A Study on the Interpersonal Functions of Hedges in Academic Discourses

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Abstract—**Based on Hyland's classification of hedges and Halliday's theory of interpersonal functions, this study selected 30 research articles (RA) from *Language Learning* and *English for Specific Purposes*. This study employed software Antconc and manual checking to identify and tag hedges, investigating the distribution and interpersonal functions of hedges in the RAs. The main findings are: (1) Regarding the overall distribution, modal verbs are used most frequently, followed by epistemic adverbs, epistemic adjectives and epistemic verbs, and epistemic nouns are the least frequently used; (2) Hedges are most frequently used in the section of results and discussion. It is also found that hedges have the interpersonal functions of involving readers, coordinating the relationship between the author and the reader, highlighting the author's stance and constructing the academic discourse groups.**

Index Terms—**Academic discourses, hedges, interpersonal functions.**

I. INTRODUCTION

The concept of hedges was formally put forward by Lakoff in 1972 and defined as "hedges are the words whose job is to make things fuzzy or less fuzzy". In recent years, hedges have received great attention from many linguists at home and abroad. Its theoretical research mainly concerns its origin and development [1], its taxonomies [2], its pragmatic functions [3], cross language research [4], and the connection with other linguistic theories [5]. These studies not only deepen our understanding of hedges, but also lay a theoretical foundation for the empirical study of hedges. Empirical research focuses on the research of hedges in different types of corpus, including news discourse, political discourse, legal discourse, medical discourse, literary works, oral conversation, advertising discourse, etc.

Although the study of hedges shows a trend of increasing theoretical and empirical research, there is still a lack of related research studying the characteristics of hedges in academic discourses, especially for their interpersonal functions. In view of this, based on the Hyland's taxonomy of hedges and Halliday's interpersonal function, this study selected 30 research articles from *Language Learning* and *English for Specific Purposes,* investigating the distribution and interpersonal functions of hedges in these 30 research articles. It is expected that this paper could show the significance of the use of hedges in academic discourses so as to help second language learners better recognize and use hedges in their academic writing.

II. LITERATURE REVIEW

Markkanen [6] discussed the function of hedges in scientific and technological writing. He regarded hedges as modifiers of truth condition of authors, or modifiers of information strength and author's attitude towards information. According to Markkanen, hedges can be used as restrictive devices, such as the use of restrictive pronouns, personal expression, passive and passive structures, including modal verbs, adverbs, articles and other modifiers. At the same time, hedges can also be used as language strategies in a text, such as volitional modality. The style of science and technology not only tends to content and information, but also tends to readers, which is a typical feature of scientific and technological texts [7]. Therefore, scientific and technological style emphasizes the reliability of content and readers' emotional response. Based on the stylistic and communicative context, hedges enable the author and the reader to communicate.

Meyer [8] hold that hedges in scientific and technological articles are the result of adaptation to politeness, and their meanings are determined by stylistic features, readers and the personality of the author. Moreover, the frequency of hedges used in different styles is also different. For example, hedges are used more frequently in linguistics, philosophy and other fields than in natural science. Generally speaking, hedges, as textual features, are not only used to express politeness, save face or serve as a convention of the text, but also reflect the uncertainty of the text content and the relevant language habits. No matter what kind of scientific and technological styles are used, hedges are mainly used to emphasize objectivity.

From the existing studies, domestic scholars mainly study hedges from the perspective of pragmatic analysis. Huang Xiaopin [9] analyzes hedges and their pragmatic functions in verbal communication; Gao Xiaofang [10] discussed the pragmatic meaning and characteristics of hedges from violating the cooperative principle, and believed that hedges are closely related to the cooperative principle and can reflect the speaker's attitude and views on the topic content; hedges are a kind of speech means and communication strategy. Dai Jiandong [11] believes that under the cooperative principle and politeness principle, hedges can euphemistically express inference, request, suggestion and refusal, so as to avoid direct conflict. They should follow the politeness principle and use fuzzy language to express their unwillingness or indirectly express their thoughts and emotions, so as to achieve the purpose of easing tone.

