A Case Study of EST Complex Sentence Translation via "Sentence Pattern Contrastive Translation Method"

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Abstract: EST (English for Science and Technology) began as a course in the 1970s. Because EST has qualities in specific content and usage, some language, vocabulary, and grammatical characteristics of EST were established as technology advanced. In EST, complex statements are typically employed to explain the complex objective reality. This thesis builds on the "Sentence Pattern Contrastive Translation Method" by conducting an investigation of EST features and complicated sentence translation tactics in EST. The idea of "Sentence Pattern Contrastive Translation Approach (SPCTM)" is utilized to interpret, discuss, and evaluate representative samples of EST complex sentences in this thesis. The author believes that SPCTM is an effective and efficient method employed in EST translation.

1.Introduction

As scientific contact between countries has increased in recent years, translation of EST (English for Science and Technology) has become unavoidable. People live in a world of science and technology. EST translation must be accurate and consistent. However, given to the distinctive style and qualities of EST, as well as its close interaction with society and culture, it would be a significant problem for the translator to make the translation of EST both correct and appealing. Complex phrases are widely employed in EST to explain the complex objective world. Recognizing the property of EST can help us examine some remaining issues in EST translation.The translation of EST should not only be culturally relevant, but should also include unique interpretation methods and translation philosophy.

The "Sentence Pattern Contrastive Translation Method" is first proposed in the New Introduction to English-Chinese Translation of Science and Technology (Yan, 2010.). It made a daring experiment in the innovative creation of translation ideas. The theory proposes five translation procedures for five distinct fundamental phrase structures in order to address the disparity between English and Chinese sentence patterns. This thesis begins with "Sentence Pattern Contrastive Translation Method" and continues with some further research and investigations in EST in order to better investigate and understand the techniques of EST translation.

This thesis will discuss the EST translation standard. With the introduction of the EST translation standard, readers will have easy access to the significant topics in this thesis regarding the basic procedures and abilities of EST translation. Last but not least, this thesis gets to the most significant chapter, which also happens to be the title of the thesis. This section outlines Mr. Yan Junren's most recent translation theory. Mr. Yan's masterwork, "Sentence Pattern Contrastive Translation Method," opens up a whole new world of EST translation for current interpreters.

2. Characteristics of EST

English for Science and Technology (EST) is a subcategory of English for Special Purposes (ESP). EST is a language used by scientists for scientific study, investigation, and academic communication. It belongs to the scientific genre, which was born in the 1950s. It arose and evolved in tandem with the appearance and advancement of science and technology (K.Panieni, etc 2001). As a result, EST is critical in communicating current and up-to-date technological knowledge. ESP differs from ordinary English in three ways: vocabulary, taxeme, and rhetoric.

2.1 Lexical Characteristics

As one of the three fundamental components of English, EST vocabularies are continually expanding at the same rate as any current language vocabulary. Many new words and meanings have entered the market in the last 50 years while many old-fashioned terms have been phased out (Halliday, 2000). This type of event is unusual in the realm of EST. The first step

in EST translation, like with others, is the translation of words. To learn EST translation, one needs have a large word bank in his head and comprehend the origins and features of EST terminology. Furthermore, understanding word-building principles and translation methodologies is required.

One of the most fundamental aesthetic aspects of EST is nomalization. As is well recognized, the two most distinguishing aesthetic aspects of EST are the extensive use of nominalization and the extensive use of passive voice. In EST, verbs, adjectives, and even other elements of speech are frequently converted into nouns and noun phrases. In EST, the following is a typical use of nominalization:

(1)"You can rectify this fault if you insert a slash."

However, this kind of sentence is often expressed in the following way in EST:

(2)"Rectification of this fault is achieved by insertion of a wedge."

In this case, nominalization happens in two locations. first of all the verb in (1) has been converted into noun and functions as subject in (2). At the same time, a meaningless verb is inserted in (2) to work as verb. And then, the term "insert" in (1) has been transformed into "insertion" in (2). After such nominalization, a more brief and exact phrase has been constructed, which made it much more formal and scientific too (Feng Shimei, 2002). (Feng Shimei, 2002).

