C-E Translation of Scientific Paper Abstracts' Academic Vocabulary Based on a Contrastive Analysis of Parallel Texts —Take Journals in Aviation Area as Example

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Abstract—Abstract is an important part of the academic paper, which can attract readers and provide information. However, there are many problems in the abstract writing of scientific papers. This study will analyze 32 abstracts, to study the characteristic of English abstracts written by Chinese researchers, and compare it with those written by native speakers through establishing parallel text corpus. Then, the study provided effective translation strategies and writing reference for researchers.

Index Terms—Academic vocabulary, parallel texts, scientific paper abstracts, C-E Translation

I. INTRODUCTION

Abstract refers to the short essay written by the author for publishing a paper, which clearly and accurately describes the content of the paper. It is an important part of the academic paper, which can attract readers and provide information. The abstract of academic paper is an important factor influencing whether the paper can be employed, published and retrieved. However, there are still many problems in the abstract writing of academic papers. Most Chinese researchers (especially non-English majors) write abstracts in Chinese first and then translate them into English. In the process of translation, the cultural information loaded by the language is lost.

At present, the research on abstract covers a wide range of subjects, but the research on abstract in aviation aera is not targeted enough. Due to the lack of understanding of the language characteristics of English abstracts, Chinese researchers' abstracts sometimes cannot meet the requirements of international journals. This study intends to study the abstracts of scientific papers in aviation area. Through the establishment of parallel text corpus of Chinese and English abstracts in the field of aviation, it will compare the similarities and differences between abstracts' academic vocabulary written by Chinese and English native speakers, so as to provide effective translation strategies and writing reference for researchers.

II. LITERATURE REVIEW

The review will mainly focus on three aspects. First one is the research related to the parallel texts. It is to find out the research status quo of parallel texts in translation area and the

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way to use it. Then, it will give a brief introduction of vocabulary and researches related to abstracts' vocabulary and academic vocabulary. Finally, it will focus on the research on the scientific paper's abstracts, including abstracts in aviation area and abstracts' vocabulary.

A. Parallel Texts

1) Definition of parallel text

Nord [1] mentioned that "Traditional dictionaries and grammars often do not provide sufficient or appropriate information to allow satisfactory solutions of quite a number of translation problems, especially where stylistic, textual and genre conventions or technolect and terminology are concerned." Therefore, parallel texts became an import tool and reference in translation and helped language learners.

According to Hartmann [2], parallel texts can be divided into three types: (a) those that are the result of a full-scale translation act; (b) those that are the result of interlingual adaptation; (c) those that are not translationally equivalent, but functionally similar in situational motivation and rhetorical structure. Li Changshuan [3] also mentioned that parallel text can have two kinds based on its relevancy: Highly relevant or partly relevant.

In this study, the parallel texts will take the third type as the standard of selection and try to find text as relevant as possible. Because this study is to explore the vocabulary characteristics of abstracts. Its function is of high priority, and the linguistic feature's study requires high relevancy.

2) Parallel text in translation

In terms of use of parallel text in translation, there are two modes: 1. As a reference of schema structure of target texts. Texts have different languages and same genre may have different discourse structure and ways of expression. In translation, the text structure and expression can be adapted according to the target culture and the reading habits of target readers. 2. As a reference of language expression style, that is, the choice of the text and wording of the translation. Cai Li also used parallel text to study the translation of words. She deems that parallel texts can help translators to define the meaning of words quickly and accurately. Especially for translation in a specific field, the translation of terminologies needs parallel texts to determine the meaning of "old" words.

B. Related Research of the Abstracts' Vocabulary

1) Vocabulary

Vocabulary is the smallest part of a sentence, and the most common misuses in abstracts also occur at the lexical level, such as prepositions, pronouns, adverbs and so on. The research related to the vocabulary can be classified from

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different perspectives.

From the perspective of research content, the researches include lexical density, appraisal words, lexical features, lexical meaning and usage habits [4], high frequency words and hedges. From the perspective of research methods, adaptation theory, Skopos Theory [4, 5], Corpus and functional equivalence theory are mainly used in the research of English translation of abstract.

At present, the research perspective and the method are relatively single. The analysis also mainly focuses on the revision and perfection of the translated abstract. There are few systematic comparisons between Chinese and English. Therefore, it is very important to study the differences between different cultures. The setting of new parallel text corpus can also help to study the differences and provide English abstract writing techniques.

