

Analysis of Nominalization as a Translation Strategy in Scientific and Technical Texts

LI Nian-nian

University of Shanghai for Science and Technology, Shanghai, China

Technical English is characterized by a high degree of specialization. The prevalent use of nominalization enhances the objectivity and rigor of the text by reducing reliance on subject-predicate structures, thereby achieving greater conciseness, objectivity, and precision. This paper will explore the nominalization strategies in the English translation of scientific and technical texts at both the lexical and the syntactic levels.

Keywords: nominalization, technical English, translation strategy

Introduction

Technical texts are characterized by a high degree of specialization, objectivity, and logical rigor. One of their distinctive linguistic features is the extensive use of nominalization, which refers to the use of nouns to express concepts that are originally conveyed by verbs or adjectives,—such as using abstract nouns to represent actions, behaviors, changes, states, qualities, or emotions (Lian, 1993). In the translation process, achieving the complete formal equivalence between English and Chinese is often challenging. English tends to adopt object-oriented expressions, avoiding the use of personal subjects and instead presenting things in an objective tone. In contrast, Chinese often adopts a subject-focused perspective, describing the world through human experiences, actions, or states, and thus shows a preference for personal subjects (Lian, 1993). By comparing English-Chinese differences and analyzing the characteristics of technical texts, it becomes evident that nominalizing verbs, adjectives, or clauses—while condensing grammatical structures—can contribute to greater conciseness and objectivity.

Nominalization Translation Strategy at the Lexical Level

English is considered a static language, while Chinese is inherently dynamic. English tends to favor nouns, resulting in a more stative narrative style, whereas Chinese prefers verbs, leading to a dynamic mode of expression (Lian, 1993). Consequently, in Chinese-to-English translation, a common phenomenon involves transforming verbs into nominal structures. In terms of the morphological construction of nominalizations, their headwords can be divided into two categories: those that remain unchanged in form and those derived through affixation. In English, the vast majority of such head words are derived by adding suffixes. Common nominal suffixes for verbs or adjectives include -ion, -al, -ment, -ness, and -y (Cong, 2005).

Nominalization of Verbs

The transformation of verbs into nominalized structures is one of the most common forms. This process involves adding suffixes (such as -tion, -ment, -ance, -ing) to convert a verb into a noun, conceptualizing the action or process.

Example (1)

ST: 考察一下音频带宽，我们便可以看出高频的重要性。

Literal Translation:

By examining the audio bandwidth, we can see the importance of high frequencies.

Revised Translation:

An examination of the bandwidth of the audio frequency shows the importance of higher frequencies.

Analysis:

In the source text, the expression “考察” functions as a verb corresponding to the English “examine”. In the revised version, it is nominalized as “examination”. By making “examination” the headword and connecting it to the subject noun with the preposition “of”, the translator constructs a subject phrase that serves as the grammatical subject of the entire sentence. Rendering “考察” as the noun “examination” avoids colloquial expression, indicates that the conclusion is based on objective facts rather than personal opinions, and enhances the objectivity and formality of the translation.

Nominalization of Adjectives

The conversion of adjectives into nouns is another form of nominalization. The most typical case is “the + adjective” to refer to a category of people. In Chinese-English translation, many adjectives can be transformed into abstract nouns by adding suffixes.

Example (2)

ST: 对于锌来说，由于其对降水酸度和环境湿度比较敏感。因此，铁山坪站点的腐蚀速率反而稍微高于城区观音桥站点。

Literal Translation:

Zinc is highly sensitive to precipitation acidity and environmental humidity. Consequently, the corrosion rate of zinc at TSP was a little higher than that at GyQ.

Revised Translation:

Due to its relative high sensitivity to precipitation acidity and environmental humidity, the corrosion rate of zinc at TSP was a little higher than that at GyQ.

Analysis:

In the original text, the Chinese adjective “敏感” corresponds to the English adjective “sensitive”, which has been nominalized into “sensitivity” in the revised translation. This nominalization conforms more closely to the conventions of scientific writing in English, where abstract concepts are often expressed through nouns. Compared with the adjectival form, the nominalized structure not only makes the expression more concise and formal but also meets the requirements for academic rigor and conciseness in technical English.

Nominalization Translation Strategy at the Clause Level

The thematic progression pattern is an important means to achieve textual cohesion and coherence. The theme is the starting point of information, while the rheme is the explanation and development of the theme. According to Halliday, the theme is the element which serves as the point of departure of the message; it is that with which the clause is concerned (Halliday, 1985). English is a hypotactic language, whereas Chinese is a paratactic language, with implicit logical relationships.