2.2 Syntax Characteristics

When it comes to EST syntax, the most notable trait is that the descriptional kind of EST is all about the subordinate clause and extended sentence. There are several grounds to believe that subordinate clauses and extended sentence patterns are prevalent and regularly utilized in the area of EST. Subordinate clauses and extended sentences, in general, may logically and naturally combine all types of intricate material. As a result, such knowledge may be explained using theories that are succinct, exact, and correct. Similarly, certain complicated thoughts, brains, and processes can be presented using scientific terms or phrases, which ensures that any potential misinformation is avoided. Furthermore, EST is intended to convey complex minds and to communicate complex ideas, crafts, procedures, techniques, and experiments. That is the primary reason why EST employs large subordinated clauses and extended phrases.

2.3 Tense and Voices

Another distinguishing feature of EST is its extensive use of the passive voice. Passive voice may present objective facts in a fairly objective manner while ensuring that readers' subjective assumptions are removed. Furthermore, the structure of the passive voice is significantly easier to modify when compared to other common voices. Appropriate rhetorical figures may be altered, noun phrases can be chosen to expand the sentence, information in one sentence can be deepened, and therefore linked concepts, questions, facts, and conclusions will be highlighted. For example:

"The combustion of the mixture does not occur instantly. As a result, the spark is timed to occur before the piston hits stop dead center, otherwise maximum pressure will not be attained in time. By the time the piston reaches top dead center, combustion has begun and gas expansion has begun. Once combustion begins, it should be transported through the mixture as quickly as possible, which is aided by keeping the clearance area above the piston as short as possible and by careful cylinder head design. Turbulence in the gas also aids in the rapid spread of the flame through the compressed gas." (Baker, etc 2000)

There are five sentences in total, and five passive voices are adopted.

3. Translation Standard of EST

The EST translation criteria are the guiding principles during the EST translation process, as well as the standard that defines the quality of the translated works (Zheng, 2005, p.11-13.). The original EST text is composed of two components: content and form. The consideration of these topics is universally included in EST translation requirements.

Some well-known interpreters both at home and abroad have proposed criteria for determining whether or not a translation effort is competent. The name Yan Fu must be introduced at the outset. He proposed his "three-character guide," which is well-known in his masterwork. He stated in Evolution and Ethics and Other Essays that "Translation must do three things: it must be true, expressive, and elegant. It's difficult enough to be accurate to the original, but if a translation isn't expressive, it's the same as having no translation. As a result, expressiveness should be required as well..." (Lian, 2006.)

These three characteristics are thus the criterion for successful writing and translation. As a result, in addition to truthfulness and expressiveness, elegance should be prioritized. Yan Fu's three criteria of being accurate to the original

material, expressive in translation, and graceful in language are largely accepted. Many translators interpret "elegance" as "the safe and sound retention of the original's flavor and shade."

As is well known, translation operations encompass a wide range of disciplines. Translating tasks may be divided into two categories based on the language's translating relationship. The first is from mother tongue to foreign language, and the second is vice versa. By the way, translation work may be divided into two categories: interpretation and translation. Every form of translation may be judged by the criteria "faithfulness, expressiveness, elegance," with only minor differences.

3.1 Standard of Translation

Because of the passage of time, the explanation of "Faithfulness, Expressiveness, Elegance" has evolved from what it was previously. Today's quickly changing environment necessitates the inclusion of entirely new materials and criteria in the "three-character principle" in the field of EST.

First of all, once politics are involved, translation is forbidden to express any political tendency. For example:

"Any use of the atomic bomb on Manchurian targets would be more for purposes of panic than of destruction" (Liao, 2010. p.123-125.)

In this case, the location name should not be translated with any political bias. The correct approach to translate it is to transliterate it, which may appear weird and difficult to grasp at first. The ideal circumstance while undertaking EST translation is for the translation to be both authentic to the original material and brief enough to grasp. However, if the translation cannot achieve those two flawless effects, the primary goal should be to show the original meaning of the text, and smoothness and conciseness might be decided to be abandoned. Of course, there are certain limitations to such freedom. Translation work should be easily comprehended at a quick pace, even if not at first glance; it should be understood at a second glance. This is also true for EST translation.

