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JANA KOZUBÍKOVÁ ŠANDOVÁ
sandova@ff.jcu.cz
University of South Bohemia in České Budějovice

METADISCOURSE MARKERS IN RESEARCH ARTICLE ABSTRACTS. AN INTERLINGUAL AND INTERDISCIPLINARY STUDY

Metadiscourse has been extensively studied in various genres, e.g. newspaper discourse, casual conversation, textbooks, advertisements, and research articles. Studies focusing on metadiscourse in research articles often omit analysing abstracts and traditionally investigate research articles only according to the IMRAD structure. This paper explores metadiscoursive elements in Czech and English research article abstracts in philosophy and medicine at two levels of analysis, interlingual and interdisciplinary. The aim is to investigate whether scientific writers of research article abstracts identify more with their cultural identity or whether their identity is rather discipline-specific. The theoretical framework adopted in this study is a taxonomy of metadiscourse markers proposed by Dafouz-Milne (2008) since it takes into account a functional differentiation of metadiscourse elements. The interlingual analysis reveals no major cultural distinctions, the interdisciplinary analysis proves that metadiscourse is more prevalent in humanities. Thus, we can conclude that academic writers of RA abstracts identify more with their disciplinary culture.

1. Introduction

The traditional view of academic writing has emphasised objectivity, matter-of-factness, and impersonal expression; however, a novel approach has recently been adopted which states that successful and effective academic writing is contingent on interaction between the author and the reader. In other words, it is seen as social engagement. Factual information conveyed in the proposition is very frequently complemented by interactional elements. Writers utilise various linguistic devices to structure their texts, explain their standpoints, and express their attitudes towards both the propositional content and the readers of the text. This "self-reflective linguistic material" (Hyland and Tse 2004:156) has been called metadiscourse.

Successful scientific authors should be able to employ linguistic means both on the level of discourse and also on the level of metadiscourse. It is necessary not to overuse metadiscourse elements; however, their cautious inclusion may transform a difficult and not accessible text into a coherent and comprehensible work. Since metadiscourse is an important pragmatic construct, we can see which persuasive strategies academic writers use to influence readers' attitudes toward the text and its content.

The paper aims to explore the use and distribution of metadiscoursive resources in English and Czech research article abstracts in two disciplines, philosophy and medicine. The interlingual analysis focuses on the comparison of the use and occurrence of various types of metadiscoursive elements, and further, it concentrates on whether pragmatic functions of these linguistic means differ in these two languages. The interdisciplinary level of analysis examines distinctions in the use of metadiscourse markers between philosophy, as a representative of humanities, and medicine, as a representative of non-humanities, since it is usually claimed that academic writing in soft sciences contains more metadiscoursive elements than academic writing in hard sciences. The results of these two levels of analysis will then be put together in an attempt to answer the question whether scientific writers of research article abstracts identify more with their culture or with their academic discipline.

Scholars examining metadiscourse have usually investigated research articles as a whole, or analysed their parts according to the IMRAD structure, but abstracts have been frequently omitted from the analysis. For this reason, this study focuses on an examination of research article abstracts. It is interesting to investigate whether, for example, space constraints of this section of RA influence the use and occurrence of metadiscourse markers or not.

The paper is organised as follows: Section 2 attempts to define the concept of metadiscourse and in the second part, it mentions and compares several types of classifications relevant for this study. Section 3 presents the classification of metadiscoursive markers suggested by Dafouz-Milne (2008) in a more detailed way since it is the taxonomy employed here. Section 4 explains the methodology and describes the corpora analysed. Section 5 comments on the results of both levels of analysis and, finally, concluding section summarises all the results and draws conclusions.

2. The concept of metadiscourse and its classifications

Metadiscourse is a cover term including "a heterogeneous array of cohesive and interpersonal features which help relate a text to its context by assisting readers to connect, organize, and interpret material in a way preferred by the writer and with regard to the understandings and values of a particular discourse community" (Hyland and Tse 2004:157). The term itself was introduced in 1959 by Z. Harris who emphasised the study of language in use which "repre-

sents a writer's or speaker's attempts to guide a receiver's perception of a text" (Hyland 2005:3). Further development of the concept of metadiscourse and its understanding in contemporary research stresses the fact that communication is not only passing on information and conveying facts but also expressing attitudes and expectations of discourse participants. Metadiscourse "illuminates some aspects of how we project ourselves into our discourses by signalling our attitude towards both the content and the audience of the text" (Hyland 2005:4).