III. THEORETICAL BASIS

A. Taxonomies of Hedges

Linguists at home and abroad have classified hedges from different perspectives. For example, Prince and He Ziran divided hedges into four categories from the angle of pragmatics: adaptors, rounders, plausibility shields and attribution shields. Chen Hualin and Li Fuyin assorted hedges into five types according to their semantic features: hedges of degree, hedges of range, hedges of quantity, hedges of quality and hedges of manner maxim. However, the above two taxonomies are mainly applicable to oral language. In view of this, this paper is mainly based on the classification of hedges by Hyland. Hyland divided hedges into modal verbs, epistemic verbs, epistemic adverbs, epistemic adjectives and epistemic nouns.

B. Interpersonal Function

Halliday divided the metafunctions of language into three categories: ideational function ("experiential" and "logical"), interpersonal function and textual function. According to Halliday's point of view, interpersonal function refers to the function of speakers in using language to participate in social activities. Halliday believes that the speaker always reflects the surrounding objective world and his inner world (ideational function) while communicating with others (interpersonal function) through coherent discourse (textual function). Interpersonal function serves to establish and maintain social relations. It is mainly reflected by language system, modality system and mood system.

Based on Halliday's interpersonal function, Martin and other scholars established the appraisal theory. This theory studies language resources that discourse / speaker expresses and negotiates between specific subjects. Appraisal itself if regionalised as three interacting domains--attitude, engagement and graduation. Among them, engagement deals with sourcing attitudes and the play of voices around opinions in discourse, which can be further divided into dialogue contraction and dialogue expansion. The engagement system provides the possibility of bringing other sounds into the discourse and making them negotiate with each other. Therefore, all the language resources that make the discourse and the author's voice intersubjective can be included in the category of engagement. Appraisal theory is concerned with the speaker's use of his discourse to engage into the discourse so that the semantics change with the speaker's position.

IV. METHDOLOGY

A. Research Questions

This research intends to answer the following two questions:

(1) What are the distribution characteristics of hedges in English empirical articles of applied linguistics?

(2) What are the reasons for these distribution characteristics?

In order to answer the above questions, this study has built a corpus of English empirical articles of applied linguistics. The corpus consists of articles published in Language Learning and English for Specific Purposes in the past three years (2017-2019), a total of 30 articles.

B. Identification of Hedges

This paper mainly relies on the computer tool Antconc and Hyland's taxonomy of hedges to identify and classify hedges. Hyland believed that native English speakers often use lexical hedges when they are uncertain about the feasibility and authenticity of their ideas, that is, modal verbs (such as may, can, could), epistemic verbs (such as show, suggest, indicate, appear), epistemic adverbs (e.g. perhaps, likely, probably), epistemic adjectives (e.g. possible, general, usual) and epistemic nouns (e.g. claim, belief, likelihood). Considering the context, this paper will further examine and verify the hedges identified by Antconc.

C. Data Collection and Analysis

First of all, several empirical research papers in recent three years were randomly selected. The judgment criteria refer to the definition of existing research, that is, papers that clearly put forward research issues and conduct analysis and discussion around empirical data. According to this standard, select the eligible papers.

The purpose of this paper is to investigate the use of hedges in academic discourses, so the corpus only includes the abstract and the main body of the paper. Referring to the IMRD structure, this paper combines the research of Yang Ruiying on the structure of applied linguistics papers, namely "abstract, introduction, literature review, research methods, results and discussion, conclusion." Based on the above criteria, the selected 30 papers were further identified and divided into the above six parts.

Then Antconc and manual sorting were employed to check the examples of hedges in each part of the paper. Footnotes, endnotes, references and appendices are not included in the corpus collection. After the corpus purification, the software calculated a total of 211,379 words in 30 academic discourses, and the average length of the paper was 7046 words.

Finally, according to the data obtained, this research returned to the corpus, analyzed the examples of hedges in depth, combined the interpersonal function of hedges with the context, and explored the reasons for the differences in the distribution of hedges.

