Visualization Analysis on the Research of International Corpus Pragmatics Based on CiteSpace

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Abstract

With the development of corpus and pragmatics in the linguistic area, the two different fields begin to combine and are used as a useful tool to analyze different linguistic phenomenon. Corpus Pragmatics is a new paradigm in the field of pragmatics. In this paper, the SSCI and A&HCI databases in the core database of Web of Science are used as data sources, and the CiteSpace bibliometric software is used to visually analyze the dynamics of international corpus pragmatics research since 2002. This study analyzes the development trend and the key research domains in the Corpus Pragmatics with the visualization tool, and gives an introduction about the core contents of the highly cited literature to promote the development of the discipline in the recent 20 years using the CiteSpace visualization tool. This paper aims to provide some useful reference for the development of the domestic Corpus Pragmatics studies, thus promoting the internationalization of Chinese Corpus Pragmatics research.

Keywords: Corpus Pragmatics, CiteSpace, key research domains, visualization analysis

1. Introduction

Since Morris (1938) proposed three branches of linguistic research: semiotics, semantics and pragmatics, pragmatics, as a scientific research tool to explore the meaning between symbols and their users (Morris, 1938), has been favored by linguists and language researchers. The development of pragmatic research has also experienced from philosophical speculation to the focus on naturally occurring human communication. The complexity and dynamic development of naturally occurring human communication have also brought more and more challenges to traditional pragmatics research, and pragmatics research needs to inject new vitality to adapt to new development and changes. With the development of electronic computer and electronic storage technology, corpus linguistics comes to the fore. Corpus linguistics has gradually attracted the attention of more and more pragmatics researchers for its advantages of being based on real corpus and being able to analyze large-scale data. In the 1980s, Karin Aijmer integrated the two research perspectives of Pragmatics and Corpus linguistics, and broke out a new research road for pragmatics, Corpus Pragmatics (Aijmer, 1996). Since the birth of corpus pragmatics, scholars have made unremitting explorations with corpus as research method and pragmatics as theoretical framework, and achieved fruitful

results. At the same time, the advantages of corpus pragmatics have become an integral part of international linguistic research.

Because of its own advantages, corpus research has become one of the three research methods in modern linguistics (the other two methods are introspection and induction) (Yang Huizhong, 2002). In the past few years, pragmatics research has been questioned by some researchers because of its qualitative analysis and the difficulty of avoiding the "observer dilemma". Quantitative research using corpora has overcome this shortcoming to a certain extent. As a result, corpus pragmatics has gained more space for development, enriched the study of pragmatics to a certain extent, and provided a new way of argumentation for the re-development of classical pragmatics under the challenges of the new era.

As a newly emerging research field, a systematic understanding of the recent development trend of corpus pragmatics and the key contents of research in the past 20 years can help scholars interested in this field find the research direction and master its core and hot research topics, so as to better guide scholars to conduct cross-faceted research on corpus and pragmatics. It is of great significance to both corpus linguistics researchers and pragmatics researchers. However, at present, there are few corpus pragmatics studies in China (Qian Yonghong & Chen Xinren, 2014), and there is a lack of systematic literature review and tracking of the latest hot topics, which is a great pity for domestic scholars to conduct in-depth research in this field and master the initiative of international research. In view of this, based on CiteSpace visual analysis software, a useful tool in analyzing the large amount of academic literature data, this paper analyzes the two core sub-databases in the Web of Science database: Papers in SSCI and A&HCI are the research objects to explore the development trend of international corpus pragmatics research in the past 20 years (from 2002 to 2022). CiteSpace is used for keyword visualization analysis to clarify core research areas, track hot topics and important cited documents, and forecast the future development trend of corpus pragmatics research accordingly, in order to provide some references for the study of corpus pragmatics in China and even the proffers more insights for the future corpus and pragmatics studies.

2. Research Design

2.1 Research Questions

This study will answer the following questions:

(1) The overall development trend of international corpus pragmatics research in the past 20 years?

(2) What are the core fields and hot topics of international corpus pragmatics research in the past 20 years?

(3) What are the core research articles and their main contents that have promoted the development of corpus pragmatics in the past 20 years?

(4) What are the implications for the study of Chinese corpus pragmatics?

2.2 Research Tools

In this study, Microsoft office tool — Excel and CiteSpace visual data analysis software will be used for data analysis.