2) Academic Vocabulary

Definition of Academic Vocabulary

According to Nation [6], English words in academic texts can be classified into four categories: high-frequency vocabulary, academic vocabulary, technical vocabulary and low-frequency vocabulary. Academic vocabulary is first put forward by Martin [7]. Generally speaking, the term sub-technical or semi-technical vocabulary is employed when the research area involves the field of science and technology, while the term academic vocabulary is more likely to be used when the research involves more subjects [7, 8]. However technical words are rather fixed and require the knowledge of learners. The mistake that we studied is more related to the cultural factor. In light of this, the term academic vocabulary is adopted in the present study.

Related research on Academic Vocabulary

The studies related to academic vocabulary are carried out mainly from three perspectives: the function of academic vocabulary, the vocabulary list and the EFL learners' academic vocabulary knowledge and the use of it.

In terms of the function of academic vocabulary, Wu and Wang [9] summarized the main rhetoric functions of academic vocabulary. There are also some researchers focusing on the role of vocabulary of different parts of speech. Francis, Halliday, Williams [8], Hinkel, Sole have studied the functions or classification of academic nouns, verbs, adjectives and adverbs.

In terms of the vocabulary list, a lot of linguists attempt to define the scope of academic vocabulary and built vocabulary lists. Xue and Nation [6] compile the University Word List (UWL) based on four pre-existing academic vocabulary list. Then in 2000, Academic Word List (AWL) was developed by Averil Coxhead at the Victoria University of Wellington. Some scholars established list in a specific field and discipline. Nelson established a Business English Vocabulary List, Mudraya developed a Student Engineering English Corpus; Chang [3] set up an Applied Linguistic Academic Word List.

Finally, in terms of the EFL learners' academic vocabulary knowledge and the use of it, Hinkel, Wu and Wang [9] investigated the inappropriateness and deficieny in EFL learners' academic texts. In the respect of EFL Learners' use of academic vocabulary, Cao Yan investigates the coverage and use of academic words across different abstract moves of scientific journals on the basis of English abstract corpus. Wu and Wang [9] compares the use of academic vocabulary between Chinese postgraduate and English native speaker on the basis of self-compiled corpus, and investigate s the depth of Chinese postgraduate students' academic vocabulary knowledge from two aspects of meaning and collocation.

C. Research on the Scientific Paper's Abstracts

There are some scholars who have studied the abstracts, titles, author information and terms of scientific papers from the perspective of editors.

Lu [11] investigates the usefulness of two academic word lists-Coxhead's Academic Word List (AWL) [12] and Gardner Davies Academic Vocabulary's (AVL) for students of English for Chinese Medical Purposes. There are also researchers who studied words of abstracts in different journals from grammar. Fan-ping Tseng [13] examined 90 research article abstracts in three applied linguistics journals (i.e., TESOL Quarterly, Applied Linguistics, and Language Learning) from two dimensions: the move structure features and the verb tense of each move. Salager-Meyer [14] have conducted a genre-specific discourse study and move analysis of studied 84 well-structured ME (medical English) abstracts by observing the finite verb tense and modality usage in ME abstracts. In selecting materials, except for journals, researcher also studied the abstracts from the "standard". Xiaorui Hong studied ISO 214-1976 (E) and GB6447-86, and discovered three characteristics owned by both Chinese and English abstracts.

There is one research that not only studied the abstracts but compared the abstract and the bodies of full text. It conducted a research of the differences between the bodies of full text journal articles and the abstracts [15]. It examined the structural and linguistic aspects of abstracts and bodies of full text articles, the performance of text mining tools on both, and the distribution of a variety of semantic classes of named entities between them. The way of doing comparison is creative and useful for this study to compare the abstract between English and Chinese.

1) Research on abstracts in aviation area

In Aviation area, there are not too many researchers who focus on the vocabulary. They have studied the abstracts from different perspectives. Zhang Qiaoyun [16] made a statistical analysis of the length, tense and voice of English abstracts of eight Chinese and English journals at home and abroad. He Yuying [17] conducts a contrast study of respective moves of their macro-structures based on the corpus of 50 English abstracts and 50 Chinese ones of aerospace articles. This paper also studies language features of English abstracts and discusses the differences within English versions of Chinese abstracts.

