

## Metadiscourse Markers in Technical Texts

*Vilija Celiesiene, PhD*

*Erika Sabulyte, B.A.*

Kaunas University of Technology, Lithuania

Doi: 10.19044/llc.v5no4a1

[URL:http://dx.doi.org/10.19044/llc.v5no4a1](http://dx.doi.org/10.19044/llc.v5no4a1)

---

### Abstract

The aim of this research is to analyse metadiscourse marker usage in English texts of various areas (Informatics, Energy and Civil Engineering) in pursuance to reveal the aspects of metadiscourse usage. This research is aimed to determine if metadiscourse markers are a frequent occurrence in technical language and what category markers can be found in such texts. This study also pursues to define usage peculiarities of interdisciplinary metadiscourse markers. The usage of markers of interactive and interactional categories is analysed. Employing descriptive and comparative research methods and qualitative calculations it was determined that the usage of interactive category markers dominates in all researched technical areas. It was noted that such texts are characterised by visual means, consequently it explains the usage abundance of endophoric markers and code glosses as the author seeks to ensure that the information provided is properly interpreted. The analysis of interactional category markers indicated that technical texts are not so objective as they were considered to be, i.e. the expression of the author's attitude and emphatic evaluation can be envisaged. It was observed that the area of Civil Engineering was the most objective and least personalised, the field of Informatics distinguishes by the abundance of code glosses and hedging markers whereas the sphere of Energy stands out by examples of all categories of metadiscourse markers.

---

**Keywords:** Metadiscourse, marker, metalanguage, technical texts.

### Introduction

A deeper attitude to the author's work, his/her employed means to reason or persuade the reader and create suggestive and efficient scientific text is inevitable in modern world where the language is constantly developed, language processes and its functions are analysed. Discourse analyses can encompass multiple genres, disciplines, not only can they research a text or a language but also signs, pictures or video material. In general, discourse is a

wide range analysis which can be divided into many areas and branches, e.g. academic discourse, popular science discourse, political discourse or metadiscourse, etc. Namely, the latter branch - metadiscourse markers – is the object of this research.

Language means can inform, persuade or simply engage the reader, the text reflects the author's attitude to the described things simultaneously, all of this is inherent to metadiscourse. Lately, metadiscourse analysis receives a great attention, different disciplines, cultures are chosen for its analysis, languages are compared, functions of metadiscourse and its markers are discussed. For example, Šinkūnienė (2014) researches metadiscourse of four disciplines: economics, literature, sociology and linguistics whereas Alaunienė and Valskys (2009) choose students' works for their study. Thus, it can be stated that the resources of metadiscourse analysis are limitless. Therefore, the material of this research is technical texts. It was observed that technical texts are seldom chosen for metadiscourse analysis (Hyland, 2010, electronic engineering, computer science, aeronautics were analysed), the texts of humanities and social sciences are analysed most frequently. Accordingly, this research is essentially new and the obtained data is expected to reveal new results and metadiscourse properties.

The purpose of this research is to perform the analysis of usage of metadiscourse markers in English technical texts of various fields in order to reveal the aspects of metadiscourse usage. This research aims to determine if metadiscourse markers are a frequent phenomenon in technical language and which category markers can be found in such texts. It is also expected to define interdisciplinary peculiarities of metadiscourse marker usage.

Several research methods are employed to implement the objectives of this research, i.e. quantitative analysis where the frequency of marker repetition is calculated, and comparative analysis where interdisciplinary peculiarities of metadiscourse usage are specified. A descriptive research method is also applied as it evaluates the results, the selected examples are described as well as their relation to the objective of this research is defined.

