

Research on Translation of Petroleum Technical English from the Perspective of Eco-Translatology

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Abstract

As a special category of English for science and technology, Petroleum Technical English (PTE) has rising importance with the development of petroleum industry. Combining general English with petroleum terminology and knowledge, its language is characterized by conciseness, accuracy, objectivity, logic and preciseness. From the perspective of Eco-translatology, and in light of the stylistic features of PTE, this article intends to explore the application of Eco-translatology theory on the translation of PTE from three dimensions: linguistic, cultural and communicative.

Keywords: Eco-translatology; Petroleum Technical English; three dimensional transformation; stylistic features.

1. Introduction

As is known, petroleum promotes the economic development of all countries. The development of China's petroleum industry, on the one hand, depends on independent innovation; on the other hand, it needs to import advanced technology from abroad. With the continuous increase of global exchanges and cooperation in the petroleum industry, Petroleum Technical English (PTE) has become an indispensable medium and bridge in the economic and technological exchanges of the global petroleum industry, which plays an important role not only in promoting cooperation in the petroleum field at home and abroad but also in boosting the development of China's petroleum industry. PTE, a special English for science and technology, is characterized by technicality and professionalism with a wide range of subjects. And it is different from other scientific and technological texts in terms of lexicon and syntax. From the perspective of Eco-translatology, this article discusses the corresponding translation strategies of PTE.

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2. Stylistic Features of PTE

2.1. Lexical level

2.1.1. Extensive use of technical terms

There are many professional fields involved in petroleum science and related disciplines, so there will be a large number of technical terms. These terms can be broadly divided into three categories: a) Special vocabularies for petroleum, such as carbonate, parageosyncline, bathymetric system, drillability, geothermal logging, etc. b) Shared vocabularies with other specialties, such as reservoir and platform with different meanings in hydraulic profession and petroleum. c) Common vocabularies of daily life and specialty. For example, “core” and “mud” have different meanings in daily life and in petroleum [1]. Because of the complexity of terminology and the high dependence on context, it is necessary to obtain accurate meanings by means of petroleum dictionaries and parallel texts.

2.1.2. Extensive use of acronyms

In PTE, many acronyms are used for conciseness. There are three common ways of word formation: a) names of petroleum institutions, such as AAPG (American Association of Petroleum Geologists), and API (American Petroleum Institute), etc. b) Names for petroleum technology equipment and production process, such as ADD (automatic directional drilling), CDL (compensated density log), EOR (enhanced oil recovery), etc. c) Acronyms commonly used in the industry, such as AIR (average injection rate), AOR (air oil ratio), DST (drill stem test), LPG (liquefied petroleum gas), OBM (oil base mud), etc.[2].

2.2. Syntactic level

At this level, PTE is characterized by frequent use of nominalization, passive voices and compound sentences.

2.2.1. The use of nominalization

Wang Yin in [3] pointed out that the use of nominalization in English is determined by the characteristics of English itself. The use of English verbs is severely restricted by the rules of morphological change. A sentence usually has only one predicate verb; thus, many concepts have to be expressed by other parts of speech, especially nouns. The tendency of nominalization in technical English is also due to the pursuit of simplicity, objectivity and accuracy in science and technology. Nominalization is precise, concise, clear, and informative. It can also avoid personal subjects and increase the objective effect.

For example,

克拉玛依气田的探明与开发同步进行，目前已优质高效建成一期试采工程。

The exploration and exploitation of Karamay gas field are kept in the same pace, and the phase one trial

recovery project has been constructed with high quality and efficiency.

In this sentence, "exploration", "exploitation", "quality" and "efficiency" are four nouns that are transformed from either verbs “探明” and “开发” or modifying adverbs “优质” and “高效”, which makes it more concise and the structure much clearer.

2.2.2. The use of the passive voice

PTE pays attention to narrative reasoning, objectivity and accuracy. It focuses on the objective things, phenomena or processes that are narrated. And the passive voice can exactly focus the readers' attention on the objective things described while expressing things objectively. Therefore, the passive voice is often used in PTE [4]. For example: "A knowledge of statistics is required by every type of scientist for the analysis of data."

2.2.3. The use of compound sentences

Sentences in scientific and technological texts are long; for one thing, it is for expression: scientific and technological texts describe complex things, concepts or profound principles, causing the complexity of sentences; for the other, in English complex sentence patterns can be used to express profound ideas. English sentences can be extended indefinitely by means of non-finite verbs, prepositional structures, subordinate structures and parallel structures. For example: "Gas being compressed enters and leaves the cylinder through valves which are set to be actuated when the pressure difference between cylinder contents and outside conditions is that desired."

