

Information Shift in E-C Translation of Science and Technology

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Abstract: The essence of translation is to convert the information of one language into another. In this process, there exist great difficulties because of language differences. Therefore, translators should consider the readability of translation and various compensatory measures should be taken to shift the information of source text to better convey its information to the readers. This paper mainly discusses information shift in E-C translation of science and technology.

Keywords: Information Shift; Cultural Differences; English for Science and Technology

1. Introduction

The translation strategy of information shift refers to that in the process of translation, translators can replace words, convert the word class or phrase collocation, and adjust the sentence structure to adapt to the expression of the target language. Information shift can make the TT faithful and expressive, rather than making a simple combination causing the loss of the internal logic of the ST. This paper attempts to discuss the ways to achieve preciseness, fluency and clearness in E-C science and technology translation from word class shift, semantic shift, structural shift, logical shift and punctuation shift.

2. Word class shift

In E-C translation, in order to achieve the harmonious transformation of semantics and style on the premise of accurately reproducing the information of the ST, word class shift, the translation strategy should be valued seriously. If translators does not handle the ST properly, it will lead to two results: first, the content of the translation conforms to the English expression, but does not conform to the Chinese expression; second, the translation seems to conform to the Chinese expression habits and rules, but its content does not conform to the original English content. Word class shift is a very common translation strategy in E-C translation, such as shifting nouns into verbs, adverbs or other parts of speech, as well as verbs into adverbs, nouns, prepositions and other parts of speech.

【Example 1】

【ST】 These physical risks from climate change will translate into **increased socioeconomic risk**, presenting policy makers and business leaders with a range of questions that may challenge existing assumptions about supply-chain resilience, risk models, and more.

【TT】 这些气候变化造成的实质性影响可能会进一步**加剧对社会经济的负面影响**，给政策制定者和商业领袖留下一系列问题，并可能会质疑有关供应链弹性、风险模型等现有假设的真实性。

【Analysis】 Word class shift is one of the most common translation strategies used in E-C translation. It can be conducted between almost all word class. Ye(2008) points out that although it is targeted at words, its role is not limited to words. Due to the stylistic differences between English and Chinese, adjectives and nominalization often appear in science and technology English, while verbs are more common in Chinese. In the source text, the adjective "increased" means "增加的", and the literal translation of "increased socioeconomic risk" is "增加的社会经济风险", but it doesn't conform to the writing styles of Chinese text. And even it can lead to the problems of "Chinglish" as well as produces lots of under-qualified translated texts that is out of context. In fact, the adjective "increased" can be shifted into a verb and then translated this

phrase into "加剧对社会经济的负面影响" to make the translation more specific and coherent.

【Example 2】

【ST】 This acceleration may well entail **rising costs** and **tough choices**, as well as **coordinated action** across multiple stakeholders.

【TT】 这一加速过程可能会**增加成本**，**加大选择难度**，促使利益相关者**采取协调行动**。

【Analysis】 In this sentence, adjectives can be converted into verbs for translation. The literal translation of "rising costs" is "增加的成本", which can be converted into the translation of "增加成本". The literal translation of "tough choices" is "艰难的选择", which can be converted into the translation of "加大选择难度". The literal translation of "coordinated action" is "协调的行动", which can be converted into the translation of "采取协调行动". The translation strategy of word class shift can make the TT more consistent with the characteristics of multi-verb writing in Chinese text, which fully conveys the meaning of the ST and reduces the reading load of readers.

3. Semantic shift

Because of the different cultures, there are ubiquitous differences between English and Chinese texts so that their ways of expressing information are also different. Reiss and Vermeer(1984) points out that each text is produced for a given purpose and should serve this purpose. So in the process of English-Chinese translation, although translators has understood the meaning of the ST, if their translation doesn't follow the purpose because of the differences there are often some problems in the TT, such as incomplete information, unauthentic expression and lengthy language. Therefore, translators should recombine the semantics of the ST and use the method of addition or omission according to different translation purpose to make the translation more concise and accurate.

【Example 3】

【ST】 For example, **long-accepted** engineering parameters for infrastructure design may need to be rethought; homeowners and banks may need to adjust assumptions about long-term mortgages.

