

A Classroom-Centred Approach to The Translation into Spanish of Common Noun Compounds Phrase Patterns in English Technical Texts

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Noun compounds are quite common structures to be found in scientific and technical texts. Many of them, especially the most complex ones create major difficulties to non-native students, having to deal with this type of texts written in English, in their attempt to translate them into their mother tongue so as to better comprehend their meaning and concept.

This paper intends to present a survey of the main difficulties that Engineering students at the University of a translation exercise carried out in the classroom as the starting point. Finally, a brief explanation of the approach we attempt to follow within the classroom in order to help them minimize their problems is offered.

1. Introduction

Engineering students at the University of Las Palmas de Gran Canaria study English during either one or two academic years as part of their curricula. This subject, although known as just “English language” should be called “Technical English” since it is designed according to the more relevant contents of their specific area of study within Engineering. That is, the texts selected for working on, deal with aspects studied by the learners in their degree. Among the different tasks and activities organized for working within the classroom, the translation of some relevant paragraphs into Spanish play an important role, since translating the texts seems to be a natural tendency for most students in order to understand the message conveyed..

Although translating a technical text from English into Spanish may seem at first sight an easy and simple task once the meaning of the vocabulary is known, the task is not usually that simple and this becomes even harder when the “eventual translators” are people who usually have some problems in facing specific language patterns, as it is the case of many Engineering students.

Throughout the years I have been teaching Technical English, I have found that one of the main problems that our students face in translating a technical text into Spanish, whether in written or oral form, lies in the noun compounds, English technical texts make a pervasive use of this kind of

patterns or structures what contributes to make the understanding of the texts and the search for an equivalent of these common patterns in Spanish a hard task for our students.

Noun compounds “can be defined as two or more nouns plus necessary adjectives (...) that together make up a single concept” (Trimble, 1985:130)

Three of the simplest noun compounds patterns that we encounter in English technical texts are:

ADJECTIVE + NOUN such as human speech or optical fibres

ADVERB + ADJECTIVE + NOUN such as highly clean air

NOUN + NOUN such as speech recognition or telephone network.

These patterns are quite easy to translate into Spanish since they do not show any grammatical complexity. Even the third pattern, that for a Spanish speaker would be a bit different from his/ her language patterns, should not represent any complication since it is easily translatable, taking the second noun as the head of the group and the first one as an adjective or as a noun complement. Thus “speech recognition” would be logically translated as “reconocimiento del habla” and “telephone network” as “red telefónica.”

These simple patterns can be expanded just by adding more nouns, adjectives or adverbs, thus obtaining quite complex patterns in some cases. The so-called expansions are commonly used in the technical texts, as it has been stated by scholars dedicated to research in the area of English for Science and Technology, such as Louis Trimble (1985) whose work on noun compounds is taken as a major basis in our approach. Along this line, research studies on the teaching and learning of collocational patterns which in a sense are related to the noun compounds, have thrown more light on the importance of considering the translation of these structures a way of improving vocabulary learning.

2. Methodology

To carry out our study we have selected eight technical texts dealing with different areas within Telecommunications Engineering. These texts have

been extracted from different sources such as journals and books mainly. As we were reading them, we put all our attention in the different expansions of the noun compounds used in each one. After having underlined all of them we started to sort out each one under a specific pattern, thus obtaining the following patterns, ordered according to their frequency of use:

1. ADJECTIVE + NOUN + NOUN
2. NOUN + NOUN + NOUN
3. ADJECTIVE + NOUN + NOUN + NOUN
4. ADJECTIVE + ADJECTIVE + NOUN
5. NOUN + ADJECTIVE + NOUN
6. ADVERB + ADJECTIVE + NOUN + NOUN
7. ADVERB + ADJECTIVE + NOUN
8. NOUN + NOUN + ADJECTIVE + NOUN
9. ADJECTIVE + ADJECTIVE + NOUN + NOUN
10. ADJECTIVE + NOUN + ADJECTIVE + NOUN
11. ADJECTIVE + NOUN + NOUN + ADJECTIVE + NOUN

At first sight, the translation of these patterns should not represent any particular complication for the expert translator who must be completely accustomed to deal with the most awkward grammatical aspects of the English language. However, some may offer some “traps” that even the expert translator may eventually not notice.

