

A Comparative Study on Hedges in English Abstracts of Research Articles from Chinese and American Economic Journals

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Abstract

The appropriate use of hedges in academic discourse could make language more objective, improving the credibility of the research article. The abstract section of a research article tends to be a summary of the main content and plays an important role in increasing the frequency of publication, retrieval, reading, and citation. This study examines the use of hedges in economic papers between two corpora: the abstracts from American journals and the abstracts from Chinese journals. Based on Prince et al.'s (1982) taxonomy of hedges and the numbers and frequencies of their various types, hedges in the two corpora were identified and quantified. Considerable variations were found in the overall number and frequency of hedges, the types of hedging devices, and the wordings of hedges in the two corpora. Findings were interpreted concerning Chinese authors' lack of familiarity with hedges and their first language transfer. In general, the results may have some implications for Chinese economic scholars' English abstract writing and its related teaching. Some suggestions on the topic and the limitations of this study are also presented at the end of this paper.

Keywords: hedge, abstract, pragmatics, academic discourse

1. Introduction

Hedges, one type of the most important strategies for mitigating certainty, have been successfully applied to various discourses, including business discourse, legal discourse, academic discourse, and daily conversation. In recent years, there has been an increasing amount of research undertaken on hedges and their functions, especially in academic discourse. Hedges are words with uncertainty, fuzziness, and possibility. They have been proved to play a prominent role in mitigating the statements to avert possible criticism. Appropriate use of hedges in academic discourse involving propositions and deductions is conducive to lowering assertiveness, making statements more personal opinions than pure facts, and increasing credibility (Hyland, 1998).

Studies on hedges in research articles or such parts as abstract and conclusion have been carried out from different perspectives, among which cross-cultural, interdisciplinary, and diachronic studies are the most conducted ones (e.g., Liu & Chen, 2020; Wang & Lv, 2016; Paul & Freek, 2010). There have been researches analyzing hedges in linguistic, sociological, biological research articles, and so on (e.g., Abdollahzadeh, 2011; Guo & Ma, 2016; Yang, 2013). Economic research articles are seldomly included except for the paper by Zhao and Sun (2014), which made a comparison of hedging in papers on natural science and social science involving economics. Generally, little is known about the forms and functions of hedges in economic research articles, let alone a comparative study on them from Chinese and American economic journals. To be more specific, this paper focuses mainly on the abstract section, a summary, and an introduction of the main content or a time-saving device for readers (Martin, 2003). It has been pointed out that abstracts are of vital importance in increasing the frequency of publication, retrieval, reading, and citation of research articles.

This research is designed to examine the use of hedges in the abstracts of economic research articles from Chinese and American core journals. It aims at exploring (1) the differences in hedging in terms of forms and functions between the two corpora, and (2) the deep-seated causes. Then it will tentatively give some suggestions for Chinese economic researchers on how to write academic abstracts so that their articles could be more acceptable by international influential journals. The present paper is made up of seven sections and its layout is provided to make it easier to follow. The next section sets out to make reviews on the previous studies on hedges and find out the gap in this research. The methodology is arranged in Section 3, where selection criteria for the corpora, data collection and compilation, the instruments, and analytical framework will be discussed to attain reliability as well as the validity of the study. The main body of the paper is Sections 4 and 5. Through detailed tables, quantitative data, and qualitative explanations, each category, and sub-category of hedges is analyzed and compared to explore the differences between the two corpora, and then the causes of differences are going to be discussed. Lastly, Section 6 concludes the research by giving a summary of the main findings, the implications, and limitations.

2. Literature Review

2.1 Hedges in academic discourse

A hedge is a word or a phrase whose job is to make things fuzzier or less fuzzy (Lakoff, 1972). It is believed that hedges could lower assertiveness, make scientific statements more personal opinions than pure facts, and thus increase the credibility of research results (Hyland, 1998).

Researchers have studied hedges and their functions from different perspectives and in such discourses as research articles in various disciplines (Liu & Chen, 2020; Yang, 2013; Abdollahzadeh, 2011), legal documents (Holly, 2017), economic reports (McLaren-Hankin, 2008), medical discourses (Jiang & Kou, 2011) and so on. Among these genre types, hedging and its function in academic discourse have been the focal point of a lot of research.