Some researcher studied from the angle of error analysis. Hu Chunlin [18] discussed the standards and principles for translating English abstracts from military aviation science and technology papers. Based on the traditional principles of faithfulness, intelligibility and elegance, it puts forward some translating methods, and analyzes some common mistakes in English translation of abstract from the perspective of English grammar and culture. Wang Huan picked thirty-seven abstracts from four editions of 2018 and four editions of 2019 in the English Abstract of Journal of NUAA (Social Sciences) as the research object. Then the author made some modifications and revisions according to Huang Zhonglian's variation theory.

From the above, it can be seen that the research on abstract is relatively rich. At present, the research on abstract covers a wide range, but the research on aviation is not targeted enough, especially vocabulary.

III. METHODOLOGY

A. Theoretical Framework

The study adopted Hartmann's definition of parallel text as the standard. As mentioned before, Hartmann [2] divided parallel texts into three types. Among the three, the third type is selected to use: "those that are not translationally equivalent, but functionally similar in situational motivation and rhetorical structure". The value of parallel texts is obvious to those specializing in translation and technical terminology [2]. The following figure shows four major parallel text types summarized by Hartmann.



Fig. 1. Parallel text type (Hartmann 1996).

The academic word typically made up about 9% of textual items. Many scholars have defined it. According to Farrell, academic vocabulary refers to "formal, context-independent words with a high frequency and/or wide range of occurrence across scientific disciplines, not usually found in basic general English courses". David Hirth put forward that academic word have three features: 1) they do not occur frequently enough in non-academic writing; 2) they are not sufficiently associated with a subject area to be considered terms and; 3) they appear frequently enough in academic texts across subject areas to be considered as part of the core vocabulary. It plays an important and various role in academic texts. The selection of the words in this study will follow the definition and rules.

B. Research Questions

There are three questions investigated in the current study. 1) What are the coverage and the distribution of academic

vocabulary in the abstracts?2) What are the similarities and differences between

scientific papers' abstracts written by English and Chinese in academic vocabulary?

3) What factors have an influence on the selection of academic vocabulary in abstracts of their papers?

C. The Corpora in the Study

1) Data collection

The study chooses papers in aviation area in four journals: "Journal of Fluid Mechanics, Journal of Aerospace Engineering, Journal of Aerospace Power and Journal of Engineering Thermophysics".

The chosen four journals are leading journals acknowledged by researchers and research institutions in aviation area at home and abroad. They mainly publish authoritative articles covering theoretical, computational and experimental investigations of all aspects of the mechanics of fluids, thermophysics and structural dynamics. One of the typical research objects in papers of the four journals is the aeroengine, which is multidisciplinary and difficult to design and analyze. Besides, with high impact factors (IF) in this field, they are usually cited and referred in academic and industrial circles.

Two English journals are: Journal of Fluid Mechanics and Journal of Aerospace Engineering. The Journal of Fluid Mechanics is a peer-reviewed scientific journal in the field of fluid mechanics. It publishes original work on theoretical, computational, and experimental aspects of the subject. The journal is published by Cambridge University Press and retains a strong association with the University of Cambridge, in particular the Department of Applied Mathematics and Theoretical Physics (DAMTP). Journal of Aerospace Engineering is a journal covering the technologies /fields/categories related to Aerospace Engineering (Q2); Civil and Structural Engineering (Q2); Materials Science (miscellaneous) (Q2); Mechanical Engineering (Q2). It is published by American Society of Civil Engineers (ASCE).

Two Chinese journals are: Journal of Aerospace Engineering, Journal of Aerospace Power and Journal of Engineering Thermophysics. Journal of Aerospace Power is organized by the National Science and Technology Commission approved a senior publication, domestic and foreign public offering. It publishes aerospace engine and design principles, pneumatic thermodynamics, turbomachinery, combustion, heat and mass transfer, structural mechanics, automatic control, mechanical drive, experimental thermal power engineering, technology and the latest scientific and technological achievements. Journal of Engineering Thermophysics is an international peer reviewed journal that publishes original articles. The journal focuses on experimental work, theory, analysis, and computational studies for better understanding of engineering and environmental aspects of thermophysics. It covers all subject matter related to thermophysics, including heat and mass transfer, multiphase flow, conduction, radiation, combustion, thermo-gas dynamics, rarefied gas flow, environmental protection in power engineering, and many others.

