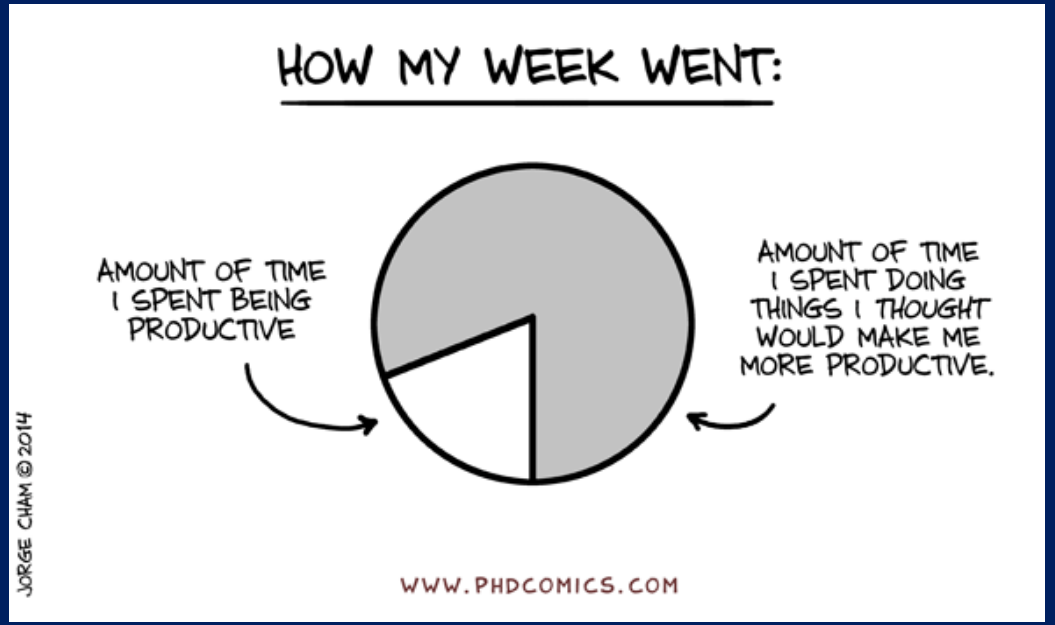
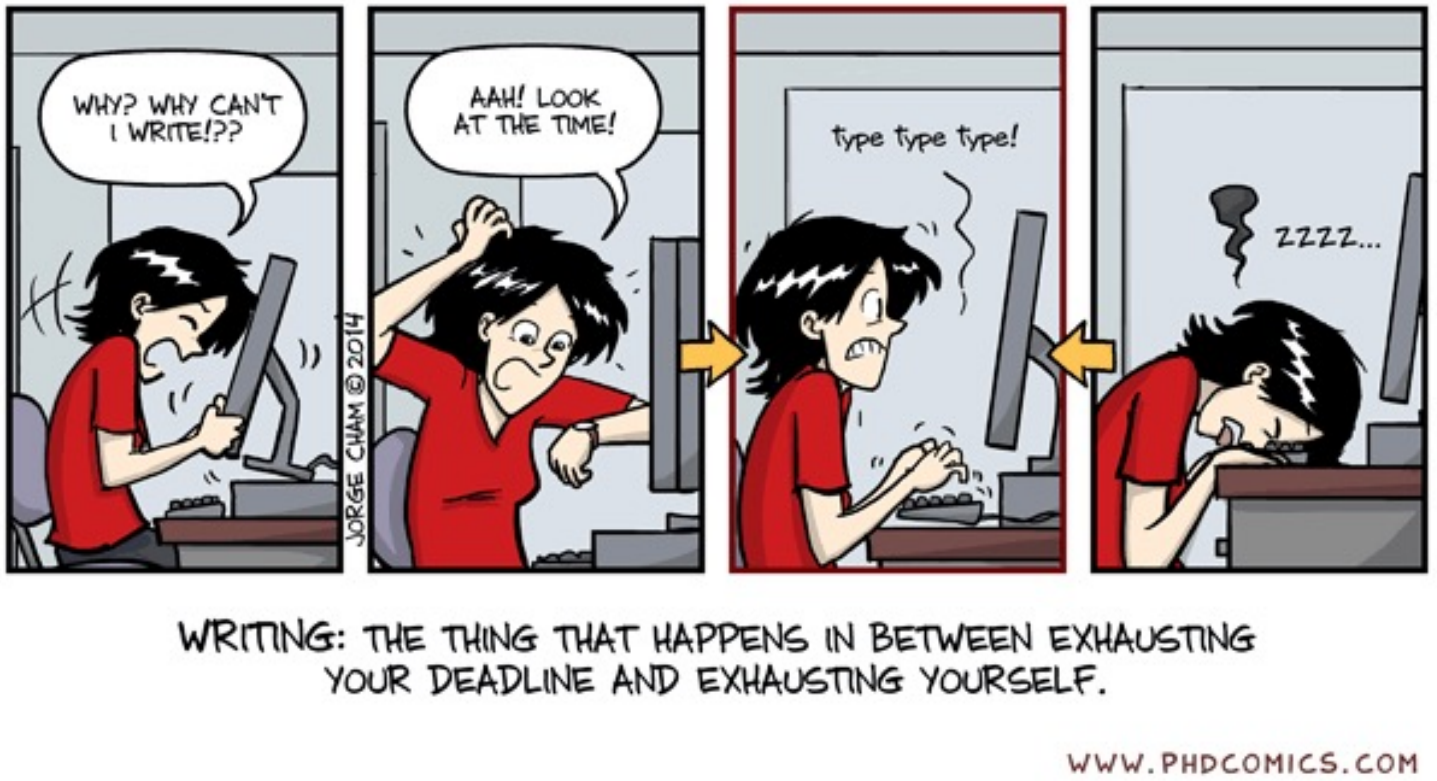
Tips for Writing Papers