Hedges are widely used in academic discourses to express epistemic modality, that is, the degree of certainty and truth value. Scientific writers tend to be careful in acknowledging the limits of what can be concluded from their lines and thus give a cautious assessment of the truth of statements. Hedging allows a way of “conveying honesty, modesty, and proper caution” (Swales, 1990). Employing hedges represents the writers’ own doubt about the information and presenting it as nothing but opinion, by which they could reduce the degree of responsibility they might face in presenting their research.

In addition to epistemic functions, it is suggested that hedges play an important role in interpersonal communication between writers and readers by serving as a device for giving others a chance to disagree. Politeness concerns and cultural standing concerns are mainly involved when considering the interpersonal function of hedges (Strauss, 2004). To be more specific, by hedging, scholars are conveying information that they want to avoid personal offense and/or that they are expected to realize there are competing views regarding their studies. In other words, hedges mitigate communications as writers tend to anticipate either controversial or supportive reflections on their research outcomes by other academic colleagues. That is to say, whether a research article is appropriately hedged is a critical criterion in the selection process by journal editors, affecting its publication, retrieval, and citation in the long run.

Apart from expressing epistemic and interpersonal meanings, proper use of hedges in academic discourse can increase the credibility of research articles. The study by Jensen (2008) shows that researchers who present the limitation and uncertainty of their study are considered to be more trustworthy since the academic community is believed to prefer “a more self-critical style of communication”. Therefore, the use of hedges has been one of the linguistic norms of the academic community and helps to increase the credibility of both the research and the scholar.

2.2 Comparative studies on the use of hedges in academic discourse

Most of the cross-cultural studies which make a contrastive analysis of papers written by native English scholars and non-natives suggest that cultural and linguistic backgrounds affect the use of hedges (Liu & Chen, 2020; Guo & Ma, 2016; Hu & Cao, 2010). And most of these studies indicate that English journals feature a significantly higher frequency of hedges than Chinese journals. For example, Hu & Cao (2010) examined abstracts of applied linguistics articles of Anglo-American and Chinese, and their quantitative analysis indicated that abstracts published in English-medium journals featured markedly more hedges than those published in Chinese-medium journals.

However, Guo & Ma (2016) analyze the use of hedges by comparing Chinese scholars and native English speakers based on Hyland’s (2005) taxonomy of hedges, but the results tend to be the opposite. They have established a dataset of 240 English abstracts from four journals in sociology, with two Chinese journals and two English, and suggested that there is no significant difference in the frequency of hedges between Chinese and English journals. Additionally, Abdollahzadeh (2011) conducted a contrastive analysis of applied linguistics articles written in English by Iranian and Anglo-American academic writers according to Vande Kopple’s (1985) classification of metadiscourse, and the results show no significant difference in the use of hedges between them.

To sum up, the results from these comparative studies on hedges are far from consistent and therefore warrant further investigation, especially with comparable corpora across different linguistic and cultural groups.

An examination of previous literature suggests that there are already some studies on comparative analysis of hedges in linguistic, sociological, biological research articles, and so on (e.g., Abdollahzadeh, 2011; Guo & Ma, 2016; Yang, 2013). Economic research articles are seldomly included except for the paper by Zhao and Sun (2014) which made a comparison of hedging in papers on natural science and social science involving economics. Moreover, there is even less research concerning the comparative analysis of hedges in the abstract section of economic articles, especially between Chinese and American core journals.

Therefore, this study may fill the research gap and broaden the scope of studies on hedges. It is designed to examine the use of hedges in the abstract section of economic research articles from Chinese and American core journals based on Prince et al’s (1982) taxonomy of hedges applying both quantitative and qualitative methods.

3. Method

3.1 Research questions

Building on previous research, the present study aims to answer the following research questions:

(1) What are the features of frequency and distribution of hedges in the abstracts of economic articles from Chinese and American core journals respectively?

(2) How do the hedges used in the abstracts of research articles from Chinese core economic journals and American ones differ from each other?

(3) Why do there exist differences in the usage of hedges in the abstracts from Chinese and American economic journals?

