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The Characteristics of English Texts for Science and Technology and Translation Analysis Based on Functional Equivalence Theory: Taking Computer Texts as an Example

Wangyi Lin

Zhoukou Normal University, Zhoukou, Henan, China

Abstract: ***From the perspective of functional equivalence theory, this article takes computer-related texts as the research object. Firstly, the characteristics of computer-related texts are explained, followed by a brief introduction to Eugene Nida's functional equivalence theory. Then, through example analysis, translation theory is combined with translation practice to summarize the application strategies of functional equivalence theory in computer-related texts. By collecting materials and analyzing relevant translations, it is hoped that this paper can provide reference for the translation of other technological texts.***

Keywords: scientific and technological text; computer; Functional equivalence; translation strategy.

1. INTRODUCTION

In terms of vocabulary, computer texts have a large number of professional nouns, and most of the vocabulary in the text is nominalized, and the phenomenon of flexible use of parts of speech is relatively common. At the sentence level, the sentence structure in the text is relatively complex, and there are many passive sentences. At the same time, the article contains a large number of programming languages, which are complex and highly professional.

1.1 Numerous terms and nominalized structures

(1) Professional terminology

For example: simulator, interface interface; There are also some abbreviations, such as:
ICT information and communication technology, IDEs integrated development environment, and so on. These vocabulary terms are highly specialized and require our daily accumulation to ensure the professionalism of the translation.

(2) Semiprofessional terminology

The meaning boundaries of semi professional terms are not particularly clear, and their meanings may vary in different contexts and fields. When translating these words, we need to look up professional dictionaries and relevant literature to improve the accuracy of the translation. For example, "library" may mean "library" in artificial intelligence text.

(3) Nominalization structure

There are a large number of nominalized structures appearing in this type of text, among which many use noun verbs
V-ing form and noun phrase structure, such as image processing, building Blocks components, etc.

1.2 Complex sentence structure and many passive sentences

There are many long and difficult sentences and passive sentences in computer and artificial intelligence texts. When encountering long and difficult sentences in translation, we need to flexibly adopt the sequence method, reverse translation method, split translation method, or a comprehensive method that combines the above three methods according to the characteristics of the text. For passive voice, we can adopt a voice conversion translation method.

2. THEORETICAL INTRODUCTION

Eugene Nida is a famous American linguist, translator, and translation theorist. The core of Nida's translation theory is the "dynamic equivalence" theory, also known as the "functional equivalence" theory. The so-called equivalence does not refer to formal equivalence in language, but to functional equivalence in language, which is the core idea of functional equivalence theory. Therefore, for computer science and technology texts, translators can use the theory of functional equivalence as a guide, with the aim of ensuring the effectiveness of readers' reception of information, in order to achieve functional equivalence in the

text Effective dissemination of information. The Application of Functional Equivalence Theory in Computer and Artificial Intelligence Texts. Under the guidance of Nida's functional equivalence theory, the characteristics of computer and artificial intelligence texts are analyzed.

3. THE SPECIFIC APPLICATION OF FUNCTIONAL EQUIVALENCE THEORY

3.1 Vocabulary level

(1) Explanation of professional terms

For example, if Scikit-learn cannot be directly translated, the translator should retain the form of the original text and add annotations: a machine learning library developed in Python. This can help target language readers better understand the article.

(2) Part of speech conversion

In scientific and technological articles, translators usually need to choose the translation method of using part of speech conversion to make the translation natural and smooth.

For example:

The focus of this report is on artistic intelligence and human computer interface technology

The report focuses on artificial intelligence (AI) technology and human-machine interface (HCI) technology.

In this example, 'focus' is a noun in the source language text, but it becomes a verb in the target language text. Here, part of speech conversion is more in line with the language habits of target language readers. In addition, to further emphasize the main content of this report, the translator added a translation. In this way, this sentence emphasizes the main content of the article.

3.2 Sentence level

(1) Structural Analysis of Long Sentences

For long sentences in the text, structural analysis should be used. Firstly, identify the main body of the sentence, and secondly, identify other components within the sentence. From simple to difficult, first look at the meaning of simple sentences, and then integrate several simple sentences to analyze the meaning of the entire long sentence.

For example:

Original text: If we wanted to convert this hydraulic to a hydraulic describing the current board, we could calculate the hydraulic value for all open cells and take the maximum of the values for the AI character so that we can maximize our utility.

If you want to convert this heuristic into a heuristic that describes the current chessboard, then So we can calculate the heuristic values for all open units and take the maximum value of AI characters, so that we can maximize the utility.

The first part of the sentence is a conditional adverbial clause, followed by the main sentence, there is a coordinate element, and the last part of the sentence is a target adverbial clause. When translating into Chinese, we can use related words such as "if, then" and "and" to separate and "glue" long sentences in the original text. In addition, at the beginning of the sentence, the translator omitted the clause 'we', which is more in line with the Chinese writing style.

(2) The Translation of Passive Sentences by Transforming State

Science and technology English texts often use passive voice, with the subject positioned by events or objects, highlighting objective facts and concise structure. In Chinese, active voice is commonly used. When translating from English to Chinese, some still need to maintain the passive voice, and in many cases, we must not always adhere to the original sentence's voice. We must break away from this limitation and adopt a voice conversion translation method, which involves active and passive conversion, in order to achieve functional equivalence.

For example:

Original text: With this in mind, many technologies are developed with the objective of facilitative tasks and problem solving, covering several areas, including communication and health. Based on this, we have developed many technologies to facilitate task completion and problem solving, covering many fields, including communication and healthcare. Functional equivalence refers to the formal equivalence between the original text and the translated text, thereby achieving. Chinese language readers

can also have the same reading experience when facing the translated text, so it is more in line with Chinese expression habits for the translator to treat the passive aspect of the original text as active. If we translate 'many technologies are developed with the objective of facilitating tasks and problem solving' as' many technologies are developed by us to facilitate task completion and The solution to the problem will make the entire translation appear stiff and have a strong translation tone when read. Therefore, when translating passive voice, we need to handle sentences with caution based on the actual situation.

(3) The Translation Method of the Transformation of the Voiceless Subject

In computer science and technology English texts, there are many descriptions that tend to be objective, generally not based on human subjects, but mostly on natural phenomena and objectively existing things. We need to convert sentences with inanimate subjects based on the situation of the text, guided by the theory of functional equivalence, using the effectiveness of the target language reader's reception of information and the same or similar reactions as the original text reader as effective measures.

For example:

Original text: The past facade has seen a Huge amount of innovation in the scalable data system. In the past decade, there have been significant innovations in scalable data systems. In English, especially in computer technology texts, the frequency of using inanimate subjects is relatively high, but the expression habit in Chinese still tends to use human subjects. So when we encounter an inanimate subject, we still need to translate it according to the situation. In this sentence, The original sentence takes "The past facade" as the subject. If we translate it literally, it will have a stiff translation accent if we translate it as "witnessed in the past ten years". Therefore, we still take "we" as the subject, and treat the subject of the original text as a adverbial clause of time, which not only makes the original text "faithful", but also makes the translation easier to understand.

4. SUMMARY

When translating technological texts such as computer science, it is necessary for the translator to convey the information of the original text to the readers, achieving consistency between the content of the source text and the target text, and smoothly conveying information. This paper selects Nida's functional equivalence theory to analyze the translation of computer related texts and summarizes some translation strategies. The author has learned a lot from this and hopes that this paper can provide inspiration for the research of related texts.

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