The Design of E-C Parallel Corpus in Marine Environment and the Translation Difficulties of *World Ocean Review*

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Abstract. The construction of marine environment parallel corpus is based on the translation of *The World Ocean Review*. The text translation has been completed, and a term list has been built. The next step is to construct the parallel corpus, and the researchers should design the corpus in order to avoid some problems before starting. During the translation process, the researchers also find some problems and try to solve them which could supply some suggestion to the future E-C translation of scientific text.

1. Introduction
In the 1950s, with the development of computer corpus, corpus linguistics came into being, and some research achievements have been made. However, the English-Chinese translation based on the English-Chinese/Chinese-English parallel corpus should be considered concretely in combination with the corpus, and the translation should be characterized by professionalism, rigorousness and accuracy.

2. The Research Values of ESP Parallel Corpus
According to incomplete statistics, although there are few corpus researches related to translation in China's academic circle, but the development rapid grows year by year with more than 300 papers published on corpus. It can be seen that the value of corpus design and translation application is worthy of in-depth study and exploration. Although the linguistic field has not been fully accepted by the academic circle, it has gradually recognized the powerful function of corpus. On the other hand, English-Chinese translation in the specialized field is highly logical and careful, and ambiguity should be avoided as much as possible. From this perspective, the design and related research of parallel corpus is of great value.

At present, the academic community mainly focuses on monolingual, bilingual, parallel corpus and other aspects, and there are still disputes about the definition of corpus. As early as 1995, the UK collected the original English texts translated by other languages and established the world's first monolingual corpus, which is a monolingual corpus and of little significance in practical and microcosmic translation. Compared with the developed monolingual corpus, to some extent, parallel corpus can reflect its own value in the mutual translation of scientific and technology text. It is a kind of bilingual corpus and has more powerful functions, which integrates micro translation, macro research and translation practice.

3. Design of English and Chinese Parallel Corpus in Marine Environment
Translation is a process of visual threshold fusion, which involves not only the translation between different languages, but also the translation between ancient and modern languages of the same kind. For marine environment, translation involves multi-dimensional visual threshold fusion. However, as for the construction of English-Chinese parallel corpus in marine environment, corpus research and
application are the foundation and premise of the overall design. Before the design, attention should be paid to the following items:

1) Forecasting and defining the scale. An open corpus can be added materials at any time according to the needs of users. Large corpus contains more than 500 million words. In order to facilitate subsequent corpus input, it is required to form a data input platform at the beginning of corpus construction.

2) The purpose of corpus construction. The purpose of common parallel corpus construction is complex, which can provide support for translation theory and practical research, such as compiling and researching translation reference books and automatic translation, etc. In contrast, based on the translation characteristics of marine environment corpus, the purpose of the construction of this E-C parallel corpus is relatively simple, in order to realize the analysis, understanding and expression of the marine environment itself. In addition, there are different kinds of marine environment terms, so it is necessary to establish a corpus on the basis of scientific analysis, and there are many translation strategies.

3) Adjust the balance between Chinese and English. In order to make the proportional of English-Chinese and Chinese-English corpus as equal as possible, the E-C parallel corpus needs to adjust the balance of Chinese and English, because it includes four parts of relevant data: Chinese original text, English original text, English translation text and Chinese translation text.

4) Set word stock. This part needs to carry out text input from word stock, which depends on research and use needs.

5) Standardize corpus selection. In order to avoid ambiguity and the selection of open free translation, based on the rigor of English-Chinese translation of scientific texts, the balanced collection of corpus in all fields should be realized as far as possible.

At present, compared with monolingual corpus, corpus mostly takes XML as the markup language and adopts the organization mode combining database processing and text processing. Therefore, the design and construction of an English-Chinese parallel corpus in marine environment are reflected in the following aspects: the translation of the text should be consistent in principle, not too rigid or arbitrary, but unified in a coherent principle; the richness of English-Chinese parallel corpus is lower than that of monolingual corpus; it is necessary to carry out manual inspection and proofreading of English-Chinese and Chinese-English corpus based on the existing technical level; all fields and directions should be as balanced as possible. Compared with other corpus, XML markup language of parallel corpus is more intuitive, and a lot of collected data can be obtained through direct reference. In terms of markup language, corpus processing has a strong convenience, and the security maintenance and management difficulty coefficient is lower.

4. Difficulties in the Translation of the World Ocean Review
The process of English-Chinese translation carried out by the parallel corpus in marine environment is as follows: input search keywords in a certain field, open the platform of the parallel corpus in English and Chinese, and select the extracted relevant original text according to demand. Due to the great differences between English and Chinese language habits, some problems should be paid attention to in practical translation:

4.1 Difficulties in Translating Words
The lexical characteristics of scientific text are the use of professional terms and polysemous words. The professional terms existing in the text of the science and technology are also known as technical words. Obtaining a single meaning is the common characteristics of these words which appear in the article repeatedly and the meanings are relatively fixed, but because they are belonged to professional vocabulary of specialized field, so they are unfamiliar for the average readers relatively. If use these words in text, the characteristics of simplicity and formality in science and technology text would increase. When these articles were just published, most readers would not immediately understand the meaning of these terms, which further illustrates the importance of scientific and technological translation: explaining the connotation of English scientific and technological texts for target readers, and delivering scientific and technological achievements. These professional terms are the popular
words at present, so the concise and clear expressions make scientific and technological texts more standardized and formal.

This section takes Skopos theory as a theoretical guide and makes specific case analysis of vocabulary difficulties in the translation of “The World Ocean Review”. The difficulties in vocabulary translation are mainly listed in two categories, including polysemous words and professional terms.

4.1.1 The Usage of Polysemous Words. Polysemy is reflected in all kinds of text translation. Words have different interpretations in different research fields. If the translator does not understand the meaning of the sentence or does not relate to the context, it is easy to make misunderstanding and errors in translation.