V. RESULTS AND DISCUSSION

A. The Distribution of Hedges in Academic Discourses

TABLE I: THE OVERALL DISTRIBUTION OF HEDGES IN 30 ACADEMIC PAPERS

Hedges Freq.	Modal Verb	Epistemic Verb	Epistemic Adverb	Epistemic Adjective	Epistemic Nouns
6260	2209	858	1655	1235	303
100%	35.3%	13.7%	26.4%	19.7%	4.8%

Table I shows that in 30 academic papers, there are 2209 modal verbs, 858 epistemic verbs, 1655 epistemic adverbs, 1235 epistemic adjectives and 303 epistemic nouns. The frequency of modal verbs is the highest, while epistemic nouns is the lowest. The explanation of the above distribution phenomenon is as follows: in academic papers,

modal verbs are the most closely related language resources of cognitive meaning. By using modal verbs, the author can reduce the situation of imposing his own views on the readers, thus constructing an open negotiation space. This also partly explains why modal verbs such as "must" and "should" appear relatively infrequently in academic texts. Epistemic nouns represent the last stage of objectification of modality expression. This kind of vocabulary often expresses a hypothetical tone, that is, the author is usually making a certain assumption rather than making a clear statement, so the frequency of occurrence is relatively low. Compared with epistemic nouns, modal verbs can better reflect the author's cautious attitude towards the proposition, make a thorough promise to the point of interpretation, or provide space for readers to question the argument, which conforms to the speech function and communication purpose of the paper.

TABLE II: THE DISTRIBUTION OF HEDGES IN SIX SECTIONS IN 30 ACADEMIC PAPERS

Section / Freq.	Abstract	Introduction	Literature Review	Method	Results & Discussion	Conclusion
6260 100%	107 1.71%	354 5.65%	1025 16.37%	911 14.55%	3381 54.01%	482 7.70%

Table II shows that hedges are most frequently used in the results and discussions, followed by literature review, research methods, conclusions, and introduction. One-way Analysis of Variance tests the distribution of hedges in six sections of academic discourse. The results are shown in Table III.

TABLE III: MULTIPLE COMPARISON RESULTS OF HEDGES IN SIX PARTS OF 30 ACADEMIC PAPERS

(I) / (J)	Abstract	Introduction	Literature Review	Method	Results & Discussion	Conclusion
Abstract Mean Difference (I-J) Sig.		.033 .732	.133 .172	-.033 .732	.333 .001*	.067 .494
Introduction Mean Difference (I-J) Sig.	.033 .732		.167 .088	.000 1.000	.367 .000*	.100 .305
Literature Review Mean Difference (I-J) Sig.	-.133 .172	-.167 .088		-.167 .088	.200 .041*	-.067 .494
Method Mean Difference (I-J) Sig.	.033 .732	.000 1.000	.367 .000*		.167 .088	.100 .305
Results and Discussion Mean Difference (I-J) Sig.	-.333 .001*	-.367 .000*	-.200 .041*	-.367 .000*		-.267 .007*
Conclusion Mean Difference (I-J) Sig.	-.067 .494	-.100 .305	.267 .007*	-.100 .305	.067 .494	

Note: the average difference is significant at 0.05 level

The results of the minimum difference test showed that there was a significant difference between the section of result and discussion and the other parts ($P < 0.05$) in the use of hedges: the frequency of the use of hedges in the result and discussion part is significantly higher than the other five parts, MD = 0.333, MD = 0.367, MD = 0.200, MD = 0.367 and MD = 0.267. But there was no significant difference between the other five parts ($P > 0.05$). In the following part, this paper will make a further analysis of the reasons for this distribution feature in the light of the interpersonal functions of hedges.

B. Interpersonal Functions of Hedges in Academic Discourses

1) Involving readers and coordinating the relationship between the author and the reader

On the surface, academic paper seems to be a genre with objective information transaction, but academic discourse is not merely self talk, on the contrary, it is a kind of social behavior. The author's self-expression and the readers' participation need to be accepted and recognized by the readers and the target community. They reflect not only the author's personal will, but also the expectations and regulations of the target readers and the discourse community, and try to realize the significance in the process of negotiation and identification between the target readers and the discourse community. Whether the opinions of academic authors can be accepted by the readers in their disciplines and the degree of acceptance depends not only on the clear interpretation of the proposition, but also on the author's use of effective language strategies to express his

point of view, promote his position and create interactive discourse space in the process of negotiation with readers, so as to achieve effective interaction between the author and readers. For example:

(1) I *believe* that it can be beneficial for college students to have a part-time job.