Technical articles published in scientific journals are selected as the research material. English technical articles of three fields were analysed, i.e. Informatics (Journal of Education and Training, 2018; Information & Computer Security, 2015), Energy (Energy Conversion and Management, 2013; 2014) and Civil Engineering (Journal of Structural Engineering, 2015; 2016). Two articles were chosen for every area, totally 6 technical articles were researched. 352 examples were selected from the aforementioned articles, repetitive examples are also included into the analysis in order to determine the frequency of marker repetition, which is expressed in percentage terms. It is necessary to mention that the analysis did not include the examples of evidential markers if the author uses quotation style where the

quoted author is referred to only in footnotes or interactive references. Such decision was made as such references to the works of other authors do not perform a metadiscursive function. Selecting metadiscourse markers it is important to distinguish when a word performs a function peculiar to metadiscourse and when it conveys propositional contents in a sentence, thus the context plays a vitally important role here. According to Hyland (1998), automatic selection of metadiscourse markers is impossible as every case should be analysed independently.

### **1. The concept of metadiscourse and research overview**

Metadiscourse or metalanguage is a comparatively new branch of discourse yet more and more linguists mention metadiscourse in their researches and scientific works. The term metadiscourse was coined by Harris (1959) who suggested it to name the author's efforts to engage the reader into his/her text, specify and define significant elements as if guide the reader with his/her written text. Whereas Hyland (2005) emphasizes that metadiscourse is extremely important since the absence of metadiscourse and its markers makes the text less personal, less interesting and it is more difficult for the reader to follow it. It is very hard to retain neutrality in both colloquial and written language. Occasionally, neutrality even has a negative impact on the text, i.e. it is difficult to perceive the author's position, his/her attitude to the described things. „Not only can a reader be persuaded by factual information but also selecting the appropriate linguistic means“ (Poškienė and Vrubliauskienė, 2012, p. 36). This is why metadiscourse is so important, it creates a relation between the author and the reader, enhances context perception, allows the author to explain, specify or identify certain elements of the text. According to Kopple's suggestion (1985), metadiscourse was called „discourse about discourse“ but Hyland (2004) states that such title is wrong as it is rather a concept concentrating on the portrayal of the author's position in a written text. Ādel (2006) defines metadiscourse as „discourse about a developing discourse“ or detailed comments of the author about his/her written work. Hyland (2005) provides a very specific term of metadiscourse where he states that metadiscourse is statements reflecting position, which are used to present meanings of interpersonal relations in a text. They also help the author express his/her attitude and keep relation with readers as the members of the same society. Majority of authors writing texts use metadiscourse markers without perceiving that they are not the words specific for a particular area or scientific language. These language elements can be found in both daily and high level scientific texts. Metadiscourse constructions allow the reader to observe how the author strives to be understood in both a written text or representing his/her position (Hyland, 1998). It is necessary to note that in order to perform a purposeful analysis of metadiscourse markers it is essential to comprehend the

concept of metadiscourse properly, rely on researches of other authors and choose one particular model of metadiscourse markers.

Classification of metadiscourse markers was compiled by several authors. For example, Kopple (1985) distinguished 7 marker categories which are classified into two larger groups, i.e. textual and interpersonal metadiscourse. But later it was observed that references to other texts are attributed to two categories, thus a partial marker function coincidence occurs. Therefore, references are difficult to differentiate, identify a proper category and use this classification practically. Crismore and others (1993) tried to improve Kopple's model. This model included 12 marker categories which in accordance to Kopple's structure were classified into two larger groups – textual and interpersonal. However, textual metadiscourse group was further classified into two other parts, i.e. textual markers and explanatory markers. By such classification, Crismore, et al. (1993) suggest that linguistic means can perform the functions of a metalanguage if only the author decides so. Therefore, it is forgotten that markers in the text are frequently essential for syntactic reasons. Whereas Hyland (2005) referring to the performed researches offers his own classification taking the suggested models of metadiscourse markers into account and discovering their flaws. It is suggested that metadiscourse is characterized by three main ideas:

1. metadiscourse differs from theoretical statements of metadiscourse;
2. metadiscourse specifies the direction of the text where the relationship between the author and the reader is expressed;
3. metadiscourse indicates inner relations of a discourse exclusively.