The study will select eight papers in each journal. There are 32 abstracts in total, 16 abstracts in Chinese journal and 16 abstracts. The publish time of these articles will be in 2019-2021. In selecting the papers from English journals, the authors selected will be native speakers to ensure the writing ability. Then, the paper that meet these standards will be selected randomly. Finally, the word tokens will be calculated and annotated so that to make sure the two corpora are in the same size.

2) Comparability between the two corpora and data processing

In terms of comparability between the two corpora, first of all, both of the two corpora consist of abstracts of aviation papers. They have similar textual structure and generally, most contain the introduction, the method, the result and so on of the study. The authors are from different countries but all experts in aviation.

After the construction of the two corpora data need to be processed for the later analysis of academic vocabulary in different moves of abstracts. In brief, the process contains coding, tagging abstracts, and saving each move of abstracts into text documents.

To begin with, BM, IM, MM, RM, and DM were used as codes to label the background move, the introduction move, the method move, the result move and the discussion move respectively. Secondly, it will use CLAW 4.0 and Wmatrix to label the part of speech and do semantic annotation. Then, they will be named according to its journal and language and saved in the files.

D. Research Procedure

1) Analyze the data in two corpora

The study adopts the quantitative method to pursue the result in a macroscopically observing perspective. After annotating and marking the corpus, the coverage and the distribution of academic vocabulary can be analyzed. Tables and charts will be deployed to show frequency results for later interpretation of certain features, such as tendencies, regulation and indication. Then, the study will try to find the similarities and differences between English and Chinese scientific papers' abstracts by comparing the using and distributing of academic vocabulary.

2) Analyze the reasons and give suggestions

Then, in order to find out the deep reasons of differences and give practical suggestions to writers, the factors that influence the selection of academic vocabulary in abstracts of their paper will be analyzed.

The reasons will be analyzed from two aspects, linguistic and non-linguistic factors, including the language mistakes made by the writers and sometimes the attitudes. In terms of the difference between English and Chinese, it will be analyzed from the perspective of cultural differences. Finally, based on the study and data analysis, practical suggestions will be given.

3) Instruments

Range32 will be used to find out which words in a text are and are not in the lists and the coverage rate of the word lists in the text. It can be used to create word lists based on the frequency and the range of words in one text or texts. Besides, it can also be used for the comparison of the vocabulary in two or more texts to get the vocabulary they use in common and the vocabulary which only appears in one text.

Antconc is a freeware corpus analysis toolkit for concordance and text analysis. Keyword List and Concordance in AntConc are mainly adopted to find out the problems in writing.

IV. RESULTS AND DISCUSSION

A. Distribution of Academic Vocabulary in Abstracts

The use characteristics of academic vocabulary in abstracts

will be analyzed in this section. The analysis is carried on from two aspects: the general characteristics, comparison and the translation. On the one hand, the general characteristics include the distribution of academic vocabulary and the high frequency academic vocabulary. On the other hand, from the perspective of translation. To analyze the use characteristics of academic vocabulary in Chinese journals and give suggestions.

1) General characteristics of academic vocabulary

Two corpora are investigated in the study. In analyzing the academic vocabulary in these 32 abstracts, the author firstly annotated the academic words according to the AWL. Then they are divided into two groups: academic words used by Chinese and English, that is to analyze the distribution and differences between them. Since the word tokens of abstracts in Chinese and English journals are different, the number of academic words will be calculated based on the proportion (2465:3045=0.8). The word tokens and the number of academic words is shown in Table I.

| | | Academic words | | | Academic words | |
|----------------|---------|----------------|-------|---------|----------------|--------|
| | Chinese | word | word | English | word | word |
| | | tokens | types | | tokens | types |
| Word tokens | 2465 | 274 | 91 | 3045 | 467 | 148 |
| Ratio | | 11.12% | 3.21% | | 15.34% | 31.69% |

Table I indicated that Chinese journal abstracts (CJA) consists of 2,465word tokens, and academic vocabulary accounts for 11.12 percent of the total words. While English journal abstracts (EJA) consists of 3,045words and academic vocabulary accounts for 15.34 percent of the total words. First of all, although the sample size we select are close, the total number of EJA is larger than EJA, which implies Chinese scholars writes shorter abstracts or the Chinese journal requires shorter abstracts than English.

Secondly, the percentage of academic vocabulary in CJA is slight lower than that in EJA, but both are higher than 10%, which verifies Coxheads' clam [10] that AWL "covers approximately 10% of any academic text." But it is also clear that English journals using academic words more, and the words Chinese journals used are more diverse. Generally speaking, there are no big differences in the overall distribution. However, in analyzing the words it used and comparing, there are many differences. It will be further explained in next part.

