

## *Original Paper*

# A Corpus-Based Comparative Study of Hedges in English and Chinese Research Articles

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### ***Abstract***

*As an essential linguistic device, hedges are widely adopted in academic writing to express standpoints and boost the persuasiveness of academic arguments. Based on two self-built corpora, this study conducts a comparative analysis on the frequency distribution and linguistic realizations of hedges in English and Chinese research articles. The results indicate that the overall frequency of the hedges in English research articles is significantly higher than that in Chinese research articles, and that different hedge subcategories exhibit distinct preferences in usage between the two corpora. In terms of adaptors, intensifying adverbs are predominantly utilized in English texts to adjust the certainty or strength of claims, whereas mitigating adverbs are favored in Chinese texts to soften the tone of arguments. In terms of rounders, non-numerical types are significantly more frequent in English texts than in their Chinese counterparts. In terms of plausible shields, certain adjectives are incorporated in English texts while being notably absent in Chinese texts, indicating a difference in how tentative judgments are constructed in the two languages. In terms of attribute shields, discourse verbs are relied on more heavily in English texts to achieve mitigation, whereas research verbs are employed more frequently in Chinese texts to achieve the same hedging effect. This study not only enriches existing research on hedges in academic discourse but also offers a direct reference for the teaching of academic writing.*

### ***Keywords***

*Corpus-based study, Hedges, Comparative analysis, English and Chinese research articles, Academic writing*

## 1. Introduction

Research articles are not only an important carrier for spreading cutting-edge research results and academic viewpoints, but also a key channel for scholars to express academic opinions, obtain the recognition and expand academic influence (Jiang & Zhao, 2025). Considering the precision and accuracy of academic writing, how to balance the degree of affirmation and prudence of expressions is a problem that needs careful consideration. Under this kind of premise, academic writers need to clearly distinguish two kinds of propositions in the process of writing: one category consists of those that have been agreed upon by the discourse community and have factual properties, the other category consists of those that have not been evaluated by the community and have claim properties (Hyland & Tse, 2004). One of the core means to signal this distinction is the use of hedges, which can reflect the cognitive standpoint of researchers and realize the important interpersonal and pragmatic functions, thereby playing an irreplaceable role in constructing persuasive, readers-centered academic papers (Holmes, 1982). The use of hedges or hedging devices helps to shorten the interaction distance between writers and readers by reserving space for readers to express different opinions, which also reflects respect for readers. At the same time, they also can be used to qualify the writer's commitment to a proposition to show uncertainty about the truth of an assertion (Crismore et al., 1993), to withhold commitment and open dialogue (Hyland, 2005) by acknowledging alternative viewpoints, and to mitigate the force of an utterance "for the sake of politeness" (Holmes, 1990, p. 185).

Notwithstanding the growing body of research on hedges regarding the usage patterns and pragmatic functions, little of this research has focused on the specific linguistic realizations, and distinctive rhetorical structure among their subcategories. In addition, most of researches are basically restricted their analysis to moves, such as abstract or discussion sections of research articles, which may limit the scope of application of their research findings when used to explain the overall use of hedges across full research articles. This lack of attention is unexpected in view of the recent insights into the use of hedging devices. Therefore, the present study aims to investigate, based on two self-built comparable corpora, the distributional patterns and specific linguistic realizations of hedges across full English and Chinese research articles. The findings may contribute to raising Chinese scholars' awareness and proficiency in the use of hedges, thereby helping them to use hedges more appropriately and thus to build more convincing arguments in their academic articles.

## 2. Literature Review

### 2.1 Definition and Classification of Hedges

The concept of hedges was first introduced into linguistics by American linguist Lakoff (1973, p. 471), who defined them as "These words make things more or less ambiguous, and I call such words hedges", with examples including *may*, *perhaps*, *almost*, among others. Although scholars have not reached a complete consensus on the definition of hedges, the core connotation is basically consistent: hedges can act on words or propositions to achieve specific pragmatic functions by adjusting the degree of

ambiguity of the meaning.

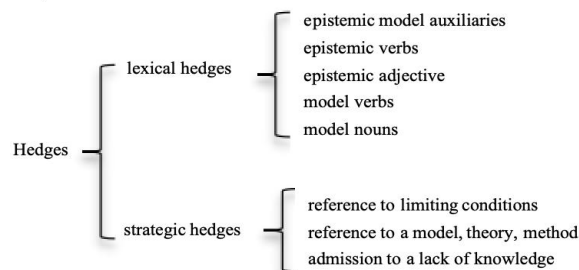
The classification of hedges has been a subject of extensive research, with scholars offering various frameworks to understand their linguistic functions. From pragmatic point of view, hedges are divided into two main types by Prince et al. (1982, p. 93): approximators and shields. Approximators are intended to modify the truth of assertions and scope of propositions, and can be further divided into adaptors and rounders. Adaptors mitigate the commitment expressed in an utterance, thus affecting the truth value of the original proposition; rounders serve to set a referential scope of the topic under discussion. Shields refer to devices through which speakers express a subjective assessment of the proposition. They can be divided into plausible shields and attribute shields. The former reflects the speaker's subjective speculation or judgment toward the propositional content; the latter involves an indirect evaluation of the proposition by drawing on external evidence or others' viewpoints. In brief, approximators affect the true value of the proposition content by means of changing the original meaning of the discourse, whereas shields describe the relationship between the proposition and the writer without altering its truth value, as detailed in Table 1.

