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Essential Characteristics of Scientific Technical Texts

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Abstract: *This article examines the defining features of scientific and technical translation, distinguishing it as a unique area of translation that necessitates clarity, precision, and adherence to specialized linguistic structures. It highlights the grammatical, lexical, and stylistic characteristics typical of scientific and technical texts in English, such as the prevalence of terms, terminological phrases, participial and infinitive constructions, and abbreviation usage. The article also explores the challenges translators face when conveying these features into Uzbek, such as managing polysemy in terminology, translating passive structures, and adapting sentence complexity. Emphasis is placed on accurate representation of meaning, stylistic equivalency, and appropriate use of special vocabulary to ensure the translated material maintains its scientific rigor and communicative clarity.*

Keywords: *Scientific and technical translation, terminology, abbreviations, lexical features, syntactic structures, translation challenges, English-Uzbek translation, polysemy, technical style.*

At present, there is a need to distinguish the scientific and technical translation not only as a special kind of translation activity and a special theory investigating this type of activity, as well as assigning the status of an independent applied discipline to the scientific and technical translation. From the point of view of linguistics, the characteristic features of scientific and technical literature extend to its stylistics, grammar and vocabulary. The main task of scientific and technical translation is the extremely clear and accurate communication of information to the reader. This is achieved by logically substantiating the actual material, without explicitly expressed emotivity. The style of scientific and technical literature can be defined as formal-logical.

Scientific and technical texts reveal a number of grammatical features. The most typical lexical sign of scientific and technical literature is the richness of the text with terms and terminological phrases, as well as the presence of lexical constructions and abbreviations.

The characteristic features of the scientific and technical style are its informativeness (meaningfulness), logic (strict sequence, a clear connection between the main idea and details), accuracy and objectivity, clarity. Texts of this style can have these features to a greater or lesser degree; all such texts show a predominant use of linguistic means that contribute to the satisfaction of the needs of this sphere of communication. In the field of vocabulary, this involves the use of scientific and technical terminology and special vocabulary.

With respect to the syntactic structure, English texts of scientific and technical content differ in their constructive complexity. They are rich in participial, infinitive and gerundial constructions, which sometimes make it difficult to understand the text and put additional tasks for the translator.

Abundance with terms is one of the defining characteristics of the scientific and technical text. In the scientific and technical text, the share of terminological vocabulary is no more than 25%, and the main part of the vocabulary is general scientific, general technical and commonly used words. Therefore, scientific and technical vocabulary can be divided into terminological and nonterminological, which includes general scientific, general technical and commonly used vocabulary. This division and classification are to a certain extent conditional because of the mobility of the vocabulary, the process

of its constant replenishment with new units, and also because of the polysemantic words that enable them to function in different layers of the lexical content of the language. The same term in different sublanguages can express different concepts. The term "valve" refers to an electronic lamp, a crane in heat engineering, a valve in the engine industry, instrumentation, hydraulics, "storage" - memory; in other areas it actively functions as a warehouse, storage, accumulation. The technical term "frame" means: a frame in any device, a frame in machine tools, a frame in construction, a frame in movie production and television. Hence, the term, functioning in various spheres, can turn out to be polysemic.

In English scientific and technical texts an important place is occupied by a variety of types of abbreviations. Since they function independently, they are fixed in lexicographic sources and often become more known than their sources (radar, sonar, laser), they can be considered lexical units of the scientific and technical language. In English and the language of abbreviation, by sound and graphic form, it is customary to divide into abbreviations and acronyms.

There is an extensive group of words and terms called "false friends of an interpreter", transliteration translation of which leads to distortions of the meaning of the translated text.

Terms should provide a clear and accurate indication of real objects and phenomena, establish a clear understanding of the experts of transmitted information. Therefore, special requirements are imposed on this type of words. First of all, the term should be precise, have a strictly defined meaning, which can be revealed by a logical definition that establishes the place designated by the term concept in the system of concepts of a given field of science or technology.