3.2 The identification of hedges and the two corpora

The analysis of hedges in the present study is based on two corpora which are established by the criteria of representativity, reputation, and accessibility (Nwogu, 1991). The first corpus consists of five Chinese economic journals and the second five American ones. According to the latest Annual Report for World Academic Journal Clout Index, these are the most influential journals in China and the U.S. (Table 1). The reasons why this report is employed as the channel for further sifting journals are as follows. Firstly, the annual report is mainly ranked by the international influence of journals. This study intends to provide a reference for the improvement of abstract writing, which could, to some extent, increase the number of publications of research articles and enhance their influence. So, international influence should be the criterion for selecting a rank list, and that annual report meets the requirement. Secondly, it is the latest accessible report indicating the international influence of journals. Lastly, the journals in that report can be found in China National Knowledge Infrastructure and Web of Science and downloaded from them, so they are easy to obtain and have a certain reputation. Totally 60 abstracts, with 30 from Chinese journals and 30 from American ones, are collected with stratified random sampling regardless of the author's name, gender difference, and university to minimize subjectivity. Their publication time is restricted to the period from January 1st to September 30th, 2020, during which that report made its research on the influential index to ensure validity. The number of abstracts from each journal is also listed in Table 1. There is a total of 6,624 words in the Chinese journal corpus and 3,734 words in the American journal corpus. Although the number of words in each corpus is different, I have normalized the two corpora by examining the frequency of hedges in terms of their occurrence per 1000 words.

Table 1. Ten Focused Journals in The Present Study

	Name of Journal	World Academic Journal Clout Index (WAJCI)	Number of Abstracts from Each Journal
American Journals	<i>Quarterly Journal of Economics</i>	11.646	4
	<i>American Economic Review</i>	9.591	9
	<i>Journal of Political Economy</i>	8.665	8
	<i>Journal of Economic Perspectives</i>	6.459	6
	<i>Journal of Economic Literature</i>	5.093	3
Chinese Journals	<i>Economic Research Journal</i>	6.580	5
	<i>Chinese Rural Economy</i>	3.101	8
	<i>China Industrial Economics</i>	2.951	7
	<i>The Journal of World Economy</i>	2.863	7
	<i>China Economic Quarterly</i>	2.669	3

The classification of hedges is mainly based on their surface features. Being specific and widely accepted, Prince et al's (1982) taxonomy of hedges is employed in this study. What's more, 16 out of 20 randomly sampled abstracts from the selected journals turned out to contain all the subcategories of it rather than other classifications including Hyland's (2005), Hyland and Milton's (1997), and Salager-Meyer's (1994) taxonomy of hedges, indicating that it is closer to the abstract writing traditions in economic research articles. Then the abstracts in both corpora were classified into one of

the four following categories: adaptor, rounder, plausibility, and attribution. For the sake of greater clearness and accessibility, the following Figure 1 is presented to illustrate the classification.

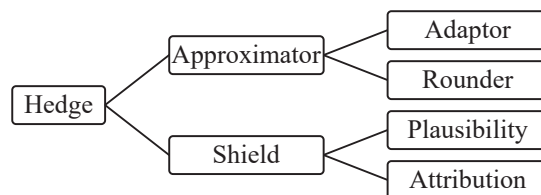


Figure 1. Prince et al.'s (1982) Taxonomy of Hedges

Examples of hedges in each sub-type are given:

(1) Adaptors:

sort of, kind of, somewhat, almost, quite, entirely, a little bit, to some extent, more or less...

(2) Rounders:

approximately, essentially, something between A and B, about, around, roughly...

(3) Plausible shields:

Expressions whose subjects tend to be the first person: I think, I believe, I suppose, we assume, we suppose, we find...

Modal auxiliaries: can, could, may, might...

Adjectives, adverbs, or nouns showing possibility: probably, likely, possible, potential, possibility, and probability.

(4) Attributing shields:

Expressions whose subjects are not the first person like he supposes, she believes, they propose, the results reveal, it seems...

Phrases: according to, based on...

Forms of hedges in the Chinese journal corpus and the American journal corpus were examined and quantified manually. It should be noted that the identification process is based on both language and context. Take the phrase "let us conclude" as an example. Although it is not in the form of "first personal pronoun subject" plus "a plausible shield verb," it still belongs to the type of plausible shields since its meaning is the same as "we conclude." To limit subjectivity, this process was subjected to repetition a few times. The overall frequencies of hedges employed in the two corpora were tabulated, together with the distribution of different types of hedges. The significant difference between them is figured out by the Chi-square test. Then, another rater was asked to code the data to increase the validity of this paper. The two coders discussed the discrepancy and agreed on the statistical results.