3. Eco-translatology

Based on the basic principles of western ecological holism, and inspired by Chinese traditional ecological wisdom, Professor Hu Gengshen put forward the theory of ecological translation in 2004 [5]. The theory is developed from the theory of translation adaptation and selection. It advocates that translation is the translator's choice to adapt to the translation ecological environment. Under the guidance of Darwin's theory of evolution, it compares the relevance and commonality between translation activities and the natural law of "survival and selection", and discusses the relationship, the related mechanism, basic characteristics and laws of translator adaptation and choice behavior in the "translation ecological environment". From the perspective of "adaptation" and "selection", it gives a new description and explanation of the nature, process, criteria, principles and methods of translation [6]. The "translation ecological environment" is the "world" represented by the original text, source language and target language [7]. That is, an interactive integration of language, communication, culture, society as well as authors, readers, clients, etc.

At the same time, applying the natural law of "survival of the fittest", the theory puts forward and demonstrates the central position and the leading role of the translator in the process of translation, and illustrates the "self-adaptation" mechanism of the translator and the restriction mechanism of "subsequent punishment". This theory expounds and exemplifies the explanatory function of translation adaptation-selection theory on translation ontology: a) translation process--the alternating cycle of translator adaptation and translator selection; b)

translation principles--multi-dimensional selective adaptation and adaptive selection; c) translation methods--"three-dimensional transformation" (linguistic, communicative, and cultural dimensions). d) Translation evaluation criteria-- multi-dimensional transformation, readers' feedback and translators' quality, which leads to the conclusion that the best translation is the translation with the highest degree of integration, adaptation and selection [8-10]. The translation method of Eco-translatology is a three-dimensional transformation of linguistic dimension, cultural dimension and communicative dimension [11].

Linguistic dimension transformation refers to the translator's adaptation to different aspects and levels of language forms in the process of translation; cultural dimension transformation refers to the translator's transmission and interpretation of bilingual and cultural connotations in the process of translation; and communicative dimension transformation refers to the translator's adaptive selection transformation of bilingual communicative intentions in the process of translation. That is to say, translators should pay attention to the three functions of text in language, culture and communication. The translator should not only be familiar with the differences between the source language and the target language at the linguistic level, and adopt a linguistic style close to the target language, but also pay attention to the differences between the two cultures, so as to avoid misinterpreting the original text from the target cultural point of view. While translating the source language, the translator should pay attention to and adapt to the whole cultural system.

The so-called "adaptive selection transformation of communicative dimension" refers to the translator's bilingual communicative intention in the process of translation. This kind of adaptive selection transformation of communicative dimension requires the translator to lay emphasis not only on the transformation of linguistic information and the transmission of cultural connotations, but also on the communicative level, and to pay attention to whether the communicative intention in the original text can be reproduced in the translated text. In practical translation, the adaptation of the three dimensions does not exist in isolation, but often needs to be carried out simultaneously, so as to ensure the balance and harmony of linguistic, cultural and communicative ecology between the source text and the target text.

4. Research on Translation of PTE from the Perspective of Eco-translatology

Eco-translatology is an interdisciplinary product, which is in line with the social and academic development of the time. At the same time, it is an extension of contemporary translation studies from a new perspective, which reflects that the trend of translation studies is developing from a single discipline to interdisciplinary integration.

PTE involving many related fields has a large number of terms and unique language style and so on. Therefore, Eco-translatology can provide a new perspective for the study of translation of PTE, and give new enlightenment to it. This article will expound the adaptive translation strategies of PTE from the perspectives of linguistic, cultural and communicative dimensions of Eco-translatology.

4.1. Adaptive transformation of linguistic dimension

In the process of translation, translators will make adaptive choices in the linguistic form. On the one hand, the language features, and rhetoric of the original text should be fully transformed in the target text. On the other

hand, due to the differences between the source language and the target language, the translation should be adapted to the ecological environment of the target language and should not be rigid or word-for-word. Translators need to be familiar with the linguistic style, literary form, rhetoric and sentence patterns of the text and so on, and should make adaptable transformations so as to maintain a harmonious relationship among the linguistic elements of the target language.

For example: Maglev is a system in which the vehicle runs levitated from the guideway by using electromagnetic forces between superconducting magnets on the vehicle board and coils on the ground.

