show the emphasis of **adverbial modifiers of place** by putting them in the frontal position of the sentence. Fronting adverbial modifier of place emphasizes the importance of place there the action or occurrence takes place.

(74) ***Numbering as few as 400 individuals**, they're threatened by a proposed hydropower project that would fragment their habitat and open the area to more human intrusion, including illegal hunting.* (Mel White, *Inside the Private Lives of Orangutans*, December 2016).

(75) ***To keep his soul from being drawn into the underworld with the deceased**, the soul of a sacrificed pig is offered in exchange.* (Erik Vance, *Unlocking the Healing Power of You*, November 2016).

(76) ***To help bring more resolution to the dinosaur's apocalyptic moment**, the new drilling project aims to draw up cores from various levels of the crater between now and June.* (Brian Switek, *What Killed the Dinosaurs? Science Has Had Some Wild Ideas*, April 2016).

(77) **To make up for the dramatic decline in carbonated soda sales**, the big soda companies have moved into the water business. (Charles Fishman, *If Bottled Water Is So Bad, Why Are Sales Hitting Records?* April 2016).

Examples above demonstrate the emphasis of **adverbial modifiers of cause (reason)** by placing them in a frontal position of the sentence. By this manner, the importance of cause (reason why a particular action or occurrence appeared) is accentuated.

(78) **“If you lived in the Pacific Northwest**, you’d know the six types of salmon and how to harvest them, but if you were a Navajo on the Midwestern plains, you never would have seen one,” says Lois Ellen Frank, a Native American chef with a Ph.D. in culinary anthropology. (Rebecca Rupp, *Native American Cuisine Returns to Its Roots*, November 2016).

(79) **When there are no good anchors**, your partners become your anchors, physically and emotionally. (Mark Jenkins, *How a Remote Peak in Myanmar Nearly Broke an Elite Team of Climbers*, September 2015).

(80) **With considerable human effort, money, and political will**, tigers are slowly recovering in large, well-protected landscapes with plenty of prey, particularly in reserves in central India, in the Himalayan foothills, and amid the mountains of the Western Ghats. (Sharon Guynup, *How Many Tigers Are There Really? A Conservation Mystery*, April 2016).

Samples 78, 79 and 80 reveal the emphasis of **adverbial modifiers of condition** by putting them at the start of a sentence. The act of fronting adverbial modifier of condition reveals the emphasis of a particular condition under which action or occurrence happened.

2.3.2 There + verb + noun

(81) **There** are more animals now than there were 30 years ago. (John Wendle, *Animals Rule Chernobyl 30 Years After Nuclear Disaster*, April 2016).

(82) **There** was just a handful of animals that survived. (John Wendle, *Animals Rule Chernobyl 30 Years After Nuclear Disaster*, April 2016).

(83) **There** are a number of websites and organizations that host a wealth of information specific to bicycle tourists. (No 04, 2016) (Tyler Metcalfe, *How to Bike Across America*, April 2016).

(84) And **there** are strict specifications for making matzoh, of course. (Judaism is all about rules.) (No 04, 2016) (Gabe Bullard, *The World's Newest Major Religion: No Religion*, April 2016).

Samples above demonstrate the emphasis of this structure: the introductory non-local **there + verb + noun**, followed by an attributive clause by placing non-local there in a front position. This structure takes a role of a communicative centre in a sentence and is emphasized by putting it in a frontal position.

2.3.3 Introductory it

(85) “**It’s** a big deal bison are still with us,” says Lee Whittlesey, Yellowstone’s park historian. (Todd Wilkinson, *Are We Loving Yellowstone to Death?* May 2016).

(86) **It is** too dangerous for Renan and me to keep moving. (Mark Jenkins, *How a Remote Peak in Myanmar Nearly Broke an Elite Team of Climbers*, September 2015).

(87) **It** was just the sort of observation that Pettit and three other researchers had come here looking for. (Douglas Fox, *Mysterious Winds Cause Rapid Melting of Antarctic Ice*, November 2016).

(88) **It** was a lot of what we called ‘Eastern Shore engineering,’ ” Ennis says, laughing. (Michelle Nijhuis, *How the Parks of Tomorrow Will Be Different*, December 2016).

Examples 85-88 reveal the emphasis of the **introductory it** by locating it at the start of the sentence.