Excel is a commonly used data analysis tool. In this study, it is used to calculate the number of published research articles and draw a line chart of the annual number of published documents.

CiteSpace visual bibliometric software was developed by Professor Chen Chaomei of Drexel University. This software is good at processing large quantities of literature, and scientifically visualizes the frontier development trend in a certain field through the co-occurrence, emergence and clustering research of key words, co-citation of literature and author cooperation network analysis of literature data (Chen, 2016). At the same time, CiteSpace is developed based on JAVA that is one of the computer language, so it has the advantage of processing large amounts of data, and the quantitative analysis of literature overcomes the subjectivity and one-sidedness of traditional literature review, making the literature review analysis more scientific.

2.3 Data Source

The data source for this study is Web of Science (WOS). The keyword "corpus pragmatics" was selected for the theme retrieval in the two core sub-libraries of WOS, namely, SSCI and A&HCI, and the time span selected was 2002 to May 31st, 2022. The language is limited to English, and the document type is limited to research articles. Finally, 953 research articles were obtained, and the literature data included the full text and cited references. The research articles were downloaded in the TXT text format required by

CiteSpace operation, and the re-division function of CiteSpace was used to screen the downloaded the certain literatures, and finally 946 research articles were obtained as the analysis object of this study.

In terms of data analysis, Excel was used to draw the annual line chart of the number of published research articles, and then CiteSpace was used to conduct keyword clustering analysis and keyword emergence analysis. Then the literature co-citation is analyzed, and the literature with high centrality is obtained and its main content is analyzed. Finally, the author co-citation analysis of CiteSpace is used to find out the scholars who play a core leading role in this research field.

3. Discussion

3.1 Annual Trend of Publication Volume

The annual publication statistics can more intuitively show the annual development trend of international corpus pragmatics and the attention of research results. Through statistics and calculation of the annual publication volume of 946 literatures collected by this research, the line chart of annual publication volume as shown in Figure 1 is obtained.
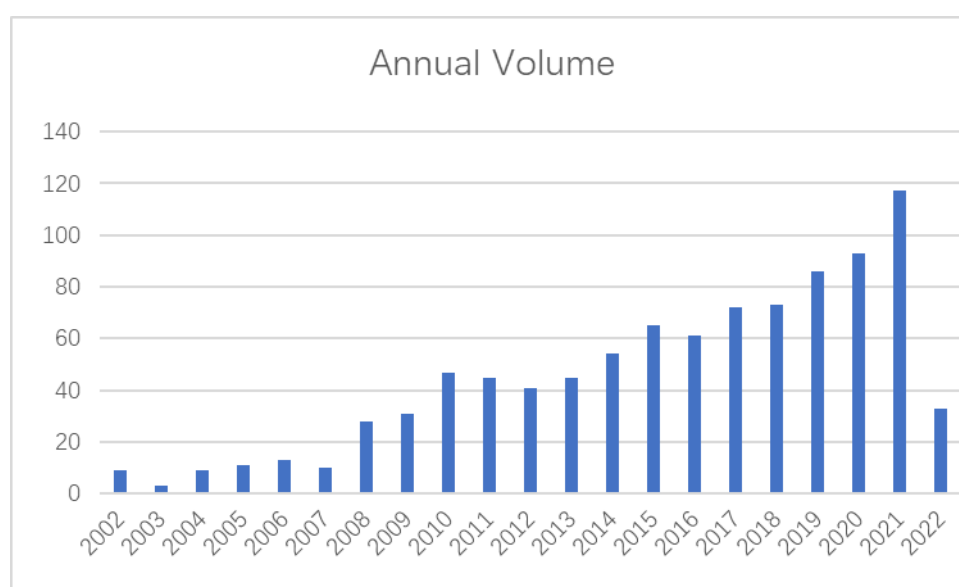

Figure 1. Volume of papers published in the International Corpus Pragmatics field

Since the data for 2022 selected in this study only goes up to May 31st, 2022, the incomplete number of the later research articles leads to the reduction of the number of studies in 2022. As can be seen from the line chart, the number of studies in the field of corpus pragmatics shows an overall trend of increasing year by year. According to the analysis, the development of corpus pragmatics in the past 20 years can be roughly divided into two stages: (1) slow development period (2002-2009), (2) steady growth period (2010-2022.5.31).

