



Scientific writing

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Abstract

Reflections on the ‘rigour’ of scientific writing, overindulgence, and the art of conduct.

1 Introduction

Science (*scientia* [L], knowledge, from *scire* [L], to know) is entrusted with *rigour* — that is, a special demand or strictness that certain rules be observed and obeyed — in the way information is obtained, registered, communicated, and processed. Scientific writing defends the quality of information, eventually with the broader intent to help people understand (Perdicoúlis, 2012).

2 Traceability

Besides meticulously *identifying* the data and/ or information upon display (e.g. in tables or figures), such as what is being presented, in which language, and in which units, scientific writing also has the obligation to disclose the origin of the information (i.e. the ‘*source*’), as well as to detail — or simply identify — the *method* in which it was collected, registered, and processed.

When sources are involved, information must be able to be *traced* to its origin for due verification. Hence, sources must be *cited* in the text and *referenced* in the bibliography (in books) or the list of references (in articles) — and there are different conventions or standards for how to implement these rules in practice. In general, qualifying sources of information include *bona fide* (a) publications, (b) observations and measurements, (c) anecdotal evidence, such as interviews or even ‘hearsay’, and (d) duly acknowledged axioms and assumptions. The trustworthiness of these sources is debatable, and may depend on the subject matter and the academic traditions of the various scientific fields.

3 Objectivity

Although factual information is the most appreciated in science, it is not the only type of information encountered in scientific writing. *Facts* are important for representing objective information (e.g. ‘27 minutes’), but subjective information through some *judgement* (e.g. ‘a long wait’) is often important to express what this means or how important this is to certain people — e.g. special interest groups. Especially for subjective information (e.g. in evaluations or assessments), scientific writing must include the criteria used as references.

4 Accuracy and Precision

Scientific writing aims for good (a) *accuracy* — from *ad* [L], towards + *cura* [L], care — which is the quality of being correct as a result of adequate ‘care’, and is associated with (low) systematic error, as well as (b) *precision* — from *prae* [L], before + *caedere* [L], to cut — which is the quality of giving a ‘clear cut’ value, and is associated with (low) random error — Figure 1.

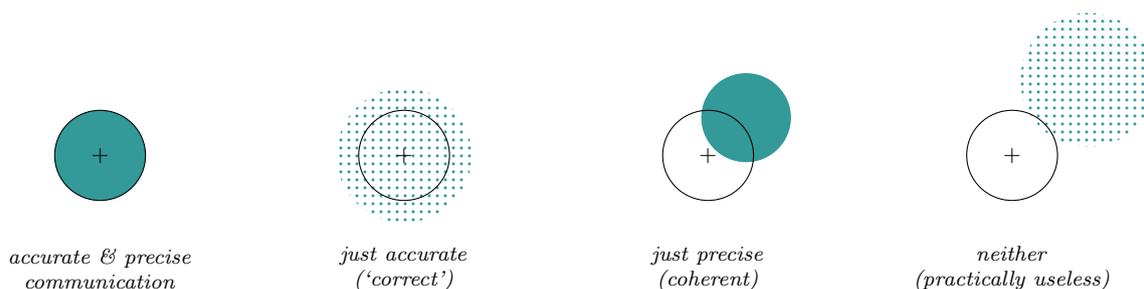


FIGURE 1 Original idea (circle) and its communication (colour)

Accuracy and precision are applicable to measurement as well as to the register and transmission of data, information and — more comprehensively — knowledge (e.g. argumentation), and can be invoked simultaneously as ‘*exactness*’¹.

In the context of scientific writing, the quality of data or information (Figure 1) may markedly improve with appropriate handling of bias or interpretation errors during processing, transmission errors across registers (e.g. text, maps, tables, diagrams), and degradation during storage and retrieval (e.g. lab notes, human memory, or digital media).

5 Challenges

Excessive rigour may easily create *pedantry* — that is, disproportionate concern with details and rules — which may in turn have a number of unwanted consequences. For instance, it is often argued in science that ‘if it is not documented, it is not information’. Such a standing filters out all that richness held in people’s minds through experience, and which could add to human knowledge if processed critically, and if people were considered as credible sources. Is such information to be discarded?

Scientific writing may also suppress creativity. For instance, deductive mental processes such as interpretation conducted ‘by the book’ (i.e. through known options) provide sure but limited ways. Human creativity, often triggered through blending contexts or by using metaphors, is capable of discovering interesting new options — or getting completely on the wrong track.

Even when writing is intended to be ‘scientific’, it is still an art. And as every art requires, scientific writing must also be practised with care and moderation. And perhaps we should always keep in mind the broader intent of scientific writing, which is to help people understand.

¹ High performance, reliability, certainty (from *ex-* [L], thoroughly + *agere* [L], to act, perform)

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