In the analysed corpus, there were found three of nine most frequent ways of emphasizing the information by: fronting adverbial modifiers (of time, place, cause (reason) and condition); putting in a front position the structure of the introductory non-local there + verb + noun, followed by an attributive clause and fronting the introductory it. Other ways of emphasis were not found in the analysed corpus. It can be assumed that only three of nine ways of emphatic

function of word order were found in the analysed corpus because other mentioned ways of emphasis are more elaborate and it can be guessed that they may be found in other genres of literature, e.g. prose or poem.

The relative frequency of different adverbial modifiers (of time, of place, of cause (reason) and of condition) is shown in the Figure 2:

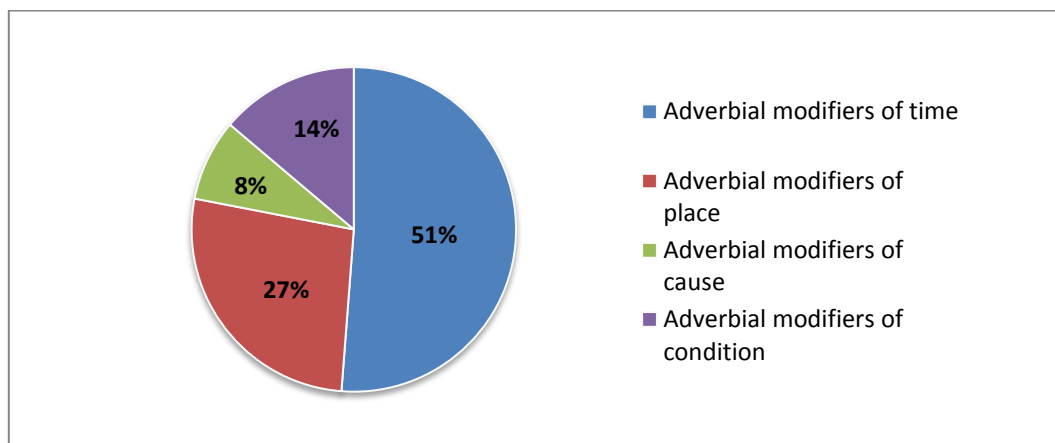


Figure 2. The relative frequency of different adverbial modifiers (of time, of place, of cause (reason) and of condition)

In the analysed corpus, the examples of adverbial modifiers were of a great quantity (154 tokens). These examples were classified according to the semantic features of the adverbial modifiers: of time, of place, of cause (reason) and of condition. The most frequently met adverbial modifiers were of time 58% (63 tokens) and of place 30% (33 tokens). Less common adverbial modifiers were of condition 9% (17 tokens) and of cause (reason) – 3% (10 tokens).

The relative frequency of a different emphasis is shown in the table below:

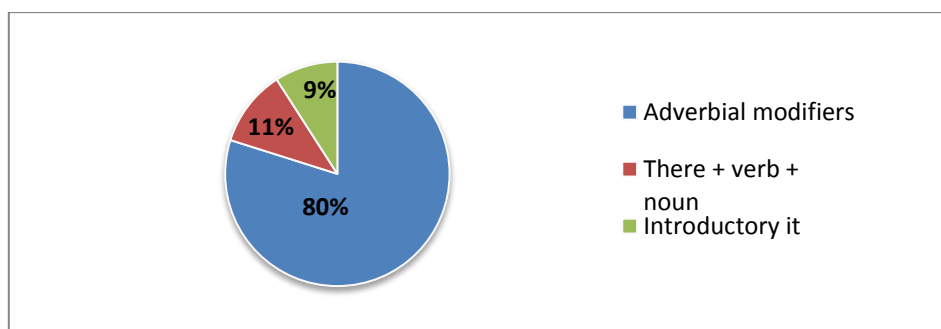


Figure 3. The relative frequency of a different emphasis

In the corpus of 524 examples of functions of word order in English scientific discourse, 154 examples of emphatic function were found. Figure 3 shows that the adverbial modifiers were most common. They accounted for 80% (123 tokens), while the structure there + verb + noun accounted for 11% (17 tokens) and the structure with an introductory it accounted only for 9% (11 tokens).

2.4 Analysis of the communicative function of word order

Communicative function plays an important role in word order of the English language. There are four types of communicative sentences: declarative, interrogative, imperative and exclamatory. The focus of this analysis is to consider the examples of interrogative and imperative sentences because word order in such type sentences is unconventional.

