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Lexical transformations while translating a professionally oriented text from English into Russian

Статья посвящена рассмотрению лексических трансформаций при переводе профессионально ориентированного текста. В работе проводится анализ трансформаций на примере текста, посвященного авиационным двигателям, и выделяются наиболее частые приемы, необходимые для адекватного перевода научного технического текста.

Ключевые слова: лексические трансформации, перевод, профессионально ориентированный текст, лексико-семантические замены

The article deals with lexical transformations while translating a professionally oriented text. The transformations are analyzed on the basis of the text devoted to aircraft engines. The most frequent techniques, necessary for the adequate translation of a scientific and technical text, are defined.

Keywords: lexical transformations, translation, professionally oriented text, lexical-semantic substitutions

Translation of a professionally oriented text is a kind of translation related to special branches of science and technology. The interest in translation in the field of professional communication remains strong. The study of the main stages of translation, the main types and methods of professional translation is of particular relevance due to the constant development of technology and the emergence of new linguistic phenomena to describe it. Translation difficulties associated with the lexical and grammatical features of the original language and the target language lead to the need to master the appropriate transformations necessary for an adequate translation.

There are different definitions of translation. We adhere to the definitions contained in the dictionary of linguistic terms by O. S. Akhmanova, according to which translation is the transfer of information by means of another language. Also, transla-

tion is the search for such means of expression in another language that ensure the transfer to it not only of the information contained in the speech product, but also the most complete correspondence of the new text to the original one in the form, which is also necessary when concepts that do not have stable expression in it are translated [2, p. 316].

The criterion for the quality of a translation is its adequacy, or usefulness, which implies accuracy in conveying the semantic content of the original text [1, p. 16]. There may be various translation options for individual lexical and grammatical elements of the original. In order for the translation to be complete, the translator must overcome a number of difficulties. In this paper, we will focus on the lexical difficulties of translation in the professional field.

The objects of specialized translation include materials related to various fields of knowledge, science and technology [1, p. 28]. As a distinctive feature of these materials, an extremely accurate expression of thought is singled out. In order to achieve this professional terminology is widely used. Specialized translation covers a wide range of knowledge and practice. In this study, we consider some features of the translation of a military technical text on an aviation specialty from English into Russian. V. V. Alimov emphasizes that a translator needs to know the specialty in which he works. That is why technical translators should have a narrow specialization [1, p. 28].

Each language has its own lexical system. A single lexical unit carries a certain concept, while it can be used in different ways in languages. A word may be more common in one language and have a more narrow or terminological meaning in another. V.V. Alimov identifies the following reasons for the need to use lexical transformation techniques to obtain an adequate translation:

- 1) stylistic techniques based on a pun;
- 2) the difference in the semantic scope of the word;
- 3) the difference in collocations [1, p. 82–83].

So, in order to achieve translation adequacy, the translator needs to make numerous transformations so that the translated text conveys the information of the source text as fully as possible while following the norms of the target language [3, p. 117].

The following types of lexical transformations can be singled out:

- 1) lexical-semantic substitutions;
- 2) additions;
- 3) omissions;
- 4) antonymic translation;
- 5) descriptive translation.
- V. N. Komissarov defines lexico-semantic substitutions as a way of translating lexical units of the original, the meaning of which does not coincide with the meaning of the original units, but can be derived from them using a certain type of logical

transformations [5, p. 174]. The main types of substitutions include concretization, generalization and modulation (according to the classification of V. N. Komissarov) or functional substitution (according to the classification of T. A. Kazakova [4]) of the meaning of the original lexeme.

Concretization refers to the substitution of a lexeme or phrase with a broader meaning by lexical units with a narrower meaning. The use of the concretization technique may be due to the fact that the target language does not have a word with such a broad meaning, or the word is contextually inappropriate or infrequent.

Generalization is the substitution of a lexical unit of the source language, which has a narrower meaning, with a lexeme of the target language with a broader meaning.

Modulation is defined by V. N. Komissarov as the substitution of a word or phrase in the source language with a lexical unit of the target language, the meaning of which is logically derived from the meaning of the original lexeme [5, p. 177]. In this study, we adhere to the terminology used by T. A. Kazakova, who singles out a **functional substitution** as a type of lexical transformation [4, p. 106]. Functional substitution is understood as the substitution of one lexical unit with another, when none of the matches presented in the dictionary is relevant to the given context [4, p. 106–107].

Addition of one or more lexemes to the translation text is explained by L. S. Barkhudarov by "formal unexpressedness" of semantic components in the source language, which is typical for phrases in the English language [3, p. 138]. Among other reasons for additions during the translation process, there is a change in the structure of the sentence, when during the translation process it is sometimes necessary to introduce certain elements into the sentence.