4. Results and Discussion

Based on the principles of identifying hedges, the overall numbers of hedges in abstracts from American as well as Chinese economic journals are collected. Considering the different sizes of the two corpora, this paper intends to standardize the frequency by converting the total number of identified hedges into 1,000 words. As demonstrated in the tables in the following section, the results show that the use of hedges in the abstracts from American and Chinese journals varies considerably. They not only vary in terms of the overall number and frequency but also their distribution of four sub-categories.

4.1 Statistics and Data Analysis

Table 2 summarizes the overall number and frequency of hedges in the economic abstracts in the two corpora. The frequency of hedges in the abstracts from American journals (AAJ) is 50.40 per 1000 words, higher than the number in the abstracts from Chinese journals (ACJ), which is 48.84 per 1000 words. Abstracts in the American journals are richer in hedges than English abstracts written by Chinese economic scholars. The authors in the AAJ corpora are more tentative in stating a claim or presenting research outcomes, while the Chinese authors in the ACJ corpora, when writing in their second language, seem to be more assertive. This finding is similar to Wei's study (2007), which shows that Chinese writers rarely use hedges to ease tone and show the temporality of their conclusions.

Table 2. Overall Frequency of Hedges in the Two Corpora

	Abstracts from American Journals (AAJ)	Abstracts from Chinese Journals (ACJ)
Number of Texts	30	30
Total Number of Hedges	188	179
Hedges per 1000 Words	50.40	48.84

With regards to the different types of hedges used in the two corpora, the distribution also varies to a large extent. Based on the taxonomy proposed by Prince et al., hedges in the present study are classified into two main categories including approximators and shields, and four sub-categories. They are adaptors, rounders, plausible shields, and attributing shields. As is shown in Table 3, there is no significant difference between the two corpora in the overall frequency of approximators, but this does not mean that there is no difference in the use of adaptors or rounders. The frequency of adaptors in the ACJ corpus is significantly higher than that in the AAJ corpora ($P = 0.002$), while Chinese authors in the ACJ corpus appear to employ significantly fewer rounders than the authors in the AAJ corpus ($P = 0.002$). In addition, shields are more abundant in the AAJ corpus (26.76%) than in the ACJ corpus (25.22%). To be more specific, there is a significant difference in attributing shields ($P = 0.001$) but not in plausible shields.

Table 3. Overall Frequency of Main Categories of Hedges

	No.		Freq.		P-Value
	AAJ	ACJ	AAJ	ACJ	
Adaptors	45	48	11.96	12.94	*0.002
Rounders	44	39	11.68	10.68	*0.002
Approximators	88	87	23.64	23.62	0.965
Plausibility	51	49	13.56	13.38	0.547
Attribution	49	43	13.20	11.84	*0.001
Shields	100	92	26.76	25.22	*0.003

Notes: * stands for the significant level $P \leq 0.05$

No. stands for the number of hedges

Freq. stands for hedges per 1000 words

In addition to the differences in the distribution of types and sub-types of hedges across the two corpora, the results also show disparities in the wording of each sub-category. Adaptors are expressions that modify the original meaning based on the actual situation to some extent. This study finds that adaptors that are frequently employed by Chinese scholars in the ACJ corpora are such expressions as significant(ly), high, much, almost, great(ly), and obvious(ly). But the following words are much more rarely used by them than authors in the AAJ corpora: very, highly, relatively, moderate(ly), somewhat, quite, apparent(ly), and so on. Thus, despite the higher frequency of adaptors in the ACJ corpora, those in the AAJ corpora appear to be much more diversified. Much different from adaptors, rounders, which are expressions setting a certain variation range of the original discourse, are both less frequently adopted and less rich in their wording in the ACJ corpora than in the AAJ corpora.

Plausible shields are expressions concerning the writer's subjective inferences or judgments, involving something related to doubt or lack of certainty. As mentioned above, there is a significant difference in attributing shields ($P = 0.001$) between the two corpora. To figure out the different wordings of plausibility, it was further classified into (a) modal auxiliaries like can, could, might, and (b) verbs, adverbs, adjectives, and nouns such as I suppose that, possibly, be likely that, probability. As demonstrated in Table 4, Chinese scholars in economics rely too much on modal auxiliaries to express modalities in their English abstracts and seldom use verbs, adverbs, adjectives, or nouns. On the contrary, two types of plausible shields are used by authors in the AAJ corpora in a more balanced manner.

