
“... AND OUR STUDY MIGHT THEREFORE HAVE BEEN SLIGHTLY UNDERPOWERED”: A CROSS-LINGUISTIC ANALYSIS OF HEDGING IN ENGLISH AND CZECH MEDICAL RESEARCH ARTICLES

JANA KOZUBÍKOVÁ ŠANDOVÁ

ABSTRACT

Attenuating devices are frequently employed in both spoken and written language to weaken the illocutionary force of utterances as well as their directness. In this way, they are associated with expressing linguistic politeness. In scientific discourse, hedges are largely used to express negative politeness since the authors aim to protect themselves against disapproving or critical remarks of text recipients. Linguistically, hedging devices are realised in various ways, e.g. as modal adverbs (*possibly, perhaps, probably,...*), modal adjectives (*possible, (un)likely, probable,...*), modal nouns (*assumption, possibility, suggestion,...*), modal verbs expressing possibility (*might, could, would,...*), epistemic verbs (*assume, seem, appear, suggest,...*), approximators such as *approximately* and *roughly*, etc. The aim of this paper is to analyse hedging devices in written academic discourse, in particular in English and Czech medical research papers published in medical journals with an impact factor, and compare them with respect to their types, occurrence and communicative functions they perform. In other words, to find out whether the pragmatics of hedging is or is not culture-specific. Hedging devices may be classified from various points of view. In this paper a modified version of Hyland's taxonomy (1998) was adopted.

Keywords: Hedging, medical discourse, research articles, cultural specificity, pragmatic function

1. Introduction

In the traditional approach to science, the view prevailed that the language of science should be as precise as possible, objective and matter-of-fact. This opinion has been gradually changing and nowadays, communicating scientific findings is more interactional. Scientists do not present their findings as set and invariable but they are more dialogic and involve readers in the cognitive process. However, not only the reader but also, and primarily, the whole personality of the author is included in the cognitive process, together with his emotion and, as Daneš points out, with a certain degree of irrationality and subjectivity (2000: 81). In this context, Daneš cites the German linguist Harald

Weinrich, who claims that a new finding may gain scientific currency only when it is spread “through a certain controlled process” in the scientific community and in this way exposed to criticism (Weinrich, 1995: 159). From this it follows that science is essentially a communicative process.

It is important to emphasise that scientific knowledge should not be reduced to the way findings are formulated. We must distinguish between processes leading to gaining scientific knowledge from the scientific discourse and text production as such when the researcher attempts to formulate and organise his/her thoughts for the recipient. At the same time, his/her imagination, close relationship to the subject matter of the research, excitement and aesthetic experience s/he undergoes are reflected, in a way, in scientific articles, as Daneš claims (2000: 82). Thus, a certain degree of subjectivity in these texts cannot be avoided.

As early as the 1940s Mathesius argued that every utterance carries its own factual meaning and that utterances also reflect speaker attitude to reality and his relationship to the recipient. All these factors – factual meaning, situational context, speaker attitude to reality, and his relationship to the recipient – form the overall semantic structure of the utterance (Mathesius, 1982: 93).

Hedging as a communicative strategy is frequently employed by speakers and writers to mitigate the illocutionary force of their statements. It is an important strategy also in academic writing because hedges contribute “to an appropriate rhetorical and interactive tenor, conveying both epistemic and affective meaning” (Hyland, 1998b: 349–350). Hedging is often associated with expressing linguistic politeness. In scientific discourse it is largely used to express negative politeness since the authors aim to protect themselves against disapproving or critical remarks of text recipients.

This study aims to analyse and compare hedging devices occurring in English and Czech medical research papers, with the focus on their types, occurrence and the communicative functions they perform. Hedges may be classified from various points of view. In this paper a taxonomy introduced by Hyland (1996, 1998a) was adopted since it stresses the so-called polypragmatic approach to the analysis of hedging devices. However, it was necessary to modify this taxonomy to a certain extent, as explained in Section 6 in greater detail.

In recent years some contrastive studies in different languages have appeared, focusing on the concept of hedging in academic discourse. It is an important area of language study since the use and functions of attenuating devices seem to be culture- and language-specific. To find out whether the pragmatics of hedging is or is not culture-specific is another aim of this study into English and Czech medical discourse.