Omission is the opposite of addition. When translating, words that are semantically redundant, expressing meanings that can be extracted from the text without them, are most often omitted [3, p. 141].

Antonymic translation is a substitution of the concept of the original by the opposite concept in the translation.

Descriptive translation or **explication** is a transformation in which a lexeme of the source language is replaced by a phrase that gives an explanation or definition of its meaning in the target language [5, p. 185].

Let us consider the examples of translation transformations when translating the text on aviation specialty, which deals with the basics of a jet engine, from English into Russian. As a text for translation, an excerpt from the monograph "Military jet engines acquisition. Technology Basics and Cost-Estimating Methodology" is taken [6, p. 9-14].

Concretization

The afterburner is usually engaged only when the maximum thrust is required because the fuel efficiency of a jet engine drops by a factor of three or four when the

afterburner **is** at its maximum setting. — Форсажная камера обычно включается только тогда, когда требуется максимальная тяга, потому что топливная эффективность реактивного двигателя падает в три или четыре раза, когда форсажная камера **работает** на максимальном режиме.

A turbofan engine is more complex and more efficient than a turbojet. — Двухконтурный турбореактивный двигатель сложнее и производительнее турбореактивного. In English, the term turbofan denotes bypass engines, and this lexeme can refer to both civilian turbofan and fighter jet bypass turbojet engines, but in Russian, these types of engines are denoted by different terms. The context allows us to specify the type of engine, so the appropriate term must be used in the translation text.

A turbofan adds a second compressor, called a fan, a low-pressure turbine to drive the fan, and an annular-shaped bypass duct that allows part of the fan's discharge air to flow around the high-pressure compressor, combustor, and both turbines. — В двухконтурном двигателе добавлен второй компрессор, называемый компрессором низкого давления (КНД), турбина низкого давления для привода во вращение КНД и кольцеобразный обводной канал, который позволяет части нагнетаемого КНД воздуха обтекать компрессор высокого давления, камеру сгорания и обе турбины. The lexical unit fan has a broad meaning, as a designation of a part of the engine. However, in Russian terminology in a turbojet engine, this component is usually called a low-pressure compressor, which led to the need for lexical transformation in translation.

Therefore, a high-BPR turbofan engine has a relatively large diameter fan, which handles much more air... – Таким образом, ТРДД с высокой степенью двухконтурности имеет КНД относительно большего диаметра, который сжимает гораздо больше воздуха... The English lexeme handle has a broad meaning "to manage, handle", however, in the Russian translation it is necessary to specify the meaning based on the context and functions of the described device.

Generalization

Most of the engines flying on modern commercial airliners and similar wide-body and military aircraft are high-bypass-ratio (BPR) turbofans and do not use afterburners. — Большинство двигателей современных коммерческих авиалайнеров и аналогичных широкофюзеляжных и военных самолетов оснащены реактивными двигателями с высокой степенью двухконтурности, и не используют форсажные камеры сгорания. In this case, the lexeme turbofan can denote both turbojet and turbofan (in accordance with the accepted Russian-language classification) engines. Therefore, in translation it is advisable to use a lexical unit that generalizes these two types.

At times, the visible presence of a propeller or rotor leads some to incorrectly assume that these aircraft **are powered** by internal combustion engines like early propeller-driven aircraft, rather than by these forms of jet engines. — Иногда види-

мое присутствие винта или ротора заставляет некоторых ошибочно полагать, что эти летательные аппараты оснащены двигателями внутреннего сгорания, как ранние самолеты с винтом, а не реактивными двигателями. The English lexeme to power has the meaning "to put into action", but the use of this match is not contextually appropriate for the Russian language, so the word with a more general meaning is used in the translation.

Modulation / Functional substitution

Finally, expansion occurs as energy is extracted from the exhaust gases by a turbine. – Наконец, происходит расширение, при котором энергия отбирается от рабочего тела турбиной. The substitution of a lexeme is related with differences in the terminology of the source language and the target language.

A jet engine produces thrust **by making** a net change in the velocity of the air that is moving through the engine. — Реактивный двигатель создает тягу **за счет** чистого изменения скорости воздуха, проходящего через двигатель.

...when the afterburner is at its maximum **setting**. — ...когда форсажная камера работает на максимальном **режиме**.

The combination of high-pressure compressor, combustor, and high-pressure turbine is known as an engine's core. — Комбинация компрессора высокого давления, камеры сгорания и турбины высокого давления известна как газогенератор двигателя. Matches to the lexeme core offered by dictionaries do not fit the given context, which necessitates the search for a functional correspondence derived from the contextual meaning.