Although some scholars have tried to combine corpus and pragmatics research since the 1980s, it can be seen that at the beginning of the new century, the number of papers published in corpus pragmatics is still small, with only 3 papers published in 2003. But 2009 is the turning point, since 2009, the number of published papers has increased, and maintained at more than 30 per year. From this analysis, it can be seen that corpus pragmatics has received more and more attention in the field of international linguistic research, and the future development prospect is bright.

3.2 Core Research Areas and Hot Research Issues

Keywords represent the core of an article's research content. CiteSpace can perform clustering analysis on keywords, and each cluster is a closely related research field, which is of great reference significance for the core focus of the research field (Chen, 2006). In this study, through the keyword cluster analysis, the keyword clustering knowledge map as shown in Figure 2 is obtained. The clustering value Modularity Q is 0.6132 (Q>0.3), and the Mean Silhouette is 0.8368 (S>0.5), indicating that the correlation between each node within the cluster

is strong and the cluster analysis is effective and
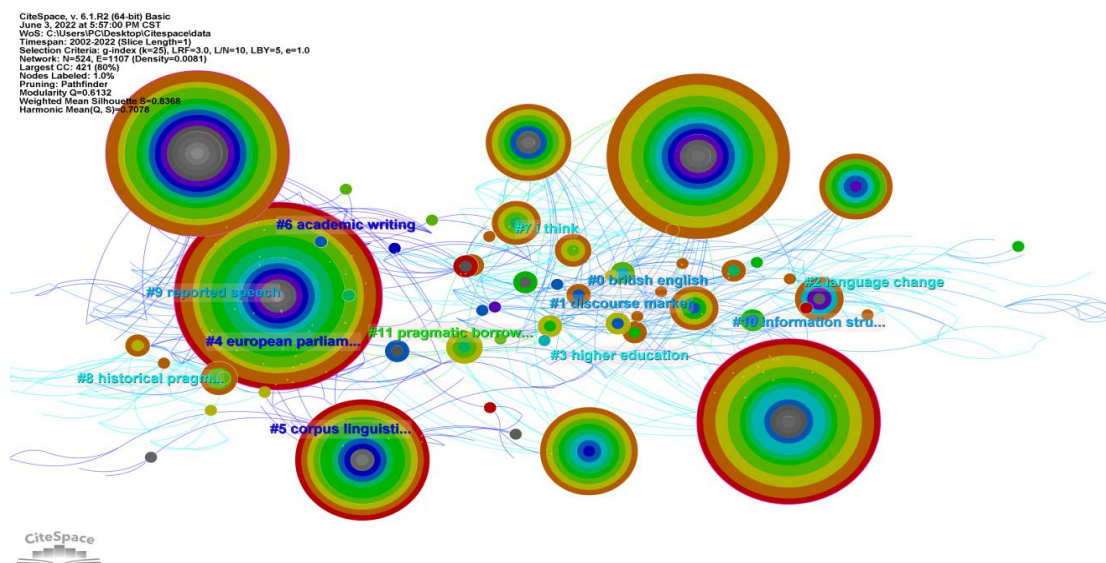
the result is of reference value (Chen et al., 2015).

Figure 2. Clustering Map of keywords in the Corpus Pragmatics Field[1]

In CiteSpace cluster analysis, the smaller the label number, the greater the degree of clustering (Chen Yue et al., 2015). Based on the analysis and induction of the 11 clusters in Figure 2, it can be concluded that the core areas of corpus pragmatics research in the past 20 years are: discourse markers (cluster #1 & cluster #7); Historical pragmatics (cluster #0, cluster #2, cluster #4 & cluster #8); Speech act (cluster #9); Learner language use (cluster #3 & cluster #6); Pragmatic borrowing (cluster #11). Since cluster #5 belongs to the research methods of corpus pragmatics, the researches in this field are basically analyzed by corpus method, so it is not classified into any core research content.

Due to space constraints and the close relationship between learners' language use and second language acquisition, this paper only discusses discourse markers, historical pragmatics, speech acts and pragmatic borrowing from the perspective of corpus pragmatics.