2.4.1 Interrogative sentences

Interrogative statements are considered as questions. The classification of all types of interrogative sentences can be contracted to two main types: **general questions** and **pronominal questions**. Both are recognized by a question mark. The fixed pattern of direct word order (Subject-Predicate-Object) does not change in the general questions, only auxiliaries are put in a front position, directly before the subject. Consider these examples of **general** questions:

(89) ***Do** you think there would be public outrage?* (Todd Wilkinson, *Are We Loving Yellowstone to Death?* May, 2016).

(90) ***Should** they start planting sequoia seedlings in cooler, wetter climes, even outside park boundaries?* (Michelle Nijhuis, *How the Parks of Tomorrow Will Be Different*, December 2016).

(91) ***Should** park managers, who are supposed to leave wild nature alone, irrigate sequoias to save them?* (Michelle Nijhuis, *How the Parks of Tomorrow Will Be Different*, December 2016).

(92) ***Is** awareness of deforestation and the role of palm oil in the orangutans' demise reaching the public more?* (Christine Dell'Amore, *Orangutans Are More Like Us Than You Think*, April 2016).

Examples above demonstrate that question marks of the general questions are various auxiliaries and their position is before the subject. The further sequence of the words is conventional and do not reveal any special peculiarities which must be considered.

Question marks of the pronominal questions are the interrogative pronouns or adverbs. Some peculiarities about the word order in such type of sentences were distinguished by Kobrina et al. (1999:215): “Word order in a pronominal question is characterized by inversion of the operator and the subject. Inversion does not take place when the question word is the subject or an attribute to the subject”. Examine the collected examples of the **pronominal** questions:

(93) **What** *would happen, do you think, if we managed our migratory elk the same way we're forced to manage bison?* (Todd Wilkinson, *Are We Loving Yellowstone to Death?* May, 2016).

(94) **What** *Killed the Dinosaurs?* (Brian Switek, *What Killed the Dinosaurs? Science Has Had Some Wild Ideas*, April 2016).

(95) **What** *sets your new show apart from other orangutan documentaries done in the past?* (Christine Dell'Amore, *Orangutans Are More Like Us Than You Think*, April 2016).

As can be seen from the examples above, inversion here is not used because question marks in these sentences are the subjects.

(96) *So why do the elk need such an elaborate sound system?* (Todd Wilkinson, *Are We Loving Yellowstone to Death?* May, 2016).

(97) **Where** *did we come from and how did we get here?* (Simon Worrall, *During Last Mass Migration, Europeans Were the Immigrants*, April 2016).

(98) **What** *discoveries have you made about orangutans during your research at Borneo's Gunung Palung National Park?* (Christine Dell'Amore, *Orangutans Are More Like Us Than You Think*, April 2016).

Samples above demonstrate that inversion is used in these sentences because the question word does not have a role of subject or an attribute to the subject.

The relative frequency of general and pronominal questions is shown on the table below:

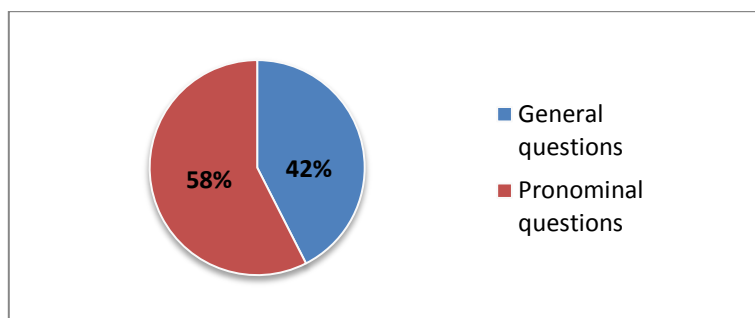


Figure 4. The relative frequency of general and pronominal questions

In the analysed corpus, the examples of interrogative sentences were not of a very great quantity (53 tokens). These examples were further subdivided into general and pronominal questions. Figure 4 shows that pronominal questions were more common than the general questions. Pronominal questions accounted for 58% (36 tokens), while the general questions accounted for 42% (17 tokens).

