LINGUISTIC EQUIVALENTS IN THE TRANSLATION OF TECHNICAL AND SCIENTIFIC TEXTS

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Technical and scientific texts report information on the latest technical and scientific discoveries. Their translation is becoming more and more important both because today more works are translated than in the past and also because the amount of translated technical and scientific papers in steadily increasing.

The present paper discusses the usage and the characteristics of linguistic equivalents in the translation of technical and scientific texts.

As far as the theory of technical and scientific translation is concerned, the problem of linguistic equivalents is crucial. In the current literature there are many papers on this subject. In technical and scientific works linguistic equivalents are often represented by words or combinations of words. In most cases, these elements are the translation units of a text. Only rarely are the latter represented by more complicated elements.

The selection of linguistic equivalents depends on the semantic context of the units to be translated and on the way in which their meaning is explained in another language. As for technical and scientific articles, the problem of linguistic equivalents may be tackled by replacing the words and combinations of words of one language with those of another. In order to select the equivalents of many linguistic units, the translator should know the exact meaning and usage of each specialized word. Regardless of his/her knowledge and experience, translation choices are often extremely difficult.

As shown in the literature, there are different views on the concept of translation units. According to most authors, a translation unit is a dynamic and variable element.

In his book Yazyk i perevod ("Language and Translation") L.S. Barkhudarov gave a more accurate definition of translation units. This author analyzed a wide range of translated units and classified them, as well as their equivalents, with respect to their usage level.

Despite the above-mentioned problems, it is possible to identify the main definitions of translation units and equivalents, which contribute to a better understanding of these peculiar features of a language. A translation unit is an element belonging to the text to be translated which has its own equivalent in another language. A translation equivalent is an element belonging to the translated text which corresponds to a certain unit of the original text.

Comparative studies carried out on translations of technical and scientific papers from Italian into Russian reported that, in most cases, the word is the smallest unit of a text.

Linguistic studies on translation units and equivalents were based on the analysis of parallel texts. It is, therefore, possible to draw conclusions on
translation choices and on the accuracy of the linguistic units selected by translators.

It is necessary to underline that the words of two different languages may be correlated as follows:

1. A certain word has just one *equivalent* in another language. This correlation is called permanent equivalent.

2. A certain word has a whole range of equivalents in another language, many of which may not be listed in dictionaries.

3. A certain word has no equivalent in another language. In such cases, dictionaries do not report an exact translation and explain the meaning of the word.

Each of the above-mentioned correlations causes great problems for the translator. In case no. 1 the translator has to know the exact equivalent of the word and to rely only on his/her memory. In most cases he/she has no right to change such an equivalent.

In case no. 2 the task is more difficult; the translator has to analyze a number of equivalents and to choose the proper one.

In case no. 3 the translator has to find an equivalent. In order to do so, he/she has to understand the concept expressed by the word to be translated. It is often necessary to translate neologisms and the so-called "realia" (words referring to peculiar features of a language or a culture, which do not exist in other languages) and, therefore, to choose among a wide range of alternatives.

It is well known that the meaning of words is constantly developing and changing. Words acquire new meanings and the translator has to select the current one, even though it is different from that listed in the dictionary.

As for the accuracy of translation, the choice of synonyms plays an extremely important role.

Current non-specialized dictionaries do not always report the peculiar meanings that words belonging to the spoken language acquire in technical and scientific texts. In most cases, they list many equivalents, explain their usage in the spoken language and emphasize the possibility of using them even in specialized texts.

The usage of equivalents listed in dictionaries is often misleading. It may alter the meaning of the text to be translated or break the linguistic and stylistic rules of technical and scientific writing.

As far as specialized texts are concerned, the problem of conveying the exact meaning of a word of one language in another language is the most demanding. The choice of translation equivalents should be based on the criterion of the optimal equivalent. This goal may be reached by performing a comparative analysis of texts, which allows the translator to identify similarities and differences between corresponding units and structures of the texts.

The technique of comparative analysis was described by many authors, including L.C. Farkhudarov (1975), A.D. Schweizer, Vannikov (1964), I.A.

As reported by the students attending the third and fourth translation courses at the School for Interpreters and Translators of the University of Trieste, the most difficult problems the translator of technical and scientific texts has to tackle are represented by general scientific words, which may acquire peculiar meanings in different texts, and by translation equivalents, which are not listed in bilingual dictionaries.

General technical and scientific languages share a wide variety of words with each technical and scientific discipline. Such words may, therefore, acquire specific meanings according to the context and contribute to the formation of the so-called microlanguages.