【TT】 例如，**长期以来为人们所接受的**基础设施工程设计参数可能需要重新考虑；房主和银行可能需要调整有关长期抵押贷款的计划。

【Analysis】 The phrase of "long-accepted" literally means "长期接受的", but in this sentence, the translation method of addition can be adopted to achieve semantic shift and the phrase can be translated into "长期以来为人们所接受的". The semantic shift makes the expression of the text clearer and more accurate, and also reduces the reading load of readers. The so-called addition refers to the addition of words omitted from the original in the translation, or words which have their meanings without their own words in the original. According to Zhao and Zheng(2006), the purpose of additional translation is to make the translation accurately express the meaning of the original text, and conform to the expressive habits and grammatical rules of Chinese

【Example 4】

【ST】 As of 2017, some 380 million of India's **heat-exposed outdoor workers** (75 percent of the labor force) produced about 50 percent of the country's GDP.

【TT】 截至 2017 年，印度**高温下的户外工作人员**约有 3.8 亿(占印度劳动力总量的 75%)，为该国提供了约 50%的 GDP。

【Analysis】 The literal translation of "heat-exposed outdoor workers" is "暴露在高温下的户外工作者". However, if the meaning of "exposed" is deleted, it will not change the meaning of the ST. So it can be translated as "高温下的户外工作者". In fact, the translation strategy is called omission, and it can make translation more concise and clear. Liu(2006) also points out that translation should strive to be concise, smooth, clear and avoid any redundant words and sentences.

4. Structural shift

Due to the differences in the means and habits of expression between Chinese and English, their word order is also different to some extent. English is generally to point out the topic first and then spread out, while Chinese is generally from

foreshadowing first to focusing on the topic then. Therefore, when translating from English to Chinese, translators can break the sentence pattern, structure and word order of the source language, shift information and then translate, which can not only ensure the more accurate expression of sentences, but also improve the fluency of sentences.

【Example 5】

【ST】 The changing climate is poised to create a wide array of economic, business, and social risks **over the next three decades**.

【TT】 未来 30 年，气候变化随时会给经济、商业和社会带来一系列的风险。

【Analysis】 Temporal adverbials are very common in English, and their positions are not fixed. However, Liao(2006) points out that in Chinese, most adverbials are placed before the main sentence, and only a few adverbials, such as those expressing results and comparisons, are placed after the main sentence. Therefore, when translating adverbial clauses into Chinese, translators should clarify their positions to make the translated sentences more smooth, clear and specific. The phrase of “over the next three decades” can be translated as“未来 30 年”, and although it is placed in the end of the sentence, the sentence structure can be broken and shifted to put it on the top of the sentence when translating to make the translation more coherent and consistent with the styles of Chinese text.

【Example 6】

【ST】 The direct effects of physical climate risk must **be understood** in the context of a geographically defined area.

【TT】 必须在区域地理的背景下，**才能理解**气候变化自然风险的直接影响。

【Analysis】The form of the verb in this sentence is passive voice, which is often used in English text to express an objective, indirect and impersonal tone to meet the needs of certain expressions. In Chinese, the same tone is often expressed in more active forms than passive ones. Lian(1993) points out that the use of active voice rather than passive voice is more common in China than it in English, which is closely related to Chinese people's subjective thinking. Translators should also pay attention to this feature to shift sentence structure and transform passivity into initiative when translating. So the structure of the sentence can be roughly translated as "在..的背景下，才能理解...", which is more in line with Chinese logic.

【Example 7】

【ST】 As there are no ample and competitive substitutes for oil at present and will be no in the near future, consumers have to afford the **rising price** of this major resource.

【TT】 因为目前和近期都没有充足而且具有竞争力的石油替代品，所以**石油价格不断上涨**，而消费者不得不为之买单。

【Analysis】 In fact, in the E-C translation, the form of source text mustn't totally be conformed to. For example, the phrase of “the rising price of this major resource” can be shifted into a single sentence and translated as “石油价格不断上涨”, instead of sticking to the form of source text and translated as “石油这一主要资源不断上涨的价格”. The translation of structural shift can not only make the original text be divided into two short sentences, which is more in line with the Chinese expression form and reduce the reading load of readers, but also make the translated text more coherent and clear in expression. Just as Li(2014) says, in the process of translation, if the form of the source text is not used and then the translation is more smooth, the form of the original text can be abandoned.