2. Cross-linguistic studies dealing with hedging

Clyne’s investigation into scientific texts written by German scholars has shown that they employ more hedging devices both in scientific articles written in German and in English than English native speakers (Clyne, 1991). Another study comparing English and German academic discourse has revealed that the main function of hedges in English articles is to soften the presented arguments, whereas in German it is predominantly “assertion and authority” (Kreutz and Harres, 1997).

English and Bulgarian academic texts were the subject of investigation of Vassileva (1997). She compared research articles written by Bulgarian scientific writers, articles written by English scientific writers, and finally, articles by Bulgarian writers in English, from the point of view of hedging distribution and form. Scientific texts written by English authors exhibited the highest occurrence of hedging expressions while the lowest number of them appeared in the papers written in English by Bulgarian authors.

Other contrastive studies on hedging have been carried out by Olmo, who compared English and Spanish medical discourse. His studies revealed differences between the two languages in the distribution of hedges. In general, they occur more frequently in English (Olmo, 2004, 2005). Martín-Martín (2008) investigated lexico-syntactic expressions with hedging function in English and Spanish as well. However, he focused on research articles from the field of psychology. He came to a similar conclusion as Olmo (2004), namely that hedging is slightly more frequent in English.

Atai and Sadr (2008) researched academic papers published in the field of applied linguistics written by English and Persian native speakers with the aim to examine the impact of language on the employment of hedging strategies in these texts. The research revealed that English native speakers employed a wider spectrum of linguistic means expressing tentativeness and indeterminacy.

Figueiredo-Silva (2001) compared academic texts written in English and Portuguese and found out that scientific articles written in English are more hedged than Portuguese texts, which appear to be more direct. A similar study (Yang, 2003) contrasting English and Chinese revealed that Chinese scientific writers use a small amount of plausibility shields and, on the contrary, a higher number of approximators, which results in their sounding more direct.

As we can see, the outcomes of the above-mentioned studies prove certain differences between various languages as regards hedging.

3. Hedging in Czech academic discourse

If we now turn to Czech academic discourse in regard to the employment of hedging expressions, we find that no systematic research has been conducted up to now apart from a few studies made by Daneš (2000), Čmejrková and Daneš (1997), Čmejrková et al. (1999), and a cross-cultural study into Czech and German academic discourse carried out by Dontcheva-Navrátilová (2013).

Generally, Czech academic discourse is typical of “modalization” and “authorial modesty”, which are achieved most frequently by various modal expressions and first person plural forms (Čmejrková et al., 1999: 28–30). As Čmejrková and Daneš point out, in the case of modality and the use of hedging devices, there are distinct differences between individual authors and also between text genres. They speak of a continuum “between the pole of the straightforward and economical expository style and that of the narrative (“redundant”) style. Czech expository texts (in the humanities) occupy positions on the scale nearer to the narrative pole [...]” (Čmejrková and Daneš, 1997: 46). It is also important to emphasise that any text reflects the idiosyncrasies of the writers.

Further, Čmejrková and Daneš have found out that compared to English academic writers, Czech authors “formulate their pronouncements in a far less assertive, direct, and matter-of-fact tone” (1997: 44), which has also been confirmed by this study. The reasons why Czech scientific authors use mitigating devices may be modesty, adopting a defensive position, and showing distance from their claims (Daneš 2000).

4. Taxonomy of hedges introduced by Hyland

A relatively influential classification was proposed by Hyland (1996, 1998a). It is a sociopragmatic model designed for the examination of hedging devices in scientific texts (see Figure 1). Hyland works on the assumption that these expressions have various semantic readings depending, firstly, on the context in which they appear and, secondly, on the speaker or writer who has used them. Literally he claims that “linguistic features [...] cannot be seen in isolation from particular socio-institutional activities and broader cultural understandings” (1998a: 157). Therefore, one and the same expression may carry more pragmatic functions. In this connection it is also important to stress that one cannot say that a given expression will always function as a hedge in all possible contexts. “Because indeterminacy appears to be an inherent feature of the epistemic use of language, an adequate account of hedging in scientific discourse must look beyond a mono-meaning model” (ibid.). Hence, attenuating devices require a “‘more-or-less’ rather than an ‘all-or-nothing’ account” (ibid.).