**Table 1. The Classification Framework of Hedges (Prince et al., 1982)**

Hedges	Subcategories	Concepts	Chinese examples	English examples
Approximators	Adaptors	adjust the degree of a statement	较、明显、相对 ( <i>comparatively</i> , <i>significantly</i> , <i>comparatively</i> )	sort of, kind of, almost, somewhat
	Rounders	delimit the scope and boundaries of a statement	一些、大量、约 ( <i>some</i> , <i>numerous</i> , <i>about</i> )	about, around, roughly, approximately
Shields	Plausible shields	mitigate a stance through personal cognition or perspective	可能、倾向于、应该、试图、似乎 ( <i>maybe</i> , <i>tend to</i> , <i>attempt</i> , <i>appear to</i> )	<i>I think</i> , <i>I suppose</i> , <i>I am afraid</i> , <i>seem</i>
	Attribute shields	mitigate a stance by citing others, consensus, or possibility	众所周知、一般而言 ( <i>as is well known</i> , <i>generally speaking</i> )	<i>according to...</i> , <i>It is well known that...</i>

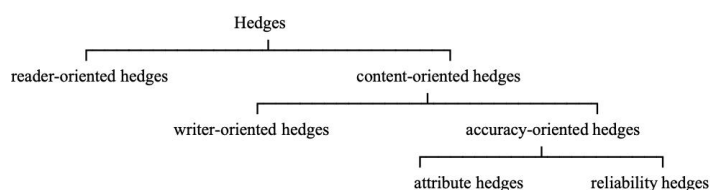
Besides, Hyland (1998) offers two classifications of hedges. From a semantic perspective, hedges can

be divided into lexical hedges and strategic hedges, as shown in Figure 1. Although this classification has certain drawbacks, it provides a solid foundation for further systematic research.



**Figure 1. The Classification of Hedges from a Semantic Perspective (Hyland, 1998)**

From a pragmatic perspective, hedges are classified into two types: content-oriented and reader-oriented hedges. Content-oriented hedges tend to mitigate the relationship between propositional content and non-linguistic expressions of reality, essentially hedging the correspondence between what is said and what is thought to be true. Reader-oriented hedges focus on the interactional effects of statements, focusing on the relationship between the writer and the reader. Content-oriented hedges are further divided into writer-oriented hedges which limit the author's liability, and accuracy-oriented hedges, which aim for precision. Accuracy-oriented hedges are then divided into attribute hedges that weaken the degree of accuracy and reliability hedges that signal propositional uncertainty, as illustrated in Figure 2.



**Figure 2. The Classification of Hedges from a Pragmatic Perspective (Hyland, 1998)**

From the lexical-grammar point of view, Varttala (2001) proposes a classification of hedges that includes 253 items, offering an important reference for hedging research. His classification covers some modal auxiliaries, non-factive reporting verbs/assertive nouns, tentative cognition verbs/nouns, tentative linking verbs, probability adverbs/adjectives, adverbs/adjectives of indefinite frequency, adverbs/adjectives of indefinite degree, as well as approximative adjectives. This list thus serves as a valuable reference for the understanding of hedges. Details are shown in Table 2.

**Table 2. The Classification of Varttala (2001)**

Categories	Examples
Modal auxiliaries	<i>can, could, may, might, would, must, should, will, would</i>
Epistemic verbs	<i>argue, suggest, indicate, assume, suppose, show</i>
Epistemic adverbs	<i>likely, possibly, plausible, typically</i>
Epistemic adjectives	<i>apparent, doubtful, possible, plausible, typical</i>
Epistemic nouns	<i>assumption, suggestion, possibility, claim</i>

The classification model of hedges proposed by Prince et al. (1982) is the most influential (e.g., Yu, 2021; Wu & Yang, 2021; Zhuo, 2023). He (1985) has verified that this framework is applicable to the relevant research of Chinese hedges, and it has a high degree of matching with the English-Chinese comparative research in terms of compatibility. Based on this, the study chooses this analytical framework proposed by Prince et al. (1982).

