

Unethical use of LSP: The rise of plagiarism in science

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Science is often described as a search for knowledge following a method which is based on the examination of evidence, and undergoes correction and improvement when new evidence or data are found. When experimental results (data) cannot be explained on the basis of existing, accepted theories, scientists need to construct new ones that can throw light on both the old and the new phenomena concerned. The enterprise of science is construed to follow a model similar to that of Popper's notion of iterative theory refinement: experimentation, theory refinement, new theory and further experimentation. This rationalistic/positivistic approach views the world of a scientist as an objective observer/participant eschewing irrational motives like personal advancement, jealousy and other human traits. Nevertheless, there are occasions when scientists are found to have violated the logical/positivistic ideal and the scientists have been found wanting: from using other scientists' writings and results to a wholesale fabrication of results. Perhaps, it is the act of creating texts – the weave or fabrication of words, which leads to temptation? If correct, the corollary is that perhaps a systematic examination of writing, where a given text is compared and contrasted with other texts, will exonerate good observers/participants from those found wanting? In scientific research misconduct as a breach of ethical academic behaviour takes three main forms: 1. fabrication (falsified data are published), 2. falsification (research is manipulated and critical results are omitted), and 3. plagiarism (credit is taken for the work of others). Factors that can trigger misconduct and lead to fraud are career pressure, violation of the scientific method deriving from overconfidence in one's ability to find the right answer to a scientific problem, and work in a field where experiments cannot be easily reproduced (Goodstein 2002). Currently fraud is supposed to be more frequently reported in sciences where technological applications or improvements for human health and welfare seem to be particularly alluring and thus striking a balance between objective methods and subjective goals turns out to be more difficult.

The idea that scientists politely discuss discarding old theories on the basis of new evidence without ever showing any emotion is far from the truth. In the discourse of science the assessment criteria used are not only being clear, being objective or being impersonal, but also being persuasive, as texts can perform different functions – expository, hortatory, polemic, imaginative, and so on (Halliday 1993). In the context of the investigation and reporting of scientific fraud, the language of science cannot but be affected as scientists feel the urge to defend the integrity of their disciplines, their research methods, and their criteria for publication while at the same time exposing unethical behaviour that threatens to destroy people's confidence in science and scientific progress. Furthermore, scientists take the utmost care in the phrasing of charges that need to be substantiated.

In this paper we propose to look at the discourse of science when it is caught 'off-balance' as it attempts to serve different and possibly conflicting interests such as upholding the quality and integrity of research, protecting science, and exposing fabrication, falsification and plagiarism. To this end we have adopted a corpus-based approach to be as objective as we possibly can be. Our genre-varied corpus comprises articles from learned journals such as *Nature* and *Science* – which were directly involved in some of the fraud cases as they had published papers by scientists later charged with scientific misconduct – and popular science articles from magazines

such as *Scientific American* and *New Scientist* but also from newspapers and magazines like *The Guardian*, *The Observer* or *The New York Review of Books* that have given scientific fraud substantial coverage. Our aim is to outline the main features of reasoned argument about this topic and show any differences in discourse that is meant for experts as opposed to the one where the addressee is the general public.

In terms of scientific discourse we want to study the authors' communicative intents. Our case study deals with unfortunate case of a young US-German scientist who has had to *retract* over 30 out of the 45 papers he managed to co-author over a two-year period. We examine the corpus of retracted articles to look at systematic use of hedges and boosters. We also aim to detect statistically significant collocations, phrases and discourse markers pointing to an emotionally charged use of language. Examples are collocations such as *serious allegations* and *gross negligence*, euphemistic phrases like *departure from ethical behaviour*, as well as use of boosters and hedges. To detect as many features as possible we combine qualitative and quantitative analysis, but since we want to be as minimally subjective as possible, we study the distribution of collocations, phrases and markers in the two components of our corpus and compare it with that of representative corpora of journal and popular science articles as well as a representative general language corpus such as the British National Corpus.

References

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