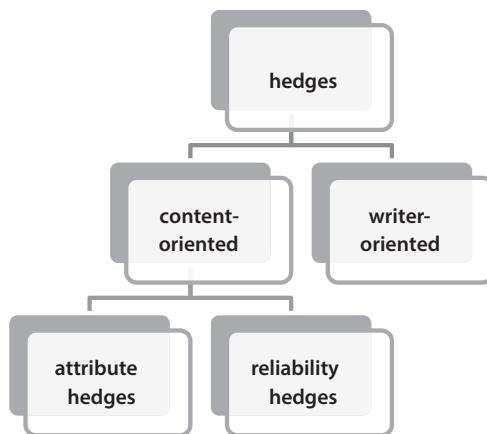
Hyland claims that the writer of a scientific text anticipates the reader’s opposition to his/her claims. This opposition is divided into two types, content-oriented and reader-oriented.

Content-oriented hedges soften “the relationship between propositional content and a non-linguistic mental representation of reality; they hedge the correspondence between what the writer says about the world and what the world is thought to be like” (Hyland, 1998a: 162). Reader-oriented hedges are focused on participants of the communication process. They “address the various dimensions of the social relationship between writer and reader [...]” (ibid. 177). Even if Hyland makes this distinction and categorises both groups in greater detail, he highlights the fact that one of the major features of hedges is indeterminacy; so attenuating devices ascribed to one category may very often involve the meaning of another.

Hyland defines two categories of content-oriented hedges, namely, accuracy-oriented, which “involve the writer’s desire to express propositions with greater precision in areas often subject to revision” (1996: 440), and writer-oriented, which “enable writers to refer to speculative possibilities while at the same time guard against possible criticism” (1996: 443). Recognizing different motivations and forms, Hyland distinguishes two subgroups of accuracy-oriented hedges, attribute and reliability hedges. Attribute hedges “enable writers to restructure categories, define entities, and conceptualize processes more exactly to distinguish how far results approximate to an idealized state [...]” (Hyland, 1996: 440). Reliability hedges indicate “the writer’s uncertain knowledge and indicate the confidence he or she is willing to invest in the validity of a claim [...]” (Hyland, 1998a: 166).

For a more detailed description of Hyland’s taxonomy, see Hyland 1996 or 1998a.

Figure 1. Hyland's taxonomy of hedges (Hyland, 1998a)



5. Some notes on Hyland's taxonomy

However, Hyland's classification is not unproblematic. This is caused, besides other things, by their very nature because hedges represent a very diverse and heterogeneous phenomenon as far as their surface form is concerned. Their pragmatic functions may overlap hence sometimes it is difficult to categorise them, and also, different approaches to hedging have been adopted. Moreover, a subjective element in classifying these expressions plays a role. Hyland is aware of this subjectivity in categorising hedges, therefore, he works with so-called "core examples" representing each category.

Problems arise when instances of hedges of different categories presented by Hyland as core examples are not clear. This may be illustrated by several examples taken from Hyland's work (1998a):

- A) ... **it appears** possible that the mechanism causing the light-activated fluorescence quenching **may** be triggered by either photosystem. (1998a: 167)
- B) From this discussion, then, **it would appear that** some of the changes in the amino acid concentrations... (ibid. 173)
- C) **It seems that** the stomata do not use the Calvin cycle... (ibid. 173)

Hyland regards the expressions in the first sentence as reliability hedges, but in the other two as writer-oriented. He explains that the primary motivation for hedging in the first case (example A above) is "a desire to clarify the state of knowledge, a hedge against complete accuracy, rather than a wish to seek protection against overstatement" (Hyland, 1998a: 167), whereas in examples B and C, the hedging implies that "the writer does not wish to be thought fully and personally committed to a belief in the proposed state of affairs" (ibid. 173). However, these realisations of hedges and the contexts in which they

occur seem to be almost identical. Although Hyland speaks of “higher-level claims” and “lower-level claims” when distinguishing these two categories, neither is this of any help since in practice these claims are rather difficult to determine.