To a great extent it favors the mutual understanding of specialists and the wide use of special general technical vocabulary, which also constitutes one of the specific features of the scientific and technical style. These are words and combinations that do not have the property of a term to identify concepts and objects in a certain area, but are used almost exclusively in this sphere of communication, selected by a narrow circle of specialists, familiar to them, allowing them not to think about the way of expression of thought, but to concentrate on the essence of the matter. Special vocabulary includes all possible derivatives of terms, words used in describing the connections and relations between terminologically designated concepts and objects, their properties and features, as well as a number of national words that are used, however, in strictly defined combinations and thus specialized. Such vocabulary is usually not fixed in terminological dictionaries, its meanings are not specified by scientific definitions, but it is no less characteristic of the scientific and technical style than the terms. In electronics manuals, for example, the voltage is applied – kuchlanish qo'llaniladi; the magnetic field is set up – magnit maydon hosil bo'ladi; the line is terminated – zanjir qisqichga chiqariladi; the switch is closed – kalit yopiladi. Compliance with the norms of the use of special vocabulary puts before the translator special tasks when creating the text of the translation.

English scientific and technical materials reveal a number of grammatical features. Any "scientific and technical grammar" is not developed. In scientific and technical speech, the same syntactic structures and morphological forms are used, as in other functional styles. However, a number of grammatical phenomena are noted in this style more often than in others, some phenomena, on the contrary, are found in it relatively rarely, others are used only with a characteristic lexical "scope". The general properties of the scientific and technical text cannot but be reflected in the syntactic structure of the utterance. For such materials, definitions of concepts and a description of real objects are especially characteristic by indicating their properties. The hidden definitions are also the numerous attributive groups, which are used in large numbers in scientific and technical materials. After all, calling a device a mechanically timed relay (mexanik sinxronlashtirilgan rele) is just like defining it as a relay which is mechanically timed (mexanik sinxronizatsiya qilingan rele). Such definitions make it possible to point

out the most diverse features of an object or phenomenon: a medium-powered computer, silicon rectifiers (a silicon diode). The number of definitions in such combinations can be very significant.

The scientific and technical materials of the English language are characterized by the predominance of simple sentences, which, on average, make up more than 50% of the total number of sentences in the text. At the same time, the number of complex sentences is relatively small. This phenomenon is unusual for the corresponding style in the Uzbek language, where complex sentences are used very widely. In this regard, English-Uzbek technical translations often use the combination of sentences, resulting in two or more simple sentences of the English original correspond to one complex sentence in the Uzbek translation.

A translation using a dictionary of unfamiliar unambiguous terms is straightforward. It is different when one English term corresponds to several Uzbek ones, for example: switch- o‘chirgich. In this case, a conscious choice of an analogue can be dictated only by a good knowledge of this subject. Let's take a sentence: Most of the modern radio-transmitters can communicate both telegraph and telephone signals. Two variants of translation are possible: Zamonaviy radiotarqatuvchilarning aksariyati telegraf va telefon signallarini berishi mumkin or ko'pgina zamonaviy radio uzatgichlar ham telegraf, ham telefon rejimida ishlashi mumkin. The second version of the translation will be more correct.

When translating an English text, the translator must fully and accurately convey the author's idea, embodying it in the form inherent in the Uzbek scientific and technical style and by not transferring to the Uzbek text the specific features of the English script. In the English text, the personal forms of the verb are predominant, whereas the Uzbek scientific style is characterized by impersonal or indefinite personal constructions.

In English texts of a descriptive nature, the future time for the expression of ordinary action is often used. Guided by the context, such sentences should be translated not by the future, but by the present.

In English scientific and technical texts passive constructions are especially common, whereas in the Uzbek language the passive voice is used much less often. When translating, therefore, it is necessary to resort to the replacement of passive constructions with other means of expression more characteristic of the Uzbek language.

Scientific and technical translation occupies a vital niche in the field of translation studies, demanding a specialized approach that prioritizes clarity, accuracy, and terminological precision. The linguistic features of English scientific texts—such as the frequent use of passive voice, participial and gerundial constructions, and dense technical terminology—pose unique challenges for translators working into Uzbek. Effective translation in this domain requires not only linguistic competence but also subject-matter familiarity to navigate polysemy, select context-appropriate equivalents, and adapt syntactic and stylistic features to the norms of the target language. Ultimately, the translator must bridge linguistic and conceptual gaps while preserving the scientific integrity and communicative function of the original text.

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