### 2.2 Previous Studies on Hedges

In recent years, academic community has made extensive explorations on hedges from different theoretical perspectives. At present, international scholars mainly carry out comparative research from three dimensions: Cross-cultural, cross-linguistic and interdisciplinary. Regarding the cross-cultural comparative analysis of the use strategies of hedges in different scenarios, it is generally shown that the use of hedges have obvious cultural specificity tendency (Davoodifar, 2008; Hu & Cao, 2011; Vold, 2006; Yang, 2013). Different cultural groups often hold different cognitive and judging standards for appropriate speech acts and communication standards in various communication scenarios (Crismore et al., 1993). The existence of such cultural differences is directly related to the use logic and preference of hedges in specific scenarios. For example, Spanish researchers generally regard hedges in English academic writing as negative and evasive means of expression, and interpret that using such words implies “the proposal express lacks clarity, security, and validity” (Alonso et al., 2012, p. 58). Czech scholars use hedges less frequently than English native language researchers and prefer content-oriented expression. It is related to the academic symbiotic tendency of the small-scale language community in Czech, which exerts a marked influence on scholars’ rhetoric choices (Dontcheva-Navratilova, 2016). Cross-linguistic comparative studies help us find out the common points and existing differences of hedges at the language level. Vold (2006) made a comparative study of hedges in academic papers written in English, French and Norwegian. It is found that the number of hedges in Norwegian and English papers more than those in French papers. Study on journal abstracts in the field of applied linguistics is shown that the number of hedges used in Chinese journals is less than that in English journals in the same field (Hu & Cao, 2011). Subsequent researches also found that Chinese scholars tend to be more authoritative and assertive when expressing propositions, while British and American scholars tend to be more reader-oriented and more sensitive to different opinions that may exist in readers (Hu & Cao, 2011; Kong, 2005). Interdisciplinary research involving hedges

demonstrates that the use of hedges is not necessarily out of politeness, but also may be related to the normative requirements of the disciplinary community (Hyland, 1999; Hyland, 2005; Vold, 2006). Abdi (2002) selected 55 research papers in natural sciences and social sciences as corpus data to comparatively analyze the usage features of hedges. The results showed significant differences between the two fields: social science authors expressed more propositional uncertainty, while natural science authors were relatively more certain. A study by Rezvani and Javadi (2021) also found that academic writers in soft sciences use hedges more frequently overall than those in hard sciences, which may be related to the disciplinary attributes of the two fields.

Chinese studies on hedges mainly focus on three directions: the pragmatic functions of hedges, the usage and mastery of hedging devices by second language learners, and cross-linguistic or cross-cultural comparative analysis. Existing researches have systematically combed the pragmatic functions of hedges (Li & Zheng, 2005; Xu, 2006; Zhou, 2008), clarifying the role of this strategy in academic writing and providing a practical guidance for second language academic writing and cross-cultural academic communication. The acquisition and use of hedges by second language learners is another major research focus. Wang and Lü (2016) compared the Chinese doctoral students in science and engineering with the scholars who published articles in international journals, and found that the type of hedges used by the former was limited and the lexical diversity was restricted. Moreover, it is more difficult for science doctoral students to use hedges than for engineering students at the same stage. This result also shows that it is really necessary to design classroom teaching in a targeted way to help students improve their awareness of using hedges. Other studies have found that Chinese second language learners often use less or more hedges, which are strongly related to the two factors of mother tongue transfer and language attrition (Gu & Zhu, 2023). The cross-linguistic comparative study of hedges mostly focuses on the differences of moves such as abstracts and discussion parts of academic papers between Chinese and international academic papers (Jiang & Tao, 2007; Wang, 2008; Qiu, 2015; Gao & Sun, 2020). There are also some studies aiming at subcategories of hedges. For example, some scholars have compared the use of approximators in Chinese and English academic papers and found out the similarities and differences between the two (Wu & Yang, 2021); another studies adopt cross-cultural rhetoric frameworks to compare the usage preference of hedges between Chinese scholars and native English scholars (Chen et al., 2016). This kind of research shows that the two groups have very similar strategies in the type selection of hedges, but there are differences in some specific linguistic features. The above research results can provide basic materials for the subsequent acquisition research of hedges and the optimization of second language academic writing teaching, and also have certain reference function for the practical exploration related to cross-cultural academic communication.

In general, the relevant research in the field of hedges has achieved lots of significant results, involving cross-cultural, cross-linguistic and interdisciplinary comparative analysis, as well as application-oriented related studies, it mainly looks at the use of hedges by second language learners,

and the pragmatic functions of such expressions, which can provide reference for research related to academic writing. However, most of the existing researches are based on the analysis of isolated move rather than full research articles. Few studies have compared the use of hedges in full English and Chinese research articles written by the same scholars. Considering these limitations, this study intends to explore the distribution feature and linguistic realizations of hedges in full English and Chinese research articles written by the same scholars.

### **3. Research Design**

#### *3.1 Research Questions*

By comparing and analyzing English and Chinese research articles published by Chinese scholars, this study attempts to address the following two research questions.

- (1) What is the frequency feature of hedges in English and Chinese research articles?
- (2) What are the differences in the frequency and linguistic realizations of four types of hedges between English and Chinese research articles? And what are the underlying causes?

#### *3.2 Data Collection*

This study has built two comparative corpora. We collected 100 research articles published by 13 Chinese scholars between 2000 and 2025 as basic materials for corpus analysis. Among them, the English Research Articles Corpus (ERA) includes 50 English papers published by these 13 scholars on SSCI (Social Science Citation Index), and the Chinese Research Articles Corpus (CRA) involves 50 Chinese papers published by the same batch of scholars on CSSCI (Chinese Social Science Citation Index). When building the corpus, we only keep the title, abstract and body part of each paper to ensure the accuracy and reliability of subsequent analysis. According to statistics, the total number of words in ERA is about 344,314 tokens, and that in CRA is 435,995 tokens.

