STRATEGIES DEALING WITH TRANSLATING TECHNICAL NOUN PHRASES IN ELECTRONICS TEXTS

CÁC CHIẾN LƯỢC DỊCH CỤM DANH TỪ KỸ THUẬT TRONG VĂN BẢN NGÀNH ĐIỆN TỬ

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Abstract - This study aims at determining structural patterns of English noun phrases in general and in electronics texts in particular and analyzing differences in word order between English noun phrases and Vietnamese counterparts. Moreover, various translation strategies suggested by scholars are taken into consideration, which lays the foundation for the translation of technical noun phrases. What is more, it investigates the common strategies students majoring in electronics at a university in Vietnam use in dealing with translating technical noun phrases in electronics texts. Above all, it puts forwards thoughtful recommendations for the effective translation of technical noun phrases in English electronics documents. Findings from the study can contribute to research in the field of compilation and interpretation of technical documents in general.

Key words - noun phrases; translation; translation strategies; electronics texts; technical documents

Tóm tắt - Bài nghiên cứu này nhằm xác định cấu trúc của cụm danh từ kỹ thuật tiếng Anh nói chung cũng như trong tài liệu ngành điện tử nói riêng và phân tích sự khác biệt về trật tự từ giữa cụm danh từ tiếng Anh và tiếng Việt. Hơn thế nữa, các chiến lược dịch thuật của các học giả trên thế giới cũng được xem xét để tạo cơ sở lý thuyết cho việc dịch các cụm danh từ kỹ thuật trong loại văn bản này. Ngoài ra, bài báo cũng khảo sát các chiến lược dịch thuật mà sinh viên chuyên ngành điện tử tại một trường đại học ở Việt Nam dùng để dịch các cụm danh từ này. Trên tất cả, bài báo đề xuất các giải pháp để việc dịch cụm danh từ kỹ thuật trong văn bản ngành điện tử được hiệu quả hơn. Kết quả nghiên cứu có thể đóng góp vào những nghiên cứu liên quan đến công tác biên - phiên dịch tài liệu kỹ thuật nói chung.

Từ khóa - cụm danh từ; dịch thuật; chiến lược dịch thuật; văn bản ngành điện tử; văn bản kỹ thuật

1. Rationale

Danang University of Science and Technology (DUT) witnesses the high demand for crucial skills among students as engineers-to-be who are challenged by numerous difficulties in understanding and translating technical texts. Technical documents, characterized by their precise and logical description of science, may be abounded with numerous noun phrases.

This study aims at finding out structural patterns of English noun phrases in general and in electronics texts in particular and determining differences in word order between English noun phrases and Vietnamese counterparts. Moreover, various translation strategies are under discussion, which paves the way for the translation of technical noun phrases in the genre. Besides, it investigates the common strategies students majoring in electronics at DUT use in dealing with translating technical noun phrases in electronics texts. Above all, it puts forwards thoughtful recommendations for the effective translation of technical noun phrases in English electronics documents.

2. Theoretical framework

2.1. An overview of NPs and technical terms

As Newmark (1988a) assumes, technical translation is primary distinguished from other forms of translation by terminology. Along with the increasing advancement of science and technology, there appear new terms to nominate new things. Terms, to some extent, are single concepts and sometimes are not enough to describe the intended content. Therefore, scientists and linguists tend to combine terms with each other or with other semantic aspects, like adjectives, nouns, verbs, etc., forming noun phrases. In technical documents, the frequency of noun phrases (NPs) is very high, simply because the scientific and technical documents are characterized by the description of phenomena, objects and process.

Notably, in the scope of the study, it is worthwhile bearing in mind that the NPs in this study are technical ones in electronics texts, which are different from NPs that denote non-technical concepts.

The meanings of technical terms are closely associated with a particular subject area and the best way to determine this for any word is to use a rating scale that categorizes words according to how closely related they are to a particular subject area (Baker, 1988; Farrell, 1990; Sutarsyah, Nation & Kennedy, 1994). This can be done using a technical dictionary compiled by a subject specialist or a group of specialists (Nation, 2001; Oh et al., 2000).

