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Study on Identification of Lexical Meaning in E-C Translation of English for Electric Power

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***Abstract*—As one of the branch of English for Science and Technology, English for Electric Power bears the characteristic of professionalism in meaning and flexible in lexis. As key components in professional literatures, lexis of English for Electric Power needs to be paid enough attention and accurately identified in order to precisely comprehend professional reading materials. This paper focuses on solving the problem of identifying Electric English vocabulary precisely by analyzing the determination of the professional lexis from three aspects of morphological structure, reference relations and context. Distinguishing the meaning of Electric Power English vocabulary is a crucial part in the translation practice of Electric Power English, which plays a vital role in ultimately understand and grasp the content of professional materials fully.**

***Index Terms*—translation of English for electric power, lexical features of English for electric power, identification of lexical meaning**

I. Introduction

In contemporary society, English for Science and Technology has aroused great attention by the scientific technicians and professional experts with the rapid development of science and technology and gradual expansion of information exchange. As a branch of Science and Technology English, English for Electric Power has become increasingly prominent in the process of academic specific purpose of English study and teaching. At present, China's electric power industry has entered a new stage of development. For the rapid development of China's power industry, understanding and learning advanced foreign technological information and gaining great experience in international technical exchange and cooperation have become an overwhelming trend. It is known to all that international exchanges and cooperation have introduced a large number of professional English technical literature materials. Under such circumstances, the proper and accurate translation of the technical materials has greatly facilitated the exchange of engineering and technical personnel in the electrical power industry. The vocabulary of electric power English bears the characteristic of professionalism and flexible meaning. The same vocabulary may contain various meanings due to different word classes, specific context relations and collocations. Precise identification of lexical meaning of Electric Power English is indispensable to understand what the professional English literature conveys and pave the way for the experts to comprehend the professional materials further in the long run.

II. Translation of English for Electric Power

English for Electric Power fall into one of the categories of English for Science and Technology and do bear the characteristics of EST texts from lexical, syntactic and textual level. In the translation practice of English for Electric Power, certain translation skills and principles should be followed to make Electric Power texts materials more comprehensible and valuable for the reference of technical experts and researchers. Of many translation methods and principles, principle of accuracy and loyalty to the original, readers oriented and clear logic are the basic principles in the translation practice of English for Electric Power for the purpose of translating academic literatures properly and accurately. In the process of translation practice, the meaning of the words should be attentively analyzed. According to the lexical and logical relationship of vocabulary, different connotations of professional lexis should be identified and determined to reproduce the meaning of the original text accurately. What's more, being faithful to the writing style of the original text is critical to make the translated version understood thoroughly by the targeted readers. With no doubt, unclear, logically confused, mismatched translated texts would inevitably lead to ambiguity and misunderstanding, which must be avoided. Only by keeping up the above translation principles can the professional characteristics of the Electric Power English be retained and the original texts be translated appropriately with clear and logical thinking

III. Lexical Features of English for Electric Power

English for Electric Power bears the linguistic features of English for Science and Technology. The expression of Electric Power English is precise, brief and accurate with specialized lexis and normative description.(Jiang, 2016). There are some electric terms which mean differently in English for General Purpose. For instance, In English for General purpose, "plant" can be used as a noun that means a living thing which grows in earth, in water or on other

plants. It usually has a stem, leaves, roots and flowers and produces seeds and can make its own food. "Plant" can also be used as a verb referring to put a plant into the ground or into a container of earth so that it will grow. In the specialized English for Electric Power, "plant " is no longer used as verb, it is a noun with the Chinese meaning "电厂". Another typical example of this kind is "shunt". In daily English, "shunt" can be used as a verb which means to move (someone or something) to a particular place, often without any consideration of any unpleasant effects that this might have. It is translated as "转移". While "shunt" bears specialized meaning in English for Science and Technology with the Chinese version of 并联，分流. (Zhao, 2013) In English for Electric power, it is common to see the conversion of the specialized lexis, which needs attentive attention of the translators. For instance, the original part of speech of the word "flow" is a verb with the meaning of "流动", while in English for Electric Power the specialized meaning of it is "流量" . The part of speech of it is converted from verb to noun. The same situation happens with the word "stand" with its part of speech being converted from verb to noun and its meaning changed from "站立" to "支架".