Table 4. Frequency of Different Types of Plausible Shields

	No.		Freq.		P-Value
	AAJ	ACJ	AAJ	ACJ	

Modal Auxiliaries	36	41	9.84	10.90	*0.002
Verbs, Adverbs, Adjectives, Nouns	15	8	3.72	2.48	*0.001

Notes:* stands for the significant level $P \leq 0.05$

No. stands for the number of hedges

Freq. stands for hedges per 1000 words

Attributing shields attribute the speaker's or the writer's belief to someone other than himself. As presented above, the frequency of attributing shields in the AAJ corpus was significantly higher than that in the ACJ corpus ($P = 0.001$). After repetitive reading of the texts, attributing shields in the two corpora are divided into (a) reporting verbs like the study shows that, it seems that, the author believes that and (b) prepositional phrases including according to, based on. It can be seen from Table 5 that in writing English abstracts, Chinese authors in the ACJ corpus use reporting verbs at a dramatically higher percentage than authors of American economic journals. However, they fail to use preposition phrases as frequently as authors in the AAJ corpus.

Table 5. Frequency of Different Types of Plausible Shields

	No.		Freq.		P-Value
	AAJ	ACJ	AAJ	ACJ	
Reporting Verbs	48	35	12.80	9.38	*0.000
Prepositional Phrases	1	8	0.40	4.00	*0.000

Notes:* stands for the significant level $P \leq 0.05$

No. stands for the number of hedges

Freq. stands for hedges per 1000 words

4.2 Discussion

In the two corpora, as is mentioned, hedges are used as a way of lessening assertions in scientific claims or mitigating interpersonal relationships. Academic writers tend to employ different types of hedges to achieve their purpose. The two corpora show differences in the overall number of hedges, the different types of hedges, and the wordings of hedges in the abstract section. A complicated array of factors including Chinese authors' lack of familiarity with hedges and their first language transfer may explain the results.

First and foremost, Chinese authors' lack of some understanding of hedges might account for the finding that overall, hedges are used less frequently and less diversely in the ACJ corpus than in the AAJ corpus. This finding is congruent with previous studies which reported that non-native speakers may not have a good command of the linguistic devices of hedging (Vassileva, 2001; Hu & Cao, 2011). They came to propose that skillful use of hedges requires a high level of language proficiency that can only be achieved when the author advances beyond the level of vocabulary and syntactic structure. For example, Chinese economic researchers, when using adaptors to modify the original meaning based on the actual situation, tend to rely too much on expressions such as significant(ly), high, much, almost, great(ly), and obvious(ly), which is far less diversified than those in the AAJ corpus. Another plausible explanation for Chinese authors' unfamiliarity with meeting the expectations of the international academic community could be a kind of pragmatic failure. Some of them may hold the view that abstracts should be objective, accurate, and authoritative, and thus excessive use of hedges in academic abstracts should be avoided. The cooperative principle proposed by Grice in 1975 is a rational requirement of communication, revealing that both sides of communication who seem to violate the principles follow the maxims of quantity, quality, manner, and relation in a deeper sense. The use of hedges is, in fact, an embodiment of the cooperative principle. The authors in the AAJ corpus view abstracts as a communication to the audience, and by employing hedges appropriately they intend to make scientific findings more persuasive and avoid overgeneralization.

Secondly, due to first language transfer, Chinese authors may be unlikely to employ hedges as much and diversely as native speakers when they write English abstracts. On the one hand, previous comparative studies on hedges in research articles written in English and Chinese suggest that the frequency and distribution of them in articles written in Chinese are dramatically lower than those in English (Liu, 2003; Jiang & Tao, 2007; Jiang & Kou, 2011). In the present corpora, as in Jiang and Tao (2007)'s corpora, hedges like "unexpectedly" and "surprisingly" appear in relatively low frequency because Chinese authors regard scientific discourse as being serious, factual, impersonal, and objective. Thus, in their scientific articles, they use limited hedges which allow for personal feelings they consider inappropriate and non-authoritative. On the other hand, when writing English abstracts, Chinese scholars may be influenced by their

literal translation of some expressions. For example, they appear to use prepositional phrases as attributing shields much more frequently than the writers in the AAJ corpus, while their frequency of reporting verbs is significantly lower than that in the abstracts of American journals. The reason why Chinese researchers rely too much on such phrases as according to and based on could be the impact of first language transfer. It could be found that the word “根据 (genju)” in Chinese, which can be translated to according to or based on in English, is widely used to quote other people’s statements or views in Chinese articles. To make up for it, Chinese authors are also required to advance their language proficiency.

