NOUN STRINGS USED IN NAVAL ARCHITECTURE TEXTS-AMBIGUITY IN MEANING

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Abstract: The comprehension problems that noun strings (complex nominal) may give rise to is a common experience shared not only by readers of technical writings but also by lexicographers, lexicologists, terminologists and technical translators. An examination of the reader's difficulties in comprehension may reveal that certain linguistic and discourse features are more liable to misunderstandings. Noun strings are a usual way of expressing concepts in the naval architecture language despite the problems of ambiguity they may convey. For this purpose, a survey has been conducted from a corpus of these structures extracted from naval architecture texts, i.e. DNV-GL and Norsok sites.

Keywords: naval architecture texts; noun strings; technical terminology.

Introduction:

Technical communication involves content that is highly technical both conceptually and sometimes terminologically. Just as scientific knowledge progresses, language in science experiences an evident change. The extension of the scope of knowledge, mainly in scientific and technological fields, has resulted in the need for its linguistic representation through the creation of a wide terminology capable of describing the new improvements and discoveries. In this way, scientific language has acquired its own syntactic and discursive characteristics. Once the validity of a new concept has been agreed on by specialists in the field, standardization takes place in a process of widening its areas of usage through its generalized use in oral and written sources which eventually contributes to its settling in the language.

When translating specialized texts, especially highly specialised ones, a very difficult issue is the length of the Noun Phrases. English complex noun phrases, called "noun strings" by Trimble (1985), were usually made up of juxtaposed nouns without any preposition that would identify their semantic connections. The advantage of using noun phrases was that they were presenting the information in a shorter, more condensed way. Yet, the disadvantage was that the semantic explicitness was sacrificed on behalf of linguistic economy.

Noun-noun combinations occur with high frequency in technical writing. A large number of noun phrases occurs in textbooks of natural and social science subjects, including genetics, biology, political science, and history (Cohen et al. 1988). In addition to science textbooks, engineering textbooks also show up numerous nominal groups (Ward, 2007; Wasuntarasophit, 2008). A similar phenomenon occurs in the text in the plastic field (Pueyo & Val, 1996). This

syntagmatic group in which the head–language is a noun whose own characteristics are determined by the presence of modifiers is referred to as a complex nominal.

Corpus and methods:

The point of departure of this study is an empirical survey based on an analysis of a corpus of 1000 noun strings collected from Norsok and DNV-GL sites. The noun strings have been listed and classified according to the number of nouns. In our analysis of these lexical units, 515 (82, 9%) were composed of two elements, 31 (14, 89%) of three elements, 84 (1, 9%) of four elements and the remaining 5 (0, 1%) of five elements. The head, the last element in the noun strings, was always a noun directly modified by another noun (10, 48%) or by prepositions or phrasal verbs (9, 62%), which in turn were modified by other nouns. Generally speaking, the steps were as follows: creating a list of noun-noun combination from the corpus, examining the taxonomy, classifying the agreed taxonomy, and calculating the frequency of relation.

Findings:

The analysis resulted in a list of 9 common types of noun strings. These 9 types of noun strings illustrate the naval architects' preference for nominalization in order to achieve briefness and conciseness. Let us present some examples of noun strings encountered in our corpus.

Noun strings made of three nouns:

HULL CAPACITY PLAN
HULL LINES PLAN
OFFSET TABLES REPORT
MODEL TESTING BASIS
OPEN DRAINS DIAGRAM
DECK WASH DIAGRAM

Noun strings made of two nouns:

HOSPITAL LAYOUT
LER ARRANGEMENT
HELIDECK ARRANGEMENT
HELISHELTER ARRANGEMENT
NAVAIDS SPECIFICATIONS
HAZOP REPORT

Noun strings made of four nouns:

DESIGN ACCIDENTAL LOADS SPECIFICATION
REGULATORY COMPLIANCE DATA BASE
SCENARIO BASE RISK ASSESSMENT
HAZARDOUS EQUIPMENT TABLE LIST

Noun strings made of five nouns:
FAST RESCUE BOAT SYSTEM LAYOUT
FIXED DELUGE PIPING LAYOUT DRAWING
CRYOGENIC SERVICE CONTROL VALVES DATA SHEET
MULTIPHASE FLOW METER DATA SHEET
PRESSURE SAFETY VALVES DATA SHEET
SEVERE SERVICE CONTROL VALVES DATA SHEET

Noun strings made of six nouns:
DIRECT-OPERATED SELF ACTING PRESSURE REGULATOR DATA SHEET

Noun strings made of seven nouns:
PILOT-OPERATED SELF ACTING PRESSURE REGULATOR DATA SHEET

