CHALLENGES IN TRANSLATING COMPOUND NOMINAL PHRASES IN NAVAL ARCHITECTURE TEXTS

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Abstract: Our research article is an insight into nominalization of the naval architecture language. The present research article aims at identifying difficulties encountered in translating compound nominal phrases in naval architecture texts. In order to achieve this aim, compound phrases are classified according to their components. Furthermore, nominal phrases were translated and analyzed. Out of the total number of nominal phrases, only the most frequent ones were the topic of our interest.

Keywords: maritime English, shipbuilding, compound nominal phrases, naval architecture

1. Introduction

Translation is a principal technique of the cross lingual strategy. It is a useful language-learning activity, because, as A. Duff points out, it "invites speculation and discussion, develops accuracy, clarity, and flexibility, and can be used to work through particular L_2 problems that learners are struggling with" (Duff 1989: 7).

The tendency towards conciseness of expression is far more apparent in naval architecture. As some researchers have correctly pointed out, the information conveyed in a concise, direct, condensed form has a greater impact upon the reader. Thus, a great amount of semantic and syntactic information is compressed into a highly compact form, i.e. nominal compounds, compound nominal phrases, or complex nominal groups. Downing (1977: 838) said that "compound nominal phrases exist well beyond their first coinage and acquire more and more the characteristics of a unitary lexical item", compounding serving as a kind of "backdoor into the lexicon". The compounding process is highly productive especially in naval architecture.

Indeed, as Salager-Meyer (1984: 148) among others, mentions, compound nominal phrases (CPN) are significantly more numerous in naval architecture. He also underlines the fact that the more specialized the text, the longer and more numerous the CNPs. We do agree to this, because in the translating process and during a translation- oriented text analysis (TOTA) (Bantaș and Croitoru 1998), the technical translator is more and more aware of this: the greater the amount of information and the more concise the form, the more complex the CNP, which, as L. Trimble (1985) mentions, confuses the native speaker of English. The fact should be added here that so much the more confusing will this be for the translator.

Trimble (1985) calls such compound nominals ***noun strings***: "two or more nouns plus necessary adjectives (and less often verbs and adverbs) that together make up a single concept; that is the total expresses a single noun idea". He also gives a chart (1985: 133) which shows a classification of compounds according to length and difficulty of paraphrasing:

Compounds categorized by length and difficulty of paraphrasing.

I. ***Simple (two-items)***

(1) Assembling Workshop
(2) Central heating
(3) Chief engineer
(4) Commissioning activity
(18) HVAC systems
(19) Industrial engineer
(20) Keel-laying ceremony

(5) Commissioning department
(6) Commissioning process
(7) Commissioning stage
(8) Deadweight tones
(9) Drilling platform
(10) Fire protection
(11) Floating ships
(12) Handing-over ceremony
(13) Heavy crane
(14) Heliport deck
(15) Hopper dredger
(16) Hull building
(17) Hull division
(21) Metal cutter = not a cutter made of metal but an instrument used to cut metal.
(22) Metal shaft = a shaft made of metal.
(23) Metal spring = a spring made of metal.
(24) Naval vessel
(25) New build vessel
(26) Offshore mounting
(27) Operating company
(28) Production Department
(29) Sanitary system
(30) Ship operation
(31) System sprinkles
(32) Turn-key vessel
(33) World-class shipyard

II. ***Complex (three-items, four-items)***

(34) Advanced Manufacturing Technologies
(35) Automated nozzle brick grinder = a grinder of nozzle bricks (a type of brick), (not a grinder of bricks, the grinder having a nozzle which is automated).
(36) Chief Design Engineer
(37) Chief Operation Officer
(38) Coastal survey vessels
(39) Commercial seagoing vessel
(40) Dynamic positioning system
(41) Faculty of Naval Architects
(42) Health and Safety Committee
(43) Heavy export cables
(44) Hull Building Division
(45) Integrated management system
(46) Joint Support Ship
(47) Liquid storage vessel = a vessel for storage of liquids / for storing liquids (not as some non-native students would have it, a liquid vessel used for storage!).
(48) Offshore wind farms
(49) Outstanding seakeeping behavior
(50) Production Monitoring Department
(51) Quality Control Department
(52) Transport sector investment = investment in that sector of the economy which concerns transport - the movement of goods and people.
(53) Tugs and Workboats Division

III. ***More complex (five-items)***

(54) Aisle seat speech interference level.
(55) Head of Hull Building Division
(56) Head of Planning and Project Proposal Department
(57) Long-term surveillance test planning.