Regardless of a growing interest in metadiscourse analysis it is difficult to characterise and classify it to meet the expectations of all researchers (Ådel and Mauranen, 2010). Since there are several marker classifications and so that the final work is consistent it was decided to follow Hyland's suggested model of metadiscourse markers. Hyland's (2005) metadiscourse markers are classified into two main categories, i.e. markers of interactive category and interactional category. The author can manage information flow, specify his/her position and interpretation clearly by markers of interactive category (Hyland, 2010). This category encompasses transitions, frame markers, endophoric markers, evidentials and code glosses (Šinkūnienė, 2014). Whereas interpersonal markers form relation between the author and the reader as the latter can envisage the author's attitude to the described information with the help of these markers. Interpersonal markers involve the reader into the text, they let him/her feel himself/herself as a part of it, create a dialogue between the author and the reader: the author can foresee the reader's contradictions or reactions and defend his/her opinion (Hyland, 2005). This category of markers includes hedges, boosters, attitude markers, self-mentions and engagement markers (see Table 1).

Metadiscourse can take various forms, namely morphemes (the least meaningful part of a word), separate words, word combinations and sentence sequences (Ädel, 2006). It was noticed that metadiscourse markers are expressed by particles most frequently, e.g. *taigi, bene, ypač*; adverbs, e.g. *todėl, pavyzdžiui, toliau*, inserts, e.g. *deja, kaip matome, kaip minėta*; conjunctions, e.g. *ir, kadangi, bet*.

<b>Metadiscourse category</b>	<b>Function</b>	<b>Marker</b>
<i>Interactive category</i>	<i>Help to guide the reader through the text</i>	
Transitions	Express relations between main clauses	<i>In addition; but; thus; and</i>
Frame markers	Discourse acts, sequences or stages	<i>Finally; to conclude; my purpose is</i>
Endophoric	Information in other parts of the text	<i>Noted above; see Fig.; in section 2</i>
Evidentials	Information from other texts	<i>According to X; Z states</i>
Code glosses	propositional meaning	<i>Namely; e. g.; such as; in other words; i. e.</i>
<i>Interactional category</i>	<i>Involve the reader in the Examples text</i>	
Hedges	Withhold commitment and open dialogue	<i>Might; perhaps; possible; about</i>
Boosters	Emphasize certainty and close dialogue	<i>In fact; definitely; it is clear that</i>
Attitude	Expresses writers' attitude to proposition	<i>Unfortunately; I (do not) agree; surprisingly</i>
Self-mentions	Explicit reference to author(s)	<i>I; we; me; our</i>
Engagement	Explicitly build relationship with reader	<i>Consider; note; you can see that</i>

Table 1. Categories of metadiscourse markers according to Hyland (2005)

It is essential to mention that markers are multifunctional. Depending on the context they can perform several functions simultaneously or be classified into a category other than usual.

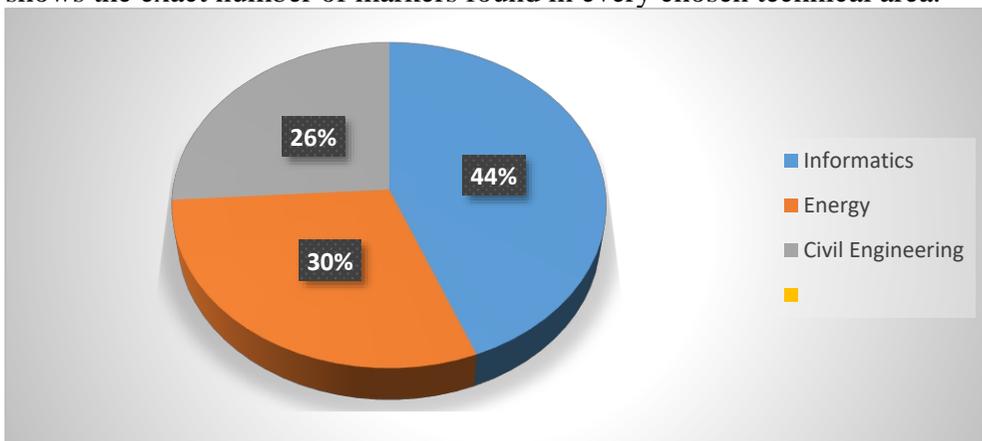
Thus, metadiscourse is one of the major expression means of the author's position. The author selects every language element in his text consciously and it means that such an element performs a certain function: be that argument combinations or reference to the text of the other author. It was noted that metadiscourse researchers pay more attention to researches of interpersonal relation markers in particular as they clearly indicate the author's position and the created relation with the reader. Although interactive markers are not the object of many researchers their analysis is not less important as these markers create a coherent and systematic text. As technical sphere is