Distinguishing between content- and reader-oriented hedges is in some cases also difficult. Hyland states that the explicit presence of the author in the text signals reader-oriented hedging, while the absence of it is regarded as content-oriented hedging. However, these distinctions are not so clear, as example D illustrates.

- D) This insertion, which **we suspect** is the membrane anchor, could associate peripherally with the membrane or **might** span half the bilayer... (1998a: 167)

All highlighted expressions were judged as content-oriented reliability hedges, even though the first case is an explicit author reference signalled by the personal pronoun *we* and should therefore be classified as an instance of reader-oriented hedging.

The next difficulty is connected with authorial agentivity, as correctly pointed out by Varttala (2001: 88). It seems that any occurrence of a personal or possessive pronoun referring to the author (*I, we, my, and our*) is automatically regarded as an instance of reader-oriented hedging by Hyland, e.g. in *our findings, my data*, etc. These instances do not necessarily have to be cases of hedging but just ways to identify the authors of a given article in contrast with other scientific writers. These questionable cases were not included nor were they analysed in this study. When the above-mentioned pronouns collocated with clear instances of epistemic language means, only then were these expressions included.

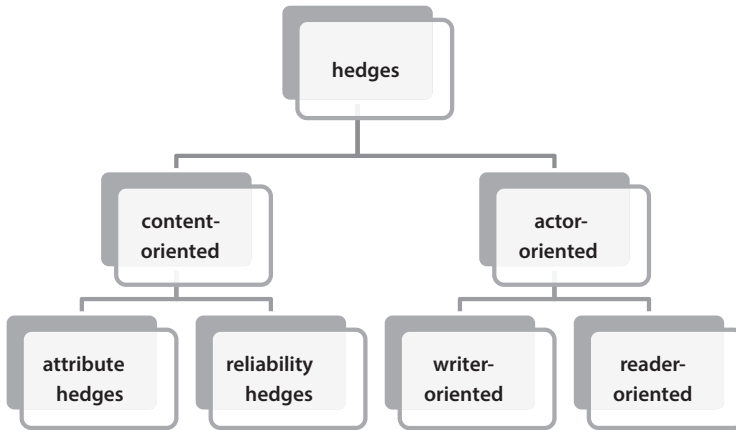
In spite of these difficulties and occasional problems with its application, Hyland's taxonomy of hedging devices in medical discourse is a useful approach for analysing these diverse and multifunctional language means. As Varttala correctly states, Hyland's classification “is at its most valuable in summarising the major functions that hedges may have in the context of RAs. [...] Which of these functions an individual hedge can be seen to fulfil is a more complex matter” (2001: 90).

6. Materials and methods

This study is based on a comparative analysis of British and Czech research articles taken from prestigious medical periodicals with an impact factor released in 2014 and 2015. The British journals from which the articles were drawn are *The British Medical Journal*, *BMJ Open*, and *The Lancet*. The Czech medical journals used for this research were *Česká a slovenská neurologie a neurochirurgie* and *Epidemiologie, mikrobiologie, imunologie*. The British corpus totals 60,619 words, the Czech corpus contains 60,638 words. Abstracts, tables, graphs, notes, and references were excluded both from the word count and from the analysis itself. After both parallel corpora of medical articles were created, they were tagged manually for all hedging expressions present in the texts. Then these expressions were counted, categorised and mutually compared.

The theoretical framework for classification of hedging devices employed in this paper was a modified version of Hyland's taxonomy (1998a). In spite of the above-mentioned

Figure 2. Taxonomy of hedges used in this study



weaknesses, he suggested a well-applicable classification. However, some of the categories of hedging expressions had to be modified, as may be seen below.

I suggested two basic categories of hedging expressions according to their relation to the main components of the situation of discourse, which are the proposition and participants. Content-oriented hedges focus on the proposition itself and relate to the extent to which writers wish to modify its content as to its directness and (im)precision. Actor-oriented hedges aim at participants of the communicative situation, in this case at the author of a scientific text and at its recipient. These two subcategories of actor-oriented hedges also contribute to better understanding of hedging as a means of interaction.

