Available online at www.elixirpublishers.com (Elixir International Journal)

Linguistics and Translation

Elixir Ling. & Trans. 97 (2016) 42099-42101

ISSN: 2229-712X

Functional Aspects of using Noun compounds in Technical Writing

Minoo Khamesian
Sanaati Noushirvani University, Babol, Iran

ARTICLE INFO

Article history:
Received: 20 June 2016;
Received in revised form:
1 August 2016;
Accepted: 8 August 2016;

Keywords
Functional approach,
Noun compounds,
Technical writing.

ABSTRACT
Being familiar with the peculiarities of scientific prose style in general and technical writing in particular would undoubtedly help a science author to communicate appropriately with his peers in order to get his message across. At the level of word groups (Lexical-Phraseological word combinations), the use of 'noun compounds', or 'string compounds' is noticeable in this style. Considering the ubiquity of them in technical writing, familiarity with their functions seems to be of paramount importance as non-native writers tend to have difficulty producing them. The present study intended to disclose the functional peculiarities of technical writing on the lexical syntagmatic level of linguistic expression, focusing on noun compounds, the creation or the very existence of which would be based on the definite, well-fixed rules of combining lexical morphemes according to productive patterns, in other words, rules which can be determined by the lexical-morphological categories of the language under investigation. The analysis has revealed that noun compounds, are indivisible part of this style not because of their ubiquity but due to the fact that they would facilitate the author to create something new, something individual, and more importantly economize the pieces of information intended to be relayed.

Introduction

The language of science, as written time and again, is governed by the aim of the functional style of scientific prose to prove a hypothesis, to create new concepts, to disclose the internal laws of existence, development, relations between different phenomena, etc.

In this respect, engineering research articles similar to all functional varieties of the generic repertoire of scientific prose style tend to be built on the ontology of facts. Otherwise stated, if in fiction the emotive-expressive-evaluative tones are believed to make an aesthetic impact on the reader, here language is definitely to express the author's approach, his evaluation of the stated facts and documents. Hence, the knowledge of vocabulary, which tends to have a great role in conveying the message, can be of optimum importance in any EAP discourse. According to Harmer (1991), "If language structures make up the skeleton of language, then it is vocabulary that provides the vital organs and the flesh" (p. 153).

According to Bhatia (1992), writing in science generally concerns the communication of very specific, specialized, and precise knowledge to its target audience who seem to share the required level of specialized knowledge of the subject-discipline.

Since the ubiquity of noun compounds in scientific prose style has been investigated time and again in applied linguistics, the quantitative aspect of using them was not considered in this work. Engineering writing as one of the sub-branches of scientific writing has also shown how prevalent using noun compounds is. Nonetheless, being aware of the functional aspects of using them would require special attention since this familiarity could undoubtedly help technical authors to communicate effectively in their discourse community, accordingly.

Analysis

To reiterate, at the level of word groups (Lexical-Phraseological word combinations) in a research article, *noun compounds* are prevailing. This section is allocated to linguostylistic analysis of these ubiquitous structures in technical writing. The supraphrasal units are adduced from international journals of engineering available online from among civil, mechanical, and electronic engineering research articles.

- The present study aims to investigate the *steady-state creep response* of *an isotropic FG rotating disc* of *aluminum silicon carbide particulate composite* by taking into account the residual stress present in the disc.
- *Pulverized coal tangentially fired furnaces* are used extensively in *thermal power plants* due to a number of their advantages ------.
- In this study, the effects of *fuel injection discharge curve* and injection pressure on power upgrade of *heavy-duty diesel engine* by simulation of combustion process in AVL-Fire software are discussed simultaneously.
- *Ceramic- particle/whisker-reinforced metal matrix composites* have shown superior high- temperature properties and are finding increasing application in the manufacture of components exposed to high temperatures.
- In this work, numerical investigation is performed on *600MW pulverized coal tangentially fired dry-bottom boiler* and validated with experimental data.

First and foremost, as the italicized examples show, their interpretation simply requires being unwidened generally from right to left and appropriate preposition(s) inserted. For instance, '*fuel injection discharge curve'* would mean ' a discharge curve of fuel injection'.