Overall, the "three-character principle," which is "faithfulness, expressiveness, and elegance," is appropriate for EST translation as well. However, due to the uniqueness of EST, the explanation and emphasis of "faithfulness, expressiveness, elegance" is considerably different. First, about "faithfulness," the most essential criterion for EST translation is to be faithful, and "faithfulness" may be defined as "accuracy," which requires the translation version to reflect the meaning and technology in the original version. By the way, the rhetorical conditions are not strictly essential. Second, the prerequisites for "expressiveness" in EST translation are the same as in other translation works, which implies that smoothness, fluency, understandability, and grammatical adherence are essential. Finally, EST translation does not need a high level of "elegance." However, some literal ornamentation is required. As a result, "elegance" in EST might be defined as "preciseness," implying that EST translation efforts should be as precise, brief, and free of redundancy as feasible.

3.2 Basic Translation Methods and Skills

When dealing with EST sentences, there are three common translation approaches. The first one to mention is decentralization. Decentralization is the practice of breaking up a long EST sentence into discrete sections or paratactic clauses, which is a common and useful method for dealing with long phrases. An EST statement can often be so lengthy that it can stand alone as a paragraph. When this happens, the translation becomes problematic because there are too many paratactic noun phrases and complementing modifiers.If the translator places these modifiers before the paratactic noun phrases, the translation will seem sloppy, and the important ideas of the paper will be lost. The method is to repeat paratactic noun phrases one by one and translate them with their modifiers. Only in this manner will the translation effort not violate the original meanings; rather, the work will demonstrate a pretty clear and succinct structure.

The displacement talent is the second most common EST translation skill. One of the most helpful methods for translating EST phrases with paratactic elements of varying duration is displacement. "It (reliability) may also be increased through design for ease of maintenance, which incorporates ergonomic man/machine connections impacting accessibility, the type of adjustments, replacement, measurement, and inspection facilities, and logical faultfinding methods," for example. The displacement approach is excellent for translating this EST lengthy phrase. In this case, the attributive clause should be handled with in the adverbial clause of cause. Not only does English-Chinese translation necessitate such an action, but attributive clauses in English contain the meaning of adverbial. Transferring the attributive phrase into the proper adverbial clause via the logical context will not harm the original meaning in this circumstance. On the contrary, it highlights the

original texts far more.

Division is the third most commonly utilized way for translating an EST lengthy text. The clauses or prepositional clauses of some EST lengthy sentences may be loosely related to the main phrase. And translators can translate these into multiple short lines based on the mother tongue's customs. Some essential words can be added to make the meaning more coherent, or the main statement can be separated into many portions if possible. Here's an illustration: "For example, if severely loaded studs are threaded into soft alloys or friable polymers, vibration might cause disintegration." Even if the language is not very difficult, division might be used to highlight the main argument. It may be separated into two individual short phrases using addition and repetition, and then the structure can be adjusted perfectly.

4. Application Samples of EST translation via Sentence Pattern Contrastive Translation Method

When reading and translating about science and technology, readers should first learn the EST structural and linguistic aspects, which will help them understand the original content fast. On this basis, selecting the proper sentence pattern, formal expression, and procedures such as diction, conversion, addition, omission, and so on will precisely reflect the original idea. That is the primary reason why this work introduces the new "Sentence Pattern Contrastive Translation Method." Overall, the characteristics, essential points, and challenges of EST are most visible in the following areas: sentence pattern, tense, and components, among others.

This study will primarily explain the "Sentence Pattern Contrastive Translation Method," and immediately following this brief introduction, the application of this theory in the field of EST will be demonstrated. The same and distinct portions of an EST long sentence and an ordinary English long sentence will be analyzed. This article will offer a further declaration of how to study and translate EST lengthy sentences better by describing the usual characteristics of EST translation using the "Sentence Pattern Contrastive Translation Method." The key reason why this notion will be addressed repeatedly in this chapter is to try to refine the common difficulties encountered during EST long sentence translation. As a result, the goal of the study and argument will be met.