The first studies dealing with metadiscourse have been published in the last decades of the 20th century (Kopple 1985, Crismore 1989, Crismore and Farnsworth 1990, Mauranen 1993, Hyland 1998, i.a.). Interest in this concept still persists, the evidence of which is the abundance of works devoted to it (e.g. Dafouz 2003, Dahl 2004, Hyland 2005, Dafouz-Milne 2008).

Metadiscourse has been studied in various text types and genres, such as research articles, popular science articles, textbooks, advertisements, casual conversation, and in newspaper discourse. The linguistic forms of metadiscourse are very diverse and fulfil many pragmatic functions depending on the type of text. They may be realised by a single word (*possibly, however*) but also by a full sentence (*Section three focuses on Heidegger's conception of science.*).

As regards classifications of metadiscourse, most of them originate in the Hallidayan division of macrofunctions of language into *textual* and *interpersonal* (Halliday 1973). Also, the taxonomy of Vande Kopple has been frequently modified. He maintains that linguistic units are significant mainly for structuring and organisation of the text fall within the category of *textual metadiscourse*, by other scholars (Mauranen 1993, Moreno 1997) called *metatext*. Textual metadiscourse involves text connectives, code glosses, illocution markers, and narrators. The other category called *interpersonal metadiscourse* indicates the author's attitude towards both the text and the reader. It comprises validity markers, attitude markers, and commentaries.

Hyland and Tse reject the division of metadiscourse into textual and interpersonal suggesting that "all metadiscourse is interpersonal in that it takes account of the reader's knowledge, textual experiences, and processing needs […]" (2004:161). They also adopted Thomson's (2001) terminology and use the designations *interactive metadiscourse*, originally called *textual*, and *interactional metadiscourse*, originally designated *interpersonal*. Interactive metadiscoursive elements comprise five types: transitions, frame markers, endophoric markers, evidentials, and code glosses. Within interactional resources fall: hedges, boosters, attitude markers, self mentions, and engagement markers.

In her contrastive study on metadiscourse markers in research articles, Dahl (2004) works with the linguistic units with primarily textual function. Her taxonomy consists of two categories of metatextual elements. *Locational metatext* includes elements referring "to the text itself or to parts of it" (Dahl 2004:1811). These metatextual means guide the reader within the text. We can say that they are equivalent to endophoric markers defined by Hyland (2005). *Rhetorical metatext* comprises elements that "assist the reader in the processing

of the text by making explicit the rhetorical acts performed by the writer in the argumentation process" (Dahl 2004:1812). Linguistic means in this category partly correspond to what Hyland labels frame markers; however, Dahl's category is defined more narrowly as it includes only verbs relating to discourse acts performed by the author.

On the contrary, Rahman takes a wider approach and proposes a classification of metalanguage with two subcategories, namely *metatext*, which includes "explicit references to the text managing acts such as the writing process and the reading process", and *metadiscourse*, or text-about-discourse management (2004:40). Metatext consists of discourse entities, discourse acts, and discourse labels. The subcategories of metadiscourse are: illocutionary acts, topic shifting, code glossing, interactive acts, and text connectives. Discourse entities correspond roughly to Hyland's endophoric markers.

The classification of metadiscourse markers used in this study draws on the functional differentiation of textual and interpersonal metadiscoursive elements, even though it is obvious that metadiscourse categories are inherently interpersonal. However, it is important to focus not only on the linguistic realisations of metadiscourse markers but also on their pragmatic functions. For these reasons, a taxonomy suggested by Dafouz-Milne (2008) seemed to be appropriate and was used in this study. It is described in more detail in the next section.

3. Dafouz-Milne's classification of metadiscourse markers

This classification divides metadiscoursive elements into two categories, *textual metadiscourse* and *interpersonal metadiscourse*. Textual metadiscourse markers comprise seven macro-categories. The first of them is *logical markers* which convey "semantic and structural relationships between discourse stretches, and help readers interpret pragmatic connections by explicitly signalling additive, adversative, and conclusive relationships in the text" (Dafouz-Milne 2008:97). Typical examples of logical markers are expression such as *and, in addition, however, therefore, as a result*, etc.

Sequencers are the next category of textual metadiscourse. They indicate specific positions in a series and in this way "guide the reader in the presentation of different arguments in a particular order" (Dafouz-Milne 2008:97-98). For instance, *first, second, on the one hand…on the other* are regarded as sequencers.