2.4.2 Imperative sentences

Cowan (2008:110) claims that imperative sentences indicate commands, prohibitions, requests, invitations, warnings, persuasions, etc., hinging on the context, wording, situation or information. Consider the examples:

(99) “**Commit** to the journey just before you feel fully ready”. (Tyler Metcalfe, *How to Bike Across America*, April 2016).

(100) **Go** in the shoulder seasons right when kids go back to school or right before they get out,” he says. (Tyler Metcalfe, *How to Bike Across America*, April 2016).

(101) “**Pack** headlamps,” Rush says. (Tyler Metcalfe, *How to Bike Across America*, April 2016).

(102) And **don't be afraid to travel** with small children. (Tyler Metcalfe, *How to Bike Across America*, April 2016).

As mentioned before, imperative sentences include commands, orders, instructions, directions, advice, warnings, requests, etc. As can be noticed from the examples above, word

sequence in imperative sentences is the same as in declarative sentences, only the subject (usually - you) is skipped.

The relative frequency of interrogative and imperative sentences is shown in the table below:

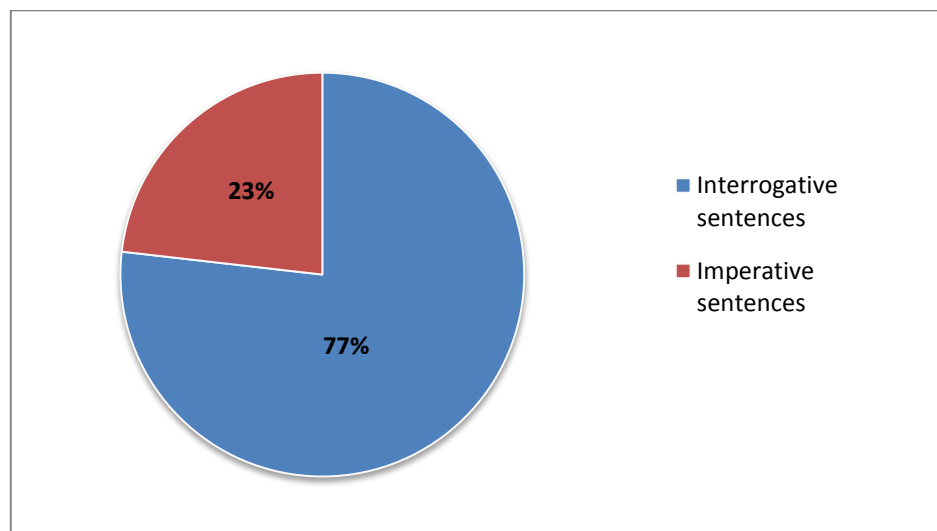


Figure 5. The relative frequency of interrogative and imperative sentences

In the corpus of 524 examples of functions of word order in the English scientific discourse, 52 examples of communicative function were found. Figure 5 shows that the interrogative questions were most common. They accounted for 77% (53 tokens), while imperative sentences accounted for 23% (16 tokens).

2.5 Analysis of the linking function of word order

The last function of word order in the English language to mention is the linking function. As noted by Smith (2006:244), the linking function of word order can be described as the continuity of thoughts in statements which follow each other. Sequence of thoughts is frequently supported by demonstrative adverbs or pronouns. The analysis of the collected examples was made by classifying the words which link the sentences. Here is shown the subdivision of linking marks which was used in the analysis:

- 1) Demonstrative pronouns;
- 2) Personal pronouns;

3) Conjunctions.

2.5.1 Demonstrative pronouns

Demonstrative pronouns are related to persons, non-persons or to their properties. Examine samples below:

(103) *A lot of the emigration came from the poorest parts of the monarchy, like **Galicia**, now part of Poland and Ukraine, and southern Hungary. These were areas* where there was a lot of overpopulation and a shortage of land, because of the way it was divided upon inheritance between children. (Simon Worrall, *During Last Mass Migration, Europeans Were the Immigrants*, April 2016).

(104) *In the 1930s, Poland in particular proclaims that their so-called “**Jewish problem**” is a problem of an excess of Jews, and that the solution is to find some colonial outpost and encourage them to emigrate. This idea* even catches on in Western circles among leaders like Franklin Roosevelt. (Simon Worrall, *During Last Mass Migration, Europeans Were the Immigrants*, April 2016).

