

# On Ecological Translation of Chemical Engineering English Under the Guidance of Green Translation

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## ABSTRACT

The development of translation research and practice is inseparable from the social development. With the improvement of global ecological awareness, green concept has taken deep roots in the hearts of people. Green development has gradually developed as the focus of global ecological civilization construction. "Strengthening ecological consciousness and green consciousness, improving ecological responsibility and green concept" has become the theme of the times. Driven by this green trend, Green Translation came into being. It pays attention to the green value of the translation and emphasizes that the translator should uphold the green concept and green behaviour in translation. Chemical industry is a pillar industry of a country, its impact on environmental pollution cannot be underestimated in the process of deepening economic globalization. In view of the background of advocating green development, it is high time to introduce the green concept of environmental protection into chemical English translation, so as to tap the ecological value and green significance from the translation, which complies with the requirements of the times and has certain practical significance.

**Keywords:** translation, Green Translation, chemical English.

## 1. INTRODUCTION

As a translation concept derived from Eco-translatology, Green Translation is a newly developed approach to translation practice in recent years. It focuses on the research and discussion of green concepts and green values in translation practice, and holds that green value and green concept are inherently contained in translation practice. Therefore, the translator should actively and consciously try to explore the green value, green meaning and ecological rationality in the translated text. Compared with "ordinary translation", Green Translation reflects the position, attitude and pursuit of Eco-translatology on translation research, and is easier to be embodied and carried out in the translation process and translation behaviour. In the process of pursuing Green Translation, the translator is committed to making the translation "as it is" so as to tap its inherent green meaning and green value. Based on the principle of "multi-dimensional selective adaptation and adaptive selection", the translator aims to make adaptive choices and transformations focusing on linguistic dimension, cultural dimension and communicative dimension in an

attempt to maintain a harmonious unity of translation ecology [1]. In other words, Green Translation requires translators to respect and adapt to the ecological environment of translation, make conscious green choices in translation practice, and explore the green value and ecological significance of translation in language, cultural and communicative ecology.

Chemical Engineering English has the following characteristics: 1. The style is simple and the language is refined and accurate. Like any scientific literature, chemical engineering English possesses simple style and concise language. 2. The logical structure is strict with long sentences and passive sentences frequently used. Chemical Engineering English is committed to more professional and clearer semantic expressions, with strict and complex syntactic logic and prominent hypotactic structure. 3. It is highly professional, containing a large quantity of specialized terms, formulas, compound words and abbreviations [2]. Green Translation requires the translator to give full play to the translator's subjectivity in chemical engineering English translation and strive to tap the green ecological content of the text on the premise of fully considering and respecting the language, cultural

and communicative ecology of it. By doing so, the target text will be endowed with fresh vitality and achieve ecological harmony and green value during the translation.

## **2. GREEN VALUE EMBODIED IN THE LANGUAGE ECOLOGY OF CHEMICAL TRANSLATION**

Language ecology includes language norms, habitual expressions and other internal linguistic factors reflected in the text. English and Chinese derive from Indo-European language family and Sino-Tibetan language family respectively [3]. As two languages originating from two obviously different language systems, English and Chinese are very different in grammar, pronunciation, expression, syntactic structure and so on. Chemical English is simple with compact structure and rigorous logic. The translator needs to give full play to the translator's initiative, deeply understand the grammatical norms and expression habits of the two languages, make flexible changes in the attempt to produce concise and comprehensive translation on the basis of being true to the original text.

### ***2.1. Preserve the Original Meaning and Avoid Word-for-Word Translation***

Chemical English belongs to a specialized field with specialized vocabulary, and should avoid word-for-word translation for that will often make the translation impassable and even puzzling. Therefore, the professional background should be taken into account when translating chemical English. For example, “reducing agent” (还原剂) cannot be translated into “减少代理人” (dismiss more people who arrange affairs for others), “chimney” (升气管) cannot be translated into “烟窗” (passage for smoke), “stripper” (汽提塔) cannot be translated into “脱衣舞娘” (performer who takes his or her clothes off). At this time, the translator should try to produce the implied meaning according to the original context so as to preserve its green value.

E.g.1 For any substance whose formula is known, a mass corresponding to the formula can be computed. Translation: 不管什么物质, 只要知道其分子式, 就能求出与分子式相应的质量。

“Formula” is a polysemous word that often denotes a particular method or list of things in daily language, or an equation in mathematics. However, in the field of chemical engineering, it refers to “分子式” (letters and symbols that show the parts of a chemical compound, etc.). “Mass”, as a noun, usually refers to a large number of people or things in daily language, but in Chemical Engineering English, it refers to “质量” (quality). Therefore, in terms of choices of diction,

translators need to fully consider the language ecology of Chemical Engineering English, and choose the vocabulary content that can reflect the language ecology of Chinese chemical engineering according to the differences between English and Chinese language ecology.