traditionally considered to be objective and impersonal the usage of metalanguage elements of inner text is expected to be more ample and will reveal by what methods a coherent and consistent technical text is created. A chosen analysis of different fields will help determine what impact structural technical area makes on the usage of metadiscourse.

In order to perform a purposeful analysis of metadiscourse linguists recommend to follow one model of marker classification. Regarding a frequent usage of marker model suggested by Hyland (2005) among various language researchers of the world, this classification is precisely followed in this study.

## 2. Analysis of metadiscourse markers in technical texts

Quantitative analysis of metadiscourse markers is rendered first. It was performed on the basis of examples selected from technical articles of three spheres. 352 examples were chosen for this analysis. The provided picture shows the exact number of markers found in every chosen technical area.



Pic. Quantitative diagram of metadiscourse markers

As the picture illustrates, the majority of metadiscourse marker examples were found in the articles of **Informatics** (153 examples). This could be influenced by the fact that nevertheless the field of Informatics is technical it can encompass both sophisticated programmes and calculations, and presentations of innovative technologies, information management and storage. Besides, it is a fast developing area, therefore information in such articles may be presented as an assumption or possibility rather than a fact:

*(1) This would suggest that their privacy is not being considered during the completion of the task set before them. (Inf AN 2)*

Hedging markers are the most abundant here, i.e. they make even 24% of all found examples of metadiscourse markers of the sphere of Informatics (repetition of metadiscourse marker examples of the area of Informatics is

expressed by percentage and showed in Table 2). It is also observed that hedging markers in the field of Informatics are the most numerous in comparison with other areas. The opposite to hedging markers are boosters although they are infrequently used, they make about 7% of all markers in the texts of Informatics. Engagement markers by which the author involves the reader to the discussion directly or indirectly constitute 9% of all markers of the analysed texts in the sphere of Informatics. The author's position can be distinctly perceived from attitude markers. As Ryvitytė (2005) claims, they are very problematic to identify as assessment can be reflected in the entire text but not expressed by markers. In the field of Informatics, only 11 of such markers were found and they make 13% of all analysed examples of Informatics.

Marker category	Examples	Percentage
<i>INTERACTIVE CATEGORY</i>		
Transitions	<i>In addition; thus</i>	12 %
Frame markers	<i>Finally; first</i>	4 %
Endophoric	<i>As mentioned; figure X shows</i>	8 %
Evidentials	<i>According to X; Z states</i>	18 %
Code glosses	<i>For example; i. e.</i>	11 %
<i>INTERACTIONAL CATEGORY</i>		
Hedges	<i>Might; perhaps</i>	24 %
Boosters	<i>Clearly; obviously</i>	7 %
Attitude	<i>Surprisingly; important</i>	7 %
Engagement	<i>Note; you can see that</i>	9 %

Table 2. Repetition of metadiscourse marker examples of the sphere of Informatics expressed in percentage

Referring to markers of interactive category by which text and discourse coherence and structure are maintained, it was identified that markers of the aforementioned category exclusively are more plentiful than the ones from interactional category. Technical texts from the field of Informatics are not exceptional, 100 examples of markers of interactive category were found. Examples of evidentials and code glosses are the most frequent in this category:

(2) *For example, the aim of building social capital with friends through using Facebook would suffer if the user was privacy oriented. (Inf AN 2)*

The reason of their frequency might be article authors who present information based on examples or explanations. As the information can be new, so its rightness is substantiated. It is also necessary to emphasize that the abundance of code glosses indicates that the author refers to his/her reader, facilitates information relation to text elements (Šinkūnienė, 2014). Evidential markers referring to information from other sources are also related to

justification of information accuracy. No work can be written without referring to theories and ideas of other authors. It was observed that transition markers are difficult to identify, it is essential to read the context attentively and distinguish if a connector performs a metadiscourse function and joins arguments or it performs an external function and connects the fact only. However, in most cases they are to be used for argument connection:

(3) *In addition, workshop participants provided feedback on their experiences in Automate workshops that were often used to refine the instructional processes and steps shown in the program videos and to incorporate participant testimonials. (Inf AN 1)*

The smallest part of examples in the sphere of Informatics are frame markers and endophoric markers. Indeed, it is to be noted that frame markers by which the author points discourse stages are not widely used. The research proved that authors of other fields use even less frame markers than in the area of Informatics. The usage of these markers is more specific to longer texts as the reader is guided by the text, article stages and author steps are specified for the reader. It is peculiar for endophoric markers by which the author of the text can take the reader back to the mentioned part of the text or forward him/her to the future part of the text, remind the information, orient the reader's glance to the other part of the text:

(4) *Figure 1 represents a training activity that uses cardboard boxes and inexpensive electronic components to show how a BAS system in a strip mall would work. (Inf AN 1)*

Summing up, it is possible to claim that articles of the field of Informatics are characterised by plentifulness and variety of metadiscourse markers. The author's position and the relation between the author and his/her reader are revealed in such texts. Markers of interactive category are frequently used so it is possible to state that text authors try to maintain discursive coherence of the text.

It was noticed that texts of the sphere of **Energy** are full of calculations, sophisticated terms and data analysis. Nevertheless, they retain a peculiar language structure (repetition of metadiscourse markers of the field of Energy expressed in percentage is presented in Table 3). As the articles of the area of Energy comprise many tables and diagrams, usage of endophoric markers is emphasized when the reader is directed to various parts of the text. These markers make 18% of all analysed examples:

(5) *In this section a brief sensitivity analysis of the effect of these assumptions on the calculated PUE is carried out. (Eng AN 2)*

It should be mentioned that endophoric markers are the most numerous in the articles of Energy comparing all three areas. Transition and code glosses are to be distinguished as they are quite abundant (10% and 11%). Frame markers are not plentiful and make only 4% of all examples of

metadiscourse markers of the field of Energy. It should be also observed that some examples of frame markers can coincide with endophoric markers as not only do markers direct the reader but discursive movement is pointed:

(6) *In this section a brief sensitivity analysis of the effect of these assumptions on the calculated PUE is carried out. (Eng AN 2)*

Article analysis of the sphere of Energy is exclusive as the difference between markers of interaction and interactional categories is minimal, i.e. 54 examples of markers of interactive category and 53 examples of interactional category were found. Such balance of the categories indicates that not only are discursive references retained but the author's position and his/her relation with the reader are not stifled.

Marker category	Examples	Percentage
<i>INTERACTIVE CATEGORY</i>		
Transitions	<i>In addition; however</i>	10 %
Frame markers	<i>Finally; the aim</i>	4 %
Endophoric	<i>In this section; Fig. X illustrates</i>	18 %
Evidentials	<i>According to X; Z found that</i>	7 %
Code glosses	<i>Such as; for example</i>	11 % (12 pvz.)
<i>INTERACTIONAL CATEGORY</i>		
Hedges	<i>Might; suggest</i>	14 %
Boosters	<i>Clearly; demonstrates</i>	11 %
Attitude	<i>Surprisingly; actually</i>	17 %
Self-mentions	<i>We; our</i>	4 %
Engagement	<i>Note; it is necessary to consider</i>	4 %