4.1 Sentence Categories and English & Chinese Sentence Pattern

Basic sentence patterns should be thoroughly discussed at the outset of the introduction to the "Sentence Pattern Contrastive Translation Method." EST sentences are now classified into four types: narrative sentences, interrogative sentences, imperative sentences, and exclamatory sentences. Actually, Chinese phrase patterns may be split into four types as well, with just a minor change in the perspective from which it is demonstrated. According to Chinese grammar, the tone of a Chinese sentence determines the manner in which it is spoken. Sentences can be classified into four types based on their tone: narrative, interrogative, imperative, and exclamatory. However, when broken down by structure, sentences may be classified into four types: simple sentences, compound sentences, and complex sentences; in Chinese, they are known as simple sentences and complicated sentences. Regardless, the way it is separated makes sense in both EST and Chinese.

A core verb appears in each EST phrase. In addition to the core verb, there are five fundamental sentence patterns: "S+l.v.+SC", "S+v.i.+(A)," "S+v.t.+O", "S+v.t.+IO+DO", and "S+v.t.+O+OC". On the other hand, there are only two sorts of Chinese sentences, according to Contemporary Chinese: simple phrases and sophisticated sentences. When it comes to simple sentences in Chinese, the "S+V" sentence is the most prevalent, with the statement with no subject being the second most common.

The corresponding relation of EST-Chinese sentence can be divided as following:

English sentence pattern	Chinese sentence pattern
"S+be+SC"	judgment sentence
"S+v.i."	sentence with notional verb as core verb

"S+v.i.+adv/ prep"	sentence with core verb as complement
"S+v.t.+O"	sentence with core verb as objective complement
"S+v.t.+IO+DO"	sentence with core verb as double-object complement
"S+v.t.+O+OC"	pivotal sentence with phrases and core verb

<div align="right">(Yan Junren, 2010)</div>

According to the equivalent relation charter of English and Chinese sentences, the "Sentence Pattern Contrastive Translation Method" may be widely implemented in EST translation.

4.2 Application of Sentence Pattern Contrastive Translation Method

In general, if a long phrase contains the word "be," it may be translated into Chinese relative objective clauses, such as:

"This is a scientific age."

"这是个科学的时代。"

A more complicated example as following:

"A common form of thermometer is the mercury thermometer, consisting of a glass bulb attached to a stem with a fire bore."

"常用的温度计是水银温度计，它是由一个小玻璃泡连接到一根内径很小的玻璃管柱上而构成的。"

When dealing with the above-mentioned sentence, division should be used, and the non-finite rear attributive clause should be transformed into Chinese disciptional clauses. When dealing with an EST lengthy phrase, this is a pretty common translation approach.

As seen in the 4.1 figure, the "S+v.i." type is also frequent in EST lengthy sentences, which can be referred to as "SP1" sentences. It is referred to as the "SP2" sentence in order to provide a clear and short explanation. Here are some examples:

"And I know you've been to the oil wells and refineries"

"我知道你去过油井和炼油厂。"

"The technologies that can make this daytime-to-night-time exchange possible already exist."

"使这种电能进行白昼和黑夜交换供应成为可能的技术途径业已存在。"

The sentence "SP2" should be translated into Chinese using the notional verb as the core verb. Finally, in line with Chinese practice, the basic verbs in the "SP2" phrase should be converted into relative nouns. As a result, some sentence patterns must be transformed into other sentence patterns. This translation category is completely stated in the samples above. The word order and tone are altered, becoming more natural and expressive.

In general, a "subject-verb-object" sentence, also known as a "SP3 sentence," can be read by a Chinese phrase with a core verb as a complement. Here are some examples:

"During the Seventh Five-Year Plan(1986-1990), China has developed several mainframe computers, including the Great Wall, Taiji, Zijin series."