Due to the total capacity of the two corpora is different, the frequency of hedges is normalized to occurrences per 10,000 words. In order to ensure the comparability of the two corpora, all selected authors are excellent Chinese scholars in the field of applied linguistics, who have the ability to publish academic papers in both Chinese and English. When selecting sample journals, we not only refer to the impact factors of journals, but also ask experts in relevant fields for advice to ensure the equivalence between the two corpora as much as possible.

#### *3.3 Research Instruments*

To ensure efficient and accurate data processing, four corpus instruments are employed in this study, as outlined below.

Corpus Word Parser, a corpus annotation tool developed by Beijing Foreign Studies University and freely accessible online (<http://corpus.bfsu.edu.cn/TOOLS.html>), serves as the word segmentation software for the Chinese texts used in this study. This tool segments words based on either its built-in annotation set or a user-imported set, thereby ensuring high efficiency and accuracy. In this study, Corpus Word Parser was primarily used to perform word segmentation in the Chinese corpus.

Notepad++ (version 8.8.2) is a free, open-source text editor. With its regular expression and macro functions, it can efficiently perform batch searching, format annotation, and pre-editing of raw texts. It enables rapid retrieval of target items in multiple texts, providing contextual information for words, phrases and collocations. In this study, the software was used for identifying and annotating hedges and each occurrence was manually checked in its context to confirm its hedging function.

AntConc (version 4.3.1), developed by Laurence Anthony (Waseda University), offers three primary functions: generating word frequency lists; identifying collocations and concordance lines; comparing frequency differences across corpora. In this study, the software mainly calculated word tokens, overall hedge frequency, and the frequency of each hedge subcategory.

Log-likelihood Ratio Calculator, developed by the Research Center for Foreign Language Education at BFSU (<https://corpus.bfsu.edu.cn/CRG/Resources.html>), is used to compare the frequency counts of a word or phrase across two corpora. In this study, the instrument is adopted to compare the statistical significance of hedges between English and Chinese corpora.

### *3.4 Research Procedure*

First, corpus construction. 50 English and 50 Chinese research articles authored by Chinese scholars and published in SSCI-indexed journals and CSSCI-indexed journals were collected, and then data cleaning was performed. The cleaning process consists of removing non-linguistic elements, deleting metadata and removing reference lists. The remaining main text is then converted to UTF-8 encoded plain text (.txt) to ensure compatibility with corpus analysis software. For the Chinese research articles, an additional step was performed: word segmentation using the CorpusWordParser, as Chinese lacks explicit word boundaries. This process results in two clean, comparable small-scale corpora.

Second, data annotation and statistical analysis. Based on the concept and classification models proposed by Lakoff (1973) and Prince et al. (1982), the author manually annotates four types of hedges in the corpora using Notepad++ (version 8.8.2), and then checks and sorts them line by line. AntConc (version 4.3.1) is then used to retrieve the annotated corpora and count the frequency and linguistic realizations of different hedge types. Given the difficulty of identifying hedges, the annotation process inevitably involves a certain degree of subjectivity. The problems encountered in the annotation process are carefully discussed by our team, thereby enhancing the reliability of the data.

Third, result analysis and discussion. To ensure comparability and validity, the normalized frequency was calculated as occurrences per 10,000 words (the original frequency divided by the total number of words in the corpus and then multiplied by 10,000 to obtain the average occurrence frequency per 10,000 words). Log-likelihood test was used to compare the occurrence frequency of hedges in the two corpora, and p-value was used to calculate the statistical significance of any observed differences ( $p < 0.05$  considered significant). And then, an in-depth analysis is subsequently performed to examine differences in the linguistic realizations of different hedge types across English and Chinese research articles.

## **4. Results and Analysis**

#### 4.1 Overall Distribution of Hedges

After retrieving and extracting hedges from the two corpora, their usage types and raw frequencies are calculated, and these values are then standardized as frequencies per 10,000 words. The detailed results are presented in Table 3.

**Table 3. Overall Distribution of Hedges in English and Chinese Research Articles**

Hedges		ERA		CRA		LL	P
		Raw frequency	Normalized frequency	Raw frequency	Normalized frequency		
Approximators	Adaptors	1246	36.19	1157	26.54	57.53	0.000*
	Rounders	2325	67.53	1915	43.92	194.37	0.000*
	Subtotal	3571	108.94	3072	70.46	245.55	0.000*
Shields	Plausible shields	1933	56.14	1156	26.51	422.25	0.000*
	Attribute shields	705	20.48	582	13.35	58.60	0.000*
	Subtotal	2638	76.61	1728	39.63	463.97	0.000*
<b>Total</b>		<b>6209</b>	<b>180.33</b>	<b>4800</b>	<b>110.09</b>	<b>657.14</b>	<b>0.000*</b>

*Note.* \* indicates  $P < 0.01$ , representing statistically significant differences between groups. The same applies hereinafter.