Reminders are references to previous parts of the text "in order to retake an argument, amplify it or summarise some of the previous argumentation" (Dafouz-Milne 2008:98), e.g. *let us return to…, as was mentioned before*.

Topicalisers indicate topic shifts so that the reader can follow the argumentation of the writer without effort, e.g. *regarding/as for the environmental issues*.

Code glosses are employed to "explain, rephrase, expand or exemplify propositional content" (Dafouz-Milne 2008:99). The authors use reformulators

such as *in other words, that is*, or exemplifiers *for instance, such as*, etc. Parentheses are also included within this category.

Illocutionary markers are expressions that "explicitly name the act the writer performs through the text" (ibid.), such as *I propose, I hope to persuade*, etc.

The last category of textual metadiscourse is *announcements* which are references to subsequent parts in the text. The aim of the writer is to signal forthcoming argumentation. Typically, authors use phrases such as *as we will see later, as will be shown below*, etc.

The class of interpersonal metadiscourse markers is also varied; however, there are not so many categories as in the textual metadiscourse group. The first category is *hedges* which are linguistic means weakening the illocutionary force of statements. Typical representatives are epistemic modal verbs (*might, may, would*), modal adjectives (*possible, likely*), and modal adverbs (*perhaps, probably*).

On the contrary, *certainty markers* indicate "full commitment to the statements presented by the writer" (Dafouz-Milne 2008:99), e.g. *certainly, clearly*.

Attributors are explicit references to the source of information. Simultaneously, these expressions of authoritative value have a persuasive effect, e.g. *as the Prime Minister remarked, X claims that*…, etc.

Attitude markers convey authorial stance towards both the reader and the content of the text. They are realised by deontic verbs (*have to, must, need to*), attitudinal adverbs (*unfortunately, surprisingly*), attitudinal adjectives (*it is surprising / absurd*, etc.), and cognitive verbs (*I think, I believe, I feel*).

Commentaries "help to establish and maintain rapport with the audience" (Dafouz-Milne 2008:99). This is achieved by means of rhetorical questions, direct address to reader (*dear reader, you*), and personalisations (*I, my, we, our*,…).

4. Material and methods

The two languages represented in this study are English and Czech. English was chosen because it is a language performing the function of lingua franca in the international research community. It is used by both native and non-native researchers all over the world. Compared to English, Czech is in a completely different position. It is the mother tongue of some 10.5 million speakers so the research community is very small. Further, many Czech scholars publish their research articles in English nowadays.

The two disciplines, philosophy and medicine, were selected for this study because they are representatives of the humanities and the natural sciences, respectively. They were chosen because one of the aims of this paper is to investigate whether there is a difference in the use and occurrence of metadiscourse markers in soft and hard sciences. However, we may ask whether these two disciplines are really prototypical of these types of sciences. As Dahl points out,

contemporary research "is dominated by overlapping fields of interest, resulting in 'hyphenated' dicsiplines" (2004:1814). Hence, it may be problematic to decide what branches of science are typical representatives of their fields.

The abstracts were chosen since this section has not been studied very extensively yet. Other sections according to the IMRAD pattern are usually preferred for an analysis. For this study, the abstracts were taken from prestigious philosophical and medical journals with an impact factor released between 2014 and 2016. The corpus consists of a total of 120 RA abstracts, 60 in each language, 30 abstracts per discipline. Since the abstracts are of a different length, the frequency of occurrence of metadiscourse markers was normalised per 1,000 words. Research article abstracts written by Czech or English native speakers were selected for this study. In case of a multiple authorship, which was quite frequent by medical abstracts, at least one author had to be a native speaker. The abstracts were selected randomly in order to avoid the problems with idiosyncrasy of authors' styles. After all four subcorpora of abstracts were compiled, they were tagged manually for all metadiscourse elements occurring in the texts. As already mentioned, linguistic realisations of metadiscourse markers are very varied and most of metadicourse categories may fulfil more pragmatic functions. Therefore, the analysis had to consider the context in which these particular metadiscourse elements occurred very carefully. Each element was then classified according to Dafouz-Milne's taxonomy described in the section above. In the following part, results of both quantitative and qualitative analyses are discussed.