3.2.1 Discourse Markers Research

The study of discourse markers has always been the focus of corpus pragmatics. Trillo (2002) uses a corpus-driven approach to explore the discourse markers of non-native English speakers, and his paper discusses the impact of "Pragmatic Fossilization" on second language learners. The publication of this article has great impact on the discourse marker study and has exerted a profound influence on the study of

discourse markers using corpus methods, and the research achievements have increased year by year. At the same time, it is worth noting that the study of discourse markers is not only confined to the spoken language, but also attracts more and more scholars' attention to the study of discourse markers in written language (e.g., Yeung, 2009). The research field of discourse markers is gradually expanding, and with the help of the ability of corpora to store and analyze data on a large scale, the research in specific fields such as news and broadcasting also presents a new development trend (e.g., Dafouz-Mline, E., 2008; Ruhlemann & Hilpert 2011, 2017). In addition, the study of discourse markers in other languages besides English is also increasing. With the help of corpus technology, the study of discourse markers has gained new vitality and promoted the continuous development of corpus pragmatics.

3.2.2 Historical Pragmatics Research

Historical Pragmatics is a new discipline in the field of pragmatics. Its history is only ten years, but its popularity in the study of corpus pragmatics cannot be underestimated. Historical Pragmatics is not only a synchronic study of the pragmatic features of historical texts, but also a diachronic analysis of the changes of a certain pragmatic phenomenon in different historical periods. For example, Jucker and Taavitsainen (2000) conducted a diachronic study of "cursing" in English, using historical texts as

corpus to sort out and analyze different linguistic expressions of "cursing" from Old English to modern English. In addition, Kadar analyzes the differences in the use of three kinds of apologies in ancient Chinese, namely "forgiveness" ("恕罪"), "guilt" ("有罪") and "sin is death" ("罪该万死"), reveals the co-occurrence of honorifics and apologies in ancient Chinese, and confirms the universality of the principle of politeness from different cultures and perspectives.

There are few researches on historical pragmatics in China, but China is a country with a long history, and the brilliant civilization created by it has attracted the attention of the world, and has a unique advantage in studying historical pragmatics. Therefore, the analysis of international historical pragmatics research methods can provide beneficial reference for the development of historical pragmatics at home.

3.2.3 Speech Act Research

Since Austin (1962) proposed "speech" and "acts" and his student Searle (1969) perfected and developed his speech act theory, the study of speech act has become a classic topic in pragmatics. In the past, the study of speech act paid more attention to speculation than to actual language. The corpus-based empirical research helps the research in the field of speech act overcome its shortcomings. What is worth noting is the development of Variational Pragmatics. Scholars deepen their understanding of pragmatic phenomena by exploring pragmatic variation caused by common speech acts in different regions and social and cultural Spaces (Ren Yuxin & Chen Xinren, 2012). In addition, intersecting with historical pragmatics, we can explore the historical evolution of speech acts with the help of corpora. For example, Jucker's diachronic exploration of the speech act of "swearing" shows that the social and historical changes will have a greater impact on the implementation of specific speech acts. In addition, Jucker also used COHA (the Corpus of Historical American English, 1810-2009) to analyze the diachronic evolution of speech acts of apology, and found that the forms of apology were gradually simplified and the frequency increased with the passage of time.

3.2.4 Research on Pragmatic Borrowing

Pragmatic borrowing is the interface study of linguistics and pragmatics, and it is the pragmatic turn of language borrowing (Zhao Yonggang, 2019). Pragmatic borrowing refers to the phenomenon that discursion-pragmatic features of the source language are absorbed into the recipient language. In recent years, this research field has been widely concerned by some international scholars. In terms of research methods, the study of pragmatic borrowing mainly refers to and uses corpora to show the performance of pragmatic borrowing in different languages and cultures in the form of empirical research.

Although the number of the research articles is not large, most articles in this field were published in core journals like Journal of Pragmatics, and they were cited more frequently. The research in this field can refer to Andersen's research. Andersen (2014) made an in-depth study of pragmatic borrowing, exploring the cross-cultural transfer of pragmatic functions from the perspective of functional stability, adaptation, narrowing, broadening and transfer at the pragmatic level, and broadening the scope of the study of pragmatic borrowing. Previous studies have focused more on the borrowing of words and terms to the phenomenon of pragmatic borrowing with specific pragmatic functions. At the same time, as an example, Andersen also reveals the extent to which fixed phrases and lexical combinations are borrowed, and mainly analyzes the borrowing of pragmatic phenomena from English to Norwegian.