(105) *During their hike, McBride, a photographer and filmmaker, and Fedarko, a journalist and author, have brought attention to **controversial commercial activities** around the canyon. These* include a proposed tourist tram from rim to river, a huge commercial development at the “gateway” to the Grand Canyon, and uranium mining. (Becky Little, *Hikers Start Final—Most Difficult—Stage of Grand Canyon Trek*, October 2016).

(106) *But more typically, “there is pressure from our [African-American] community,” says Mandisa Thomas, the founder and president of the Atlanta-based Black Nonbelievers, Inc. This pressure* stems from the place religion—Christianity in particular—holds in African-American history. (Gabe Bullard, *The World's Newest Major Religion: No Religion*, April 2016).

(107) *What’s sometimes called the New Atheism picked up in the **mid-2000s**. These were years* of war, when Islam was painted as a threat and Christianity infused U.S. policy, abroad and domestically, most visibly in faith-based ballot initiatives against same-sex marriage. (Gabe Bullard, *The World's Newest Major Religion: No Religion*, April 2016).

Examples above reveal that linking marks (in this case – demonstrative pronouns in singular and plural form) connect the sentences. The idea of previous sentence is continued by starting the following sentence with a linking mark which denotes the whole or a part of an idea of a previous sentence. Samples above show that demonstrative pronouns do not stand for any new information or action, they simply stand for previously described information or action and in that way continue the idea of a speaker.

2.5.2 Personal pronouns

Personal pronouns can also stand for linking marks as connectors of the sentences. Personal pronouns are used in the same pattern as demonstrative pronouns to link the continuation of a thought: the idea of previous sentence is continued by starting the following sentence with a linking mark (in the analysed case, linking mark is a personal pronoun). Examples below have been chosen respectively:

(108) ***Richard Mödl** had recently broken his heel, but in 2003 he was determined to complete his first pilgrimage from Regensburg to Altötting, Germany. **He** figured if the pain got too bad he could always hitch a ride.* (Erik Vance, *Unlocking the Healing Power of You*, November 2016).

(109) *In reality, at the height of the Cold War, policies toward **East European migrants** were often much less generous, in part for the same reason that you see anxiety and animus toward refugees today: **They** were seen as a potential national security threat.* (Simon Worrall, *During Last Mass Migration, Europeans Were the Immigrants*, April 2016).

(110) *The world as we know it was shaped by these **mass migrations**. **It** inspired the formation of new transnational welfare states where governments became concerned with the fate of their citizens overseas and tried to extend their protection to those citizens.* (Simon Worrall, *During Last Mass Migration, Europeans Were the Immigrants*, April 2016).

As shown in the samples above personal pronoun which has a role of connectors denotes the noun or a noun phrase which is presented in the first sentence. In order not to repeat the same word (e.g. *male*), a personal pronoun (e.g. *they*) instead is used. In this way, the idea of a previous sentence is continued.

2.5.3 Conjunctions

Conjunctions join equal parts of a simple sentence, clauses or homogenous elements of an utterance. There is a wide range of different conjunctions but in the analysed corpus there were picked out examples there conjunctions *and*, *so* and *as* link the sentences. Consider:

(111) “*We’re dealing with very imprecise measuring of a very imprecise phenomenon. **And** a lot of it’s nonconscious*”. (Erik Vance, *Unlocking the Healing Power of You*, November 2016).

(112) *We think around 30 to 40 percent of migrants eventually returned home or made multiple journeys. **So** migration was not a one-way process*. (Simon Worrall, *During Last Mass Migration, Europeans Were the Immigrants*, April 2016).

(113) *Trampling dogs place more pressure on already fragile animal populations. **As** they race through the underbrush, dogs create bare areas and may disturb ground-nesting birds and squirrels*. (Paul Stein, *In Africa, Tracker Dogs Join War Against Elephant Poachers*, November 2014).

Samples above demonstrate how the sentences are linked by the conjunctions *so* and *as*. These conjunctions play the role of a linking mark of the connected sentences and their position in the sentence is always frontal.

