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Evaluation across scientific disciplines – a corpus-based analysis

Academic discourse is said to be impersonal and objective. However, a closer look reveals its persuasive character: writers of research articles try to gain readers' attention and convince them to read on by demonstrating that they have something new and worthwhile to say (cf. Hyland 2009:70). It is the research field of evaluation that investigates how writers express their opinions, sentiments and the like. Our main interest lies in commonalities and differences regarding the expression of evaluation across scientific disciplines. In this regard, we pose the following questions: How do scientific disciplines express evaluation? Do 'young' disciplines show differences in comparison to more established disciplines (e.g., do they promote their work more eagerly? If yes, how is this accomplished?) The data set we employ to investigate these questions is the Darmstadt Scientific Text Corpus (DaSciTex) built out of nine scientific disciplines covering recently emerged disciplines (bioinformatics, computational linguistics, computer-aided design and microelectronics) and their disciplines of origin (computer science, biology, linguistics, mechanical engineering and electrical engineering) (cf. Teich and Holtz 2009; Teich and Fankhauser 2010).

Several investigations have been carried out to classify the phenomenon of evaluation, located according to Halliday (2004) in the interpersonal metafunction (e.g., Hood 2010, Martin 2003, Hunston and Thompson 2003, Conrad and Biber 2003). However, in linguistics only few approaches deal with the identification of evaluation (e.g., Hunston 2004). But, in order to answer the above mentioned questions, we have to identify evaluation first. To identify evaluation in a large corpus, specific preliminary considerations have to be taken into account. Some evaluation is expressed in terms of specific items (e.g., modal adjuncts such as obviously, probably, apparently), which can be easily identified. In addition, lexical items belonging to word classes such as adjective or noun may be inherently evaluative. How can evaluative lexical items be identified reliably in a large corpus? Investigations on patterns (Hunston and Francis 2000) have shown that there are patterns based on adjectives which are primarily used to evaluate. Therefore, we have looked for additional evaluative patterns based on evaluative adjectives and nouns, which we call evaluative lexico-grammatical patterns, in order to reliably identify evaluative meaning in a large corpus.

For the analysis, the Corpus Query Processor (CQP) (Evert 2005) developed at the University of Stuttgart is used as it allows a fast corpus search by means of regular expressions on large annotated corpora. In order to have a basis of comparison, the evaluative modal adjuncts and the evaluative lexico-grammatical patterns are categorized according to meaning groups (obviousness, probability, importance, etc.). For the corpus comparison, the chi-square test and the Fisher's exact test are used to determine significant differences across the subcorpora of DaSciTex.

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