Example: The indicators underpinning Demand Conditions help address additional questions.

According to a consistent principle of Skopos theory, a translation of English into Chinese requires the achievement of information function. In order to satisfy the intertextual coherence, the translator should choose the most appropriate collocation by connecting with the context. In this example, the collocation noun of “underpin” is a condition of demand, so the author translates it into “satisfying” which is more fluid.

4.1.2 The Usage of Terminology. The translation of professional terms not only requires the translator to have a wealth of specialized knowledge of the language, but also a broad range of knowledge. It is inevitable to encounter new professional terms in translation, which requires the translator to carefully search for background knowledge and give an accurate translation to let the readers know the meaning of the original text.

Example: As the philosopher Onora O’Neill argues, “More trust is not an intelligent aim in this life. Intelligently-placed and intelligently-refused trust is the proper aim.” Matching trust and trustworthiness in a form of an equilibrium between the giver and the guarantor of trust is a better aim than the simple goal of inquiring if there is “more” or “less” trust.

If the context is not contacted, there are many translation methods of professional term “giver and guarantor”. For example, the word “giver” can be translated into donor or contributor; “guarantor” can be translated into warrantor or guarantee. In the translation text, the author translates “givers and guarantors” as “people who give the thing and people who give guarantee” are more standardized and accurate. To facilitate analysis concentration, the author narrows the scope of “givers” to those who are consumers in the digital economy. The trust guarantor refers to the enterprises and institutions that establish digital relationship with users, and they need to satisfy users’ trust. So as long as in the context, it is not difficult to give an accurate definition of professional terms.

4.2 Difficulties in Translating Long Sentences

Following the aim principle of Skopos theory, the sentence pattern of scientific and technological text should conform to the reading habit and language expression mode of the target language readers, and the translator should always follow the relevant requirements of the translation purpose to make the translation readable. In the translation of World Ocean Review, the author finds that the English sentences in scientific and technological texts are characterized by many phrases and complex long sentences.

Example: However, sustaining consistently high momentum over time is challenging, as innovation led expansions are often lumpy phenomena. To stay ahead, these countries need to keep their innovation engines in top gear and generate new demand, failing which they risk stalling out.

In the latter sentence, adverbials of purpose, adverbials of result and object clauses appear at the same time. However, fortunately, the word order of Chinese and English is generally the same, and it follows the Skopos theory’s principle of coherence. It only needs to translate the meaning of the sentence in order, add or subtract words appropriately, and deal with the cohesive relationship between the components in the sentence.

Therefore, the translation of long sentences often uses the translation methods of segmentation, order changing, order sequencing and subsumption. The author found that the segmentation method is used more frequently than other methods, especially in the translation of long attributive clause,
appositive clause, the predicate structure and adverbial clauses and so on. After segmentation, the translator should notice increasing or decreasing words appropriately, dealing with the cohesion and logical relationship in context. For example, English expressions are usually subject first and background information second, while Chinese is the order of background first and theme expression next. Therefore, in view of the linguistic differences between Chinese and English, word order should be adjusted in translation to make the translation more readable. When using order sequencing, the translator does not need to cast around about how to arrange the order of the components in the sentence, so this method is relatively easy during translation. But translator should also pay attention to the principle of semantic coherence and the use of conjunctions. Subsumption is often applied in the translation of attributive clauses or non-predicate components, which makes the sentence structure compact and information concentrated that is also in line with the scientific and technological texts’ characteristics of concise and standardized.

4.3 Difficulties in Translating of Discourse

The coherence principle of Skopos theory requires text to follow the principle of consistent tone and strict logic. In many translation, the translator in order to accurately convey the information in the original text, often needs to manifest the original implicit cohesion and complete the elliptical cohesion. The New English Grammar published by Shanghai foreign language education press also use much of books to represent “clause to article”, describe the meaning and form of chapter, and summarize three aspects: textual structure, including linear structure and hierarchical structure of text; Textual bond, specifically is a cohesive device or logical bond; Textual model, mainly describes the internal structure of the paragraph, the relationship and cohesion between paragraphs. Functional linguists Halliday and Hassan believed that there are 6 grammatical and lexical means to achieve cohesion in English text, which constitute 5 different types of semantic cohesion: reference, substitution, ellipsis, conjunction and lexical cohesion.

English discourses of Science and technology text have a strong logic. The lines and the sentences coordinate and correlate each other and the ideographical expression is accurate, concise and clear. So the translation should not follow the literal meaning, but connect with the context and use the strategies of textual translation to achieve the cohesive relationship between discourses.

Example: Insight into the drivers of digitalization help us move beyond a static snapshot and appreciate the systemic nature of forces at play. Such insights help us understand why some countries are experiencing greater momentum than others and outline the contributions that specific actors in the private and public space can make to unclog bottlenecks and to get innovation moving. Finding these key leverage points could propagate changes through the entire system.

The translation difficulties in this sentence is “beyond a static snapshot”. The literal meaning is “beyond a static capture”, but from the point of view of the whole chapter, which loses cohesion with context. After a careful consideration, the translator found it describes “the digital driver let people don’t just stay on the surface, but can feel the systematic intrinsic properties of driving force. This example shows the translation difficulties of discourse. The translation cannot only stays on translating literal meaning, but needs to combine with the context to make semantic choice. From the next sentence, “appreciate the systemic nature of the force” translated as “feeling systematic properties of this driving force”, it can be deduced that previous sentence should represent the research not only stay on the surface of the driving factors, thus achieving the cohesional context which accords with a certain logical relationship, and also conform to the coherent principles of Skopos theory. Then the translation could enables the readers to understand the cultural information conveyed by the article and achieve the communicative function.

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