IV. ***Highly complex (six-items, or more items)***

(58) Full swivel steerable non-retracting tail wheel overhaul.
(59) Heterogeneous graphite moderated natural uranium fueled nuclear reactor.
(60) Split damper inertially coupled passive gravity gradient satellite attitude control system.
(61) The controlled growth of human capital in line with maintaining the level of productivity for our vessels
(62) The efforts of all Damen Galati employees

The *more complex* and the *highly complex compounds* present difficulties even to native speakers and even the complex ones create problems for the reader without a knowledge of the field. This should be underlined as far as the translator is concerned. The fact should also be added here that this is the most difficult aspect in translating naval architecture texts. Both complex and more complex compounds, let alone the very complex ones, raise a lot of problems in translating. With most of them, for an adequate translation, the translator needs, as we have already pointed out, the collaboration with the specialist.

2. Corpus and methodology

In order to study the way(s) these CNPs can be translated into Romanian, a corpus of 22,000 words has been consulted, taken from different subjects of naval architecture, i.e. welding technology and equipment, machine building technology, robotics, metallurgy, ship

architecture, electrical engineering, machine-tools, mechanics and physics. A number of 2154 CNPs have been recorded in the specialties mentioned above. We have also used 9 bilingual newsletters from Damen Shipyard Galati. A number of 338 compound noun phrases were found. As a result, the fact must be mentioned here that the semantic relationships which may be associated grammatically with the surface structures of CNPs can be expressed, in a decreasing order of their frequency, as follows: by prepositional structures (*of, in, of+ in, in+ of, with, to*) predicate deletion: *wh-be+ underlying present participle, wh-be + underlying past participle,* and *caused by.*

3. Results and discussion

The conclusion can be drawn that the preposition of is the most frequent of all. It expresses a number of different relationships between the head (H) and the modifier (M), or between N_1 and N_2, which correspond to the semantic structures mentioned and illustrated above. Such CNPs seem to be the easiest in translating, except for those whose deleted surface lexical item is that of denoting apposition, nature, quality or condition (*wh-be* deletion). Within this type of underlying structures, there are two semantically distinguishable structures. The former identifies a subset of the set denoted by the head noun, e.g. V block, N_2 of the type N_1, N_2 in the form of N_1.

It may also involve a numerical value, thus including numerals, e.g. a three-week incubation, N2 *of* N_1, N_2 *which will last for + numeral +* N_1. The latter semantic subtype includes a relation of similarity, the underlying structure *to be like* being a little explicit in the surface structure *N2 which is like* N_1. Their meaning is not easily or completely deducible from the meaning of the constituent words, e.g. shot tank, bazin de granulare (met.).

The more complex CNPs are usually rendered by prepositional structures including two prepositions: *of + in*, or *in + of*, but the most difficult point in understanding and translating them is their ambiguity. For example, comparing the CNP solution concentration level with the CNP acid solution concentration, which is which: N_3 of N_2 in N_1, or N_3 of N_1 in N_2? Both structures are correct, but only depending on the CNP, and on the context.

As far as such CNPs are concerned, the question may arise: how can the translator realize which of the structures is right? In such cases, *disambiguation* is prevailing. In order to disambiguate, the translator needs knowledge of the subject and/or collaboration with the specialist. A similar question is asked by Selinker (1992) with reference to such compounds as gas mixture product. As Selinker (1992: 5) suggests, "It is a type of product which concerns mixing of gases in some way". But beyond that, does it mean a product in which one mixes gases or a product in which the gases are already mixed...? Clearly the correct answer depends upon the practitioners of the field involved".

The preposition *with* underlies a large number of CNPs the translation of which seems to be easier, but it is so only at first sight, or with a number of them only. Indeed, it is much easier if we think of such CNPs as arc welding, sudare cu arc electric (met.), compression moulding, formare prin presare / comprimare (met.), but not so easy with CNPs like clamp stop motion, which is mișcare de oprire cu șurub/clemă, not a șurubului. Consequently, the underlying structure is *with, which uses, by means of*.

Other CNPs also difficult to translate are those whose underlying structure is *wh - verb deletion with an - ing form (or active participle).* The corresponding Romanian semantic structure is a relative clause; the syntactic structure in which the prenominal modifier is the direct object of the *V-ing form*: $N_1(N_2)$*-ing* N_3. They differ from the CNPs whose underlying structure is *wh - be - ed deletion*, which are based on passive participles and correspond to the same grammatical form in Romanian. Thus, the syntactic structure in which the prenominal modifier is the agent of the underlying predicate is: N_1 *- ed* N_2. The two types of CNPs, each of them with its specific semantic and syntactic relationships.