磁悬浮列车是一个系统。在该系统中，车载超导磁铁和地面线圈之间产生的电磁吸力或斥力使列车从导轨上悬浮起来。

From “in which” to the end of the sentence, we can see that the attributive clause modifies the word “system”. However, in the translated version the attributive clause is separated to adapt to the ecological environment of the target language. Because of the different expressive habits between English and Chinese, English sentences are more beginning-focused, while in Chinese there should not be long attributives. In translating, we should adjust the sentence structure and divide long sentences into clauses so as to make the translation conform to the expression habits of the target language. If not, the translation will appear rigid and incoherent.

4.2. Adaptive transformation of cultural dimension

Snell-Hornby [11] believes that translation is a communicative act that transcends cultural barriers. Owing to the peculiarity of PTE, its vocabulary is highly technical and professional. Many vocabularies have not only strict scientific meanings, but also rich cultural connotations, which impose higher demands on translators. On basic professional knowledge, translators should understand the society and culture of English-speaking countries, for translation is not only a conversion of language codes, but also a conversion of cultural codes [12].

There are a lot of metaphorical words in PTE, such as the word “cat”, whose common meaning is a small domesticated carnivorous mammal with soft fur, a short snout, and retractable claws, but, technically, its meaning is "hanging anchor, crawler tractor"; and the word “cock”, whose common meaning is a male bird, but technically it means "crane"; “horse”'s common meaning is a large plant-eating domesticated mammal with solid hoofs and a flowing mane and tail, but the technical meaning is "support, iron rod". These metaphorical words with rich cultural flavor increase the interest of the text, but at the same time, they also increase the difficulty of translation.

Adaptive transformation of cultural dimension requires that the cultural characteristics in the original text should be expressed with the simplest language, and translators should pay attention to the transmission of cultural meanings, so as to adapt to the ecological environment of the target cultural system.

For example: At the end of their economic life, wells need to be safely abandoned, facilities dismantled and land returned to its natural state or put to new appropriate production use.

油井失去经济效益后，应安全弃井，拆除各种设施，将井区土地恢复原貌或另行合理使用。

"Economic life" in the oil code refers to the use of the equipment that is within a reasonable range. If we directly use the translation of "经济寿命结束后", it will not only be stiff, but also fail to clearly express the original meaning. Therefore, in order to maintain the balance of the whole sentence, we should translate "economic life" into "经济效益", rather than "经济寿命".

4.3. Adaptive transformation of communicative dimension

In Eco-translatology, besides the transformation of language dimension and cultural dimension, there are also the transformation of communicative dimension, that is, to put emphasis on the communicative dimension and to pay attention to whether the communicative intention of the original text is reproduced in the translated text [13]. "If any information fails to communicate, it will be worthless." [14]. The role of language lies not only in the interpretation of language itself, or in the transmission of cultural content, but also in arousing people's reaction. The research content of linguistics is not only in semantics but also in pragmatics. This shows that pragmatic expression is also important in the use of language. In translation, we should not only convey the semantic content of the original text ("language dimension" and "cultural dimension"), but also convey the pragmatic function, which means the communicative function of language.

The adaptability transformation of communicative dimension requires that translators should pay attention to the communicative intention of the source language and target language in translating, and should make the translation effectively express the meaning of the original text. In this circumstance, we can maintain the communicative ecology of the original in the target text to the maximum.

For example,

If the crude oil is sufficiently different from that flow, the pipeline can be stopped upstream of the gathering station. A volume of crude oil can be pumped in as a separate batch.

如果集油站内的原油与途经的油流品质差别甚大，就可在集油站上游先将主管道的油流截断，然后泵入该集油站的原油成批输送。

The adapted sentence conveys the communicative intention of the original text. "Sufficiently different" is translated as "差别甚大", "be stopped" as "截断", and "然后" is added. All these make the translation equivalent to the original text in terms of the communicative dimension.

5. Conclusion

PTE contains a large number of technical terms, special vocabulary, long sentences and passive voices, so the translation of such texts should be different from others. Eco-translatology provides a new perspective for PTE translation. Similar to the principle of "survival of the fittest" in nature, translation is also a process of constant

adaptation and selection. Translators should first master the textual features and relevant professional background knowledge of PTE, make adaptable transformations in the three dimensions of language, culture and communication in the ecological environment of the target language, then flexibly apply appropriate translation strategies to improve the translation quality of PTE, and convey the linguistic, cultural and communicative information to the target readers. However, the adaptation of the three dimensions does not exist in isolation; thus, it's not easy to ensure the balance and harmony of linguistic, cultural and communicative ecology between the source text and the target text. Only by taking a holistic point of view, translators of PTE can convey the linguistic and cultural information in a more communication-oriented way.

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