Noun phrase is a phrase, which has noun or pronoun as its head (Morley, 2000). Halliday (1985) explains that constituents which modify the head noun and appear before the head noun are called pre-modifiers whereas the modifiers placed after the head of noun phrase are called post-modifiers.

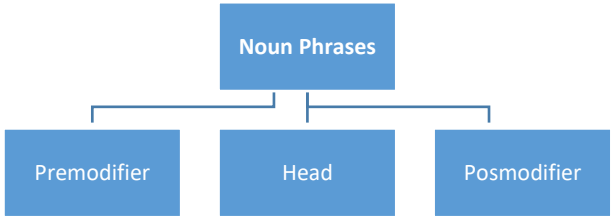


Figure 1. *Structures of NPs*

According to Quirk, Greenbaum, Leech & Svartvik (1972), noun phrase is the element in the sentence which typically functions as subject, object or complement. In scope of this study, the author only focuses on NPs with premodifiers.

Premodifiers, as discussed by Quirk et al. (1972), are all the items placed before the head, notably adjectives and nouns, verbs or determiners. As determiners; however, do not seem to be a matter of difficulty in technical documents, they are not under analysis in this study.

From the examples below, we can see that Noun pre-modifiers in English NPs precede the head noun whereas in Vietnamese, they are put after the head noun. The differences in word order between English NPs and Vietnamese equivalents may be shown in the following formula:

Table 1. *The differences in word order between English NPs and Vietnamese equivalents*

English *Eg.*	Noun premodifier + head noun *Data bank*
Vietnamese Eg.	Head noun + Noun modifier *Ngân hàng dữ liệu*

2.2. Translation strategies and procedures

A growing body of literature has examined translation strategies and procedures. As Nida (2006) mentions, translating require specialized skills, aesthetic sensitivity and translators must have special capacity for sensing the closest natural equivalent of a text.

Vinay and Darbelnet (1989) listed two basic translation methods including direct translation methods (involving borrowing, calque and literal translation) and indirect translation methods (with transposition, modulation, equivalence and adaptation).

Newmark (1988b) mentions the difference between translation methods and procedures, stating that while translation methods relate to whole texts, translation procedures are used for sentences and the smaller units of language.

The research mainly bases on Newmark's strategies proposed in 1988b in which he suggests several different strategies. Due to the scope and the aim of the study, the four translation strategies by Newmark (1988b) can be applied for the translation of NPs as mentioned below.

2.2.1. Naturalization

This translation procedure involves adapting the source language (SL) word to the normal pronunciation and then to normal morphology.

2.2.2. Functional- Descriptive Translation

Function-Descriptive translation is the method which is applied to cultural words, requires the use of a culture-free word, sometimes with a new specific term; it is therefore neutralizes or generalizes the SL words, and sometimes adds a particular explanation. This procedure is applied when SL technical words have no target language (TL) equivalents, then a detail description is added next.

Egg: Request of Discussion- Đề xuất để khởi tạo những nhóm tin tức và bắt đầu thảo luận trên chủ đề mà bạn chọn.

2.2.3. Reduction and expansion

This translation strategy involves adding or removing elements in translation.

2.2.4. Shifts or transpositions

A shift or transposition is a translation procedure needed when there is a change in the grammar form SL to TL. This translation strategy is line in with that the strategy called "rank-shift" by Catford (1965) or "Transposing" by Vinay and Darbelnet (1988), both of which can be applied as important and useful methods in technical translation, especially in dealing with the nonequivalence of the two languages.

As Vinay and Darbelnet (1988) suggest some transpositions to deal with this obstacle, the transposition can be the change of word forms or sentence's level; for example:

SL verb ⟶ TL noun

SL clause ⟶ TL noun phrase

Eg. Transducer that measures position - *bộ cảm biến đo vị trí*

3. Methodology

This research paper is carried out with the combination of both quantitative and qualitative methods. The qualitative method in the study is expressed in analyzing structures of technical NPs from the textbook Career Paths: Electronics (Evans, Dooley and Taylor, 2012). The quantitative method in the study is expressed in the illustration of the frequency of various forms of NPs and the occurrence of current translation strategies dealing with the technical NPs among the students majoring in electronics.