In decoding the text, the technical translator very often encounters CNPs for which he finds it difficult to decide which predicate has been deleted in their formation. In such cases, he/she cannot decide upon the semantic category the respective CNPs belong to, because one and the same surface structure representation may have various underlying structures, the use of which depends on the context, or apparently two underlying structures, one of them being wrong. These are the CNPs with a higher degree of ambiguity. For example, cast structure (met.), is a CNP *(N_1+N_2)* not a *past-participle + N combination*; thus, it means structura fontei, not *structura turnată*. An analogy can be drawn with cast steel, oțel turnat. We could also draw another analogy between coal grab (met., mas.), and paper scissors, but not between coal grab and coal paste. Thus, *coal grab* means *graifar pentru cărbuni, cupa de cărbuni*, while *coal paste* (met.) means pastă de cărbuni *(made of).* A CNP like fatigue life (met.) means durata la oboseală (a materialelor); durata / durabilitate la solicitări de oboseală, not durata oboselii. The disambiguation is achieved by means of the preposition *to* in the underlying structure. If a CNP such as fatigue test results (met.) is not at all ambiguous, ambiguity occurs with fatigue crack detection. If the translator doesn't know that fatigue crack is an independent CNP which can occur on its own, meaning fisură cauzată de oboseala materialului, he may take *fatigue* and *crack* as the two modifiers (M_1 and M_2) of the head *detection*. When such a CNP is modified by an adjective, there is a problem for the translator, one of ambiguity too, as to which of the CNP constituents it modifies. For example, in the CNP a particular fatigue failure mode, which constituent does particular modify? Disambiguation can be achieved by making it analytical: a particular mode of fatigue failure, fatigue failure being an independent CNP which can exist on its own, meaning ruptură cauzată de oboseala materialului (met.).

It is only by identifying the semantic and syntactic structures, in addition to the translator's so-called "cognitive complements" that he can make such groups analytical, understand and translate them. Some sort of trouble may also be caused by such CNPs as overall charge neutrality and higher phase stability. The question is whether *overall* and *higher* modify N_2 or N_3, i.e. which is overall / higher: neutrality / stability or charge / phase? Does it mean o stabilitate mai mare a fazei or stabilitatea fazei superioare? And is it neutralitatea specifică întregii încărcături (încărcăturii în ansamblu), or neutralitatea totală a încărcăturii. In both cases, the correct answer is the latter. The disambiguation of such a group as the local specific surface free energy value is performed by the *co-text* only: "The specific surface free energy can be defined as the amount of the energy required to create new surface ..." (Welding Journal 3 1993, 151). The co-text is also important in disambiguating a CNP like the defect size estimation because it is immediately followed by the CNP length estimation. This does not allow the translator to understand it as estimation of the defect related to size, but as the estimation of the size of the defect (N_3 N_2 N_1).

There are a lot of cases when, in order to decode the CNP, the translator has to divide it into groups of constituent elements by punctuation. For example, double impeller impact breaker (mas.), double impeller, impact breaker, concasor cu impact, cu două rotoare.

A large number of CNPs cannot be translated by considering the meanings of the constituent lexical items separately. In translating them, the specialist's help is needed, just like in translating the very long strings. This is especially in machine building technology, welding technology and navigation. The longer CNPs which are more susceptible to present parallel and/or multifunction structure, hence higher semantic ambiguity, are specific to highly specialized texts. As Trimble (1985) points out, the more complex and the very complex compounds are difficult to understand even to a native speaker without some knowledge of the field. We should add that for a non-native, they really are very difficult to translate, just because of their conciseness. In this sense, we should remind one of the very good examples included by Trimble (1985) in his chart under complex compounds, i.e. automated nozzle brick grinder. Thus, he explains that "most readers' initial response (including our own) is to assume that nozzle is part of the grinding machinery, not a type of

brick". Consequently, it means a grinder of nozzle bricks, not a grinder of bricks, the grinder having a nozzle which is automated.

A large number of CNPs require further explanations, extra linguistic information. They present different ways of solving the paraphrase problem. Trimble (1985: 133) gives solutions for both the native and the non-native speaker to understand the CNP full swivel steerable non-retracting tail wheel overhaul*:* "all of the modifiers of overhaul form a unit with the headword of this compound within a compound being tail wheel; thus we have the overhaul of an airplane tail wheel (or of a wheel which retracts into the tail of the airplane), this tail wheel having the characteristics of being non-retractable, steerable, and capable of making a complete swivel".