As we can see, Hyland subsumes writer-oriented hedges under the category of content-oriented hedges. However, writer-oriented hedges do not mitigate the content of the proposition as such but rather reduce the presence of the writer in the text so they have a slightly different function and orientate more towards the actor. This is the reason for including them in a different category than Hyland originally suggested.

The results of both quantitative and qualitative analyses are discussed in the following sections.

7. Results and discussion

The total number of hedges and their types occurring in the two corpora of medical papers is summarised in Table 1.

As shown by the figures, the occurrence of hedges in the corpus of English medical articles is higher than in the Czech data. In every thousand words there appear almost 15% of hedging expressions in the English corpus while about 10% of hedges may be found in the Czech corpus. This finding supports the claims mentioned in the theoretical sections of this study which argue that the expression in Czech academic discourse is more direct than in English.

Table 1. Occurrence of hedges in English and Czech research articles (raw counts/frequency per 1,000 words).

Types of hedges		English corpus	Czech corpus
content-oriented	attribute hedges	111 / 1.83	87 / 1.43
	reliability hedges	532 / 8.78	372 / 6.13
actor-oriented	writer-oriented hedges	95 / 1.57	18 / 0.30
	reader-oriented hedges	61 / 1.01	43 / 0.71
other		102 / 1.68	72 / 1.19
TOTAL		901 / 14.86	592 / 9.76

When comparing the two basic categories of hedges, content- and actor-oriented, we can observe that in both corpora there appear more content-oriented hedges. When using them, the authors focus more on explanation or presentation of facts and mitigate the relationship between the content and a depiction of reality. The motivation for their use may be the author's focus on an accurate description of facts and research findings but also on self-protection as well as the prevention of opposition of a particular discourse community. Of content-oriented hedges, reliability hedges are those that are more frequent in both corpora. The element of the author's self-protection is apparent in Example 1 below. The author uses the epistemic modal verb *might* to weaken the force of his/her statement in order to prevent potential criticism and to present the proposition as an assumption rather than as a claim:

- (1) The ALSPAC pregnancies occurred over 20 years ago, and, as then, there **might have been** changes in clinical practice. (EA1)

In Example 2, the highlighted reliability hedges show the writer's caution when suggesting possible improvements of future research in his/her field. Hedging enables the author to leave some space for potential discussion with other researchers.

- (2) In conclusion, measurements of blood pressure recorded during the second half of pregnancy, [...], **can improve** the identification of women who are at risk of developing pre-eclampsia later in pregnancy and **could be used to differentiate** women who require more intensive monitoring from those who are likely to have a normal pregnancy. (EA1)

Regarding the surface forms of reliability hedges, in the majority of cases they are expressed by the modal auxiliaries *can*, *could*, *may*, *might*, and *would*, then by probability adjectives and adverbs such as *possible*, *probable*, *likely*, *possibly*, *probably*, *perhaps*, *potentially*, *apparently*, by tentative cognition nouns (*assumption*, *estimate*), nouns of tentative likelihood (*probability*, *possibility*, *likelihood*), and verbs expressing tentative cognition (*estimate*, *assume*).

- (3) The risks of channeling bias are **probably** small considering similar pregnant populations [...]. (EA4)

- (4) There is therefore **the possibility** that these measurements are not a reasonable representation [...]. (EA9)

In (3) and (4) above, the reliability hedges used express the author's opinion tentatively, leaving room for other possibilities.

As already said, content-oriented hedges, and particularly reliability hedges, are the most frequent hedging expressions also in the Czech corpus. They have the same functions as those in the English data, i.e. focusing on an accurate description of findings, expressing writer's tentativeness, opening room for other possible interpretations of the research findings and leaving space for scientific discussion (Examples 5 and 6 below). Also, the surface forms of Czech hedges are very similar to those appearing in English, although their variety is not so wide. Czech reliability hedges are typically expressed by the modal verb *moci* [*be able*], the probability adjectives *možný* [*possible*], *pravděpodobný* [*probable*], the probability adverbs *pravděpodobně* [*probably*], *lze* [*is-possible*], and the nouns of tentative likelihood *možnost* [*possibility*], *pravděpodobnost* [*probability*].