Table 3 shows the overall use of hedges in Chinese and English research articles. The total frequency of hedges in English research articles is 180.33 times per 10,000 words, and it in Chinese research articles is 110.09 times per 10,000 words. The use frequency of hedges in English articles is significantly higher than that in Chinese articles, and the difference between the two is statistically significant ( $LL = 657.14, p < 0.01$ ). This finding is consistent with Qi (2025)'s research results, which investigated the use of hedges in Chinese and English master's degree theses. It is demonstrated that when Chinese scholars write in English, they are less influenced by Chinese rhetoric strategies. This may be related to the norms of English academic writing and the publication pressure of international journals. International journals, especially those collected by SSCI, have formed writing conventions mainly dominated by the Anglophone academic community. In this academic environment, the expressions are required to be cautious, tentative and reader-oriented. Relevant requirements enable Chinese scholars to consciously adjust their writing style, soften their assertions by using hedges more frequently, and make the writing conform to the expectations of reviewers, and then improve the possibility of publishing in high-impact journals. When turning back to Chinese academic writing, Chinese scholars tend to return to the local writing conventions, which are more inclined to the assertive claims and factual certainty. This

significantly reduce the frequency of hedges in Chinese articles, and cut down the interactivity between the writer and the reader.

#### 4.2 Analysis of Subcategories of Hedges

##### 4.2.1 Adaptors

The study conducts statistical and comparative analyses on the frequency of adaptors in the English and Chinese corpora. It is shown in Table 3 that adaptors are used more frequently in English texts than in their Chinese counterparts. Table 4 presents the top ten most frequent items in English and Chinese corpora.

**Table 4. High-Frequency Adaptors in English and Chinese Research Articles**

Range	ERA		Raw frequency	CRA		Raw frequency
	Lexical items	Semantics		Lexical items	Semantics	
1	further	Intensifying	267	较 (comparatively)	Mitigating	309
2	significantly	Intensifying	216	一定的 (moderate)	Mitigating	113
3	highly	Intensifying	191	相对 (relatively)	Mitigating	80
4	relatively	Mitigating	94	较为 (comparatively)	Mitigating	72
5	increasing	Neutral	64	逐渐 (increasingly)	Neutral	56
6	quite	Intensifying	55	比较 (comparatively)	Mitigating	47
7	largely	Intensifying	51	有所 (somewhat)	Mitigating	43
8	almost	Mitigating	50	逐步 (increasingly)	Neutral	38
9	increasingly	Intensifying	35	• 一定程 度上 • (to a certain degree )	Mitigating	34
10	slightly	Mitigating	34	相当 (quite)	Intensifying	28

Table 4 shows that nine of the top ten high-frequency adaptors in both English and Chinese research

articles are adverbs. From the perspective of parts of speech, both English and Chinese research articles tend to use adverbs, mostly degree adverbs, as adaptors. The grammatical function of degree adverbs is to modify adjectives, a small number of verbs, and verb-object constructions (Zhu, 1982). It can thus be seen that degree adverbs serve as the most direct tools for degree adjustment, enabling objective qualification of the intensity or magnitude of utterances. From the perspective of semantic features, the distribution of semantic types among high-frequency adaptors differs between English and Chinese research articles. Hedges in English texts are dominated by intensifying adaptors (6 items), while hedges in Chinese texts are mostly mitigating adaptors (7 items). This difference mainly stems from the adaptation to their respective academic contexts. The logic of English academic writing emphasizes the novelty and contribution of research, and adaptors are expected to help readers quickly grasp crucial information (Swales, 2004). Chinese academic writing is seemingly influenced by the cultural traditions of the Doctrine of the Mean, emphasizing modesty and reservation in Chinese academic expression. Therefore, mitigating expressions are generally preferred in Chinese academic writing. For example:

(1) Fourth, Mainland China has also made **highly** remarkable progress in linguistics in terms of the number of SSCI publications. (ERA-029)

(2) 相比之下, 说明文的主要目标是介绍科学过程和实验流程, 因其无需进行实际操作阐述和文献铺垫, 所以较少使用自称语、引用和模糊语。(CRA-001)

(In contrast, the primary goal of expository texts is to introduce scientific processes and experimental procedures; as they do not require operational elaboration or literature review, they use self-mentions, citations, and hedges less frequently.)

In Example (1), the intensifying adaptor *highly* directly conveys pivotal information, allowing readers to quickly realize the importance of the reported progress without interpretive effort. The use of intensifying adaptor serves a persuasive function by directing readers' attention to the content that the author considers important and guiding them to interpret it in the manner preset by the author. Meanwhile, adaptors can be used to quickly gain readers' recognition, thereby promoting the influence of research articles. This strategy not only strengthens the cognitive consensus between writers and readers, but also promotes the recognition of research results within the broader academic community. In Example (2), 较 (*comparatively*) is employed to create a negotiable space for the proposition or claim by subtly blurring the standard of comparison and reducing the certainty of expression, which is consistent with the requirement of accuracy and tentativeness in Chinese academic conventions. Such mitigating adaptors can be used to effectively lead out the research findings while reserving space for subsequent discussion, aligning with the academic norms of Chinese journals that prioritize rigor and avoid risk. Consequently, authors tend to consciously reduce the use of intensifying and neutral adaptors and increase the proportion of mitigating ones in Chinese academic writing.