Nevertheless, our main aim is to attempt and show how these patterns may make the translation of technical texts in which they are quite used, really difficult to the students of technical degrees that most of the times need to translate the text in order to get a full understanding of it, as we already said. Therefore, it is our objective to show these difficulties and to attempt giving some “clues” to make the task easier.

The next step in our study was to select several sentences from some of the texts in which the three most common noun compounds patterns were present. We intended to choose sentences whose vocabulary and content were generally known by the students.

The sentences were as follows:

1. An example of the technology behind this revolution is a chip that incorporates a *digital signal processor*.
2. Converting the *analogue voice signals* to and from digital is performed by an external chip.
3. The other major part of the chip is a microcontroller used in a variety of *office automation applications*.
4. *Fibre optics communications* is an altogether more sophisticated way of sending messages from one place to another.
5. *High precision satellite maps* have the advantage of showing not only the exposed objects but also buried systems.

The first three sentences were taken from an extract titled “The End of the Phone as We Know It.” The fourth one, from “Fibre Optics Communications” and the last one from “Remote Sensing Gets Renewed Impetus.” All of these texts are dealt on with in our ESP classes, especially in Telecommunications Engineering. These five sentences were not chosen at random. They were selected since they fulfil some of the requirements named above such as:

- The vocabulary, although specific, is generally known by people who knows a bit about new technologies.
- The noun patterns contained in them belong to the three most common patterns found in these technical texts, that is

ADJECTIVE + NOUN + NOUN
NOUN + NOUN + NOUN
ADJECTIVE + NOUN + NOUN + NOUN

- There are two noun compounds belonging to the first and second patterns respectively in order to show more clearly the difficulties in translating the same pattern, but with a different order in the Spanish equivalent.

3. Results and discussion

These sentences were handed out to 40 Engineering students with different levels of English and with a general knowledge about the themes dealt with in the texts from which the sentences were taken.

The results were as follows:

1. ADJECTIVE + NOUN + NOUN

digital	signal	processor
RIGHT		WRONG
11		29
27.5%		72.5%

2. ADJECTIVE + NOUN + NOUN

analogue	voice	signals
RIGHT		WRONG
24		16
60%		40%

3. NOUN + NOUN + NOUN

Office	automation	applications
RIGHT		WRONG
2		38
5%		95%

4. NOUN + NOUN + NOUN

fibre	optics	communications
RIGHT		WRONG
19		21
47.5%		52.5%

5. ADJECTIVE + NOUN + NOUN + NOUN

High	precision	satellite	maps
RIGHT			WRONG
8			32
20%			80%

For the first pattern, as you can see we have selected the following noun compounds:

digital signal processor
analogue voice signals

In approaching this kind of noun compounds patterns and most of the other ones as well, Engineering students find generally difficult to distinguish the head of the noun compound between the first and the second nouns (signal or processor and voice or signals in this case).

Another major doubt arises when they have to decide if the adjective is qualifying the noun next to it or the second one. The latter is the main difficulty we have found out from the results of the test. It seems to exist a general tendency to think that the adjective should qualify the head of the noun compound, that is, the second noun. Thus, we can see that the percentage of right answers in the translation of the second noun compound is higher than that of the first one.

As for the first pattern, for the second one (NOUN + NOUN + NOUN) we chose two sentences in which the translation order of the compounds noun phrases was different in order to find out their main difficulties.

In the translation of “fibre optics communications” we find that they show less difficulty in identifying the head of the compound. This may be due to their knowledge of the fixed expression “fibre optics” which is generally known nowadays. However, we have quite an opposite result in the translation of “office automation applications.” Most of the students have difficulties in identifying once more the head of the compound and especially in ordering the different elements. Added to this, there is a general tendency to use the preposition “de,” thus obtaining translations such as:

Comunicaciones de las fibras ópticas
Aplicaciones de la automatización de las oficinas.

Finally, the last sentence presents an expansion of the first pattern and in this case, the difficulties lie in recognising the four elements as part of the same compound, thus not identifying the head of the compound as well as in making use of the preposition “de.” Thus, we have translations such as:

La alta precisión de los mapas de satélites ...