The lexis in English for Electric Power is more formal with specialized terms and bears the characteristic of preciseness, accuracy and brevity, which needs to be identified by the translators attentively.

IV. Identification of Lexical Meaning in English for Electric Power

In the translation practice of English for Electric Power, translators should indentify the lexical meaning of professional vocabulary according to the following aspects of different morphological structure, varied reference relations as well as text context, which are also regarded as the significant elements in the determination and identification of lexical meaning in English for Science and Technology.

A. Identification of Lexical Meaning According to Morphological Structure

Since there are large amount of professional lexis and terms in Electric Power English, it is one of the effective ways to identify and determine lexical meaning by analyzing morphological structure of vocabulary. Generally speaking, the formation of professional vocabulary for English of Electric power follows the same way as the vocabulary in English for General Purpose. Compounding, derivation and abbreviation are three major forms of word formation.

1.Derivation

Derivation is a method of constructing a new word by combining an affix and a root. It is an important method of word formation in English for Electric Power. The typical example are hydr- or hydro-; electro-; magnet- or magneto-; thermo-; auto- which are prefixes. as well as -er; -ance; -meter that belong to the category of suffixes. The following are the specific instances.

Hydr- ; hydro- means "水的；水力的；流体" and hydromechanics is translated as "流体力学", Hyrovalve is translated as "水阀，液压开关".

Electro- means "电的，电动的，电气的" and electromechanical means "机电的，电动机械的". Magnet-, magneto- means "磁，磁性，磁力" and magnetoresistor is translated as "磁控电阻器". Magnetoconductivity means " 导磁性". Thermo- means "热，热电" and thermocell is translated as"温差电偶"; thermocurrent is translated as "热电流". Auto- is a prefix refers to"自动" and automodulation means "自动调制"; autocouple means "自动耦合"; autoreclose is translated as"自动重合闸".

The suffix -er and -or refers to a device with speical fuctions and is interpretd as "……装置 …… 器……机". The following terms of stator, exciter, conditioner which bear the suffix of or and er are translated as "定子,励磁器" and " 调节装置" respectively. What's more, the suffix of -er –or can also be added to some terms in English for Electric Power and refer to the a kind of circuit component and translated as "……器，……元件" in Chinese . For example, resistor is tranlsted as "电阻器，电阻元件" and inductor is translated as "电感元件"。Suffix -ance shows "some physical quantity, or correlation coefficient", therefore, inductance is translated as "电感；感应系数"; reactance is translated as " 电抗" ; usceptance means "电纳" and admittance refers to "导纳".

2.Compounding

Compounding is a method of word formation, which refers to the forming of new word by combining two or more words. A compound word is a word which combines two or sometimes more different words. Often, the meaning of the compound cannot be discovered simply by knowing the meaning of the different words that form it. Although there are not many such words in English for Electric Power, they play the critical role of eliminating ambiguity, causing the effect of being accurate and precise.

Example 1

How to test them still needs to be addressed, not only for the circuit breaker itself, but for the liquid-filled bushing as well.

In this example, liquid-filled bushing is a compound word with two words "liquid-filled" and "bushing" combined together. It is a professional term in English for Electric Power with the Chinese meaning of "冲油套管"。Therefore, the Chinese version of this sentence should be"如何测试该设备仍需加以重视，这不仅仅是因为断路器本身的缘故，也有**充油套管**的原因".

Example 2

While this system provided adequate peak voltage/VAR support, it did not result in optimal voltage profiles for customers along each feeder, nor did it optimize for off-peak loading periods.