Return to the result produced by Range, and the author obtained list of academic word types and the frequency. The top 10 academic words which are most commonly used in the two corpora are presented in Table II. Since CJA has more words than EJA, the frequency of EJA will be calculated according to the proportion it occupied (CJA: EJA=0.8).

From Table II we can see that the high-frequency words are quite different for CJA and EJA, therefore, it is worthwhile to discuss the difference between them.

| CJA | Туре | Freq | EJA | Туре | Freq | 0.8EJA |
|-----|-----------|------|-----|-----------|------|--------|
| 1 | Design | 18 | 1 | Data | 21 | 16.8 |
| 2 | structure | 11 | 2 | structure | 18 | 14.4 |
| 3 | Parameter | 11 | 3 | Energy | 14 | 11.2 |
| 4 | Analyse | 10 | 4 | Analyse | 12 | 9.6 |
| 5 | Predict | 9 | 5 | Function | 12 | 9.6 |
| 6 | Ratio | 9 | 6 | Predict | 9 | 7.2 |
| 7 | Vary | 7 | 7 | Transit | 9 | 7.2 |
| 8 | Accurate | 7 | 8 | Resolve | 9 | 7.2 |
| 9 | Process | 7 | 9 | Design | 8 | 6.4 |
| 10 | Obtain | 6 | 10 | Mental | 8 | 6.4 |

TABLE II: THE HIGH-FREQUENCY ACADEMIC WORDS IN CJA&EJA

2) Comparison of Abstracts' Word Use

Although the overall using situation between CJA and EJA is similar, there are many differences in words selecting and distributing. The top three favored by Chinese scholar are not that popular in English Journal. Then, in order to find out the difference in words distribution and selection, two figures are shown next.



Fig. 2. Abstract of Chinese journals.



Fig. 3. Academic words in EJA.

After comparing these two figures, we can see academic words used in EJA is more decentralized and various. It is shown from the area of squares the words occupied. What is more, for some words, Chinese even have not used compared with English journals. although from the comparison, these abstracts are in a high quality, it still reflects some problems occurred in abstract writing.

B. Problems in Using Academic Vocabulary

After the investigation of the use of academic vocabulary in CJA, the author finds that there are some differences in the frequency with which some academic vocabularies are used between Chinese and English natives, and yet with respect to which academic words are unusually frequently used in CJA in comparison with those in EJA, it is further explored based on the sentence and context. There are some problems in using academic vocabulary: overused, underused and no used.

First of all, the problem of overuse, such as "design". For example,

Eg.1: "The results show that the proposed inverse design method of airfoil has strong robustness and prediction accuracy. The method can greatly reduce the computation time and improve the design efficiency of airfoil with satisfactory design accuracy." (CJA)

In these two sentences, design occurred three times. The use of them is not that native and natural in English, and it is used in three ways to describe different nouns. However, for English writers, they used it as "design problems", "was designed", and "design problems". For Chinese scholars, they need to deepen their understanding towards English words and grasp more anonyms of one word to improve their writing.

Eg.2: "The curve of the compressor transient **process** considering the blade deformation was calculated, and the influences of the aeroelastic deformation of the blade on the aerodynamic parameters during the acceleration process and the shock wave structure and evolution **process** the flow field were studied." (CJA)

"Process" also occurred three times in this sentence. In English, some verbs can have the meaning of "process" by using "-ing" or other forms. Compared with EJA, CJA used too many times of "process". It makes the sentence lengthy and meaningless to read.

Secondly, the problem of underused also occurred frequently. For example,

Eg.3: "To explore the inherent laws of axial compressors performance maps, more than 50 axial compressors characteristic data were studied based on **data** analysis and thermodynamic principle." (CJA)

Data is the most frequently used word in EJA, but it uses less than five times in CJA. After reading the materials, it is found that Chinese scholar more likely to use statistics and sometimes information to describe "data". They only use data when it involves "data analysis". Since the abstracts are extract from journals in aviation area, there should have more words related to "data". Therefore, it is abnormal for situation like this. The word "data" is underused by Chinese scholars.