### ***2.2. Adjust Sentence Structures***

As an informative text, Chemical Engineering English is mostly static with objective writing and compact sentence patterns. Chinese is a paratactic language, and its sentence structures are often loose. English, on the other hand, is a hypotaxis language unifying meaning with form. When translating such sentences, the translator should fully consider the syntactic differences between English and Chinese, adjust the sentence order and delete unnecessary content or add necessary information in time.

E.g. 2 This is why the hot water system in a furnace will operate without the use of a water pump if the pipes are arranged so that the hottest water rises while the coldest water runs down again to the furnace. Translation: 如果把管子装成这个样子, 使最热的水上升, 而最冷的水再往下回流到锅炉里去, 那么, 锅炉中的热水系统不用水泵就能循环, 道理就在于此。

This is a compound sentence with “This is why the hot water system in a furnace will operate without the use of a water pump” as the main clause, followed by the subordinate clause “if the pipes are arranged so that the hottest water rises while the coldest water runs down again to the furnace”. The subordinate clause also contains a “so that” clause structure, which makes the whole sentence more complex. The literal translation “这就是为什么不用水泵锅炉中的热水系统也能循环, 如果把管子装成这个样子, 使最热的水上升, 而最冷的水再往下回流到锅炉里去” according to the original structure does not conform to the expression habit of Chinese, and gives rise to confusion in logic and meaning. Translators should take the initiative in translating similar long sentences, adjust sentence patterns according to the expression habit in Chinese language ecology, and reorganize logic and language through reverse translation, so as to truly achieve the harmony and unity in the target language ecology.

### ***2.3. Adopt Necessary Addition or Deletion***

Considering the professionalism of Chemical Engineering English and the syntactic differences between Chinese and English, appropriate addition or deletion of necessary content can naturally increase the readability and glamour of the text, producing a more refined and clearer translation that caters to the language ecology of the target language [4].

E.g. 3 From what is stated above, it is learned that the sun's heat can pass through the empty space between the

sun and the atmosphere. Translation: 由上述可知, 太阳的热量可以穿过太阳与地球周围的大气层之间的真空而传播到地面。

Sometimes, due to the differences in English and Chinese language structures, the meaning of the original which sounds vividly clear might be blurred or misleading when translated directly. Therefore, it is appropriate to add necessary information so as to render a more fluent and understandable translation. In the above example, a direct literal translation of “can pass through the empty space between the sun and the atmosphere” into “可以穿过太阳与地球周围的大气层之间的真空” is not complete in meaning according to Chinese way of thinking. The translator is required to give full play to his initiative, fully respect the language ecology of the target language, and add the content “传播到地面” to the end of the translation so as to complete the meaning, thus enhancing the readability of the translation greatly.

E.g. 4 When the solution in the tank has reached the desired temperature, it is discharged. Translation: 当罐内溶液达到所要求的温度时, 就卸料。

There exist great differences in language ecology between English and Chinese. English is a grammatically explicit language, and every declarative sentence must have a subject that is indispensable. Chinese, on the other hand, is more flexible in grammar and owns a large number of sentences without subject. In this example, the omission of “it” from “it is discharged” (它就卸料) in the original text not only enhances the readability in the target language, but also produces a more compact sentence with clearer logic. The deletion of “it” in the target language brings English and Chinese into a harmonious unity of language ecology.

### 3. GREEN VALUE EMBODIED IN THE CULTURAL ECOLOGY OF CHEMICAL TRANSLATION

Cultural ecology generally includes ecological culture, material culture, social culture, institutional culture, customs and habits, ideology and behaviours [5]. Different historical and geographical environments between the East and the West have created different cultural environments. Language is the product of culture. When translating chemistry texts, translators must fully understand the cultural differences between the East and the west, give full play to the translator's initiative by way of supplementing the missing content, deleting unnecessary information, or adopt equivalent information to replace information that readers find hard to understand in the attempt to eliminate cultural barriers in translation.

E.g. 5 The past few decades have been characterized by a prodigious expansion of the organic-chemical

industry. Translation: 过去数十年的特征是有机化学工业得到了惊人的发展。

E.g. 6 It is assumed that there is little if any leakage through the condensers. Translation: 可以设想, 电容器即使漏电, 也是很少的。

Chinese traditional culture emphasizes the unity of heaven and man, adheres to the “people-oriented” concept, believes that man is the focus of all things, and calls on people to conquer nature. This cultural inclination is reflected in language with more active sentences and more verbs. While in the culture of English-speaking countries, man is seen as only a part of the nature. He can only adapt to nature, understand and make use of natural resources, but cannot fight against nature. This cultural thinking is reflected in language by adopting more passive voice and less verbs in the sentences that may therefore sound more static and objective. The above two examples both adopted the structure of passive voice marked by “have been characterized” and “is assumed”, which are translated actively into “特征是” and “可以设想”. This approach respects and conforms to the cultural and ecological characteristics of Chinese, embodies the green value of the translation, and achieves harmony in the target cultural ecology.