- (5) Pozitivní vliv **mohla mít** [could have] i samotná hospitalizace pacientů a s ní spojený režim na oddělení a podpůrná psychoterapie [...]. (CA6)
- (6) K limitujícím faktorům určitě náleží poměrně krátké trvání studie – a to tři týdny, což **může být** [can be] příliš krátké na plný rozvoj terapeutického účinku antidepresiv, ale i rTMS. (CA6)

In Examples 7 and 8, there occurs a compound reliability hedge *lze pravděpodobně* [*is-possible probably*], which occurs quite frequently in the Czech corpus. It expresses a higher degree of tentativeness and again, opens space for further discussion on the topic.

- (7) Rozdíl mezi muži a ženami **lze pravděpodobně** přisoudit výchovnému stylu, který v našich kulturních podmínkách preferuje inhibici emocí u mužů. (CA3)
- (8) O něco horší výsledek než v našem případě [...] **lze pravděpodobně** přikládat tomu, že do Barešovy studie byli zařazeni výhradně nemocní na léčbu rezistentní. (CA6)

Compound reliability hedges appear in the English corpus too:

- (9) Secondly, people with hypertension and peripheral arterial disease **may be more likely** to be screened for cardiovascular disease than people without those disorders. (EA2)

The other subcategory of content-oriented hedges, namely attribute hedges, represents the second most frequent category of hedging expressions in both corpora. Attribute hedges weaken the illocutionary force of the arguments. They are used when the writers approximate their research results to an expected or a usual state of knowledge

and attempt to find precision in expression, as illustrated below (Examples 10–13). For this reason, the authors employ approximative adverbs (*approximately, almost, nearly*) and adjectives and adverbs of indefinite degree (*modest, slight, quite, somewhat, slightly*). When using any of these means, the degree of strength of the given expression is modified. In Czech very similar language means are used as attribute hedges, e.g. *přibližně* [*approximately*], *zhruba* [*roughly*], *asi* [*about*] (approximative adverbs), and *relativně* [*relatively*], *poměrně* [*relatively*] (adverbs of indefinite degree). Adjectives of indefinite degree were not found in the Czech corpus.

- (10) **Approximately** 1% of the population have intellectual disability, defined as a significant deficit in cognitive and adaptive function with onset during the developmental period. (EA 11)
- (11) In women who reported that they were in fair or poor health, being unhappy was associated with a **slightly** lower mortality than being happy most of the time [...]. (EA12)
- (12) Mortalita těchto pacientů je **přibližně** 50%. (CA7)
- (13) Tumory thalamu jsou **relativně** vzácné léze a představují **asi** 5 % intrakraniálních nádorů. (CA5)

The category of actor-oriented hedges consists of two subtypes directing either at the writer or reader. As shown in Table 1, they are more recurrent in the English corpus, which does not necessarily mean that the Czech medical articles do not take discourse participants into account. The reason for rarer occurrence of actor-oriented hedges in the Czech corpus may be a greater orientation towards the explication and effort of the authors to explain things as thoroughly and matter-of-factly as possible. As regards the particular subgroups of actor-oriented hedges, writer-oriented, which diminish the presence of the writer in the text, are more frequent in the English articles. The writers weaken the strength of the propositional content and make their claims more indirect. This may be a face-saving strategy and also prevention of opposition from the scientific community (Examples 14–17 below).

- (14) **It has been suggested** that related subjective measures of wellbeing [...] could independently affect mortality. (EA12)
- (15) [...] and heavy alcohol consumption – a risk factor for all types of stroke – might be a contributing factor because employees working long hours **seem to be** slightly more prone to risky drinking than are those who work standard hours. (EA10)
- (16) Tento časový interval **se zdá být** [seems to be] z pohledu hodnocení dynamiky TCD PbtO2 dostatečný [...]. (CA4)

- (17) Ve většině případů nelze příčinu SKT prokazatelně identifikovat a onemocnění je **považováno** [is considered] za idiopatické. (CA1)

As seen from these illustrative examples, writer-oriented hedges may be realised by nonfactive reporting verbs (*suggest*), tentative cognition verbs (*consider, think, estimate; považovat [consider], předpokládat [suppose]*), and by tentative linking verbs (*seem, appear; zdát se [seem]*).