"中国在第七个五年计划期间（1986年-1990年），已经研制了集中主机，包括长城、太极和紫金几个系列。"

This EST lengthy statement may be turned into passive voice to make it easier to understand: "During the Seventh Five-Year Plan (1986-1990), various mainframe computers, notably the Great Wall, Taiji, and Zijin series, were created in China." And another example:

"But by the time he was fourteen years old, he had recovered from a slow start to the extent that he taught himself advanced calculus and geometry from textbooks "

"但是，到了十四岁的时候，他从学得慢的状态中恢复过来，甚至根据教科书自学了高等微积分和几何学。"

The "SP3" sentence should be replaced with a Chinese sentence that includes the core verb as the objective complement. What should be kept in mind while translating is that certain predefined structures must be well-understood and correctly

translated.

When the "S+v.t.+IO+DO" type appears in an EST long sentence, it is referred to as a "SP4" sentence. A "SP4" sentence is equivalent to a Chinese double-objects sentence. As a result, the translation strategy against the "SP4" sentence is commonly used, and the Sentence Pattern Contrastive Translation Method is the source of this approach. Here are some examples:

"They showed us a world which operates in a totally different way from our own and they question our most basic experience of space and time."

"他们为我们展示出一个运动规律与我们这个世界完全不同的世界，并对我们关于时间和空间的基本经验产生怀疑。"

"It was customary in Newton's time for the great mathematicians of Europe to spend months in solving a problem and then offer it as a challenge to all others."

"在牛顿时代，欧洲伟大的数学家花上几个月的时间去解决一道难题，让后再向其他所有人提出挑战，这是惯例。"

This is the most often utilized Sentence Pattern Contrastive Translating Method in the field of EST long sentence translation. Following the summarization of these cases, a distinguishing trait is revealed. In most Chinese sentences, the passive voice is used, such as "给", "为", "向", "对", and so on and so forth.

According to the description of Sentence Pattern Contrastive Translation Method, there are five types of sentences in the field of EST long sentence translation. The sentence "S+v.t.+O+OC" is classified as a "SP5" sentence and may be translated as a Chinese crucial sentence containing phrases and a core verb. The same as above, some examples are introduced:

"We deem it important to include in this section additional concepts that relate to the conveners' work and discussion on the integration of computers and wind tunnels"

"我们认为在本节中就召集人关于计算机与风洞一体化的讨论工作再谈几点想法是必要的。"

"In recent years the advent of particle tracking or particle image velocimetry has made it possible to obtain high resolution global velocity and vorticity field."

"近年来，出现了粒子跟踪测速技术或称粒子成像测速技术，已使获得高分辨率的全场速度场和漩涡场有了可能。"

"However, senior in the Air Force made it clear that an outstanding fighter was mandatory, in addition to low observability."

"然而，空军里的高级官员明确表示，战斗机除了要具有低可探测性之外，必须具有杰出的作战性能。" (Yan Juren, 2010)

Overall, "SP5" sentences are uncommon in the field of EST long sentence translation. However, the "SP5" phrase is not less important than any other type. The above is a quick overview of the Sentence Pattern Contrastive Translation Method application.

4.2 Conclusion

In view of the amazing advancements in science and technology, as well as the growing importance of EST in the global economy, I was motivated to research the integration of technology and English & Chinese translation. Meanwhile, I'm hoping to find out the practical applicability and features of EST for further research. EST exhibits its unique properties in terms of translation across a wide range of dimensions. From a lexical, syntactic, and rhetorical standpoint, the original contents of the EST translation are profuse in the use of technical language, prepositional phrase, and passive voice. All of these traits are enumerated and examined in order to discover the linguistic characteristics of EST application, which include precision, clarity, and brevity in EST translation. Translation, as is well known, may be seen as a means of communication in many cultural contexts, according to functional methods. Given the scientific character of EST and the primary goal of EST translation, we'd like to consider the guiding translation theory, "Sentence Pattern Contrastive Translation Method," in the field of EST translation. Finally, the discussion above may lead to the following conclusion: because EST exhibits its unique qualities in terms of translation across a wide range of dimensions, the use of SPCTM is critical to the present EST translation sector.

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