Table 3. Repetition of metadiscourse marker examples of the area of Energy expressed in percentage

Interactional category in the field of Energy is characterised by the intensity of author position expression revealed by attitude markers and self-mentions. 18 examples of attitude markers were found and they make 17% of all examples of metadiscourse markers of the sphere of Energy. Here not only does the author express his/her position on the discussed topic but also emphasizes the importance of information at his/her own discretion:

(7) *Measuring the energy efficiency of a data centre is clearly very important if carbon emissions from the IT sector are to be reduced, and if companies are to reduce their electricity consumption. (Eng AN 2)*

Taking self-mentions into consideration, the fact has to be distinguished that authors of the area of Energy as well as from other spheres are not liable to mention themselves in their texts. Relation with the reader is also retained expressed by the usage of engagement makers in the area of Energy. This relation is most frequently revealed by the usage of engaging *mes* (when the author has himself/herself and the reader in mind using *mes*) or

when the reader's attention is drawn. In the field of Energy, hedges are employed for assumptions, a marker *suggest* is most frequently used for this purpose, modal verbs *may, might, could, etc.* express the possibility of an argument. But basically their function is to identify uncertainty:

(8) *There is also the possibility that regulatory measures for energy sustainability could arise and these could combine with land availability issues and constraints from environmental impacts. (Eng AN 1)*

Markers emphasizing expression are opposite to hedges and they can be called „the other side of the coin“ metaphorically (Poppi, 2004). The verbs *demonstrate, show* are used to intensify position in the texts of Energy, markers of *course, clearly, in fact* reveal assurance:

(9) *It is clear from the graph that the greatest impact on the PUE came from changing these latter values (Eng AN 2)*

Thus, having reviewed data analysis of the texts of Energy area it is possible to state that there is the least difference between markers of interactive and interactional categories in this sphere in comparison with other analysed fields. Due to the abundance of various calculations, tables and visual means, the author's assistance in orienting his/her reader, expressed by endophoric markers, is accentuated. The usage of attitude markers and self-mentions allows to envisage the author's position and his/her opinion about the described topic. Therefore, it is possible to claim that consistency between interactive and interactional categories in the analysed texts of the area of Energy is observed. Not only does it provide the text with coherence but it also forms relations and a common attitude between the author and his/her reader.

The sphere of **Civil Engineering** is the most technical from all the analysed fields. These texts are characterised by comparatively short and specific sentences, authors do not create relations with their reader. Thus, only 92 examples of metadiscourse markers are found (repetition of examples of metadiscourse makers of the field of Civil Engineering expressed in percentage is presented in Table 4). A double difference between markers of interactive and interactional categories is distinguished, i.e. 65 markers of interactive and 27 markers of interactional categories were discovered. Therefore, it is obvious that author's position, his/her evaluation or relation with the reader are difficult to be envisaged in the texts of Civil Engineering. Nevertheless, it is possible to find markers of interactive category which give metadiscursive shades for the text and allow to retain structure and coherence. For instance, there are many endophoric markers by which the author directs his/her reader to one or the other part of the text (21%), as well as in the sphere of Energy. Such markers as *see Fig X, Table X represents* are most frequently used if there is a reference to visual means and *noted below/ above, in this section* if other parts of the text are referred to:

(10) *A schematic of the test setup used for the shear test configuration is shown in Fig. 1. (Stb AN 1) (Eng AN 2)*

Usage of evidentials is not less common, they make 20% of all metadiscourse examples of Civil Engineering area. They are very similar to endophoric markers, the difference is that references are provided to other texts. Evidentials can be distinguished into two categories: integrated references and non-integrated references. Non-integrated references are more often employed in articles of all three analysed fields. Integrated references were found only in the areas of Energy and Civil Engineering. It indicates that article authors are more likely to emphasize the referred information but not its author.

