Patterns of verb colligation and collocation in scientific discourse

Studies of scientific discourse tend to focus on those linguistic units that are deemed to convey information regarding scientific concepts. In light of the observation that a high frequency of nouns, nominalizations and noun phrases is characteristic of scientific writing, these linguistic units have received a lot of due attention. Yet, it is indisputable that verbs are likewise central to the linguistic construal and communication of meaning in scientific discourse, not only because many verbs have domain-specific meanings, but also in view of the fact that verbs establish the relations between concepts denoted by nouns (cf. Halliday & Martin 1993).

This paper presents a corpus-study of the lexico-grammatical and lexical combinatorial properties of verbs in scientific discourse, i.e. colligation and collocation (cf. Hunston & Francis 2000; Sinclair 1991; Hoey 2005; Gledhill 2000). The study is based on a corpus of scientific writing from engineering, the natural sciences and the humanities. The focus of the paper is on the contribution of verbs of communication (e.g. 'explain', 'report') and construal of scientific knowledge (e.g. 'demonstrate', 'depict') to the textual rendition of scientific meaning. The classification of the verbs is based on Levin (1993) and the FrameNet project.

Many of these verbs are of interest as an object of research on scientific texts because of their discursive function in the communication of the scientific research process. Their occurrence in specific colligational patterns is indicative of their function. For example, 'that'-clauses following communication verbs can be shown to be frequently employed in the reporting of research results, whereas 'to'-infinitive clauses tend to present the scientist's ideas or statements of known facts. Furthermore, verbs of the types under study here play a central role in establishing connections between what is said in the natural language text and other modalities such as graphics, diagrams, tables and formulae which are commonly employed in scientific text in order to present experimental settings, quantitative data or symbolic representations ('Figure 1.1 demonstrates ...'). They are thus instrumental in the establishment of relations between different modalities in multimodal texts which is also reflected in specific colligational patterns. Another aspect that is of interest in the study of verbs of communication and construal of scientific knowledge are patterns of lexical co-occurrence, i.e. the specific patterns of collocation. Many of the verbs under study display characteristic patterns of lexical collocation which highlight domain-specific aspects of their potential meaning (e.g. ‘represent the arithmetic mean’).

Results of this study include qualitative and quantitative findings about characteristic patterns of colligation of the verbs under study as well as a profile of recurrent patterns of collocation. The study also reveals some interesting semantic patterns in the characteristic participant structure of these verbs in the domains represented in the corpus.

References:

FrameNet Project (URL: http://framenet.icsi.berkeley.edu/) Last visited: 20.01.2009.

Gledhill, C. 2000. ‘The discourse function of collocation in research article introductions‘, English for Specific Purposes 19 (2000) 115-135.

Halliday, MAK, J.R. Martin. 1993. *Writing Science. Literacy and Discursive Power.* London, Washington, D.C.: The Falmer Press.

Hoey, M. 2005. *Lexical Priming: A New Theory of Words and Language.* London: Routledge.

Hunston, S., G. Francis. 2000. *Pattern Grammar: A Corpus-Driven Approach to the Lexical Grammar of English.* Amsterdam: Benjamins.

Kjellmer, G. 1991. "A mint of phrases." In: Aijmer, Karin, Bengt Altenberg. eds. 1991. *English Corpus Linguistics. Studies in Honour of Jan Svartvik.* London, New York: Longman. 111–127.

Levin, B. 1993. *English Verb Classes and Alternations. A Preliminary Investigation.* Chicago, London: The University of Chicago Press.

Sinclair, J.M. 1991. *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.