The relative frequency of ways of linking speaker’s ideas (demonstrative pronouns, personal pronouns and conjunctions) is given in the Figure 6:

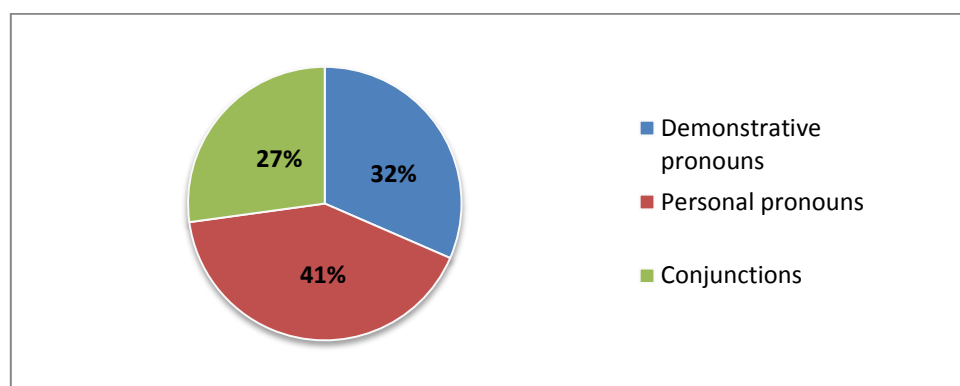


Figure 6. The relative frequency of ways of linking speaker’s ideas (demonstrative pronouns, personal pronouns and conjunctions)

In the corpus of 524 examples of functions of word order in English scientific discourse, 92 examples of linking function were found. Figure 6 shows that the personal pronouns used in linking speaker's ideas were most common. They accounted for 41% (38 tokens), while the usage of demonstrative pronouns accounted for 32% (29 tokens) and the usage of conjunctions was the less frequent, it accounted for 27% (25 tokens).

The relative frequency of analysed functions of word order is shown in the figure below:

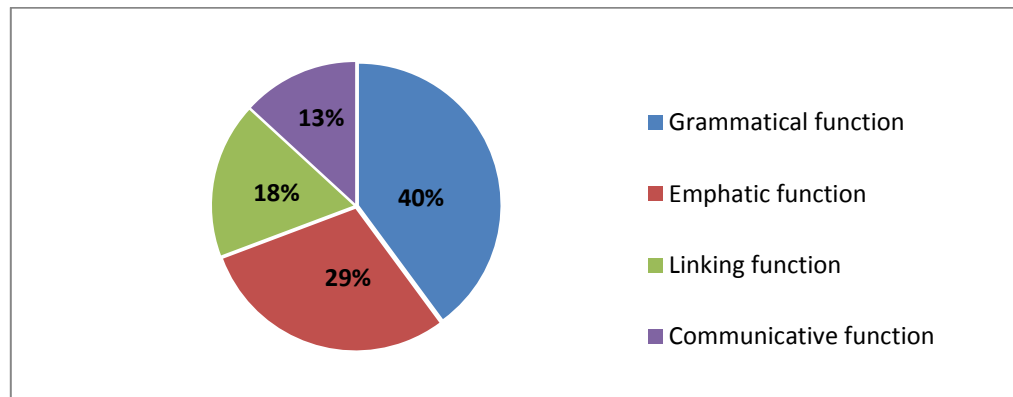


Figure 7. The relative frequency of the analysed functions of word order

In the corpus of 524 examples the greatest number of collected material belongs to **the grammatical function**, it accounted for 40% (209 tokens). **The emphatic function** accounted for 29% (154 tokens). Samples of **the communicative** and **the linking functions** accounted for quite a similar number of tokens – *linking function* accounted for 18 % (92 tokens), while *communicative function* accounted for 13% (69 tokens).

To sum up the statistics which were made according to the functions of word order in English scientific discourse, short conclusions can be drawn: it is obvious that the majority of collected material in the corpus belongs to the grammatical function. The second place of relative frequency of the examples is occupied by the emphatic function. The linking function of word order appertains to a third place and a fourth place is occupied by the communicative function of word order.

CONCLUSIONS

Word order in the English language plays a very important role of a fluent and appropriate communication. The aim of the research was to analyse the main functions of word order and their features in English popular science discourse. The conclusions which are demonstrated below confirm that objectives formulated on page 4 have been achieved successfully: 1) To present the theoretical material concerning functions of word order and their features in the English language; 2) To discuss the main features of word order in the English language and to reveal how these aspects function particularly in English popular science discourse.; 3) To determine what functions of word order are the most common in English popular science discourse and to illustrate it by examples. Finally, the following conclusions could be drawn:

1) The analysis of the theory was based on the researches of these linguists: Leitner (1991), Birner (1996), Kobrina et al. (1999), Chen (2003), Williams (2005), Joshi (2013), Halliday and Mathiesen (2014), Sweet (2014), Hepper (2015) and others. According to the investigations of mentioned linguists, four main functions of word order in the English language were distinguished: 1) **grammatical**; 2) **emphatic**; 3) **linking**; 4) **communicative**. These functions were presented and analysed in detail in the theoretical part of the research.