There are few researches on pragmatic borrowing in China. Using "pragmatic borrowing" as the keyword to search on CNKI, only two related literatures can be found. Lai Yan explores the characteristics and pragmatic motivations of Chinese loanwords borrowed from English in his article (2008). Through literature review, Zhao Yonggang found that the study of pragmatic borrowing reflects the transformation from structuralist paradigm to social-pragmatic paradigm, but at the same time, there are also problems and challenges such as unclear boundaries and insufficient corpus construction in the study of pragmatic borrowing (2019). It can be seen that there is a large gap in the study of pragmatic borrowing in China. The use of corpus can provide new research ideas for domestic researchers, so as to provide references for the study of pragmatic borrowing in China.

3.3 Core Cited Article Tracking

The citation frequency of an article can reflect its influence to a certain extent (Liu Zeyuan et al., 2008). The articles with high citation frequency in the field of international corpus pragmatics can help researchers find theoretical guidance, and through the analysis of the articles with high citation frequency, the research trends in this field can be clearly defined. In this study, by using the analysis function of CiteSpace for highly cited articles, the first 7 articles were sorted out by finding out the frequency and centrality of highly cited articles, as shown in Table 1. The main research contents of these seven articles are discussed below.

Table 1. Centrality and Cited Article

No.	Cited Frequency	Centrality	Cited Article
1	25	0.07	Halliday M & R Hasan, 2014, *Cohesion In English*
2	10	0.03	Leech G, 2014, Pragmatics of Politeness
3	9	0.17	Aijmer K, 2013, *Understanding Pragmatic markers: A variational pragmatic approach*
4	7	0.06	Rühlemann C & Brook O'Donnell, 2015, *Corpus Pragmatics: A Handbook*
5	7	0.10	Tagliamonte S, 2010, The stuff of change: General extenders in Toronto, Canada
6	7	0.01	Weisser M, 2015, *Corpus Pragmatics: A Handbook*
7	5	0.02	Aijmer K, 2015, *Corpus Pragmatics: A Handbook*

The most frequently cited article is the book *Cohesion In English*, first published by Halliday and Hasan in systematic functional linguistics in 1976. In the field of corpus pragmatics, scholars mostly refer to its newer version (2014 edition). In this book, the text structure in English is analyzed, and the cohesion between sentences is also discussed from the perspective of semantic connection. The linking effects of conjunctions such as "but" and "so" are discussed in depth in the book. Methods of analyzing and interpreting sentences applicable to specific texts are also explained in the book. This book is an important reference book for the study of English or cohesion in English, and it is worth reading deeply.

The discussion of politeness principle is an enduring topic in the field of pragmatics. Leech combines the principle of politeness with the theory of face. At the same time, the discussion of the behavior of losing face also deepens the scholars' understanding of the principle of politeness. This book also includes an introduction to data collection methods, interlanguage pragmatics and the historical changes of politeness in English, etc. This book is a reflection of Leech's in-depth and extensive academic pursuit, and can provide great reference value for both corpus pragmatics researchers and scholars in the field of pragmatics.

In his monograph published in 2013, Aijmer mentioned that under the background that the study on discourse markers tends to combine with pragmatics, the discipline "variational pragmatics", which explores the impact of social factors on language in communication, was born. In this book, the definition of discourse markers is clarified, and several corpora with outstanding advantages in the field of discourse markers are introduced. Theories closely related to the study of discourse markers (e.g., relevance theory) are also explored in the book. Most importantly, in the book, Aijmer explores the use of discourse markers in different regions and cultures, which promotes the development of a new branch of pragmatics — variant pragmatics.

Among the seven selected articles, three of them are from *Corpus Pragmatics: A Handbook*, an application manual that introduces corpus pragmatics, which shows the role of the manual in promoting the development of corpus pragmatics. The handbook was curated and edited by Aijmer K and Ruhlemann C and published by Cambridge University Press in 2015. The handbook describes in detail the

research applications of corpus methods or concepts in different branches of pragmatics, all of which are written by authoritative researchers in the field. This article focuses on three highly cited articles in the manual.

Ruhlemann C and Brook O 'Donnell's article in the Handbook revealed the practice of deictic study in pragmatics under the corpus method, and took the demonstrative pronoun "this" as an example to discuss the factors that affect the use of the pronoun, including not only the deictic distance, but also the informational status of the deictic object and the relationship between the communicative parties. This research broadens people's understanding of demonstrative pronouns and has guiding significance for the study of demonstrative pronouns under the guidance of corpus method.