The usage of transition markers and code glosses can be distinguished as they are quite numerous (13% and 15%). It was observed that frame markers by which the author informs the reader about discursive movements and stages are not differentiated in either sphere. Only 2 examples of these markers were found in the texts of Civil Engineering.

Marker category	Examples	English language
<i>INTERACTIVE CATEGORY</i>		
Transitions	<i>In addition; thus</i>	15 %
Frame markers	<i>Finally; first</i>	2 %
Endophoric	<i>In this section; see table X</i>	21 %
Evidentials	<i>According to X; Z states</i>	20 %
Code glosses	<i>For instance; i. e.</i>	13 %
<i>INTERACTIONAL CATEGORY</i>		
Hedges	<i>Might; perhaps</i>	9 %
Boosters	<i>Clearly; obviously</i>	6 %
Attitude	<i>Surprisingly; as expected</i>	13 %
Engagement	<i>Note; you can see that</i>	1 %

Table 4. Repetition of metadiscourse marker examples in the area of *Civil Engineering* expressed in percentage

As it was mentioned, markers of interactional category are not plentiful in the articles of Civil Engineering. For example, self-mentions were not found at all and only one engagement marker was discovered. Then it is possible to state that authors do not emphasize either themselves or the reader in the texts of this field, characteristic impersonality is revealed here. Self-mentions are most distinguished in this category, they constitute 13% of all examples of the sphere of Civil Engineering. So a conclusion can be made that although the author does not point out himself/herself in the text but his position is expressed in some way:

(11) *As expected, loading above the shear center causes a reduction in capacity. (Eng AN 2)*

Hedges and boosters are combined in the articles of Civil Engineering. Hedges are insignificantly more numerous than boosters, i.e. 8 hedges are found in both languages whereas 6 examples of boosters were identified. It was noticed that the texts of all areas do not contain merely hedges or boosters. Although they are contrasting but they are very closely related. Šinkūnienė (2011) states that usage of hedges is more abundant than boosters but no matter how scientific their research is the data is improved and may seem inaccurate in the long term.

Hence, summarising the analysis of metadiscourse markers of all analysed spheres it is possible to state that markers of interactive category are more plentiful than the ones of interactional category. This data indicates that authors writing technical texts put more effort in maintaining discursive order, assisting the reader in orienting in the text. Texts where information is based on visual means, e.g. diagrams or tables, comprise endophoric markers and code glosses. Authors do not emphasize either themselves or the reader in technical articles, but the author's position is revealed by the usage of attitude markers. Hedges and boosters and their coordination provide the text with balance as information is neither imposed upon the reader nor it is stifled.

## **Conclusion**

1. Metadiscourse becomes increasingly popular as the object of analysis among various language researchers. Authors provide different interpretations of metadiscourse, offer more refined researches. It was determined that there exist more than one model of metadiscourse marker classification, and the only correct version does not exist in marker analysis. In this way, metadiscourse multifunctionality is revealed.
2. The performed analysis of metadiscourse markers disclosed that the usage of markers of interactive category dominates in all articles of analysed technical fields. It was observed that such texts are characterised by visual means, so it explains the abundant usage of endophoric markers and code glosses. The author pursues to interpret the information properly. Marker analysis of interactional category revealed that technical texts are not that objective as it was considered earlier, expression of author's position and assertive evaluation can be envisaged there.
3. It was determined that metadiscourse is used creating both structural and suggestive text and revealing a clear position and evaluation of the author in the texts of all three areas. It was observed that the sphere of Civil Engineering is the most objective and least personalised, the field of Informatics is characterised by plentifulness of code glosses and hedges, while examples of all metadiscourse markers can be found in the field of Energy.

## Sources

### Informatics

(*Inf AN 1*) Grandgenett, N., Perry, P., Pensabene, T., Wegner, K., Nirenberg, R., Pilcher, P., & Otterpohl, P. (2018). Building Automation and the Contextualization of Information Technology: The Journey of a Midwestern Community College in the U.S. *Journal of Education and Training*, 6(2), 149–159.