5. Results and discussion

At first, let us consider the results of the quantitative analysis of both main categories of metadiscourse markers, textual and interpersonal. They are summarised in Table 1. As the total number of words in the analysed abstracts differs, the frequency of metadiscourse elements was counted per 1,000 words.

Table 1. Frequency of occurrence of metadiscourse markers in both corpora (per 1,000 words)

	English corpus		**TOTAL**	**Czech corpus**		**TOTAL**
	medical abstracts	**philosophical abstracts**		**medical abstracts**	**philosophical abstracts**	
Textual markers	22.13	44.55	**28.23**	23.63	48.26	**31.95**
Interpersonal markers	11.42	24.85	**15.06**	13.38	24.11	**17.63**

As shown by the figures, textual metadiscourse resources outnumber interpersonal metadiscourse resources both in the Czech and English language and also in an interdisciplinary comparison. This indicates that textual consistency in RA abstracts is more important than explicit interpersonal relationship with the reader. In addition, providing a convincing and coherent summary of a particular RA, the problems under study, procedures, materials, findings of the study, etc. are more important than involvement of the reader in the argumentation process, as it is typical of other sections of RA. The authors of abstracts prefer using metadiscourse resources that explain or rephrase textual material and resources that express semantic relationships between discourse stretches to markers expressing writers' attitudes toward the reader and the text.

5.1. Interlingual Analysis

If we now focus on the interlingual comparison, we can see that metadiscourse markers occur more frequently in Czech abstracts; however, from the statistical point of view, the difference is not significant. More important is that both languages prefer textual metadiscourse elements to interpersonal ones. Again, this may be a proof of the importance of textual congruence over the dialogic nature of RA abstracts.

Table 2. Interlingual analysis – textual markers

Textual markers	English corpus	Czech corpus
Logical markers	13.61	12.82
Illocutionary markers	6.07	7.07
Code glosses	5.62	6.03
Sequencers	2.81	6.03
Announcements	0.06	0
Reminders	0.06	0
TOTAL	28.23	31.95

From the textual categories, the most frequent group in both languages is logical markers which guide the reader through the text by conveying structural and semantic relationships between various text parts. They clarify the way various ideas and thoughts are connected and organised. In both languages, this is achieved by employing the same or very similar language means. In English, additive relationships are expressed by the conjunction *and*, and by the adverbs *furthermore*, *moreover*, in the Czech corpus the conjunction *a* [and] is employed, and the adverb *dále* [further]. Adversative relationships are expressed

by the conjunction *but* and by the adverbs *however, nevertheless* in the English corpus. In the Czech corpus the conjunction *ale* [but] is used, and the adverb *nicméně* [nevertheless]. Further devices belonging to logical markers are those expressing consecutive relationships, such as *therefore, as a result,* in Czech abstracts *proto* [therefore]*, tudíž* [so]. Here are several examples to illustrate:

(1) Such a reading, **however**, covertly attributes Mill realist commitments about the normative. (ACP29)
(2) The results highlight the use of several outcome measures **and** help to delineate the variables that contribute to maximal benefit from gene augmentation therapy in this disease. (ACM15)
(3) **Nicméně** [nevertheless], ať už jej pojmenujeme jakkoli, zásadní pro jeho identifikaci, analýzu a hodnocení je fakt, že se jedná o předpověď budoucího stavu věcí (CAP23)
(4) Skóry nekorelují s věkem a vzděláním, **ale** [but] liší se podle pohlaví. (CAM2)

As regards pragmatic functions of logical markers, there are no differences between English and Czech. In both languages, they help readers understand connections between ideas formulated by writers.

Illocutionary markers, another type of textual categories, were the second most frequent subcategory in both corpora. When employing these means, the authors explicitly name the act they perform. As a result, they add a higher degree of subjectivity and more emphasis to the abstracts, such as in Examples (5)-(7) below. From the pragmatic point of view, there is no difference between English and Czech.