In order to help our students to minimize their confusion in identifying the head of the noun compound, we usually give them a basic rule. First, they are taught to identify where the noun compound starts and finishes by giving them simple “clues” such as their typical position in the sentence according to their function and the person and number of the verbs they are accompanied by. Once this is done, we recommend them to take the last noun in the compound as the head.

Another basic rule they are taught in order to reduce their problems in the translation of these patterns is to start translating from the last element to the first one in the continuum. Nonetheless, they are always reminded that this is not a golden rule. However, once they have learned this, they always tend to apply it. Thus, we obtain in a high percentage translations of the type: “procesador de señal digital” in which it is not clearly shown if “digital” refers to “señal” or to “procesador.”

When dealing with specific technical noun compounds such as “digital signal processor” and “analogue voice signals” are, a previous and simple introduction and explanation of the content we are going to deal with in the text, should be done in order to help our students to clarify their ideas with regards to possible doubts that may arise. In this case, we should explain to them that when we talk of signals in the field of electronics, we distinguish two types : digital and analogue. This brief explanation may help a lot to reduce mistakes when translating or even when just trying to understand the noun compound.

Another major task to be carried out is the teaching of basic collocational patterns. “‘Collocations’ are usually described as ‘sequences’ of lexical items which habitually co-occur [i.e. occur together].” (Cruse

1986:40)¹. If we teach students how to recognise several basic collocations, their confusion in distinguishing which noun is qualified by the adjective may be reduced.

E.g.: *current affairs service*
 urban apartment towers
 centralized data bases
 geographic information science

Besides as these ones, there is another strategy that we should teach our students in order to make this task easier. That is, to paraphrase the noun compound patterns in order to make their understanding more accessible. So as to learn to paraphrase, the student needs to know that these patterns are generally a way of reducing more complex ones as Louis Trimble (1985:132) has stated and represented in his chart of 'rules' for understanding and producing compounds. Regarding scientific and technical examples he points out:

I. Compounds usually represent shorthand versions of the following:

1. Prepositional phrases: a differential time domain equation = the time domain of a differential equation.
2. Strings of prepositional phrases: momentum transfer experiments = experiments of the transfer of the momentum.
3. Nouns modified by relative clauses. Automatic controller action = controller action which is automatic.
4. Nouns modified by gerund phrases: a fluid bed reactor = a reactor containing a fluid bed.
5. Combinations of the above: an air pressure device = a device which signals the pressure of air; a quiescent state fluid bed reactor = a reactor containing a fluid bed which / that is in a state of quiescence.

¹ This quotation has been extracted from the Ph.D. Dissertation *The Study of Collocations*, by Cristina Gitsaki.

II. Notes:

1. The most commonly used prepositions in scientific and technical compounds are *of, for, in, on,* and *with*. *I would add the preposition *to* as well. E.g.: office automation applications could be paraphrased as applications of the automation to the office.
2. In addition to the relatives in their base forms (*who, which, that*) translations (or back-formations) of compounds use relatives as prepositional objects; *in which, for which, on which,* etc.
3. In some cases EST compound elements are joined by conjunctions when translated; this conjunction is usually 'and': a self-contained automatic controller device = a device which controls (something) and which is automatic and self-contained.

Taken from *English for Science and Technology. A Discourse Approach*.

4. Conclusion

These are in general, basic and simple strategies to be applied in order to make the task of translating or even understanding noun compounds easier to our Engineering students. The use of one does not preclude the other's, but it is obvious that strategies such as paraphrasing are more useful in complex structures than any other. We think that if the students achieve to recognise the basic structures and the rules on which they are formed, they will be able to translate almost all of them, or at least, to understand them correctly. These strategies are of a great help in making the task easier to them.

It must be pointed out that we do not intend to make expert translators from our Engineering students, but it must be highlighted that the translation into Spanish of some complex structures are of a great importance in their full understanding of the message and in the precise rendering of the thoughts expressed in one language into another. Thus, translation exercises are part of our subjects designs with the aim of working harder in such patterns that represent main difficulties to the students and that may be useful in helping them to understand a bit more the grammatical structure of the English language.

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