5. Conclusion

This research examines the use of hedges in the abstracts of economic research articles from Chinese and American core journals to explore the differences in the frequency and distribution of hedging between the two corpora as well as their deep-seated causes.

The findings of the present study show differences in not only the overall number and frequency of hedges but also the distribution of sub-categories and wordings of hedges in the two corpora. Hedges are employed more frequently and diversely in the abstracts from American journals than those from Chinese journals, indicating that Chinese economic authors appear to put forward ideas or reveal their findings more affirmatively, while American authors usually ease their tone by hedging. Apart from the discrepancy in the overall frequency, the diversity and richness in the wordings of hedges across the two corpora are far from the same.

These results are partly because the Chinese authors’ English proficiency may not be highly developed at the discourse level. It is known that the ability to make a good command of hedges in academic discourse is a crucial factor for full participation in the international academic community. Therefore, Chinese economic researchers are recommended to read more research articles written by native scholars in economics and more pedagogical materials that may help them develop an awareness of the variety of hedging devices. For non-native English speakers, a great deal of time and effort may be needed to learn how to present their claims or scientific findings persuasively so that they can be accepted by members of the academic community. In addition to Chinese authors’ lack of familiarity with hedges, the findings of the present study reveal that there may be first language transfer that determines the use of hedges by Chinese writers. They seem to employ hedges in English discourse as little as in their Chinese articles when presenting scientific proposals or outcomes and can be influenced by their literal translation of some expressions from Chinese to English.

The present study adds to the body of research that compares the use of hedges in abstracts from Chinese and American core journals, and may to some extent advance Chinese authors’ knowledge of the academic culture in American economic journals. However, this research only focuses on two small corpora due to limited personal time, energy, and ability, affecting the generalization of the research results. Additionally, subjectivity is unavoidably involved in the process of manual identification and classification of hedges even if it was subjected to several times and another rater was asked to do the same work. Future research may reduce the limitations and conduct a deeper and further comparative analysis of hedges in articles across various disciplines written by scholars of various linguistic or cultural groups.

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References

- Abdollahzadeh, E. (2011). Poring over the findings: Interpersonal authorial engagement in applied linguistics papers. *Journal of Pragmatics*, 43, 288-297.
- Channell, J. (2000). *Vague Language*. Shanghai: Shanghai Foreign Language Education Press.
- Grice, P. (1975). *Logic and Conversation in Syntax and Semantics*. Salt Lake City: Academic Press.
- Guo, Y., & Ma, L. (2016). 中外社会学期刊论文摘要的人际互动元话语研究 [Interpersonal metadiscourse analysis of research abstracts in Chinese and international sociological journals. *Journal of Xi'an International Studies University*]. 西安外国语大学学报 [Journal of Xi'an International Studies University], 24 (4), 39-43.
- He, Z. (2006). 模糊限制语与言语交际 [Hedges and communication]. *外国语* [Journal of Foreign Languages], 5, 27-31.
- Holly, V. (2017). Lexical verb hedging in legal discourse: The case of law journal articles and Supreme Court majority