Tele:
E-mail address: Khamesian2006@yahoo.com

Or, take '*pulverized fuel ash palm kernel shells'* meaning 'shells of palm kernels which are pulverized with fuel ashes', etc. This could also confirm that their motivation is morphological since the meaning of the whole is based on the direct meaning of the components not semantic, i.e. the combination is not used figuratively. Otherwise stated, it can be called the nominative meaning, or the basic meaning which would refer to objects of extralinguistic reality in a direct and straightforward way, reflecting their actual relations. In this regard, the linguostylistic analysis of technical writing has revealed that words and word-combinations are mainly non-connotative and devoid of any emotional colouring (see for example, Akhmanova & Idzeliz 1975, and Khamesian 2013). This is due to the fact that in intellective communication the writer whose main objective is to pass on information would not rely on the power of words and utterances, i.e. on their connotative values.

Furthermore, there is directly observable correspondence between expression and content, which enables the authors to avoid misunderstanding and ambiguity. According to Muradyan (2009), the absence of emotional colouring would undoubtedly cause absolute convertibility of the purport of the text, for it is common knowledge that the reader should not have stranger associations, he should not read between the lines, be admired by the game of words and calamburs.

We should hasten to add that in addition to the aforementioned feature, quite a large number of noun compounds we came across tend to be used for the first introduction of a prospective technical concept, which are clearly shown in the following examples.

- A huge amount of research material is available that has either raised *the notion of security of mobile agents* or has tried to solve it in one way or another. *The notion of* ***mobile agent security*** is because the mobile agents that are roaming a network can be used as malicious objects for accessing private or confidential information and resource, for causing corruption like viruses and worms and so on.
- In this paper, *a novel topology is suggested where two active filter inverters* are connected with tapped reactors to share the compensation currents. The proposed ***active filter topology*** can also produce seven voltage levels, which suggestively reduces the switching current ripple and the size of passive components.

This feature can also be attributed to a 'desire for novelty', which in the era of technological innovations seems to be inevitable. Inasmuch as coming across new findings requires naming 'new concepts' for which the lingua franca of science and technology, English, does not facilitate already-provided coinages. Thus, it can be concluded that terminological gaps in scientific writing are oftentimes the basic reason why new compounds are coined. In this respect Quirk *et al.* (1985: 9) puts, "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 non-subject."

In general, the combinations we came across were endocentric[1], having one central member functionally equivalent to the whole word-group, which is a feature generally attributed to productivity, contrary to the exocentric group which is very limited in this regard. To reiterate, productivity is able to meet the dynamism of the so-called 'world of technology'.

What is worth adding is the so-called 'principles of linguistic economy[2], which in scientific prose is generally attributed to a desire for reduction and synthesis. As a well-known fact, in writing for science (engineering writing is not an exception), a whole group of words can be joined into a kind of compounding which the head noun is accompanied by premodifiers. Needless to say, premodification tends to be more economical due to removing prepositions, relatives or verbs as well as including a greater semantic potential (Khamesian 2013).

Premodification is believed to act as a means of creating compact packages of information. It is also space saving and non-redundant, for it captures a static image event or a process shared by a specific discourse community and transforms it into a single concept (Varantola 1993). However, the lack of verbs and prepositions in premodified noun phrases might result in losing explicit information, hence requiring more background knowledge from the reader. In this case, the presence of postmodifying structures can be advisable to maintain readability (Dubois, 1982).

According to the physicist Alley (1996), in order to be concise one should pursue two linguistic objectives, i.e. being clear and being forthright. The latter calls for the scientific simplicity as well. Otherwise stated, scientific statements are also likely to be the most concise. In this respect, Wilkinson (1991) maintains that to write concisely an author requires to state whatever to be communicated in whatever detail using as few words as possible, in other words, simply the right words and the right number of words, in the right order. To this goal, according to Goldbort (2006), a science writer would avail himself of a variety of word-sparing strategies, which might facilitate directness, as well. Strategies, such as reducing verbiage, which is likely through avoiding redundancy, circumlocution, and useless words are what he exemplifies.

However, as Golbort believes we could maintain simplicity by harnessing the use of long strings of technical nouns and adjectives to create phrases that seem to be practically impenetrable, and call for re-reading which would waste the reader's time (ibid). This is exactly in contrast with the fact that obviously 'string compounds' are prevalent in technical writing. However, we should bear in mind that using noun compounds might include some difficulty. Master (2003) points out that it is not easy to understand these word combinations, even if a science communicator is able to decode individual words. Moreover, comprehending noun compounds can cause problems for EAP learners due to the likely infinity of their internal constituents. For instance, *onhigh strength concrete filled steel tabular column* (7 words). Nevertheless, we should consider that the combination of elements in noun compounds is not entirely random but rather appears to follow certain semantic and syntactic patterns. We should not forget the fact that the correct interpretation of noun compounds depends heavily on the reader's knowledge of the subject being discussed, hence not far-fetched (Yngve, 1955 & 1957).