In terms of research procedures, the study analyzes structures of NPs terms from the textbook Career Paths: Electronics by Evan, Dooley and Taylor (2012). Afterwards, in the next stage, a questionnaire survey is carried out in January 2018 among 120 students of Electronics-majored students who have used the textbook under study as learning materials at DUT in the year 2018. The questionnaires consist of 20 questions in the form of multiple-choice, and each group of five questions focuses on one particular translating strategy. It is in this way that students can have more chances for their choices of translation strategies, which can contribute to enhancing the reliability of the study. After analyzing the collected data, several findings are then drawn out.

In terms of reliability, the data analysis is carried out based on quantitative and qualitative methods, and collected data is analyzed and listed in a reliable and clear way. Moreover, data is collected from a reliable source, a textbook published by Express Publishing in the United Kingdom and all examples of suggested translation are extracted from English-Vietnamese *dictionary* of *science* and *technology (2006)*, which is a reliable source of reference.

In addition, the technicality of the NPs can be ensured as terms under study are taken from the glossary of terms of the textbook Career Paths: Electronics (Evans, Dooley and Taylor, 2012) and all examples of suggested translation are extracted from English-Vietnamese dictionary of science and technology (2006). Regarding validity, the textbook under study was released in 2012. In brief, the study strictly follows all the research procedures in order to maintain reliability and validity.

4. Findings and discussion

4.1. Findings from textbook observation

The table below shows the percentages of occurrence of various NPs found in the textbook. It is notable that Form 10 (N1 + (N2) + (…) + N) occupy the biggest proportion (42%), followed by Form 2 (ADJ + N) (21%). In contrast, the other forms are much less common in the textbook with much lower percentages, ranging from 2% to 7%.

Table 2. *The percentages of occurrence of technical NP forms found in the textbook*

	Structures	Frequency
Form 1	ADJ+ N Eg: hard switch	21%
Form 2	ADJ + N + N Eg: active heat sink	7%
Form 3	V-ing + N Ex: drawing paper	7%
Form 4	N + V-ing + N Eg: current-carrying conductor	2%
Form 6	PP/V3 + N Eg: varied capacity	7%
Form 7	N + PP/V3 + N Eg: gas–insulated switchgear	7%
Form 8	ADV+PP/V3 + N Ex: eccentrically mounted doms	5%
Form 9	Hyphenated NPs Eg: flip-up latch	2%
Form 10	N1 + (N2) + (…) + N Eg: input jack	42%

4.2. Findings from students' survey

4.2.1. Students' choice of Sino-Vietnamese translation

The first question group relates to the use of Sino-Vietnamese in translation. Each of the questions offers two choices, one is Sino-Vietnamese and the other is pure-Vietnamese. The results show that a large number of students tend to use Sino-Vietnamese as the percentage of students choosing Sino-Vietnamese translation is much greater than that of students in favor of pure-Vietnamese translation (72% compared to 28%). The reason why there are still a number of students in favor of pure-Vietnamese may lie in the simple and easy-to-understand characteristics of pure-Vietnamese translation.

4.2.2. Students' choices of abbreviated NP's translation

The second group question involves the abbreviated NPs' translation. The first suggestion for keeping the abbreviations is the most favorable one (51%). The reason for this may lie in their good knowledge of technical terms and their assumptions that there is no need to translate these terms. The answers involving in the combination of the abbreviations and the original writing forms, gains less preference at 35% while the choice of keeping SL abbreviations the same experiences the lowest percentage (14%).

4.2.3. Students' choices of transposition process

In terms of the shift or transposition during the translation process, the greatest percentage of students (74%) choose the right Vietnamese translated version, which have been shifted from TL. Therefore, it is possible to say that shift is a traditional and highly welcomed strategy. However, there still exist the wrong choices in which NPs' elements are not put in proper order. The cause of 26% of wrong answers may come from the difference in order among Vietnamese and English NPs.