Weisser M's research findings are groundbreaking for the study of speech acts under the corpus-based approach. DART (Dialogue Annotation and Research Tool) developed by him can automatically annotate speech acts in the spoken corpus according to the set standards of speech acts, which is a great innovation for time-consuming and laborious annotation work.

Aijmer, who has made outstanding contributions in the field of discourse markers, not only defines pragmatic markers but also interprets them from a functional perspective in his article on pragmatic markers in the handbook. Most notably, Aijmer also elaborates on the advantages of the integration of the study of pragmatic markers and the study of corpus pragmatics. Taking "I think" as an example, this paper briefly reviews the study of pragmatic markers under the corpus approach and looks forward to its future development.

In his article published in 2010, Tagliamonte S used a corpus approach to study general extenders in spoken English in Toronto, Canada. This paper discusses the use of universal extensions in different age groups. The study found that compared with British English, Toronto's universal extension is grammaticalized, but is replacing words. These findings reveal that the pragmatic features of discourse have different forms of expression in different varieties of language. Regional change provides a perspective for the study of the pragmatic features of discourse in society and language.

Generally speaking, these seven articles have representative significance and are all key articles in the core field of corpus pragmatics research in the above analysis. For the study of corpus pragmatics, these several articles can lead beginners to find the research direction and grasp the basic research ideas of the discipline. It is suggested that scholars who are interested in the study of corpus pragmatics carefully read the above highly cited articles, which will be of great help to related research.

4. Conclusion

To sum up, the study of international corpus pragmatics has shown an overall growth trend in the past 20 years. Through the cluster analysis of key words, the paper also summarizes the core research issues in this field, including the study of discourse markers in English languages, historical pragmatics, speech act research, learners' English pragmatic features and the study of pragmatic borrowing phenomena. The discussion of the main content of the core highly cited articles provides a useful reference for solving the main research doubts in this field. Based on this conclusion, we can look forward to the future development of the discipline and provide guidance for our future research in this field.

The suggestions for the future study of Chinese corpus pragmatics are as follows:

First, researchers interested in and devoted in this area needs to pay attention to the construction of diachronic corpus. Diachronic corpus is the key to study the diachronic evolution of pragmatic phenomena. Researchers should make good use of the spiritual wealth created by our long civilization, based on the local corpus, rooted in the reality of China, and promote the development of historical pragmatics research at home.

Second, the application of corpus method in the field of pragmatics should be expanded. The research of corpus pragmatics in the world has shown great potential in the study of pragmatic borrowing phenomena, but there are relatively few researches on pragmatic borrowing phenomena in China. Chinese is gradually being learned and used by more and more people in the world, which has become a global trend. The phenomenon of pragmatic borrowing from English to Chinese and from Chinese to English or other languages should also become a topic of concern for researchers, and can also provide certain guidance for Chinese culture to enter the

world.

Thirdly, the construction and use of multi-modal corpora play an important role in pragmatics research. Throughout the empirical studies in the field of international corpus pragmatics, there are few articles that use multi-modal corpora to reveal pragmatic rules. However, due to the need of discipline development, the further construction and development of multi-modal corpus should become the focus of researchers, and it is also of great significance to produce the latest academic achievements. If Chinese studies can make a breakthrough in the field of multi-modal corpus pragmatics, it will become the international research vane in this field.

This study answers the research questions raised in the initial design of the study. Through the visual analysis of CiteSpace, this paper grasps the overall trend of corpus pragmatics research in the past nearly 20 years, clarifies the core areas and hot issues of corpus pragmatics research, and looks forward to the future development, thus providing reference for the domestic corpus pragmatics research. Of course, this study also has some defects. In terms of data selection, the core database does not mean that all good papers are included, so the relevant data may be incomplete. Secondly, the high citation rate of literature represents a high level of academic attention, but other related fields are also worthy of researchers' attention. Therefore, it is not only the citation frequency of the articles that determines whether to dig deeply into a certain research field. Future research can build on these shortcomings.

In general, through the analysis of this paper, researchers can be more comprehensive, in-depth and grasp the international frontier when carrying out corpus pragmatics research. It is hoped that this paper can provide more useful references for the research in the field of corpus pragmatics.

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[1] The 11 clusters shown in chart 2 are: #0 British English, #1discourse marker, #2 language change, #3 higher education, #4 European parliament, #5 corpus linguistics, #6 academic writing, #7 I think, #8 historical pragmatics, #9 reported speech, # 10 information structure, #11 pragmatic borrowing.