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Data Commentary in Science Writing: A Discourse Model for Multimodal Result Presentation in Science Publication

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Our study concerns the use of data commentaries (Swales & Feak 2012), i.e. the linguistic presentation of graphs, figures and tables, and contributes to the description of multimodal (Kress, 2010) science communication for applied purposes. Research has shown that integrating written and visual modes represents a complex task for students and that students often need to be scaffolded into disciplinary practices (Blåsjö 2011; Wharton, 2012). At the same time, the type of support that is available for students is often insufficient. For instance, Roth el al (2005:40) note that textbooks often lack "many resources that would assist in reading", including clear linguistic descriptions/explanations of data that is expected in research genres. Further, the multi-modal nature of science writing has been pointed out as an 'important problem' (Shaw 2007) in linguistic approaches to disciplinary discourse, but remains relatively under-investigated. More research on how multimodal communication is handled in science publications is therefore needed.

We present a model for discourse moves in data commentaries in results and results & discussion sections in research papers and master theses in applied chemistry. The model is based on a corpus of data commentaries annotated for discourse moves following the methodological steps of the *Biber-Connor-Upton approach* (Biber et al. 2007), and by use of the UAM corpus tool (O'Donnell, 2008). The UAM tool has been applied to make the data commentaries searchable by first converting data commentaries from PDF-files into text-files and then storing and annotating the texts in the tool. The UAM tool allows for searches of words and phrases as well as the annotated discourse moves and is intended to be used by both students and researchers. The visual material accompanying the data commentaries has been made available via PDF-files. All in all, this means that the tool and methodology offers a novel approach to addressing the use of data commentaries in disciplinary writing.

The model presented draws on theoretical concepts from genre-based language instruction in the two 'schools': *English for Specific Purposes* (ESP) and *Systemic Functional Linguistics* (SFL) (Johns, 2008) and is developed for ESP writing at technical universities. Following Flowerdew (2004, 2010), we argue that a small, specialized corpus enables the integration of top-down and bottom-up approaches to discourse – a type of integration that is highly useful in such a context.

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