(*Inf AN 2*) Hughes-Roberts, T. (2015). Privacy as a secondary goal problem: an experiment examining control. *Information & Computer Security*, 23(4), 382–393.

### Energy

(*Eng AN 1*) Forbes, E.G.A., Easson, D.L., Lyons, G.A., & McRoberts, W.C. (2014). Physico-chemical characteristics of eight different biomass fuels and comparison of combustion and emission results in a small scale multi-fuel boiler. *Energy Conversion and Management*, 87, 1162–1169.

(*Eng AN 2*) Brady, G. A., Kapur, N., Summers, J. L., & Thompson, H.M. (2013). A case study and critical assessment in calculating power usage effectiveness for a data centre. *Energy Conversion and Management*, 76, 155–161.

### Civil Engineering

(*Stb AN 1*) Cleary, D. B., Riddell, W. T., Camishion, N., Downey, P., Marko, S., Neville, G., Oostdyk, M., & Panaro, T. (2016). Steel Connections with Fiber-Reinforced Resin Thermal Barrier Filler Plates under Service Loading. *Journal of Structural Engineering*, 142(11), 04016095.

(*Stb AN 2*) Lamb, A. W., & Eamon, C. D. (2015). Load Height and Moment Factors for Doubly Symmetric Wide Flange Beams. *Journal of Structural Engineering*, 141(12), 04015069

## References

1. Alaunienė, Z., Valskys, V. (2009). Metakalbos elementai akademinuose studentų tekstuose. *Žmogus ir žodis: didaktinė lingvistika*, 11(1), 5–12.
2. Ädel, A. (2006). Metadiscourse in L1 and L2 English. *Studies in Corpus Linguistics: v. 24*. Amsterdam: John Benjamin Publishing Co.
3. Ädel, A., Mauranen, A. (2010). Metadiscourse: diverse and divided perspectives. *Nordic Journal of English Studies*, 9(2), 1–11.
4. Crismore A., Markkanen R., & Steffensen, M. (1993). Metadiscourse in persuasive writing: A study of texts written by American and Finnish university students. *Written Communication*, 10(1), 39–71.
5. Harris, Z. (1959). The Transformational Model of Language Structure. *Anthropological Linguistics*, 1(1), 27–30.

6. Hyland, K. (1998). Boosting, hedging and negotiation of academic knowledge. *Text*, 18(3), 349–382.
7. Hyland, K., & Tse, P. (2004). Metadiscourse in academic writing: Reappraisal. *Applied Linguistics*, 25(2), 156–177.
8. Hyland, K. (2005). *Metadiscourse: Exploring Interaction in Writing*. London/New York: Continnum. ISBN: 9780826476111
9. Hyland, K. (2010). Metadiscourse: Mapping interactions in academic writing. *Nordic journal of English Studies. Special issue on metadiscourse*, 9(2), 125–143.
10. Kopple V. W. (1985). Some Exploratory Discourse on Metadiscourse. *College Composition and Communication*, 36(1), 82–93.
11. Poškienė, A., Vrubliauskienė, V. (2012). Loginių – semantinių mokslinio diskurso ryšių raiška anglų ir lietuvių kalbose. *Kalbų studijos*, 20, 35–44.
12. Ryvitytė, B. (2005). Vertinimo raiška lingvistinių knygų recenzijose. *Žmogus ir žodis: didaktinė lingvistika*, 7(1), 961–01.
13. Šinkūnienė, J. (2011). Autoriaus pozicijos švelninimas rašytiniame moksliniame diskurse: gretinamasis tyrimas. Humanitarinių mokslų daktaro disertacija. Vilniaus universitetas.
14. Šinkūnienė, J. (2014). Lietuviškojo humanitarinių ir socialinių mokslų diskurso ypatybės. *Mokslo studija*. Vilnius: VU leidykla. ISBN: 978-609-459-350-5.