Off-peak in example 2 is also a professional term in Electric Power English. It is formed by combining different words of "off-peak" ,"loading" and "period". The Chinese meaning of "off-peak loading period" is"非峰荷期间"。Therefore, the sentence is translated as"虽然该系统提供了足够的高峰电压或无功支持，但是它没有在每条线路上为用户带来最佳电压剖面，也没有在**非峰荷期间**使电压得到优化"

3.Abbreviation

The language characteristic of English for Electric Power is concise, formal, and concise. In order to achieve precise and concise effect, abbreviations are common way of word formation used often in Electric Power English. Some typical examples are listed in the following: Direct Current is abbreviated as DC；AC is the abbreviation of Alternating Current；PT is the abbreviation of Potential Transformer with the Chinese meaning of 电压互感器 ； Extra High Voltage is abbreviated as EHV with the Chinese version of "超高压".

Example 3

OCBs are steadily being replaced with SF_6–type breakers, but many will remain in use for a long time.

In example 3, OCBs is the abbreviated form of Oil-filled circuit breakers with the Chinese version of "充油断路器". Therefore, the Chinese translation of the sentence should be" 充油断路器（OCBs）正逐步被 SF_6 断路器所取代，但还有许多在相当长的时间内仍然会被使用。"

Example 4

Bulk transfer of electricity by HVDC lines can be 50% more efficient than by ac transmission lines.

In this example, HVDC is the abbreviation form of high-voltage direct current lines and refers to"高压直流线路", so the Chinese version of this sentence should be"用**高压直流线路**传输电流比交流输电线路提高50%的效率。"

In the composition of electric power terminology, there is also a class of words which are composed of abbreviations that represent the names of major international organizations in the professional field of Electric Power. It is more convenient for the readers and experts to recognize and consult to these acronyms when the type of these type of lexis listed by the translators beforehand. Few typical examples are illustrated here： International Atomic Energy Agency is abbreviated as IAEA with the Chinese form of"国际原子能机构"; the European Transmission System Organization is the full name of ETSO with the Chinese meaning of "欧洲电力传输组织" and ICE is the acronyms of British National Institute of Engineers and translated as"英国全国工程师协会".

B. Identification of Lexical Meaning According to Context

There exist great differences in language structure, language expression habits, cultural background and ways of thinking in English language and Chinese due to the fact that they belong to different language families (Yu, 2001). In the practice of translation, it is required to consider the specific context in which vocabulary is applied and the identification of lexical meaning should be fully examined in certain language environment.

Example 5

(1) Thomas made a stouter resistance than his boss had ever expected.

托马斯的**抵抗**比他的老板预料的要强。

(2) Between the extremes of good conductors such as silver and copper lay other conductors of reduced conducting ability, and they "resist" the flow of electrons hence the term resistance.

在良导体如银和铜两端之间放置别的减少导通能力的导体，它们对“电子流”的阻抗就是**电阻。**

Resistance is a noun form of resist and refers to the meaning of "fighting against something or someone or not being changed by or refusing to accept something " in English for General Purpose. Therefore, resistance in the first sentence in example 5 should be translated as "抵抗". In Academic Specific English, more specific, in English for Electric Power, resistance refers to " the degree to which a substance prevents the flow of an electric current through it" (Procter,2004,P.1150）and the Chinese version of it is "电阻". Take the language context into consideration, resistance in the second sentence chooses the specialized meaning of English for Electric Power.

Example 6

(1) This publishing firm is planning a new series of English textbook for Electric Power.

In English for General purpose, series is used along with "of "as a collocation, which means "连续；系列",therefore the whole sentence should be translated as"这家出版公司正打算出一套新的电力英语**系列**教材".

(2) This flux is proportional to the primary current and causes a voltage drop that is accounted for by an inductive reactance x_1, called leakage reactance, which is added in series with the primary winding of the ideal transformer.

Series is a professional term in English for Electric Power, the sentence should be translated as"磁通与原边电流成正比，并且引起一个电压降。该电压降用一个与理想变压器的原边绕组**串联**的称作漏抗的感抗来说明".