- and dissenting opinions. *English for Specific Purposes*, 48, 17-31.
- Hu, G. & Cao, F. (2011). Hedging and boosting in abstracts of applied linguistics articles: A comparative study of English- and Chinese-medium journals. *Journal of Pragmatics*, 43, 2795-2809.
- Hyland, K. (1998). *Hedging in Scientific Research Articles*. Amsterdam: John Benjamins.
- Hyland, K. (2005). Stance and engagement: A model of interaction in academic discourse. *Discourse Studies*, 7, 173-192.
- Hyland, K., & Milton, J. (1997). Qualification and certainty in L1 and L2 students' writing. *Journal of Second Language Writing*, 6, 183-205.
- Jensen, J. (2008). Scientific uncertainty in News coverage of cancer research: effects of hedging on scientists' and journalists' credibility. *Human Communication Research*, 34, 347-369.
- Jiang, T. (2006). 论学术英语中的情态模糊限制语——一项基于语料库的研究 [Analysis of discourse macrostructure and teaching of listening: An action research]. 外语电化教学 [Technology Enhanced Foreign Language Education], 4, 47-51.
- Jiang, Y., & Kou, Y. (2011). 模糊限制语使用的历时对比——以 1990—1994 年与 2005—2009 年英语医学论文中模糊限制语使用为例 [A diachronic study of hedges: Examples from medical research articles published from 1990 to 1994 and from 2005 to 2009]. 外语教学 [Foreign Language Education], 32 (6), 16-20.
- Lakoff, R. (1972). The pragmatics of modality. In P. Peranteau, J. Levi, & G. Phares (Eds.), *Chicago Linguistic Society: Papers from the Eighth Regional Meeting* (pp. 229-246). Chicago.
- Liu, Y., & Chen, Y. (2020). 中美学生硕士论文写作中立场标记语对比研究 [Contrastive study on stance markers in M.A. theses in applied linguistics by Chinese and American students]. 中国外语 [Foreign Languages in China], 17 (2), 81-89.
- Liu, Z. (2003). 模糊限制语与母语迁移 [Hedges and first language transfer]. 宁夏大学学报 [Journal of Ningxia University], 3, 106-109.
- Liu, Z., Hu, S., Du, L., & Liu, P. (2016). 中国学者英语学术论文手稿模糊限制语使用特征研究——基于语料库的对比考察 [A corpus-based study on the hedges in the original manuscripts of Chinese scholars' English academic papers]. 山东外语教学 [Shandong Foreign Language Teaching], 37 (4), 21-28.
- Martin, J. (2003). A genre analysis of English and Spanish research paper abstracts in experimental social sciences. *English for Specific Purposes*, 22, 25-43.
- McLaren-Hankin, Y. (2008). We expect to report on significant progress in our product pipeline in the coming year: hedging forward-looking statements in corporate press release. *Discourse Studies*, 10, 635-654.
- Nwogu, K. (1991). Structure of Science Popularization: A Genre-analysis Approach to the Schema of Popularized Medical Texts. *English for Specific Purposes*, 2, 112-123.
- Paul, G., & Freek V. (2010). Interactional metadiscourse in research article abstracts. *Journal of English for Academic Purposes*, 9, 128-139.
- Prince, F., Frader, J., & Bosk, G. (1982). On hedging in physician discourse. *Linguistics and the Professions*, 6, 83-97.
- Salager-Meyer, F. (1994). Hedges and textual communicative function in medical English written discourse. *English for Specific Purposes*, 13, 1-28.
- Strauss, C. (2004). Cultural standing in expression of opinion. *Language in Society*, 33, 161-194.
- Swales, J. (1990). *Genre analysis: English in academic and research settings*. Cambridge: Cambridge University Press.
- Vande Kopple, J. (1985). Some explanatory discourse on metadiscourse. *College Composition and Communication*, 36, 82-93.
- Vassileva, B. (2001). CSR-Corporate Branding Relationship. Unpublished Ph.D. Thesis. University of Economics-Varna, Bulgaria.
- Wang, J., & Lv, Z. (2016). 中国理工科博士生学术英语写作模糊限制语研究 [Research on hedges in Ph.D. thesis writing by Chinese doctoral students of science and engineering]. 外语教学 [Foreign Language Education], 37 (5), 52-56.
- Xu, J., Zheng, L., & Zhang, H. (2014). 基于语料库的中国大陆与本族语学者英语科研论文模糊限制语比较研究——以国际期刊《纳米技术》论文为例 [A corpus-based contrastive study of hedges in mainland Chinese and native scholars' English scientific research articles: a case study of the articles published in Nanotechnology]. 外语教学理论与实践 [Foreign Language Learning Theory and Practice], 2, 46-55.
- Xu, Z. (2012). 国内模糊限制语研究误区探源 [Misconceptions in domestic research on hedges]. 西安外国语大学学

报 [Journal of Xi'an International Studies University], 20 (3), 16-19.

Yang, Y. (2013). Exploring linguistic and cultural variations in the use of hedges in English and Chinese scientific discourse. *Journal of Pragmatics*, 50, 23-36.

Zadeh, L. (1972). Fuzzy-set theoretic interpretation of linguistic hedges. *Journal of Cybernetics*, 11, 166-181.

Zhao, X. & Sun, F. (2014). A comparative study of hedges in academic paper abstracts - Based on natural and social science academic paper abstracts. *Modern Linguistics*, 4, 131-139.

Zhou, H. (2008). 英汉变动型模糊限制语及其语用功能 [A comparative study of approximators and their pragmatic functions]. *外语研究* [Foreign Language Research], 2, 40-44.



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