(5) **I propose** that the portion of the commentary on the *Republic* that deals with the myth of Er is the latest of these three works and therefore develops more fully the ideas found in the *Timaeus* commentary and the *Hypotyposis*. (EAP2)

(6) **I argue** that while Heidegger does not develop an account of hallucination, he gives us all the resources we need to develop such an account. (EAP10)

(7) V závěru textu **budu argumentovat** [I will argue] ve prospěch pozice estetického metarelativismu a **pojednám** [I will consider] praktické důsledky, které z této pozice vyplývají pro vedení estetických rozepří. (CAP3)

Code glosses occur in English and Czech abstracts with a similar frequency. Even though their number is not so high when compared to logical markers, their incidence shows that authors take their readers into account and even in abstracts they explain and exemplify the propositional contents. Both English and Czech authors want to be sure that their propositions are properly under-

stood and that readers are able to follow their argumentation and interpret the intended meaning. To illustrate:

(8) […] and it has been widely argued that this ontology allows us to address certain philosophical problems in novel and illuminating ways, **for example**, causation, representation, intentionality, free will and liberty. (EAP15)

(9) Ještě významnější byly rozdíly mezi oběma skupinami při hodnocení pohybu pera nad tabletem, **tj.** [that is] před vlastním zahájením psaní, při přípravě na pohyb. (CAM15)

Within the category of code glosses, also parentheses were included since they contribute to an exemplification of the writers' thoughts and intended meaning, see Examples (10) and (11).

(10) Seven patients died (**unrelated to implant, system, or therapy**), four deaths (**two in treatment group and two in control group**) during the 6-month randomisation period when neurostimulation was delivered to only the treatment group and was off in the control group […]. (EAM12)

(11) Díky tomu se mu podařilo uchopit kritický racionalismus – **jak sám Popper uznal** – s odstupem a v nových souvislostech. (CAP18)

Interesting is the incidence of sequencers. In the Czech corpus they are as frequent as code glosses (6.03 per 1,000 words); however, their occurrence in the English corpus is much lower, only 2.81 per 1,000 words. Czech writers may consider guiding the reader in the organisation and presentation of arguments in the texts significant, whereas English writers focus more on conveying semantic relationships between text stretches. This may also be related to space constraints of abstracts since sequencers appear in other research article sections quite recurrently. Typical representatives of sequencers are stated in Examples (12) and (13).

(12) It is argued, **first**, that intuitions and perceptual experiences are […]. **Subsequently**, it is argued […]. (EAP18)

(13) Studie **nejprve** [at first] nabízí […]. Na základě toho **poté** [then] studie shrnuje […]. **V následujícím kroku** [subsequently] studie předkládá […]. (CAP17)

The remaining subcategories of textual markers (announcements, reminders, and topicalisers) suggested by Dafouz-Milne (2008) did not appear in the Czech corpus at all, in English abstracts there is a mere one occurrence of an announcement and one occurrence of a reminder in the whole corpus. This indi-

cates that the authors of abstracts prefer employing other textual markers which are more appropriate for expressing their ideas and communicative goals in such a constrained space as the abstract is.

Table 3. Interlingual analysis – textual markers

Interpersonal markers	English corpus	Czech corpus
Hedges	6.64	6.98
Attitude markers	3.96	4.90
Commentaries – personalisations	2.81	4.15
Attributions	1.53	1.41
Commentaries – rhetorical questions	0.06	0.09
Certainty markers	0.06	0.09
TOTAL	15.06	17.63

As regards interpersonal markers, hedges constitute the most frequent category among these elements. Their incidence is almost the same in both corpora (see Table 3). This finding shows that in abstracts it is equally important to convey not only factual information but also to formulate propositions with a certain degree of tentativeness. Pragmatically, both English and Czech scientific writers present propositional information as an opinion opened to discussion. Writers introduce their perspective and readers are welcome to contribute to their mutual discussion. In both languages hedges are realised by epistemic verbs (*may, might, can, would, appear; moci* [be able], *zdát se* [seem], etc.), by epistemic adjectives and adverbs (*possible, probably; možný* [possible], *pravděpodobně* [probably], *lze* [is possible] etc.).

(14) […] it was estimated that the patient had ingested several 1000 million becquerels (a few GBq), **probably** as a soluble salt (e.g. chloride), which delivered very high and fatal radiation doses over a period of a few days. (EAM11)

(15) […] a quasi-perceptualist view of intuition **may** enable rationalists to begin to meet the challenge of supplying a theoretically satisfying treatment of their favoured epistemic source. (EAP18)

(16) **Lze se proto domnívat** [it is possible to assume], že Aristotelés ve skutečnosti mylně vycházel ze zpráv referujících o souměrném Anaximandrovu univerzu kruhů nebeských těles obíhajících pod povrchem Země, která tak zdánlivě na vzduchu neležela. (CAP4)