#### 4.2.2 Rounders

Rounders are used to delimit a variable scope, and can be broadly divided into numerical and non-numerical types (Yu, 2021). The former conveys approximate values, mostly followed by numerical concepts, such as *approximately*, *about*, or *so*. The latter expresses general concepts of quantity and clarifies numerical ranges, such as *a few*, *some*, *many*.

**Table 5. Frequency features of rounders in English and Chinese Research Articles**

Rounders	ERA		CRA		LL	P
	Raw frequency	Normalized frequency	Raw frequency	Normalized frequency		
Numerical	193	5.61	182	4.17	8.13	0.004
Non-numerical	2132	61.92	1733	39.75	188.24	0.000*
Subtotal	2325	67.53	1915	43.92	194.37	0.000*

Table 5 describes that frequency features of rounders in English and Chinese research articles. It is shown that the frequency of rounders in English research articles is higher than that in Chinese research articles with a statistically significant difference (LL = 194.37,  $p < 0.01$ ). In terms of linguistic forms, non-numerical rounders are used far more frequently in English texts than that in Chinese texts, with a significant difference between the two (LL = 188.24,  $p < 0.01$ ). This finding is consistent with the conclusions of Wu and Yang (2021) on rounders in English and Chinese research articles. In addition, non-numerical rounders constitute the dominant form in both corpora, which may be used to ensure objectivity in academic discourse. By acknowledging uncertainty, authors convey a cautious attitude toward academic propositions by seeking to avoid criticism or reproach from readers. The difference in non-numerical rounders may stem from the influence of positivism in English research articles, which requires operational boundaries for research subjects, sample sizes, and the scope of conclusions (Park et al., 2020). Therefore, non-numerical rounders are used more frequently by authors to meet this requirement, as illustrated in Example (3). The non-numerical item *some* is used to restrict the researcher to “a subset of the whole” rather than “all” or “an overwhelming majority”. This indicates that the author acknowledges the existence of relevant studies without specifying their exact number, thereby avoiding making absolute claims. The choice of non-numerical expressions rather than precise figures also demonstrates the author’s effort to present information as accurately as possible within their knowledge.

(3) Although **some** researchers have examined specific issues related to online and electronic dictionaries, Lew and Szarowska (2017), Pearsons and Nichols (2013), and Yamada (2013) appear to have been the only known systematic studies on online dictionary evaluations. (ERA-035)

(4) 然而, 一些研究 (如 Chen & Baker 2010; Esfandiari & Barbary 2017) 得出相反结论, 认为英语

母语写作者使用词块数量高于非母语写作者。(CRA-005)

(However, some studies (e.g., Chen & Baker, 2010; Esfandiari & Barbary, 2017) have reached the opposite conclusions, arguing that native English writers use more lexical chunks than non-native writers.)

In Example (4), the author employs the non-numerical item 一些 (*some*) to invite readers to judge by themselves the weight of these opposite conclusions while avoiding absolute claims. Furthermore, the item 一些 (*some*) also implies that these opposite conclusions are controversial. They may merely be the findings of only a subset of studies, thereby leaving room for subsequent negotiation or explanation. In Chinese research articles, non-numerical expressions do not convey precise numerical values to readers; rather, they guide readers to reason within a fuzzy scope defined by the author. By treating readers as interlocutors, the use of rounders shows respect for readers' right to participate in interpretation and co-construction knowledge, thereby enhancing the interactivity and politeness of academic texts.

#### 4.2.3 Plausible Shields

Plausible shields are categorized by part of speech into modal auxiliaries, epistemic verbs, epistemic adjectives, epistemic adverbs, and epistemic nouns (Varttala, 2001). Table 6 presents the frequency features of plausible shields in English and Chinese research articles.

**Table 6. Frequency Features of Plausible Shields in English and Chinese Research Articles**

Plausible shields	ERA		CRA		LL	P
	Raw frequency	Normalized frequency	Raw frequency	Normalized frequency		
Modal auxiliaries	1236	35.90	820	18.81	210.98	0.000*
Epistemic verbs	360	10.46	292	6.70	32.19	0.000*
Epistemic adjectives	224	6.51	0	0	366.44	0.000*
Epistemic adverbs	113	3.28	34	0.78	65.46	0.000*
<b>Total</b>	<b>1933</b>	<b>56.14</b>	<b>1156</b>	<b>26.51</b>	<b>422.25</b>	<b>0.000*</b>

It is shown in Table 6 that the normalized frequency of plausible shields in English research articles is more than twice that of their Chinese counterparts, with a statistically significant difference (LL = 422.25,  $p < 0.01$ ). This difference may be due to the distinct priorities attached to face needs in English and Chinese (Brown & Levinson, 1987). Specifically, the English-dominated “low-context (LC)” academic community generally adopts negative politeness strategies (Kittler et al., 2011), respecting

readers' negative face, namely their freedom of claim and freedom from imposition. Plausible shields such as *perhaps*, are therefore employed frequently by authors to reduce the certainty of claims and create negotiable space for alternative viewpoints. The Chinese academic convention influenced by "high-context (HC)" culture (Kim et al., 1998) emphasizes maintaining collective harmony and authoritative relations between the author and the academic community, which reflects their positive face wants. Specifically, plausible shields are employed to invite readers to participate in the reasoning process, mitigate the author's authoritative stance, and imply a collective rather than individual speculation. In this way, it helps establish assumed shared knowledge and maintain positive face for both writers and readers. For example:

(5) These text-referential metadiscourse markers **perhaps** occur as a result of the way ChatGPT generates responses. (ERA-001)

(6) 共建话轮在本研究中并未呈现显著差异, 这**可能**是由于本研究被试二语水平较低, 而共建话轮对二语水平要求较高(Lam 2018), 因此学生所产出的共建话轮频率太低, 不足以显示差别。

(CRA-016)

(No significant difference was found in co-constructed turns, likely due to the participants' low L2 proficiency, as co-constructed turns require higher competence (Lam, 2018). Thus, the frequency was too low to reveal any group difference.)

In Example (5), the strategic deployment of plausible shields *perhaps* signals the writer's acknowledgment of epistemic limitations in the field. Precisely the reason triggered the occurrence of text-referential metadiscourse choices remains indeterminate. Rather than forcing a definitive interpretation on the reader, the writer proposes a measured conjecture through a consultative tone, thereby leaving room for counterarguments. This rhetorical strategy respects the reader's position, capturing the core pragmatic role plausible shields play in English research articles. In Example (6), *可能* (*perhaps*) is employed to reframe an observed causal link as a tentative speculation, thereby softening an assertion that might otherwise threaten the writer's positive face. Meanwhile, this strategy actively seeks recognition from the reader by presenting the author as polite and modest, sustaining a harmonious atmosphere within the scholarly community. The finding thus indicates that semantically similar linguistic forms execute divergent pragmatic functions across languages: avoiding imposition in English articles, yet seeking recognition in Chinese articles.

Among the five kinds of plausible shields, English and Chinese research articles demonstrate similar features: both of them are obviously more inclined to use modal auxiliaries and epistemic verbs for hedging, the frequency of epistemic adjectives and adverbs is much lower. Epistemic nouns are not used as plausibility shields in either language. The data in Table 6 shows that the frequency of adjective-based plausible shields in English texts is 6.51 times per 10,000 words, while no such cases are found in Chinese texts. This may be related to differences in the grammatical systems and rhetorical strategies of the two languages. From the perspective of grammatical systems, adjectives in English can not only act as modifiers in noun phrases, such as *one possible explanation*, but also form a sentence

pattern of “it is adj that”, so as to play the role of plausibility shields. This feature is consistent with the rhetorical tradition in English academic contexts, which encourages the use of different word classes to clearly mark cognitive standpoint (Hyland, 2005; Biber, 2006). In contrast, Chinese adjectives rarely appear in such syntactic positions without extra markers (e.g., *的 de*), and when used to express uncertainty, most of them tend to be analyzed as adverbs or modal auxiliaries (Lü, 1996; Zhu, 1982), thus the typical forms and corresponding functions of adjectives are still relatively limited. For example:

(7) One **possible** explanation for this result could be the participants’ age, as younger learners tend to have less realistic ideal selves than adolescents. (ERA-021)

(8)另一个原因**可能**是由于中国英语学习者在议论文中更愿意使用先因后果的论述模式，其“归纳式思维模式的频率比英美学生高”，且不擅长使用另外几个较为正式的表达因果关系的 LAs，如 *therefore*、*thus* 等。(CRA-049)

(Another reason may be that Chinese English learners prefer the cause-then-effect argumentation pattern in argumentative writing: their “frequency of inductive thinking patterns is higher than that of British and American students” – and they are also less skilled at using several other more formal causal logical adjuncts (LAs), such as *therefore*, *thus*.)

In Example (7), the adjective *possible* is employed as a premodifier in English texts, integrating an evaluative adjective into the noun phrase to convey a tentative stance. In Example (8), the Chinese word *可能* (*may*) functions as a modal auxiliary. Although Chinese grammar permits expressions such as *一个可能的解释* (*a possible explanation*), the author actually tends to rely more on modal auxiliary constructions (e.g., *可能是* ‘might be’, *可以认为* ‘it can be considered’) in Chinese academic writing to reduce commitment to a proposition. This is also one of the manifestations of Chinese rhetorical tradition.

#### 4.2.4 Attribute shields

Attribute shields mainly comprise four types: research verbs, cognition verbs, discourse verbs, and phrases (Hyland, 1996). Their frequency features are presented in Table 7.