Eg.4: "When the humpback whale swims or rotates rapidly, the irregular tubercles on the leading edge of the fins can **induce** a certain scale of counter-rotating vortices, which can make the surface Row field around the fins become properly turbulent, and the stall suppressed when under large load conditions and ensure the fins till with good propulsion performance." (CJA)

Induce in CJA only occur one time, as I showed in example four. However, it used more than five times in EJA. The word "induce" has three meanings according to Oxford dictionary: "to persuade sb to do sth", "to cause sth", "to make a woman start giving birth to baby". Although the meaning seems not so "objective" and "formal" for academic writing, it is truly formal style in English for former two meanings.

The last one is no-used. Words like orientation and demonstrate have not been used in CJA. They are replaced by words like "aspects", "reveal" and so on. These words need to be paid attention to. *Eg.5: "Tandem rectangular elements had either the same* orientation or opposing orientations." (*EJA*)

Eg.6: "The present work **demonstrates** the magnitude of performance gains possible from a gust with zero net-air motion through a detailed case study of a simplified flexible sailplane wing." (EJA)

To sum up, in this part the overused, underused and no used academic words by Chinese researchers are displayed and the possible reasons are analyzed. However, not all the reasons can be drawn directly from the data. And because most Chinese researchers (especially non-English majors) write abstracts in Chinese first and then translate them into English, the problems will be analyzed from the perspective of translation in the following section.

D. Analysis of the Problems from the Perspective of Translation

The problems occurred in English often comes from "Chinese abstract". In this section, the author will compare the Chinese and English version of the abstract, then summarize the reasons of the problems. Therefore, it can give several practical suggestions for researchers in word level.

Eg.7: "结果表明该翼型反设计方法具有较高预测精度和较强鲁棒性,能在保证精度的情况下降低计算时间,提高设计效 率。"

"The results show that the proposed inverse design method of airfoil has strong robustness and **prediction accuracy**. The method can greatly reduce the computation time and improve the **design** *efficiency* of airfoil with satisfactory **design accuracy**." (CJA)

From this example, we can see three collocations that are not commonly used. After searching on the internet and interview professionals, it is found that this kind of collocation is normal in Chinese essays but not English journals. The words it used is not quite natural. Secondly, in two sentences, accuracy and design appeared more than twice. English speakers prefer various expressions. This kind of translation will give them an image of "low quality", which will influence the evaluation of the content itself. Finally, some expressions are translated word by word, which will damage the meaning and wholeness of the sentence.

According to Zhang Meifang, abstract as an informative text should be logical, content-focused plain and easy to understand. Since Chinese is language characterized by parataxis, Chinese researchers need to pay more attention to translate their essays. The author will offer some suggestions in the following part.

V. CONCLUSION

A. Summary of the Findings

The present study was conducted to find out the characteristics of academic vocabulary in the English abstract of Chinese journals and the difference between Chinese journals and English journals. After the analysis of data, the following findings were obtained. Firstly, the percentage of academic vocabulary in the abstract of CAJ is 11. 12%, and there is no significant difference between it and 15.34% in the abstract written by English natives.

Secondly, through the further analysis of the high-frequency academic vocabulary, it can be found that

although the coverage rates of academic vocabulary are close, there are some differences in its distributions and selection. The academic words used in EJA is more decentralized and various than in CJA.

Then, the problems occurred in CJA academic words use were analyzed. Words like "design", "process" are overused; "data", "induce" are underused, "orientation", "demonstrate" are neglected. And the problems are analyzed from the perspective of translation. Three reasons are found: 1. Not familiar with the word use in English; 2. Word by word translation exists; 3. The use of words are simple and boring.

B. Implications for Abstract Writing

1. Use parallel corpus as a tool: English words have a wide range of meanings. There are many polysemes, that is, words have different meanings in different language environments. By searching on the parallel corpus, the meaning of words can be determined faster and more accurately.

2. Diversify the choice of words: Researchers need to learn and collect more academic words in daily lifer to diversify their word choice. Academic Word List, dictionaries, and literature, all of them are good resources to grasp more new words, especially AWL.

3. Avoid word by word translation: In translating abstract or the body of essays, researchers should not only focus on the sentence patterns and vocabulary of the original text. First of all, some adjustments should be made to make the original text more logical and in line with foreigners' reading habits, and then translate it.

CONFLICT OF INTEREST

The authors declare no conflict of interest

AUTHOR CONTRIBUTIONS

Han Maomao conducted the research, analyzed the data and wrote the paper; Tian Jianguo gave many suggestions and helped revise the draft.

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