(17) Jednou z možností **může být** [can be] zhodnocení tloušťky vrstvy nervových vláken sítnice (RNFL). (CAM3)

The second most frequent category within interpersonal elements is attitude markers. Even though they are not as recurrent as hedges, they are important signals of writers' involvement which convey writers' affective attitude toward the reader and the text. Most attitude markers appearing in both corpora of abstracts emphasise the authors' propositions and convey importance, such as *significantly, mainly, completely, particularly,* and *strongly* occurring in the English corpus. Attitude markers such as *podstatně* [significantly], *silně* [strongly], *zcela* [completely], *signifikantní* [significant] and *významný* [substantial] were found in the Czech abstracts. To illustrate:

(18) Transvenous neurostimulation **significantly** reduced the severity of central sleep apnoea, including improvements in sleep metrics, and was well tolerated. (EAM12)

(19) Arytmie byla detekována u 12% mladých pacientů s kryptogenní iCMP. Prodloužení holterovského EKG monitoringu **významně** [significantly] zvýšilo jejich záchyt. (CAM8)

The last group of interpersonal metadiscourse markers are personalisations belonging to the category of commentaries. They are realised by first-person pronouns and possessive adjectives (*I, we, my, me, our*). Personal markers are represented more frequently in the Czech corpus (4.15 per 1,000 words) than in the English one (2.81 per 1,000 words). The overall extent of explicit authorial presence is thus higher in Czech abstracts, which means that they stand closer to both their arguments and their readers. Generally, it is a writers' decision as to what degree they project themselves into a text.

(20) However, **my** argument grants Jeshion's claim that there is a connection between significance and file-thinking (for some kinds of files). (EAP28)

(21) **Mým záměrem** [my intention] zde bude kriticky zhodnotit Brockmanovo pojetí „třetí kultury" a předložit argumenty ve prospěch tvrzení, že v souvislosti s ním ve skutečnosti nelze hovořit o řešení problému dvou kultur […]. (CAP28)

Other metadiscourse markers belonging to commentaries, such as rhetorical questions or direct address to the reader, as classified by Dafouz-Milne (2008), are virtually absent in my corpora. This may be explained by the examined section of RA. These interactional markers are more typical of other sections of RA where the writer-reader interaction is more salient. Certainty markers are

equally non-existent in the material analysed. These means express the writers' full commitment to the propositions and in this way they restrict the possibility of discussion. In abstracts authors are careful about expressing something with certainty and avoid drawing any firm conclusions. These are typically drawn in other sections of research articles, such as in Discussion, where the research outcomes are described.

5.2. Interdisciplinary Analysis

Concerning interdisciplinary differences, the results of the quantitative analysis prove research findings of previous studies dealing with the concept of metadiscourse (e.g. Kreutz and Harres (1997), Hyland (1998; 2005), Varttala (2001), Dahl (2004), which claim that metadiscourse elements appear more frequently in humanities than in non-humanities. In my corpus, the occurrence of metadiscourse markers is substantially higher in philosophy abstracts, as may be seen in Table 4 below.

Table 4. Interdisciplinary comparison

Textual markers	medicine	22.70
	philosophy	46.25
Interpersonal markers	medicine	12.16
	philosophy	25.98

Looking closer to the distribution of both categories of metadiscourse elements across the disciplines, we can see that textual metadiscourse markers outnumber interpersonal metadiscourse markers significantly. The incidence of both textual markers and interpersonal markers in philosophy abstracts is almost double.

Logical markers, illocutionary markers, and sequencers are the most recurrent representatives of textual markers in philosophy. This means that providing a well-ordered and structured text which may equally be easily interpretable by the readers is of the highest importance here. The use of hedges and attitude markers, as the most frequent representatives of interpersonal markers, contributes to a clearer expression of writers' attitude to both the reader and the proposition. Logical markers occur most frequently in medical abstracts too; however, they are followed by code glosses and then by illocutionary markers. This indicates that medical abstract writers put more emphasis on exemplification and rephrasing rather than on explicitly naming the acts they perform through the text. Attenuating the illocutionary force of propositions by using hedging devices in medical abstracts is not as frequent as in philosophy abstracts, since medical discourse relies more on quantitative data and verifiable research out-

comes which are more convincing. As a result, medical abstracts do not have to be as interpretative as philosophy abstracts.

