

# English-Chinese Translation of Science and Technology Texts Based on the Differences Between Chinese and Western Modes of Thinking

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As a tool for human communication, the use of language is affected by the way of thinking in cross-cultural communication. Due to the differences between Chinese and Western cultures, the way of thinking varies under the influence of such cultural differences. In the process of translation, the influence of the different thinking mode on translation activities cannot be ignored. At present, a lot of studies and researches have focused on the influence of Chinese and Western thinking mode on translation. However, it is still worthwhile to study what specific influence the difference between Chinese and Western thinking mode will exert on the translation process of science texts and what kind of measure should be taken to solve the negative influence brought by the differences when we are translating. This paper aims to discuss the influence of thinking differences between Chinese and Western countries on the process of English-Chinese translation of science and technology from the perspectives of long sentences, passive voice and nominalization, and how the translators should appropriately adjust their thinking pattern and use reasonable skills to eliminate the potential negative interference caused by the difference and achieve a better transformation between English and Chinese.

Keywords: thinking mode, English-Chinese translation, English of science and technology

# Introduction

The relationship between language and thought has always been very close. On the one hand, thinking is the leader of language; on the other hand, language is the reflection of thinking. The two complements influence each other and are indispensable during the human communication and cultural exchange. The ways of thinking and language organization are cultivated by different cultures, environments, and customs. Every culture and every language has its own preference of expression. Humboldt believes that each language contains a unique worldview.

Man makes language out of himself, and by the same action he binds himself to it. Each language sets a circle around the nation it belongs to, and only by stepping into another circle can people possibly liberate from their original one. Therefore, learning a foreign language means getting a new start in the field of present worldview. (Humboldt, 1988, pp. 45-46)

Influenced by the Western philosophical thinking, Western people adhere to a scientific concept that

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prioritizes rationality. They emphasize the objective analysis and the integrity of the whole, and possess a strong object consciousness. Chinese people advocate the "enlightenment" and pursue the humanity-oriented thought, emphasizing the integrity of subject and object but attaching more importance to the subject. The philosophical background represented by the Chinese language is the rich cultural and intellectual heritage of Confucianism, Buddhism, and Taoism, which prefers the intuition from experience. By contrast, Western cultures emphasize logical analysis, objective judgment, and a focus on empirical evidence and objective laws. Therefore, grasping the way of thinking plays an important role in enhancing one's ability of language comprehension and use during the process of language learning.

The purpose of this paper is to find out the differences of thinking between Eastern and Western language expressions from the following three perspectives: morphological changes, grammatical structures, and the presence or absence of subjects. First of all, English is rich in morphological changes and has a large number of connecting words; Chinese lacks morphological changes in grammar and prefers to use verbs to express people's emotions and feelings in various ways. It is a dynamic language and is a combination of human sensibility and understanding. These characteristics also lead to the great flexibility and richness of Chinese. Secondly, the emphasis on rationality of westerners determines the intense consciousness of the objectivity and the rigid grammatical structure. Rational thinking emphasizes the objectivity and logic, and requires high standards for the overall expressions and the structural forms of sentences. The sentences are interconnected and intricately intertwined, forming a tree-like structure. However, the Chinese emphasis on the coherence of ideas rather than the neatness of the sentence structure has formed the characteristics of the Chinese language. The speaker's intention is not necessarily expressed through complete sentences, but can be conveyed through sentences fragments, phrases, or even individual words. Finally, the subject-predicate structure in English sentences is complete and the subject cannot be omitted. Even if there is no explicit subject, words like "there" or "it" can be used as substitutes to ensure the completeness of the sentence. In contrast, the subject-predicate structure of Chinese is complex and diversified. The subject of a sentence can not only be retained or omitted according to the context, but can also be changed by the speaker's intention.

# **Translation of Science and Technology Texts and Its Characteristics**

As one of the most important genres in translation, English texts of science and technology always play a significant role in promoting the communication and exchange of scientific and technological knowledge. Compared to other types of texts, the notable characteristics of English science texts are its requirement for accuracy in content, strict adherence to the structure, formality, and logicality. When translating science texts, in addition to precisely understanding the information of the original texts, special attention should also be paid to the characteristics of such English texts in the process of language transformation. The translated texts should not only be accurate and complete in meaning, but also clear, fluent, and in line with the style of the original texts, without losing its professionalism. Secondly, from a grammatical perspective, English texts of science and technology own several prominent features: high probability of using long sentences, passive voice, and nominalization structures. By contrast, Chinese strives for conciseness, making good use of verbs and minimizing the use of passive voice. It is important to understand the impact of the differences in thinking between the East and the West in the process of translating scientific and technological texts from English to Chinese. This understanding facilitates better comprehension and transformation between the two languages, effectively overcoming the potential negative interference caused by these differences and reducing their impact on the

accuracy of the translated text. Precisely understanding the characteristics of scientific and technological English text translation under the influence of the differences of Chinese and Western thinking, and summarizing its rules, are of great benefit to improving the translator's efficiency and professionalism.