Interestingly, Pastor (2009) postulates that for these structures are capable of conveying information in a shorter, more direct, and condensed style, they would have a greater impact on the reader (rhetorical impact). Nevertheless, we should not ignore that using them could mean semantic explicitness be sacrificed on behalf of linguistic economy.

Conclusion

The analysis on the functionality of noun compounds showed that their ubiquity in technical writing would have some functions, i.e. coining technical terms, linguistic economy, and a desire for novelty. They might be taking up far more space and harder to process but this seems to be sacrificed for being more informative and giving the chance to the author to relay his message faster and more effectively to his target audience.

Special consideration should be paid when teaching complex noun phrases to learners whose mother tongues follow different segmentation as mother tongue interference would undoubtedly influence the understanding of this peculiarity of technical writing that tends to be expressed differently in English. As Khamesian (2016) puts, "No matter how much information a piece of scientific work may contain, if its comprehension is hindered by inaccessible or imprecise language, it would not find its deserved stance due to linguistic ambiguity and opaqueness." (p. 25)

Notes

1- See Downing 1977.

3- See, for example, Pastor 2008.

References

1. Akhmanova O. S., Idzelis R. F. *What is the English We Use*. Moscow: Moscow University Press, 1978.
2. Alley M. *The craft of scientific writing.* 3rd ed, New York: Springer- Verlag, 1996.
3. Bhatia V., K. Pragmatics of the Use of Nominals in Academic and Professional Genres, *World Englishes*, 1992, vol 11, N 2/3 , pp. 195-215.
4. Downing, P. On the creation and use of English compound nouns. *Language*, 1997, vol 53, N 3, pp. 810-842.
5. Dubois B. L., (1982). *The Construction of Noun Phrases in Biomedical Journal Articles* // Carrio Pastor M. L. English Complex Noun Phrase Interpretations by Spanish Learners // RESLA, 2008, vol. 21, pp. 27-44.
6. Firth J. R. *Papers in linguistics, 1934-1951*. London, Oxford University Press, 1957.
7. Goldbort R. *Writing for Science.* New Haven & London: Yale University Press, 2006.
8. Harmer J. *The Practice of English Language Teaching.* London: Longman, 1991.
9. Khamesian, M. *Functional Approach to English for Engineering (with special reference to Iranian academic context).* Lambert Publication; Online Book, 2013.
10. Khamesian M. *Grammatical Competence: An Indispensable Component of Translating Scientific Research Articles (With Special Reference to Translation Works by Iranian Students of Higher Education)* // Global Journal of Human Social Sciences (G), 2016, vol. XVI, N 1, pp. 23-26.
11. Master, P. Noun compounds and compressed definitions. *English Teaching Forum*, 2003, vol 41, N 3, pp. 2-9.
12. Muradyan G. Syntagmatics of Nominative Collocations in Modern English Essay // *Armenian Folia Anglistika, International Journal of English Studies*. Yerevan: Lusakn, 2009, vol. 1, N 5, pp. 6-16.
13. Pastor M. L. C. English Complex Noun Phrases Interpretation by Spanish Learners *// RELSA*, 2008, vol. 21, pp. 27-44.
14. Quirk, R., Greenbaum, S., Leech, G., & Svartvi, J. *A Comprehensive Grammar of the English Language*. London: Longman, 1985.
15. Varantola K. 1993. *Modification of Nouns by Nouns. Bad by Definition? //* Diller H. J. S., Kohl S., Komelius J., Komelius J., Otto E., Stratmann G. (Eds.), Anglistik & Englischunterricht. The Noun Phrase in English. Its Structure and Variability. Heidelberg: Winter.
16. Wilkinson A., M. 1991. *The scientist's handbook for writing papers and dissertations.* Englewood Cliffs, NJ: Prentice Hall.
17. Yngve V. H. "Sentence-for-Sentence Translation" // Mechanical Translation, 1955, vol. 2, pp. 29-37.
18. Yngve V. H. "A Framework for Syntactic Translation"// *Mechanical Translation*, 1957, vol. 4, N 3 pp. 59-65.

Internet Sources

1. SSRG International Journal of Civil Engineering (SSRG-IJCE). www.internationaljournalssrg.org
2. SSRG International Journal of Electrical and Electronics Engineering (SSRG-IJEEE). www.internationaljournalssrg.org
3. Canadian Journal on Mechanical Sciences & Engineering. http://www.ampublisher.com/mse.html