From these results it follows that humanities are considered to be sciences which do not have such strict and firm theoretical foundations as hard sciences. Moreover, their nature is, let us say, imprecise or tentative. The writers in soft sciences express themselves more explicitly, show a higher degree of involvement with both the reader and the content of the text. Therefore, humanities are more interpretative, dialogic and not so abstract as hard sciences. Natural science writers do not feel the need to express themselves too explicitly because they usually expect the readers of their articles to be familiar with the research and methods described since they examine something similar.

Another difference is that medicine relies on procedures and outcomes that can be measured, its research is more controlled. On the contrary, research outcomes in humanities are not so unambiguous and are more open to argument. As soft science authors cannot rely on precisely measured results, they tend to elucidate their assertions more to sound convincing and gain the trustworthiness of their readers. Compared to that, non-humanities are impersonal and detached, which has been proved by my research results. From this it follows that scientific articles in humanities require a higher use of metadiscourse elements. This is true not only for individual sections of research articles according to the IMRAD pattern but also for abstracts.

6. Conclusion

As we can see in the preceding sections, metadiscoursive elements are an integral part of scientific discourse. This article focused on the occurrence of these markers in research article abstracts; however, many studies conducted so far confirm that metadiscoursive resources appear in all sections of research articles (e.g. Crismore and Farnsworth (1990), Dafouz-Milne (2008), Hyland (2005), Dahl (2004).

It is usually difficult for readers of research articles to concentrate on reading a scientific text for a long time. Therefore, scientific writers employ interactional means to hold the attention of their readers and focus not only on conveying the propositional information itself but also on the way it is conveyed. Metadiscourse elements operating on a referential level help readers structure, classify, and interpret the propositional contents of the text, understand semantic relationships among various discourse stretches. Metadiscourse elements operating on an expressive level convey the writers' commitment to the propositions and their affective attitudes.

For the purpose of an interlingual and interdisciplinary analysis, metadiscourse markers occurring in English and Czech medical and philosophical abstracts were classified according to Dafouz-Milne's (2008) taxonomy. It was very useful since it also takes the functional approach to metadiscourse markers

into account. The research revealed that overall textual metadiscourse markers outnumber interpersonal metadiscourse markers both in the interlingual and in the interdisciplinary comparison. This result demonstrates that the structure and organisation of a research article abstract is more important for scientific authors than maintaining an interactional relationship with the reader. Rather than positioning themselves in the discourse, they aim at providing a coherent text.

As regards the interlingual analysis, no major differences between the two languages were noticed. Both employ textual markers more frequently than interpersonal ones and with the same or very similar pragmatic functions. This may indicate that English, as a scientific lingua franca, exerts a certain influence on Czech in this area. Further, Czech scientific authors are used to writing their abstracts in both Czech and English so they may have adopted the English model when writing a Czech abstract. Czech medical abstracts that were analysed in this study strongly resemble their English counterparts both in their layout and structure. The same is true about philosophical abstracts. Interlingual differences occurred in some categories of textual markers, namely reminders and announcements, which were not used in the Czech corpus at all. However, their occurrence in English abstracts is also negligible.

The interdisciplinary analysis indicates that generally, humanities authors utilise more textual and interpersonal metadiscourse markers than non-humanities. It is because the humanities focus on creating an approachable and understandable text and, at the same time, at a description of variable reality. Also, they focus more on developing social relationships with their readers than the hard sciences generally do. Arguments in soft sciences are not so clearly defined as in hard sciences where the writers attempt to be as objective and neutral as possible, so they are also more detached compared to the soft knowledge fields authors. Claims in soft sciences are more open to negotiation and discussion because research results may be influenced by contextual factors. Articles in these sciences focus more on qualitative research, interpretation of fluctuation and variables, explaining any possible relationships between explored concepts which are rather suggested than clearly evidenced. Also, they contain more speculation. Writers in soft sciences usually cannot base their claims on precise and objective facts, therefore, they present them more tentatively.

To sum up, the interlingual analysis indicates that cultural specificity in the use of metadiscourse markers did not prove unequivocally in the corpus of research article abstracts. The interdisciplinary analysis revealed significant differences between humanities and non-humanities in the use of metadiscourse elements. Putting the results together we can state that the identity of scientific authors is more linked to the discipline rather than to the culture. It is important to add that the results of the research are by no means exhaustive, mainly due to the limited extent of the corpus; however, they may show certain tendencies in the employment of metadiscourse markers in research article abstracts.

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