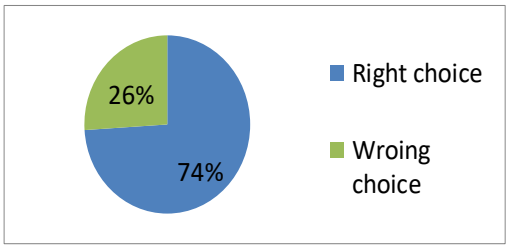


Figure 2. *Comparison of choices related to transposition strategy*

4.2.4. Students' choices of omission of TL elements

As seen from the chart below, the highest percentage (48%) fall in the group that choose the translation in which nominal nouns are added before the acronyms to clarify functions or classification of things or objects. However, there is a great number of students (36%) choosing the descriptive translation for the acronyms. The rest is made up by the students who prefer acronym-only translation.

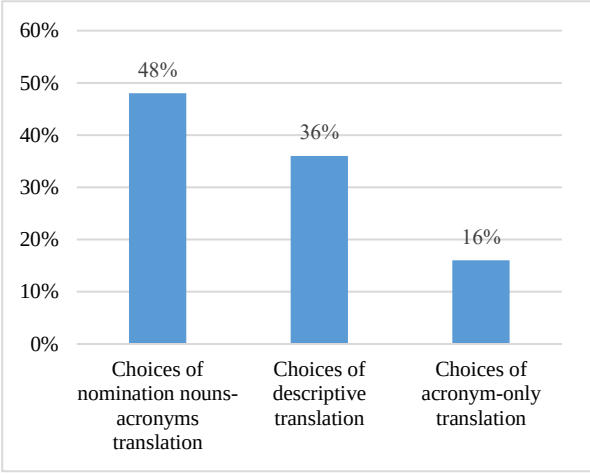


Figure 3. *Percentage of students' choices involving the omission strategy*

5. Implications

After analyzing the collected data, reference materials as well as published and recognized translations of electronics NPs, some strategies dealing with technical NPs are put forward below

5.1. Naturalization

As the NP is the combination of many new terms for which there are not yet equivalent in Vietnamese. Therefore, the NPs can be transcribed into Vietnamized pronunciation and morphology. Moreover, this translation method can also be applicable to acronyms.

Eg. Zenner diode(EL): *đi - ốt zen- nơ*

The NPs in form of acronym (the combination of the first initialized letter of each word element of the NP) are kept the same in the written form but are Vietnamized in

pronunciation.

5.2. Functional - Descriptive Translations

In order to make the NP have a full meaning, we can add nominal nouns before the abbreviations to clarity the function or classification.

Eg. hệ điều hành Window XP, đầu CD_ROM

SCAM (subcarrier amplitude modulation): sự điều biến biên độ sóng mạng.

Although this method is time –saving and effort-saving for translators, it may cause difficulty to readers lacking technical background knowledge.

5.3. Reducing redundant words in NPs

The reduction translation strategy can be most widely applied to Form 6 (PP/V3 + N) and Form 8 (ADV + PP/V3 + N) for which the phrase "được + động từ" is used to denote the passive action. However, as technical documents are characterized by the terse and precise explanation, the word "được" is often omitted to make it shorter.

Form 6: Air-lubricated thrust bearing (M)
Ổ trục (được) bôi trơn bằng khí

Form 8: directly connected resistor (EL)
Điện trở (được) nối trực tiếp

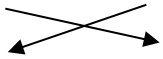
5.4. Shifts or transpositions

As we can see in the translation theory, a shift or transposition is a translation procedure needed when there is a change in the grammar form SL to TL. In the case of technical NPs, this strategy is applicable to most of our forms of NPs because of the grammatical nonequivalence between the two languages. The translation of some forms of NPs requires some types of transposition as follows.