2) The hypothesis which was raised at the beginning of the research proved to be correct: grammatical, emphatic linking and communicative functions of word order are the most present in English popular science discourse. Every function of word order was examined and analysed separately. Firstly, **the grammatical function** was analysed in a detailed way: subject and object were chosen as targets of the research. The collected examples were classified in two main groups: 1) *sentences with notional person subject*; 2) *sentences with notional non-person subject*. Further, **the emphatic function** was presented by subdividing ways of emphasis into following groups: 1) fronting *adverbial modifiers* (the subdivision of adverbial modifiers was used: *of time, place, cause and condition*), 2) putting in a front position the structure of *the introductory non-local there + verb + noun*, followed by an attributive clause, 3) fronting *the introductory it*. The next function which was presented is **the communicative function**. The examples of communicative function were classified into: 1) *interrogative sentences*, which were subdivided into a) *general questions*; b) *pronominal questions* and 2) *imperative sentences*. Finally, the last

function which was analysed was **the linking function**. The examples of linking function fall into three main groups: 1) *demonstrative pronouns*; 2) *personal pronouns*; 3) *conjunctions*.

3) The greatest number of examples was of **the grammatical function** – it accounted for 209 samples. This can be explained by the fact which was mentioned before: grammatical function plays the most important role of the functions of word order. For this reason, many samples could be found in any literature. It is important to mention that the analysis of formal subject was not done because in the chosen corpus there were no examples of the connection between the formal subject and the object.

4) The second place of relative frequency of the examples is occupied by **the emphatic function** which accounted for 154 examples. From the number of the collected examples it is obvious that emphasis is quite widely used in English popular science discourse (to be more precise, in English popular scientific magazine *National Geography*). The most common emphasis used in the sentence structures was of fronting adverbial modifiers of time and place – this highlights the importance of a particular date or place. Even though there are many ways of emphasizing the main information of the sentence in the English language, in the analysed corpus were distinguished only three ways of emphasis. This is due to the fact that in the popular scientific literature it is not common to use very elaborate structures of the sentences in which parts of the utterance are put in unconventional positions, e.g. *locating preposition after the verb or a verb-group, or after an entire statement*. Still, it can be added that simpler structures of emphasis are used widely in popular science discourse because it provides a specific colouring to the text.

5) The third to mention is relative frequency of **the linking function**, it accounted for 92 tokens. A big number of examples demonstrated that sentences are linked by using personal and demonstrative pronouns by fronting them in frontal position – the consistency of previously expressed thought is organized by this manner. What is more, it is important to mention that putting conjunctions in frontal position to relate sentences is also widely used in English popular science discourse.

6) The last function to mention is **the communicative function**, it accounted for the least number of the samples – 69 tokens. The focus of this analysis was to consider the examples of interrogative and imperative sentences because word order in such type sentences is

unconventional. From the frequency of the collected material it is obvious that the communicative function is quite common in a popular scientific literature – examples of communicative function is most common in articles which main focus is interview (the communication between two or more persons). Even though the relative frequency of the communicative function accounted for the least number of the examples, it cannot be said that it is uncommon in the analysed corpus because interviews are quite prevalent in popular science discourse. This reveals an important implication if comparing popular science discourse and science discourse: supposedly, examples of the communicative function would not be found in a scientific discourse because the style of the scientific literature is quite strict and free of specific colouring. On the contrary, popular scientific discourse is less standardized and communicative type of sentences can be found in this type of the discourse.

In conclusion, it could be said that assuming the peculiarities of word order in the English language assists in a correct and fluent communication and usage of the language. Also, a present research revealed what functions of word order are the most common in English popular science discourse and how these functions operate in this particular discourse. Finally, having analysed functions of word order and their features in English popular science discourse, it could be added that a further research of linguistic analysis could be made selecting a different type of discourse.

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