Thematic progression requires explicit logical connections through conjunctions, participles, nominal structures, etc. Nominalization can condense an entire clause into a noun phrase, simplifying the sentence structure and highlighting the topic and core information. At the same time, logical relationships between clauses, whether explicit or implicit, such as cause-effect, condition, concession, can be manifested through the nominal structures. For example:

Example (3)

ST: 随着OTT视频和4K电视的兴起, 超宽带网络建设的步伐正在加快。

Literal Translation:

With the rise of OTT video and 4K television, the pace of ultra-broadband network construction is accelerating.

Revised Translation:

The emergence of OTT videos and 4K TV is accelerating ultra-broadband network deployments.

Analysis:

This sentence implies a “cause-effect” logical relationship: “the rise of OTT video and 4K television” is the cause of “the acceleration of ultra-broadband network construction”. The revised translation converts the first part of the sentence into a nominal structure, using it as the subject. This condenses the sentence structure and makes the cause-effect relationship between the two parts more explicit.

Example (4)

ST: 只要把这个设计稍作修改, 就可以大大提高该武器的杀伤力。

Literal translation:

With just a slight modification to this design, the weapon's lethality can be greatly enhanced.

Revised translation:

Slight modifications of the design enable the lethality of the weapon to be greatly enhanced.

Analysis:

This sentence illustrates a condition-result logical relationship. Nominalizing the first clause of the sentence avoids the use of *if* or *with* structures, making the expression more concise while at the same time rendering the logical relation explicit.

Example (5)

ST: 温度升高, 材料的导电性下降。

Literal Translation:

When the temperature rises, the electrical conductivity of the material decreases.

Revised Translation:

An increase in temperature leads to a decrease in the conductivity of the material.

Analysis:

The original text implies a causal relationship: temperature increase → decrease in conductivity. By treating “温度升高” (the rise in temperature) as a nominal structure and making it the Theme, the causal logic is made explicit. This enhances information density and ensures coherent information flow.

Example (6)

ST: 石墨烯具有超高导电性。这是由于其碳原子呈六边形晶格排列。电子在晶格中移动时阻力极小。因此，石墨烯可应用于高频电子器件。

Literal translation:

Graphene has ultra-high conductivity. This is because its carbon atoms form a hexagonal lattice. Electrons move through the lattice with minimal resistance. Therefore, graphene can be used in high-frequency electronic devices.

Revised translation:

The ultra-high conductivity of graphene stems from its hexagonal carbon atom lattice, enabling near-frictionless electron movement. This property makes graphene suitable for high-frequency electronic devices.

Analysis:

In the literal version, the Theme chain is: Graphene → This → Electrons → graphene, which creates vague references, topic jumps, and loose causal connections. In the revised version, “石墨烯具有超高导电性” is nominalized as the “ultra-high conductivity of graphene”, functioning as the Theme. Meanwhile, “其碳原子呈六边形晶格排列” is also nominalized as “its hexagonal carbon atom lattice”. The progression is thus: Theme → new information (lattice). In the following sentence, This property becomes the new Theme, referring back to the “ultra-high conductivity”. Through nominalization and a linear thematic progression pattern, the key information is condensed into two sentences, ensuring tight cohesion and coherence. This makes the text more concise and fluent while avoiding information disconnection.

Conclusion

Nominalization serves as a crucial feature of technical English. In technical translation, the use of nominal structures can render the target text more concise, compact, and objective. Therefore, translators should, on the basis of a thorough understanding of the specialized content and pragmatic functions, consider the differences between English and Chinese in terms of hypotaxis versus parataxis, dynamic versus static tendencies, and personal versus impersonal perspectives. By doing so, they can apply nominalization strategies appropriately to enhance the professionalism of the translated text.

References

- Cong, Y. X. (2004). A contrastive study of nominalization between English and Chinese. *Foreign Languages and Literature*, (04), 89-92.
- Fan, L. (2022). China's domestic studies on thematic progression: Previous studies and future development. *Foreign Languages Research*, 39(02), 14-23.

- Halliday, M. A. K. (2000). *An introduction to functional grammar*. Beijing: Foreign Language Teaching and Research Press.
<https://doi.org/10.13978/j.cnki.wyyj.2022.02.012>.
- Hu, Z. L. (1994). *Textual cohesion and coherence*. Shanghai: Shanghai Foreign Language Education Press.
- Hu, Z. L., Zhu, S. S., & Zhang, D. L. (1989). *A survey of systemic functional grammar* (pp. 112-145). Changsha: Hunan Education Publishing House.
- Lian, S. N. (1993). *Contrastive studies of English and Chinese* (pp. 76-104). Beijing: Higher Education Press.
- Yang, L. (2013). Discourse cohesion function and E-C translation of nominalized structures in Sci-tech English. *Chinese Science & Technology Translators Journal*, (01), 1-3. <https://doi.org/10.16024/j.cnki.issn1002-0489.2013.01.007>.