E.g.7 We learn that sodium or any of its compounds produces a spectrum having a bright yellow double line by noticing that there is no such line in the spectrum of light when sodium is not present, but that if the smallest quantity of sodium be thrown into the flame or other sources of light, the bright yellow line instantly appears. Translation: 我们注意到, 如果把非常少量的钠投入到火焰或其它光源中时, 立即出现一条亮黄色的双线, 当钠不存在时, 光谱中就没有这样的双线。由此我们知道钠或钠的任何化合物所产生的光谱都带有一条亮黄色的双线。

Influenced by its own culture, Chinese way of thinking tends to be inward and prefers to present things from macro to micro, while the thinking way of people in English countries tends to present things from micro to macro in an outward way [6]. Reflected in syntax, Chinese inclines to focus on the general and its semantic meaning often decides the sentence structure. Whereas English is analytical and grammatical and the form of the structure often decides its meaning. The above example is a complex long sentence. The two long and complex juxtaposed object clauses are led by the main clause “we learn that”. The structure “By noting that” leads a modal adverbial of the main clause, in which another clause is embedded and makes the sentence more complex. The several micro components of the sentence form a macro meaning in strict accordance with grammatical rules. When translating it into Chinese, the translator needs to first carry out structural analysis, connect the semantic meaning of different components, and then reorganize the

sentence order according to the Chinese way of expression, so as to achieve harmonious unity of the two cultural ecologies, and reproduce the green value of the original text in Chinese.

#### **4. GREEN VALUE EMBODIED IN THE COMMUNICATIVE ECOLOGY OF CHEMICAL TRANSLATION**

Translation is essentially a cross-cultural communicative activity. The aim of chemical English translation is to offer readers who speak different languages in different cultures the same understanding and comprehension of the original text, so as to bring the ecological function of the communication into full play. The translator needs to fully understand the communicative ecology of the original language, make the most of his initiative and let the translation play the same role in the communicative ecology of the target language, so as to retain the green value in the original text.

E.g. 9 There is a large amount of energy wasted owing to friction. Translation: 由于摩擦而消耗了大量的能量。

E.g. 10 They are quite content with the data obtained from the experiment. Translation: 他们对实验中获得的数据非常满意。

In daily communication, the frequency of verbs adopted in Chinese is much higher than that in English. The communicative difference is also reflected in the language. “friction” and “content” in the above two examples are nouns and adjectives respectively, which are both translated into verbs in Chinese in line with the communicative habit of Chinese readers, who will find the translation easy to understand and more idiomatic. Taking the green value of both the original and target language into consideration, this approach achieves the same function in the communicative ecology of Chinese as it is done in English.

E.g.11 Engine revolution should not exceed the maximum permissible. Translation: 发动机的转数不应超过所允许的最大值。

In the above example, “permissible” (所允许的) as an attribute is not placed in front of the modified word, as it is usually done in Chinese communication, but after the modified word “maximum”. A direct translation into “发动机的转数不应该超过最大值所允许的” in line with the habit of English communication does not conform to the expression habit of Chinese, loses logic and betrays the real meaning of the original. The translator translates “maximum permissible” into “所允许的最大值”, which is in line with the Chinese thinking habit in communication. By doing so the translation can achieve the same function in the communicative ecology of the

target language as that in the original text and bring out the green value of the original text.

#### **5. CONCLUSION**

Chemical English is highly specialized and widely applicable. With the increasing awareness of ecological civilization in global cooperation and exchange, Green Translation, as a specific form of ecological translation practice, conforms to the requirements of the times of “green development”. Applying the concept of Green Translation to chemical English translation not only conforms to the theme of advocating green development, but also helps to spread ecological value in creating a more natural and green translation environment.

#### **REFERENCES**

- [1] Hu, G. S. (2011). Eco-translatology: Research Foci and Theoretical Tenets. *J. Chinese Translators Journal*. 2:5-9.
- [2] Guo, H. L. (2008). Translation skills of Chemical Engineering English. *J. Chinese Science and Technology Translators Journal*. 3:13-15
- [3] Guo, S. K. (2021). Application of translation Transformation Theory in Petrochemical English Translation. *J. Daily Chemical Industry*. 5:1-2
- [4] Qin, N. (2019). On Translator’s Subjectivity in Tourism Translation. *J. Journal of Huaihai Institute of Technology*. 2: 61-63
- [5] Newmark, P. A. (1998) *Textbook of Translation*. Prentice-Hall. London. pp.95
- [6] Zhou, X. Yu, T. (2019). An analysis of English Translation Skills from the Perspective of Eco-translatology -- a Comment on *Chemical Engineering English*. *J. China Plastic Industry*. 8:165