**Table 7. Frequency Features of Attribute Shields in English and Chinese Research articles**

Attribute shields	ERA		CRA		LL	P
	Raw frequency	Normalized frequency	Raw frequency	Normalized frequency		
Research verbs	15	0.44	192	4.40	140.40	0.000*
Cognition verbs	36	1.01	111	2.55	24.46	0.000*
Discourse	524	15.22	175	4.01	274.19	0.000*

verbs						
Phrases	130	3.78	104	2.39	12.28	0.0004
<b>Total</b>	<b>705</b>	<b>20.48</b>	<b>582</b>	<b>13.35</b>	<b>58.60</b>	<b>0.000*</b>

Table 7 shows that the frequency of attribute shields in English research articles is higher than that in Chinese research articles, and the difference between the two is statistically significant ( $LL = 58.60, p < 0.01$ ). This discrepancy is related to the intrinsic characteristics of the two linguistic systems. English grammar and lexis provide a structural basis for the flexible use of attribute shields. In comparison, the relatively concise syntactic structure of Chinese may result in a smaller inventory of attribute shields (Lian, 1993). In terms of specific types, all four types of attribute shields are employed by both English and Chinese research articles. Discourse verbs such as *suggest* and *indicate*, are preferred in English research articles, which is consistent with Hyland's (2002) research finding that discourse verbs are frequently used to mark the reporting and evaluation of previous claims in English academic writing, thereby creating an interactive space between writers and readers in this way. For Chinese research articles, the frequency of research verbs such as *发现* (*find*) and *表明* (*show*) is significantly higher. This difference may be related to Chinese rhetorical conventions, which emphasize direct presentation of research actions and findings (Halliday & Martin, 2003). For example:

(9) Hawkins (1994) **suggests** that the human parser prefers postposed adverbial clauses because their “constituent recognition domains” are shorter than those in the preposed ones. (ERA-009)

(10) 刘艳春和王小帆(2018)曾利用 Biber 提出的多维分析法对小说和传记中的 63 项语言特征进行对比, **发现**这两种语域在上下文、互动性和情感特征等功能维度差异明显。(CRA-014)

(Liu & Wang, 2018) used Biber's multi-dimensional analysis to compare 63 linguistic features in novels and biographies, and found that the two genres differ significantly in functional dimensions such as contextuality, interactivity, and emotionality.)

In Example (9), *suggests* is a typical discourse verb. It not only reports Hawkins's viewpoint but also implies the author's agreement of this viewpoint. In English academic writing, writers have to clearly distinguish between their own claims and cited claims, and the function of discourse verbs is to convey their degree of recognition to the cited content. In this process, discourse verbs function as “metadiscourse signals”, which can help readers quickly judge whether a statement is an objective restatement, an author's evaluation, or a reserved speculation. These explicit markers help to reduce readers' processing burden and reflect a reader-oriented hedging strategy. In Example (10), the research verb *发现* (*find*) is directly employed to report the research findings, focusing on the research act itself rather than the author's attitude toward the research results. The deployment of research verbs reflects objectivity of academic writing, indicating that the conclusion given is derived naturally, not the subjective judgment of the author. This practice is consistent with the rhetorical tradition of “I transmit rather than innovate” (述而不作) (Confucius, 2003, p. 64). In addition, Chinese is a

verb-oriented language, which prefers to retain verb forms to describe processes and events (Halliday & Martin, 2003). Research verbs bear the core function in the research process, conforming to the Chinese preference for dynamic processes as the focus of expression.

Cognitive verbs such as *认为* (*believe*), are employed more frequently in Chinese research articles than in their English counterparts. This may be related to the tradition that Chinese academic writing has always attached importance to weakening the tone of expression, which leads the author to actively admit the inherent limitations of human cognition (Lian, 1993). In addition, phrases, such as *according to*, appear more frequently in English research articles than that in Chinese ones. This difference may be related to different rhetorical strategies in English and Chinese academic writing. English research articles generally tend to mark the source of information clearly with explicit linking, which can reduce the author's responsibility for a proposition, and then avoid direct confrontation with readers holding alternative viewpoints, which is helpful to make claims more acceptable.

However, Chinese research articles are inclined to use direct and objective statements instead of complex phrases to negotiate with readers (Lian, 1993).

## 5. Conclusion

This study conducts a comparative analysis of the occurrence frequency and usage preference of hedges in English and Chinese research articles in the field of applied linguistics. It is found that the overall frequency of hedges in English research articles is significantly higher than that in Chinese research articles, which is likely related to linguistic differences, rhetorical conventions, academic norms, and other factors. In terms of usage preference of hedges, as for adaptors, intensifying adaptors are favored by English articles, whereas mitigating ones are dominated by Chinese articles, which is closely related to their respective academic norms. As for rounders, non-numerical rounders occur more frequently than numerical rounders in both English and Chinese articles. As for plausible shields, English research articles demonstrate greater lexical diversity than Chinese articles. Epistemic adjectives are employed in English academic writings while are absent in Chinese research articles. As for attribute shields, English texts depend on discourse verbs to achieve mitigation, whereas Chinese articles prioritize research verbs to achieve the same effect, which indicates a difference closely related to the rhetorical tradition and linguistic system of the two languages.

The limitations of this study need to be paid attention to and solved in subsequent studies. First of all, for a more comprehensive grasp of various influencing factors of the use of hedges in Chinese and English academic writing, follow-up research needs to include comparable data of different disciplinary backgrounds, such as the comparison between hard science and social science, to find out how disciplinary norms may interact with linguistic and cultural influences in shaping hedge use. Second, this research lacks sufficient qualitative data, which needs to be supplemented in the follow-up research, which would be helpful to deeply understand the metacognitive considerations that underlie writers' choices of hedges when they qualify their knowledge claims. Research along these directions can

provide necessary support for the construction of a complete knowledge system required for cross-linguistic academic communication.

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