Editing to ensure conciseness in abstract writing for scientific papers

Peter Hull

Friedrich-Alexander Universität Erlangen-Nürnberg

Important features of abstracts

- Tight restriction on length - typically with a maximum of between 200 and 300 words
- Densely packed with informative content – often reflecting lengthy periods of research
- Explicit in meaning - relatively little room for non-literal interpretation
- High degree of subject-specificity: issues of ***convenience editing***

The abstract is by far the most widely read part of a research article. Much of the time it will be the only part that is read. In view of its importance, the accuracy of information provided by the abstract is critical.

(Pitkin RM. The importance of the abstract. *Obstet Gynecol.*1987;70:267)

Motivation for teaching abstract editing

- Abstracts often define success in reaching academic audiences
- Writing abstracts is a challenging task, which almost always involves significant editing
- Effective editing of texts is not often taught
- Techniques of editing useful for improving writing in general

Editing for conciseness

- In this context I will define editing for conciseness as: “Removing or rephrasing parts of an abstract to create a reduction in length, without a reduction in precision of meaning or a loss of informative content”
- This is neither correction nor editing technical content, but rather about ***writing efficiency***

Ways of reducing length

Two ways of editing to reduce length will be considered:

- Redundancy-reduction (“dead weight”)
- Rephrasing (“efficiency savings”)

Titles of sample abstracts

- Quantitative Determination of the Amounts of Aldehydes of Glutaraldehyde Crosslinked Porcine Pericardium

- The role of the hypersurface deformation algebra in geometrodynamics

Biomedical technology – original version

Quantitative Determination of the Amounts of Aldehydes of Glutaraldehyde Crosslinked Porcine Pericardium

In this article there will be given two methods to decompose native and glutaraldehyde fixed porcine pericardium. The aim of this is to determine the amounts of free aldehyde groups in crosslinked pericardium as these reactive groups suppose to cause calcification of the tissue after it is implanted in the human body as a heart valve. The verification of aldhehyde groups is accomplished by the sensitive reagent 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole, which can be abbreviated to Purpald. The reaction of aldehydes with Purpald induces a staining of the sample which can be measured by UV/Vis spectroscopy. Calibration was executed with both formaldehyde (FA), as it represents the simplest type of aldehydes, and glutardialdehyde (GA) which is used for crosslinkage. Enzymatic and mechanical decomposition was carried out to make free aldehyde groups, which are present in pericardium, accessible. It turns out that enzymatic treatment with Collagenase and Proteinase K is insufficient due to the fact that fixed pericardium decomposes incompletely. In contrast to this mechanical shredding with UltraTurrax leads to high standard deviations and inaccuracy to detect different absorption in test series. In summary it can be stated that Purpald is a suitable reagent to detect small amounts of free aldehydes provided that an optimized method for decomposition of pericardium is available.

(208 words, target = under 200 words)

Approach to editing abstracts for conciseness

- Not necessarily in a position to engage with technical content. Therefore ***only structural elements*** of the text are to be edited.
- Short text means that large-scale structural elements are not to be expected. Therefore editing ***to focus on structural elements at a sentence or inter-sentence level***.

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This article details two methods to decompose native and glutaraldehyde fixed porcine pericardium **used** to determine the amounts of free aldehyde groups in crosslinked pericardium as these reactive groups suppose to cause calcification of the tissue after it is implanted in the human body as a heart valve. The verification of aldhehyde groups is accomplished by the sensitive reagent 4-amino-3-hydrazino-5-mercapto-1,2,4-triazole, **also called** Purpald. The reaction of aldehydes with Purpald induces a staining of the sample which can be measured by UV/Vis spectroscopy. Calibration was executed with both formaldehyde (FA), as it represents the simplest type of aldehydes, and glutardialdehyde (GA) used for crosslinkage. Enzymatic and mechanical decomposition was carried out to make free aldehyde groups, present in pericardium, accessible. **The results show** enzymatic treatment with Collagenase and Proteinase K to be insufficient **as** fixed pericardium decomposes incompletely. In contrast to this mechanical shredding with UltraTurrax leads to high standard deviations and inaccuracy to detect different absorption in test series. **In summary** Purpald is a suitable reagent to detect small amounts of free aldehydes provided that an optimized method for decomposition of pericardium is available.

(184 words, meaning 22 fewer than the original)

Quantum Gravity – original version

The role of the hypersurface deformation algebra in geometrodynamics

Established astrophysical observations concerning the rotation velocity distribution of stars in galaxies and the expansion rate of the universe cannot be explained by the theory of general relativity in conjunction with the standard model of matter. Searching for reasonable modifications of general relativity consistent with the matter dynamics, K. Giesel provides a technique to derive the gravitational dynamics from given matter dispersion relations, for example of yet to be discovered dark matter. This approach, which will be reviewed here, is based on seminal work of S. A. Hojman. It revolves around the Dirac algebra, which entails the commutation relations of hypersurface deformations. A dispersion relation is needed to define the deformations, while geometrical considerations suffice to derive their commutation relations. The representation of the algebra as Poisson algebra in the Hamiltonian system of the physical theory, ensuring its diffeomorphism invariance, can be used to determine the gravitational Hamiltonian as a function of the canonical variables. Beside this assumption, Hojman originally stipulated six other postulates to derive general relativity in the ADM formalism. In contrast, the method of Giesel uses only four of them, which will be justified. Finally, implications and further potential modifications of the proposed technique will be discussed.

(200 words, target = under 200 words)

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(183 words, meaning 17 fewer than the original)

Benefits of this approach

- Reductions of 22 and 17 words respectively (average of 10% of text length) – author now in a position to include significantly more content or not required to remove content
- No significant change in meaning or loss of accuracy
- No requirement for editor to engage with (or even fully understand) technical content

Conclusions

- Convenience editing for conciseness **can be successful** if editors address **only structural elements** of texts
- The impact on **length of text**, and therefore on **volume of content** possible, can be **significant** (around 10% representative)
- Students writing abstracts (and convenience editors) should be taught and made particularly aware of:
  - **Vocabulary used to link consecutive sentences and vocabulary of logical structure as fruitful areas for rephrasing**
  - **Relative clauses as a common source of redundancy**