From the above two examples, it is safely to conclude that language context should be referred to attentively in order to identify the lexical meaning correctly, that is to say, in English for General Purpose, the general meaning of the vocabulary should be chosen and in specialized English, for example in English for Electric Power, the professional

meaning of lexis is to be identified appropriately.

C. Identify Lexical Meaning According to Reference Relations

There are certain items in every language which has the property of reference, in the specific sense in which people are using the term; that is to say, instead of being interpreted semantically in their own right, they make reference to something else for their interpretation. In English these items are personals, demonstratives and comparatives. (Halliday&Hasan, 2001) This paper mainly analyzes the identification of words meaning from the two aspects of personal reference and demonstrative reference.

1. Personal Reference

Since objective descriptions is one of the characteristic of text of English for Electric Power, personal reference is reflected mainly by the application of the third person demonstrative pronouns reflecting the objective situations and things such as “they” or “it”.

Example 7

In stress analysis work, the measured strains are converted to stresses through the stress-strain constitutive relationships. When the results seem reasonable, the strain data is seldom questioned. But when unexpected results are encountered, it is commonly made the primary suspect.

There are three clauses in example 7. The meaning of the personal pronoun "it" in the third clause needs to be analyzed and identified. It is evident that determination of the referential meaning of the personal pronoun lays in deciding the content of the reference in the first two clauses. By analyzing attentively, it is possible for the translator to determine the meaning of the word that" it" refers to. "It "and the "strain data" in the second sentence are mutually responsive. Therefore, the meaning of "it" can be identified as "the measured strain data (测得的应变数据). The whole sentence can be translated as "在应力分析工作中，测得的应变通过应力-应变之间的内在基本关系转换成应力。要是测量结果看上去是合理的，那么，应变数据很少受到怀疑。但若碰到意外的结果，其**应变数据**通常就成为首要的被怀疑对象".

Example 8

Meanwhile, global use of fossil fuels and emissions of traditional pollutants such as sulfur and nitrogen oxides that result from it continue to climb.

In example 8, "it " is the third person indicator in the attributive clause. The premise of correct understanding of sentence content is the accurate identification and determination of the meaning of "it". After careful analysis of this sentence, "it" forms a mutual referential relationship with "use of fossil fuels", finally the meaning of "it" is determined as "the use of fossil fuels". In addition, it is important to note that when translating sentences, the word "quantity" should be added to ensure that the Chinese-translated sentences are more fluent and accurate. The English sentence should be translated as"同时，全世界**矿物燃料的使用量**，以及由此产生的例如氧化硫与氧化氮之类传统污染物的排放量，还在继续上升".

2.Demostrative Reference

When translating the professional literature of English for Electric Power, it is necessary to pay more attention to the referential relationship of the pronouns in the text. It is very important to indicate the identification of the pronouns and to determine the correct understanding of the reading articles, otherwise it will be more difficult for the readers to read and comprehend.

Example 9

Pressure transducers are electromechanical devices that convert pressures to electrical signals which can be recorded with a data system such as that used for recording strain gage signals.

This is a compound sentence with two" that" in the sentence. The first one is a relative pronoun that guides the attributive clause; the second one is a demonstrative pronoun that refers to the previous "data system". Once the meaning of the demonstrative pronoun is identified and confirmed, the understanding of the sentence would be smooth and the Chinese version of this sentence should be"压力传感器是一种将压力信号转换成电信号的电动机械装置。电信号可应用像用来记录应变仪信号那样的**数据系统**来记录".

V. Conclusion

Proper selection and correct identification of lexical meaning in the Translation practice of English for Electric Power are a very important and complicated process. The translator should master and familiarize with the basic knowledge and concepts of the specialized professions firstly, and then complete the translation task appropriately and accurately according to the corresponding translation skills. In the process of translation, translators should distinguish the professional meanings of specialized terms, at the same time, combine their professional literature context and logical relationship to make appropriate choices. More importantly, morphological structure, context and reference relations should be considered attentively in identification of lexical meaning. A faithful, fluent, and natural translation of professional electric power English materials and literature is fundamental to complete translation tasks.

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