5.4.1. A change in word order

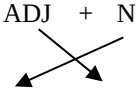
As we have mentioned above in the theoretical framework, one of the main differences between English and Vietnamese NPs is their word order. To be more specific, adjective or modifying element precedes the head noun whereas the order is reversed in Vietnamese. In this case, in the application of transposition method, there is an automatic change in the position of modifiers and head noun.

English NPs: (pre)modifiers + head noun



Vietnamese NPs: head noun + modifiers

Form 1: ADJ + N



N ADJ

Random access memory: Bộ nhớ truy cập ngẫu nhiên

Form 10: Noun + Thing

Communication system: *Hệ thống truyền thông*

Voice telecommunication service: *Dịch vụ viễn thông thoại*

Form 3: V-ing + N

Installing data: Chương trình cài đặt

Swimming data: *Dữ liệu dòng*

Charging system: *Hệ thống tính cước*

Translating procedures of this type of transposition is comparatively simple. First, different elements in the group are separated. Then, the order is changed into their corresponding word order in Vietnamese.

English: 1)insulation (2) resistance (3)value

Vietnamese:(3)giá trị (2)điện trở (1) cách điện

5.4.2. Translation by a rank-shift

In some cases, a mere change of word order in translation cannot convey the meaning. Then, in order to ensure the proper content transferred, it is in some cases necessary to change the grammatical structure of NPs in SL. A NP in SL may be translated into a NP or even a word in the TL and vice versa. This principle termed "rank- shift" by Catford (1965) is characterized by the replacement of a virtual gap by a grammatical structure. The strategy "rank–shift" is applicable to these following forms of NPs:

Form 8: ADV + PP/V3 + N

Electromagnetically coupled detector: *Bộ cảm biến được ghép nối điện tử*

It is, in some cases, impossible to translate this NP simply by changing the word order as it will not make any sense. In the example above, it is necessary to paraphrase "electromagnetically coupled detector" into "detector that is coupled electromagnetically" beforre it is then correspondingly translated into "*bộ cảm biến được ghép nối điện tử*".

Form 7: N + PP/V3 + N

This form requires the replacement of a NP by a clause in Vietnamese. First of all, this form of NP is translated into an equivalent clause in Vietnamese with case, usually with "được" or "bằng".

Form 4: N + V-ing + N

The rank-shift strategy is applied in the same way for this form as NPs of this type can be replaced by a clause in Vietnamese.

In conclusion, rank-shift can be applicable to the forms of NPs including form: ADV + PP/V3 + N; Form: N + PP/V3 + N and form N + V-ing + N. In these cases, an English NP is translated into a Vietnamese clause.

5.5. Using Sino – Vietnamese elements:

Sino-Vietnamese words are characterized by its formality and shortness. Therefore, instead of translating a NP into a long Vietnamese structure, translators can use Sino-Vietnamese words to shorten the structure.

Eg. Microwave signal: "*Tín hiệu vi ba*" (Sino-Vietnamese words) instead of "*tín hiệu sóng cực ngắn*"

To sum up, use of Sino-Vietnamese elements in translation has some advantages as some Sino-Vietnamese words are so familiar to readers that the pure Vietnamese ones cannot replace them. However, in the event that young generations do not have background knowledge about Sino and Sino-Vietnamese, some strange Sino elements are almost impossible to understand. In this case, it is advisable for translators to consider either keeping the

Sino-Vietnamese words or replacing them by pure, clear but long Vietnamese ones.

6. Conclusion

In conclusion, based on findings from textbook observation, NPs as terms in the textbook are under various forms as mentioned above. An insight into these forms and differences in word order between English NPs and Vietnamese equivalents can be beneficial in the translation of NPs terms in the genre of electronics texts.

Moreover, it can be seen from the results of the survey that although the students may have considerable knowledge of technical field, some are still not proficient enough in the translation of the term. In this case, teachers should analyze the NPs as terms to help students understand structures of NPs and can then determine the most suitable translation strategy to convey the whole meaning of the intended content and ensure the purity and beauty of Vietnamese. Hopefully, the suggested translation strategies can be beneficial for teachers, students, translators and all of those who are in search of effective translation of technical NPs in the genre of electronics texts.

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