Noun strings with FOR:
DATA SHEET FOR AIR FAN FOR HPU ROOM FORWARD
DATA SHEET FOR AIR FAN FOR BOW THRUSTER ROOM
SPECIAL PART LIST FOR MACHINERY NEW PIPE LINES
DETAILED DRAWINGS FOR CATHODIC PROTECTION - EXTERNAL HULL
DETAILED DRAWINGS FOR CATHODIC PROTECTION - BALLAST TANKS (PLAN VIEW)
DETAILED DRAWINGS FOR CATHODIC PROTECTION - BALLAST TANKS (SECTION & ELEVATION VIEWS)
TECHNICAL SPECIFICATION FOR SURFACE PROTECTION
TECHNICAL SPECIFICATIONS FOR INSULATION
TECHNICAL SPECIFICATION FOR EARLY SMOKE DETECTION
TECHNICAL SPECIFICATION FOR INSTRUMENT POWER DISTRIBUTION
TECHNICAL SPECIFICATION FOR JUNCTION BOX
TECHNICAL SPECIFICATION FOR TELECOMMUNICATION CONTRACTOR ITEMS
TECHNICAL SPECIFICATION FOR CABINET TELECOMMUNICATION SYSTEMS
TECHNICAL SPECIFICATION FOR TELECOMMUNICATION CABLES
TECHNICAL SPECIFICATION FOR TELECOMMUNICATION JUNCTION BOX

Noun strings with AND:
NEW PIPES MATERIAL AND NEW VALVES SPECIFICATIONS MARINE AND PROCESS VALVES SPECIFICATIONS
SYSTEM VALVING AND ISOLATION PHILOSOPHY
NEW PIPES FABRICATION, INSTALLATION, INSPECTION AND TESTING REQUIREMENTS

PIPE ROUTING STUDIES / INCLUDING PIPE DIAMETERS 2" AND ABOVE - SECTIONS
PIPING AND PIPELINE WALL THICKNESS CN
PROCESS PIPING CLASSES SPECIFICATIONS MARINE AND PROCESS PIPING CLASSES SPECIFICATIONS
VESSELS, DRUMS AND TANKS SPECIFICATIONS
VESSEL TYPE AND MATERIAL SELECTION

Noun strings with phrasal verbs:
BULK MATERIAL TAKE OFF ALL ITEMS INCLUDING SURPLUS
BULK MATERIAL TAKE OFF FABRICATED ITEMS
BULK MATERIAL TAKE OFF SHIPPED LOOSE

The noun -language- either acting as subject or object, is liable to complementation so as to extend or specify its meaning. Heads together with their modifier/s form a compound structure or complex nominal, which has the same grammatical status as the head; the structure whose head is represented by a noun, acts as a noun in the whole sentence, i.e., as subject or object. Different operations are performed in the process which ends in the formation of a compound, e.g: ***device used for input operations***, such as:

1. Loss of grammar elements: ***device* [*used for*] *input operations***
2. Alteration in the order of elements implied, together with the absence of grammar and lexical elements **(*input device*)**

In this way, the use of nominal structure with pre-modification becomes certainly more economical, as prepositions, relatives or verbs are removed; on the other hand, the semantic potential of this structure is greater, although it may sometimes imply, for example, the loss of the referent, which may cause serious difficulties to the reader. Generally speaking, scientific register is more prolific in using noun strings than other registers in the English language, as Quirk (1985) states:

> *"Scientific writing differs greatly from the other varieties in having a distinctly higher proportion of noun phrases with complexity (and multiple complexity); a distinctly lower proportion of names and pronouns among its simple noun phrases; and the weakest association of simple with subject and complex with nonsubject.*"

and B.L. Dubois (1981) admits:

> *"Extensive prehead modification in the noun phrase has been assumed to be the defining characteristic of written scientific English. "*

The use of noun strings can be indicative of the degree of formality or specialization of the language; in fact, the more specialized the text is, the more frequent and complex the nominal

structures. Salager (1983:142) establishes a parallelism between poetry and scientific discourse when considering the recourse to nominal groups so as to transmit new ideas*: "The scientific or technical writer resorts to compounds in the same way and for the same reason as the poet has recourse to metaphors or alliterations".*

In general, complex nominals very often show ambiguity and may need re-reading to enable the meaning to be puzzled out. If a head is premodified by more than one word:

- *the technical specification for earhting* could be understood as:
  - *the technical specification for earthing:*
- *[(technical ((specification for earthing (protocol))]*
  - *the earthing for a technical specification:*
- *[(technical specification (for earhting)]*

Therefore, paying more attention to ideals than reality, B. Warren writes:

> *"Performance constraints in the analysis of multimember combinations are the reason why structures consisting of more than two compounds (i.e) two N +N combinations, are not common."* (Warren , 1978:40)

Conclusion:

Extralinguistic knowledge related to the semantic content of their components and the way they relate syntagmatically is required to interpret noun strings adequately. Even so, we find many noun strings in which their components can interrelate in more than one possible way and will therefore require the context in order to be interpreted and classified; and even this final check is not always effective unless the reader has an adequate technical knowledge, especially when many modifiers are involved.

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