(2) It should be mentioned that multi-word causal-conditional signals in the student corpus were mainly found in one Maths essay (53 out of 74 instances), which *may* be a case indicative of individual preferences, or *probably* a particular task type.

In academic papers, hedges can "recognize the existence of readers' multi voice, develop and maintain dialogue with readers and unite academic discourse groups". In example (1), there is an explicit expression of "I believe", which indicates that the statement is a personal point of view, waiting for the judgment of the reader. Here, the author's subjective attitude constructs a "background of multiple voices", so that the author/speaker can strongly agree with a certain point of view, but also be prepared to admit that others may not hold the same position. In example (2), on the proposition of "student corpus", the author uses "may" and "probability" to admit and invite different views. Because the author can't guarantee that every reader agrees with his point of view, he uses "probability" to open the dialogue space and try to negotiate with different opinions.

Therefore, the use of hedges is a rational interpersonal strategy instead of merely avoiding exaggeration. Hyland pointed out that hedges allow the author to skillfully deal with the authenticity and personal feelings that may be involved in the writing, and invite the readers to make reasonable inferences about the reasons for their use of hedges. The rational use of hedges is conducive to the development of academic communication ability and can better establish the relationship between the author and the reader. This also explains the reason why hedges appear the most frequently in the part of result and discussion, because the author often puts forward his own new opinions in this part. Although scholars' goal is to make their own opinions or possibilities become the consensus or truth of the academic community, they are tentative and temporary personal opinions before they are accepted. In order to reduce or avoid the doubts and challenges from other scholars and readers, the author will use more hedges to reduce the criticism from their opponents and coordinate the relationship between them as much as possible, which not only protects the author, but also plays a role of respecting the readers.

2) Hilighting the author's stance and constructing the academic discourse groups

Stance evaluation refers to "the expression of the author's personal emotional views and value judgments", reflecting "what attitude the author holds towards knowledge and information, how to grasp the accuracy of information, how to judge the source of knowledge and the perspective of knowledge evaluation". Humanities and social sciences are different from science and engineering. They are greatly influenced by discourse context variables, and there are few non black and white academic views. The elaboration of views depends on the knowledge negotiation between scholars to a greater extent, while the use of hedges

highlights the author's position and satisfies all involved interpersonal relationships, so as to build academic discourse groups. For example:

(3) We *would* suggest that teachers might consider adopting a critical pedagogical approach in order to help students unpack *possible* ethical issues surrounding hype in research writing.

(4) It *could* be argued that certain vague items are more closely associated with the communicative or discourse functions of legislative texts...

In the above two examples, hedges express the author's uncertainty of academic knowledge, and at the same time, they also clearly show the author's own position and stance.

The above-mentioned hedges reveal the author's personal estimation of the given situation. This kind of subjective uncertainty also reveals the author's efforts in maintaining the objectivity of scientific research reports, that is to admit the existence of different views, and think that his position is only one of the possible situations. It can be said that these hedges not only express the author's subjective attitude, that is, his stance, but also meet the requirements of the objectivity of academic discourse.

In addition, through dialogue expansion and dialogue contraction, hedges can also help to build academic discourse groups and help the author to achieve alliance and unity with readers. "Belonging" and "doubt" are two kinds of language resources that play an important role in the recognition of knowledge and the development and maintenance of dialogue with readers. Through "doubt", the author recognizes the possibility of disagreement and invites different opinions; "belonging" accepts existing previous studies and actively participates in those voices. Language resources expressing "approval", "recognition" and "belonging" can achieve unity in academic discourse groups by forming alliances with agreed views, establishing a stable position of views, and reaching agreement with existing views.

VI. CONCLUSION

This study finds that modal verbs are the most frequently used hedges in 30 academic papers, followed by epistemic adverbs, epistemic adjectives and epistemic verbs, while epistemic nouns are the least frequently used hedges. In addition, hedges are most frequently used in the result and discussion section. It is also found that hedges have the interpersonal functions of involving readers, coordinating the relationship between the author and the reader, highlighting the author's stance and constructing the academic discourse groups. In addition, hedges also has the special functions of reflecting the author's politeness, reducing the questioning and criticism from other scholars, protecting the author and respecting the readers in the section of results and discussion, which also helps to achieve the communicative purpose of academic papers.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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