5. Logical shift

English is a language of hypotaxis, which usually has clear logical relations in English sentences, while Chinese is a language of parataxis, which usually implies logical relations. Therefore, in the process of translation, it is often necessary to hide the logical relations of Chinese in the translation. Especially, in Chinese of science and technology, intertextuality is often used to express logical relations. Li and Zhang(2021) points out that in the process of E-C translation, there are many cases in which the English connectives expressing logical relations can be translated by the characteristics of intertextuality to omit conjunctions.

【Example 8】

【ST】Hurricanes can damage global supply chains, and biome shifts can affect ecosystem services.

【TT】飓风会破坏全球供应链，生物群落的变化可以影响生态系统服务。

【Analysis】According to English grammar, if there are two sentences, logical connective words such as “and” need to be added to conform to grammatical rules. For the sake of natural semantic connection, such conjunctions need not be translated into Chinese, but should be processed by the characteristics of intertextuality in Chinese text to omit conjunctions. In fact, the word of “and” in this sentence just plays a grammatically connected role. If translators translate it as “和” or “并且”, the translation will be redundant, so in E-C translation, translators can omit conjunctions according to the characteristics of parataxis of Chinese to make TT more concise and powerful .

【Example 9】

【ST】Supply chains are particularly vulnerable systems, **since** they prize efficiency over resilience.

【TT】供应链系统重视效率而非弹性，尤其具有脆弱性。

【Analysis】As an logical conjunction, “since” is often used to represent causality and is often translated as “因为”. But careful analysis of the original text shows that the two sentences do not constitute a direct causal relationship. The former sentence underlines that supply chain values efficiency while the later tends to add the characteristics of supply chain. So the word of “since” only serves as a connecting link between the preceding and the following. If the semantic connection is ignored and the word of “since” is translated as “因为”, it will lead to a semantic break of context. Therefore, translators should conduct logical shift and omit the semantics of “since” to avoid chaotic logic and maintain semantic coherence and cohesion. According to Vinay and Darblnet, in E-C translation, logical shift is a common means, including the omission of some unnecessary connectives in the target language, and the appropriate omission and addition of logic connectives, so as to make the target text more concise under the circumstance of not affecting the semantic coherence of the target text.

6. Punctuation shift

Punctuation is an important means of expressing sentence information. English and Chinese use punctuation differently. For example, in English there is no caesura sign of “、” and comma of “,” is often used to represent juxtaposition. But in the process of E-C translation the caesura of “、” should be used to express the juxtaposition of text. Punctuation is a system, which should be considered comprehensively in translation in order to express target language clearly and accurately.

【Example 10】

【ST】The events include **lethal heat waves, drought, hurricanes, fires, flooding, and depletion of water supply.**

【TT】这些事件包括致命热浪、干旱、飓风、火灾、洪水和供水枯竭。

【Analysis】In the process of translation, translator should understand the whole context first and then translate the source text. In this sentence, lethal heat waves, drought, hurricanes, fires, flooding, and depletion of water supply, these words are juxtaposition of nouns, so translators should shift comma into caesura sign to express juxtaposition when translating even though the source text uses comma to express it.

【Example 11】

【ST】If or when they are breached, the impact won't be incremental—the systems may **falter, break down, or stop working altogether.**

【TT】当气候变化自然风险超过阈值时，其影响很可能以非线性的方式传播，此时这些系统将退化、崩溃甚至完全停止运作。

【Analysis】In this sentence, “falter, break down, or stop working”, these words are juxtaposition of verbs, so translators should shift comma into caesura sign to express juxtaposition when translating even though the source text uses comma to express it. Besides, the dash of “—” in the original text expresses the meaning of the explanation, but due to the characteristics of Chinese parataxis, it can be seen by intertextuality, so when translating, translators can shift the dash into comma to express it.

7. Summary

In the process of E-C translation, translators can use various translation strategies flexibly and reasonably to achieve semantic coherence, and integrity of the target language, and information shift is the most basic and commonly used strategy, which can make translation faithful, expressive and elegant. In E-C translation, it is necessary to make comprehensive use of the shift of word class, semantics, logic, structure and punctuation to realize the organic combination of translation information. Translators should also summarize in continuous practice to master and flexibly use this translation strategy, so as to improve their translation ability and overall quality of translation, and avoid rigid and false translation.

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