Addition

Some turbojets include a second combustor after the turbine, called an after-burner (or augmentor). — Некоторые турбореактивные двигатели используют вторую камеру сгорания, **находящуюся** после турбины, называемую форсажной камерой.

Omission

Finally, expansion occurs as energy is extracted from the exhaust gases by a turbine. **These** gases accelerate through the **engine's nozzle** to produce thrust. — Наконец, происходит расширение, при котором энергия отбирается от рабочего тела турбиной. **Газ** разгоняется через **conло** и создает тягу. In this example, the translation of the lexeme these is omitted due to the transformations made in the previous sentence, namely the substitution of the lexeme gases, which makes it impossible to use the demonstrative pronoun in the following sentence. The translation of the lexeme *engine's* is also omitted due to semantic redundancy in translation.

Some turbojets include a second combustor after the turbine, called **an after-burner** (or augmentor). — Некоторые турбореактивные двигатели используют вторую камеру сгорания, находящуюся после турбины, называемую форсажной камерой. In this case, the omission is caused by the use in English of the so-

called "paired synonyms", words of the same or close referential meaning. This phenomenon is characteristic of the English language, but not typical of the Russian language, therefore, when translating such phrases, it is necessary to omit the redundant lexeme.

Most of the engines **flying** on modern commercial airliners and similar wide-body and military aircraft are high-bypass-ratio (BPR) turbofans and do not use afterburners. — Большинство двигателей современных коммерческих авиалайнеров и аналогичных широкофюзеляжных и военных самолетов оснащены реактивными двигателями c высокой степенью двухконтурности u не используют форсажные камеры сгорания. The lexeme flying is redundant from the point of view of the target language.

Antonymic translation

Therefore, a high-BPR turbofan engine has a relatively large diameter fan, which handles much more air than the high-pressure compressor it **precedes**. — Таким образом, ТРДД с высокой степенью двухконтурности имеет КНД относительно большего диаметра, который сжимает гораздо больше воздуха, чем **последующий** ему компрессор высокого давления. Changing the structure of the translated sentence leads to the need to replace the original lexical unit with a lexeme with the opposite meaning.

Descriptive translation or **explication**

The BPR is the ratio of the **bypass airflow** rate to the **core airflow** rate. — Степень двухконтурности — это отношение расхода **воздуха**, **проходящего через внешний контур**, κ расходу **воздуха**, **проходящего через внутренний**. In this example, the lack of matches in the Russian language leads to the need for explication of the terms.

We have considered some examples of lexical transformations on the example of a scientific technical text devoted to aircraft engines. The study showed that lexical transformations are a widely used technique in the translation of a professionally oriented text. When translating, all types of lexical transformations are necessary, namely: lexico-semantic substitutions, including concretization, generalization, functional substitutions; additions; omissions; antonymic translation; descriptive translation. The most common technique, as it has been identified in this study, is presented by various types of lexico-semantic substitutions. This can be explained by differences in the generally accepted specialized terminology in two languages, as well as differences in the compatibility of lexemes in the source language and the target language.

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Происхождение как оценка (по материалам книги Д. Ошмана «Восток: западногерманское изобретение»)

В статье на основе лексического материала рассматривается позиция Д. Ошмана на сложившуюся в Германии ситуацию отношений между представителями объединенного народа, разделенных географически на Западную и Восточную части. Анализируются средства выражения оценочности, к которым прибегает автор, чтобы выразить свое отношение к действительности.

Ключевые слова: пейоративная лексика, оценка, оценочность, негативная семантика, дескриптивный, эмоционально-оценочная номинация, коннотация

В феврале 2023 года вышла в свет книга профессора лейпцигского университета Дирка Ошмана (Dirk Oschmann) «Der Osten: eine westdeutsche Erfindung» («Восток: западногерманское изобретение»). Книга автора посвящена поиску идентичности граждан бывшей ГДР в объединенной Германии. По прошествии 30 лет после воссоединения граждане восточной части Германии не чувствуют себя частью единого народа. Наоборот, некоторые из них признаются, что только после объединения поняли, что они восточные немцы и что они другие, не такие как западные. Д. Ошман задается вопросом: каково это, когда тебе, твоим близким и знакомым приписывают такие «грехи», как популизм, расизм, недостаток демократии, бедность? каково это, когда после 30 лет объединения «западных» немцев рассматривают как норму (die Norm), а «восточных» – как отклонение от нормы (die Abnorm, Abnormalität, Abnormität)? Налицо искусственное противопоставление «Ossi» (житель восточной части, от немецкого Osten – восток) и «Wessi» (Westen – запад). Ossis и Wessis соотносятся, как Null (ноль) и Eins (единица), как schwarz (черный) и weiß (белый).