Scientific Writing: Problem Set 3

October 28, 2026

Please solve Task 1–4 each count as a half towards the 3 task to be chosen from the task sheet.

Task 1. Look at a paper `https://arxiv.org/pdf/2503.23184v1`

Read the title, abstract, introduction and conclusions. Glance through the paper. What do you think of title, abstract, introduction and conclusion?

Unfortunately, the paper has an error...

Task 2 (L. Lamport)**.** Shorten the text below, you can rewrite some parts, if you think this would improve the text.

> In this section, we describe some of the highlights of the research area. We discuss some of the most significant, elegant, and useful algorithms, and some corresponding lower bound results. Since the literature in the area is vast and varied, we have found the selection and organization of these results to be a formidable task. We have chosen to simplify our task by restricting our attention to four major categories of results: shared memory algorithms, distributed consensus algorithms, distributed network algorithms and concurrency control. Each of these categories has a very rich research literature of its own, and we think that together, they provide a representative picture of work in the area. Still, our description is incomplete, since we neglect many other interesting topics.

Task 3 (J. Zobel)**.** Rewrite the following passage to make it easier to understand. You may find it helpful to introduce mathematical symbols.

> The cross-reference algorithm has two data structures: an array of documents, each of which is a linked list of words; and a binary tree of distinct words, each node of which contains a linked list of pointers to documents. When a document is added its linked list of words is traversed, and for each word in the list a pointer to the document is added to the word's linked list of documents. An order-one expansion of a document is achieved by pooling the linked lists of document pointers for each word in the document's linked list of words.

Task 4. Below is a list of facts rather than an argument, also badly written.

> We implemented three algorithms. We used four datasets. We measured running time and memory consumption. We repeated each experiment ten times. The second algorithm was usually fastest.

Rewrite it as a short argument. Make up details, when needed.

Task 5. Formulate an experimental research question and a falsifiable hypothesis concerning an algorithm or a computational system. Specify what evidence would support the hypothesis, what evidence would refute it, and what evidence would be inconclusive.

Task 6. Do the following for three different topics.

Choose some result that you know from your eduction. Imagine you are writing a research paper containing this result, that it, the first paper that describes it. Write a title and abstract. Try to find the original paper and compare.

Full papers might be hard to get, but titles and abstract are almost always freely available.

Task 7. Find notes (yours, or lecture notes or some textbook) of one of your favourite topics. For two topics (preferably the difficult ones) look how the argument was presented.

Write a plan of this argument, identify the techniques used to make the presentation available.