As regards such CNPs as the last example given by Trimble (1985) in his chart, i.e. a split damper inertially coupled passive gravity gradient satellite attitude control system (an 11-element compound), the fact must be mentioned that it really holds the length record, consisting of 11 elements and the indefinite article. Although it can be divided into separate compounds by punctuation, it is still not enough. It is the specialist's explanation that will help to make it clear. Trimble (1985) gives a solution to disambiguate it: “a system for controlling the attitude (the degree of angle from the perpendicular) of a satellite, this system operating with the following characteristics: it has a split damper and is coupled (joined) by inertia and has its gradient determined by allowing gravity to take control (with no effort to overcome gravity)”. But he adds that "while the aerospace engineers who accepted this translation may have felt comfortable with it, I find this translation only a little less puzzling than the original. It is, of course, the type of compound that technical writers should be discouraged to write, whatever the provocation". We do agree with Trimble's opinion. Of course, however specialized a text and however strong the need for conciseness may be, such CNPs as long as the last two, and especially as long as the last one, are very rare.

The largest number of very long noun strings may be met in journals, reports, books dealing with welding and machine building technological processes. Most frequently, they occur in reporting, describing the processes or apparatus used, or in presenting figures and diagrams. For example,

(1) These are some requirements for gas metal arc welding, employing *a constant speed push - type wire - feed system.* Depth of penetration obtained in straight polarity direct current gas metal arc welding.
(2) Shielding gas trailer - storage supply involves the use of a mobile trailer, a stationary storage unit, and an automatic pressure reducing control. Use of emissive electrodes automatic gas metal arc welding for high welding speed. (Gas Metal Arc Welding 1985).
(3) The second phase strong particles dispersion blocks the *dislocation glide motion. The lattice resistance controlled glide parameters* were obtained by fitting experimental data to eqn. (2.12). (from Frost and Ashby 1982).

They are highly frequent in advertisements, such as:

(1) General Motors has extensive experience in iron cylinder blocks die casting.
(2) Improved thermal spray process technology is expected to foster high-volume production of wear-resistant coatings on alluminium engine blocks cylinder walls.
(3) These are single position reset Sankyo torque limiters. Zero backlash roller gear cam operated pick and place modules. (from Machine Design 2 1993).

Such very long CNPs sometimes occur in the co-text in their disambiguated form. For example, *blocks cylinder walls of the aluminum engine, Sankyo torque limiters are single position reset, pick and place modules operated by zero backlash roller gear cam.*

As we have already mentioned, and as one can realize when considering the examples given so far, especially the last above, the more specialized the text, the longer and more numerous the NGs. The translation difficulty of an NG, even if it consisted of two nouns, is increased by the polysemy, on the one hand, and the grammatical behavior of nouns, on

the other. As Bantaș and Croitoru (1998: 16) point out, "The grammatical regimen of the contemporary English nouns exhibits an enormous diversity, perhaps much greater than in other languages - which is a substantial source of difficulties for linguists, teachers, learners and lexicographers". So much the more difficult it is for the translators. Further, Bantaș and Croitoru (1998: 33) ad that in general English "(…) polysemous nouns behave differently from the grammatical point of view, when they are used with a different meaning." In naval architecture texts, with the longer NGs, those consisting of more than two nouns specific to naval architecture, things are getting more and more difficult. The greater the amount of information and the more concise the form, the more complex the NG, which is extremely confusing for the translator.

4. Conclusions

As a conclusion, we should mention Dejica (2010a: 256-258, 2010b: 163-167) and Hewson and Martin's opinions (1991: 211), which we do share, that specialized translation in general, and naval architecture translation in particular, have to be performed according to specific procedures, as well as according to specific final choices. Thus, a great amount of information is compressed into a highly compact form, i.e. nominal compounds. Thus, the greater the amount of information and the more concise the form, the more complex the nominal groups.

The translator must perceive the meanings of words and utterances very precisely in order to render them into the TL. The Source Text (ST) proposed for translating has to be clarified for purposes of efficiency. This is because a technical target text must have the same cognitive effect upon the "end-user" as the original, it must be very clear and concise, and it must avoid any wrong methods. All these involve the translator's responsibility towards the *end-user* who will not get accustomed to ambiguity and vagueness.

Corpus:

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