# The Impacts of Cultural Differences on English-Chinese Translation of Science and Technology Texts

# The Use of Long Sentences

One of the biggest characteristics of English of science and technology is the high frequency of using long sentences with complex structures. The relationship between the main clause and the subordinate clause is intricate and intertwined, making it difficult to comprehend. According to the statistics, the average length of sentences in scientific English literature is about 25 words, and it increases with a higher level of academy or of the complexity of the subject. It reflects the characteristics of Westerners who emphasize the "rule of law", strictly adhering to the objective consciousness and formal integrity. This characteristic has also been manifested in English of science and technology texts by connecting professional scientific and technological terms or nominalized structures between each clause, which reflects rigorous grammatical relationships and logical argumentation forms. However, the way of thinking of the Chinese is completely different from that. The Chinese language emphasizes the concept of "governance by people" and values the holistic thinking of "harmony between heaven and human". The sentence structure does not require a strict grammar, but is flexible. The Chinese language and its grammar present obvious feminine characteristics (Lin, 1994, p. 91). This characteristic of Chinese can be compared with the softness of women, contrasting with the rigidity of men. So we can see the different requirements of grammar of the two languages, one being supple and the other being rigid. When translating English texts into Chinese, the longer and more complex the sentence, the greater the challenge it poses to the translator. In addition to reading the entire sentence or even the surrounding sentences carefully, translator should analyze it thoroughly, and clarify the logical relationships and structures of each part of the sentence. Only by fully understanding the original meaning can the subsequent translation be carried out. Otherwise, it may lead to misunderstandings or the omission of key information.

Example 1:

Source text:

Cairn India follows an entrepreneurial strategy of creative thinking and implementing appropriate technology to search for commercial hydrocarbons by drilling high-risk but high-reward wells on prospective structures in India and in geographically geologically related plays.

Target text:

凯恩印度有限公司(CAIL)秉承创造性思维和采用先进技术的企业发展战略,通过在印度及其地理地质相关的油气聚集带,寻找有利的成藏结构,打下风险高但回报高的油井,来寻找有商业价值的油气资源。

Analysis:

The original English sentence includes 35 words without any subclauses or even commas, reflecting the Western logical thinking and its rigid grammatical structure. If the translator expresses it in just one sentence, there will inevitably be incoherence, illogical structure, and misunderstanding. The process of translating English scientific texts into Chinese is actually a transformation from a tree-like "three-dimensional" structure to a diffusive and active one. Chinese makes good use of short sentences and clauses, and the compound sentence in

English can be "dissected" into shorter ones in Chinese according to its logic and structure. Then, based on the characteristics of the subject, all the clauses should be well arranged by the order of how things develop, and how important it is to the subject.

#### The Use of Passive Voice

English, especially in science and technological texts, has a much higher frequency of using the passive voice than Chinese. As a carrier of objective facts and scientific arguments, scientific texts emphasize objectivity and professionalism. In order to avoid personal judgments and highlight the topic of scientific research, the passive voice is more and more commonly used. The traditional Chinese thinking mode prefers to grasp the essence and rules of things in general. The artistic conception, context, and linguistic awareness are also crucial to understand the text. Compared to the West, the thinking style of Chinese is formed under abundant practical experience and rigorous logical reasoning. Therefore, it is necessary to clarify the grammatical logic of the entire English sentences and fully understand the meaning of the source text especially when it comes to long and complicated sentences. There are significant differences in the way of expressing English and Chinese. Chinese has a variety of verbs but lacks morphological changes. In contrast, English has a variety of morphological changes in verbs, making it convenient and flexible to use passive voice.

Example 2:

Source text:

Concrete should always be placed in horizontal layers which are compacted by means of high frequency power-driven vibrators of either the immersion or external type, as the case requires, unless it is placed by pumping.

Target text:

一般情况下,除使用泵送水泥土浇筑外,混凝土都需要在水平方向分层浇筑,并依据不同情况,使 用插入式振捣器或表面振捣器将其捣实。

#### Analysis:

The source text includes several nouns like "concrete", "layers", and "vibrators", but it also presents the different importance of these subjects by starting with the passive voice sentence with "concrete", making it obvious to understand which noun plays the primary role in this sentence. And it was written with more than one verb in the passive voice like "be placed in", "are compacted by", and "is replaced by". In Chinese, we often use just one verb in passive voice or better not use it. When translating, it is necessary to reduce the use of passive voice and the length of sentences, but it is also important to obey the logical thinking and scientific reality in the original text. As shown in the target text, the original long sentence is divided into multiple short sentences, which read more smooth and natural in lines with the expressive habits of Chinese. In English, the use of passive voice in scientific and technological texts is quite common, and multiple verbs of passive voice can be used consecutively in a paragraph to emphasis different subjects.