The development of technical and scientific disciplines is associated with that of terminology. As a consequence, words tend to acquire new meanings and become more specific. The process of semantic specialization of words is one of the factors responsible for the difficulties met with by the translator of technical and scientific papers. The latter are often characterized by words indicating a wide range of concepts. In that case the translator has to choose the equivalent according to the peculiar meaning of a certain word in a given context.

By comparing translations of technical and scientific articles from Italian into Russian, it was demonstrated that the great majority of mistakes was correlated with the translation of words, namely with incorrect translation and with unfaithful translation, the latter being the most common.

The comparison of the equivalents chosen in such translations and those listed in non-specialized dictionaries, mainly with those of the BRIS dictionary, indicated that there were many differences. These discrepancies support the theory of the semantic specialization of words belonging to the technical and scientific languages.

By analyzing the equivalents of all the Italian specialized words that caused translation problems, it was demonstrated that the selected equivalents differ either (1) significantly from those listed in dictionaries (the choice was based on general technical and scientific words, not on the equivalents of the BRIS dictionary) or (2) partially from those listed in dictionaries (the choice was based both on new technical and scientific words and also on equivalents quoted in dictionaries). Therefore, new equivalents play an important role in the translation of technical and scientific papers.

Another factor responsible for the difficulties met with by the translator of technical and scientific texts is represented by combinations of words. The structure of these texts is characterized by strict usage of grammar rules and words, with the latter often arranged in new combinations.

The examples of word combinations reported in many dictionaries are derived from the literary language and, therefore, are of no use for the translator of technical and scientific papers.

Text analysis performed with the students focused on the difficulties caused by the translation of words of general usage and of sentences of specialized texts
in which such words were used with different meanings, as well as on the choice of equivalents and on the identification of adequate criteria for translation. The different semantic translations of a word were considered to be constant if they were frequently reported by various authors, in various contexts, and in various microlanguages and, therefore, recommended as possible translation equivalents. The students were instructed to create a card-index and to file away specialized and non-specialized words found in technical and scientific texts. In this way it was possible to identify four groups of words which may cause translation problems: (1) "false friends", (2) words with a wide range of different meanings, (3) words with peculiar meanings in technical and scientific texts, and (4) words of peculiar stylistic usage.

Many international words such as analisi, candidato, critico, pioniere, tradizionale are false friends. While translating these words, the translator often chooses their international meaning without paying careful attention to the fact that there is hardly a total correspondence between internationalisms. Critico, for example, has the same meaning in English, Italian and Russian, i.e. "critical, dangerous, at a crisis". However, unlike the Russian adjective, critico may also mean "important, considerable, substantial."

Internationalisms such as rivoluzione, rivoluzionario are often translated into Russian by their equivalents "revolyutsya, revolyutsonny", which breaks the rules of word combination of the Russian language and alters the idea conveyed to the Russian reader. In highly specialized texts, translators should avoid using these words in their international meaning.

The frequency of international words in the technical and scientific fields is very high. They represent about 50% of all the words used in technical and scientific texts.

If an Italian international word belonging to the general scientific language is translated into Russian by its equivalent, it will alter the image conveyed to the Russian reader.

In every language widely-used loan-words are considered to be internationalisms. They are often of Latin or Greek origin.

Words with a wide range of meanings have many translation equivalents in other languages. It is difficult to state standard principles for their accurate translation. Such words have permanent equivalents, typical of technical texts, but also a number of other equivalents, the choice of which should be based only on the context.

In technical and scientific papers words having peculiar meanings cause great problems to the translator. These words have a limited range of meanings and represent one of the most characteristic features of specialized texts. They have few equivalents in other languages.

The fourth group of words causing problems in the translation of technical and scientific texts from Italian into Russian is represented by words of peculiar stylistic usage. Again, it is difficult to state standard principles for their accurate translation. Technical and scientific texts may sometimes be characterized by the coexistence of stylistically different words (in most cases, belonging to the
spoken and literary languages). Such stylistic discrepancies are, however, counterbalanced by the translation.

As far as the translation of Italian technical and scientific texts into Russian is concerned, one the most difficult problems the translator has to tackle is represented by metaphors. The translation of metaphors often requires the explanation of concepts by means of complicated associations of images.

This paper has described only the most important factors which may cause problems in the translation of technical and scientific texts. Actually, there are many more factors contributing to these problems. It was decided, however, to analyze just the most relevant ones for the translator. The study of translation equivalents is a step towards the improvement of the translation of technical and scientific texts.

Bibliography