The incidence of reader-oriented hedges is similar in both corpora, with the frequency of 1.01 per 1,000 words in the English corpus and the frequency of 0.71 in the Czech corpus. Within the Czech corpus, reader-oriented hedges are more frequent than writer-oriented. When using reader-oriented hedges, the authors show respect for the audience, aim at involving the readers in the argumentation process and present their views so that the readers feel that they may form their own judgements (Examples 18–21).

The surface forms of reader-oriented hedges are quite varied. Scientific writers aim at avoiding conflict and do not want to threaten the readers' negative face so they choose non-imposing phrases or expressions. Therefore, they use means of reader involvement and means of attenuating their claims. To fulfil these functions, both Czech and English writers use singular or plural first person pronouns, expressions of personal belief, author's self-reference, personal attribution, etc. As already mentioned above, Hyland's taxonomy is questionable at some points, for instance, in determining reader-oriented hedges. In this study, only a clear author reference collocating with an epistemic expression was treated as an illustration of a reader-oriented hedge, as in Examples 18–21.

- (18) Furthermore, we do not have information on whether patients stop taking anti-thrombotics when treated with NSAIDs; however, given post-myocardial infarction treatment guidelines, **we think** that this is unlikely. (EA7)
- (19) **Our findings suggest** that tailoring of information delivery to the communities being served might be useful. (EA8)
- (20) **Autoři** [této studie] **se domnívají** [the authors suppose], že problémem byla porušená žilní drenáž v. thalamostriata sin., která byla v těsném kontaktu s cévnatým okrajem tumoru. (CA5)
- (21) Prezentované normy pro všechny zkoušky VF mohou, **podle našeho názoru** [in our opinion], významně přispět k hodnocení kognitivní výkonnosti v klinické praxi. (CA22)

Hedging devices are very difficult to categorise because they constitute a very diverse group of language means, and one and the same attenuating expression may fulfil several different functions depending on context. It is then rather problematic to suggest a clear-cut taxonomy. When analysing both parallel corpora of medical research articles, hedging expressions occurred which did not fit any of the above-defined categories but are evidently instances of hedging. These are usually quantifying expressions signalling indeterminacy and vagueness, such as *several, some, at least, most (of), majority / některý*

[*some*], *řada (z)* [*most (of)*], *většina* [*majority*], and the attributive adjectives *slight* or *recent*, as we may note in the examples below. These expressions are used when there are no exact numbers or data available or the author does not consider it necessary to quote the precise figures. In this study they fall within the category “other”.

- (22) This analysis also has *several limitations*. (EA2)
- (23) Whatever the cause, the interaction is potentially clinically important because folic acid supplementation might be more likely in **some** patient groups taking lamotrigine [...]. (EA6).
- (24) **Několik málo** [several] předchozích studií referuje záchyt FiS u cca 3–4 % mladých pacientů do 50 let v době přijetí pro akutní iCMP. (CA2)
- (25) **Řada z nich** [most of them] se uplatnila i v podrobnější stratifikaci anaplastických gliomů. (CA23)

8. Conclusion

As we have seen, the phenomenon of hedging in medical research papers is quite prevalent although it has been frequently claimed that scientific language should be precise and matter-of-fact. A cross-linguistic perspective was taken in this study to compare a corpus of English and Czech medical articles published in peer-reviewed medical journals with an impact factor.

The research revealed that of these two languages, hedging occurs more frequently in English. This result contributes to the discussion on universality or culture-specificity of language means used in academic discourse and supports the view that the use of hedging expressions is culturally determined. Czech medical discourse is more straightforward and direct compared to English medical discourse. This is connected with the fact that Czech authors focus more on the content they convey and present their findings and thoughts matter-of-factly in non-modalised statements. However, this does not mean that Czech scientific writers do not take the reader into account. There are many instances of modalised utterances in the Czech corpus which clearly turn to the reader and present the claims as opinions open to discussion rather than as definitive facts.