#### The Use of Nominalization Structures

Scientific and technological texts possess the advantages in academic professionalism, solid information, good structure, and clear narrative logic. By using nominalization structures, the text presents simplified structures and concise meaning, and also succinctly expresses abstract concepts and profound knowledge of science. Generally speaking, the meanings expressed by adjectives and verbs in Chinese are mostly simplified into their noun forms in scientific and technical English texts. Nominalization refers to the use of nouns or noun

phrases in a sentence to replace commonly used verbs or adjectives that function as grammatical elements. It is characterized by the concisely use of words, succinct content, and accurate expression of information. It is mainly composed of structures, such as "noun + preposition + noun", "preposition + noun", or "noun + clause", which often uses abstract nouns to express the characteristics of the subject.

Example 3:

Source text:

Concrete should always be placed in horizontal layers which are compacted by means of high frequency power-driven vibrators of either the immersion or external type, as the case requires, unless it is placed by pumping.

#### Target text:

水泥的水化作用发生在有水分存在,而且气温在50°以上的条件下。为了保证水泥水化反应得以进行,必须具备上述条件。

#### Analysis:

Generally speaking, the length of an English text tends to be relatively shorter than its translated text in Chinese. However, in the example sentence above, this is not the case, which also reflects the compact structure and rich information content of scientific English articles. Compared to Western languages that prioritize strict grammar and completeness in structure, Chinese is a paratactic language that emphasizes both practical function and specific meaning and that tends to be simpler in structure and concise in expression. Overally, the process of translating scientific and technological English texts involves a significant amount of part-of-speech conversion, as English tends to use more nouns while Chinese tends to use more verbs. During the process of converting nouns into verbs, it also reflects the characteristic of Chinese being dynamic while English being static, which is in line with the rigorous and direct expression of rational logic in Western thinking, as well as the supple, lovely, concise, and diffusive characteristics presented by Chinese.

# Conclusion

The relationship between language and thought is inseparable. As translation is a carrier of professional knowledge in science and technology, special attention should be paid particularly to the accuracy and professionalism of the translated text, avoiding issues, such as the omission of key information and logical mistakes. In the transformation of scientific and technological topics from English to Chinese, it is necessary to step out from the constraints that may be caused by differences in the thinking mode between China and the West. It is crucial not to adhere to the rigid grammar and to avoid inaccuracies and non-standard information transformation resulting from the influence of thinking styles. At the same time, we cannot ignore the positive effects of that and strive to faithfully reorganize the original text according to the linguistic conventions of the target language, conveying the complete meaning of the original text accurately and fluently, without losing the style and expression preference of scientific and technological texts, and ensure the standardization and professionalism of the target language. Secondly, the quality of the translated texts is closely related to the translator's proficiency in Chinese. Only by freeing himself or herself from the linguistic constraints brought about by the differences in Western and Chinese thinking mode, can the original meaning be accurately conveyed in the target texts. Translators must fully understand the meaning of the source language, overcome the influence of the original language and its way of thinking, and reorganize the original text according to the expressive preference and language style of the target language. In addition, translators not only need to be proficient both in English and Chinese, but also have a thorough understanding of their cultural and thinking patterns. At the same time, it is necessary to have basic professional knowledge in related professional field, which can be gained from reading relevant literature, searching professional terminology, or seeking advice from experts, in order to deepen his or her own understanding of the research field and ensure the accuracy and professionalism of the target texts.

### References

- Han, Q. (2007). Characteristics of scientific and technological English and its translation. *Chinese Science & Technology Translators Journal*, 20(3), 5-9.
- Li, B. W., & Yan, J. M. (2002). Nounization structure and translation of scientific and technological English. *Chinese Science & Technology Translators Journal*, 15(1), 5-7.
- Li, K. M. (2018). A comparative study of passive sentence translation in science and technology English from the perspective of differences in Chinese and western thinking modes. *Science & Technology Vision*, 8(23), 191-192.
- Lian, S. N. (1993). A comparative study of English and Chinese. Beijing: Higher Education Press.
- Lian, S. N. (2006). Chinese and western ways of thinking: Intuition and reason—Also on the common expressions in Chinese and English languages. *Foreign Languages and Their Teaching*, 28(7), 35-38.
- Liu, L. Y. (2002). On the differences in Chinese and western thinking and their impact on Chinese-English translation. Journal of Southwest Minzu University (Philosophy and Social Sciences Edition), 24(8), 266-269+277.
- Liu, M. D. (2001). Pragmatic analysis of English passive voice and its translation. *Chinese Science & Technology Translators Journal*, 14(1), 1-4.
- Si, X. Z. (1999). On the thinking patterns, language structures, and translation of the English and Chinese nationalities. *Foreign* Language Research, 22(2), 78-86.
- Yao, C. H. (2016). An analysis of the influence of differences in Chinese and western thinking on translation. *English Square*, *6*(1), 23-24.
- Zhang, H. T. (1999). The influence of differences in thinking between English and Chinese on translation. *Chinese Translators Journal*, 21(1), 21-23.