Focusing now on the distribution of the specific types of hedging devices, reliability hedges were the most frequent type in both corpora. These hedges indicate that a statement is tentative and not definitive and opens space for dialogue. Without them, assertions would be rather categorical and face-threatening. Reliability hedges are followed by attribute hedges as regards their frequency in both corpora. This category of hedges suggests that the research results are approximate and the authors try to find precision in expression and to evaluate the accuracy of their arguments. As regards the two types of actor-oriented hedges, writer-oriented and reader-oriented, both are more frequent in the English data. This confirms the finding made above that Czech scientific authors concentrate more on the content of their texts and conveying facts. Writer-oriented

hedges reduce the voice of the author in the text, thereby diminishing writer involvement with the textual claims. Reader-oriented hedges contribute positively to the relationship between the writer and the reader. The writers show that the role of the reader is active in the ratification of their assertions and involve him/her in the argumentation process.

What is also important to take into account when examining hedging is the structure of research articles. Scientific papers published in the most prestigious journals usually have the IMRAD format. It would be interesting to analyse the incidence of hedging expressions across the different sections of research papers because they are not distributed evenly within an article. Unfortunately, focusing on this was beyond the scope of the present study but it will be the subject of another analysis of hedging.

To conclude, hedges play a significant role in academic discourse since they enable authors to present their arguments with appropriate accuracy and modesty rather than regard the conclusions as invariant, hence their unproven claims are explained with caution. Hedging is a positive and necessary phenomenon because it makes author's assertions more accessible for discussion and develops a writer-reader relationship. This contributes to the fact that hedging should be understood as a means of interaction. Although hedges are polypragmatic, which means that one and the same attenuating device may fulfil different functions in different contexts, it must be noted that they are "a resource, not a problem" (Skelton, 1985: 41) and that this issue should be addressed, for instance, in teaching academic writing.

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“...AND OUR STUDY MIGHT THEREFORE HAVE BEEN SLIGHTLY UNDERPOWERED”: KOMPARATIVNÍ STUDIE HEDGINGU V ANGLICKÝCH A ČESKÝCH LÉKAŘSKÝCH ODBORNÝCH ČLÁNCÍCH

Resumé

Jazykové prostředky zeslabující ilokuční sílu a přímost výpovědi se často používají jak v mluveném, tak v psaném jazyce a bývají spojovány s vyjadřováním zdvořilosti. Ve vědeckém diskurzu se tyto prostředky většinou používají k vyjádření negativní zdvořilosti, protože jedním z cílů autorů vědeckých článků je ochrana před nesouhlasnými nebo kritickými projevy ze strany recipientů. Z lingvistického hlediska mohou být zeslabující jazykové prostředky (hedges) vyjádřeny různými způsoby, např. modálními adverbii (*possibly, perhaps, probably; možná, pravděpodobně...*), modálními adjektivy (*possible, (un)likely, probable; možný, (ne)pravděpodobný...*), modálními substantivy (*assumption, possibility, suggestion; možnost, domněnka...*), modálními slovesy vyjadřujícími možnost (*might, could, would; moci...*), slovesy epistémickými (*assume, seem, appear, suggest; zdát se, domnívat se...*), výrazy vyjadřujícími přibližnost jako např. *approximately* a *roughly* (*přibližně, zhruba*), apod. Cílem této komparativní studie je analýza jazykových prostředků zeslabujících ilokuční sílu výpovědi v psaném akademickém diskurzu, konkrétně v anglických a českých lékařských článcích, které byly publikovány v odborných lékařských časopisech s impakt faktorem, porovnat je z hlediska jejich typů, výskytu a komunikativních funkcí. Jinými slovy, cílem je zjistit, zda je použití těchto výrazů v lékařském diskurzu kulturně specifické nebo není. Zeslabující výrazy mohou být klasifikovány z různých hledisek, v této studii byla využita modifikovaná Hylandova taxonomie (1998).

Jana Kozubíková Šandová
Department of English, Faculty of Philosophy
University of South Bohemia in České Budějovice
sandova@ff.jcu.cz