OzGrav retreat, November 2025



Opening words …

- Writing papers is one of the most important aspects of being a researcher
- It can, unfortunately, be one of the least enjoyable for many people *
- In this session we'll discuss some approaches and tips to minimize the pain!



* Based on my experience of helping with 53 papers led by PhD students and postdocs in the group ☺

Take a few minutes to discuss with your neighbours any challenges you find with writing, and any approaches that work well for you!

My top tips!

Tip 1:
Read other papers!

Tip 2:
Know when your work is publishable

Tip 3:
Know your storyline

Tip 4:
Plan the paper structure in advance

Tip 5:
Develop an effective writing routine

Tip 6:
Don’t underestimate figures!

Tip 1: Read other papers!

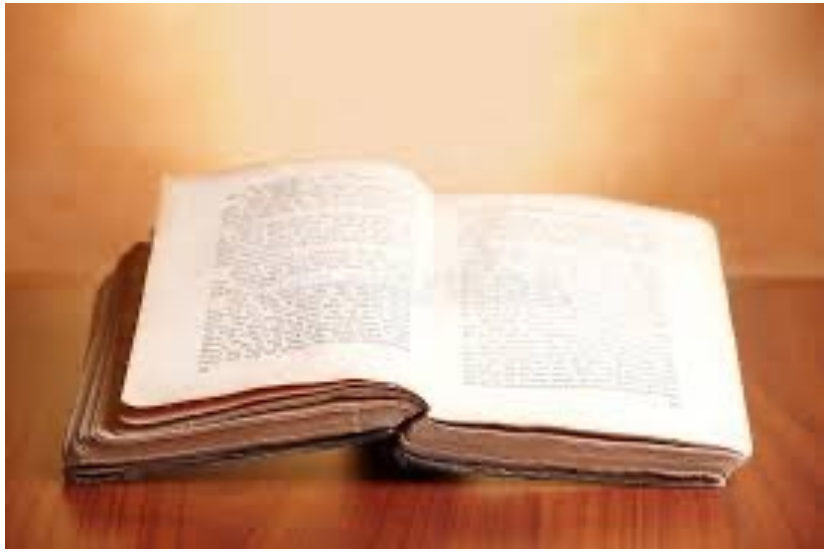
- Reading papers … the only activity more annoying than writing? ☺
- Read actively (notes, highlighting) and review with a critical eye
- Use software tools (e.g. Zotero, Obsidian) to collect notes & refs
- You don't need to understand everything in a paper
- Don't read a paper from beginning to end! Focus on key aspects
- Re-read key papers as your project develops

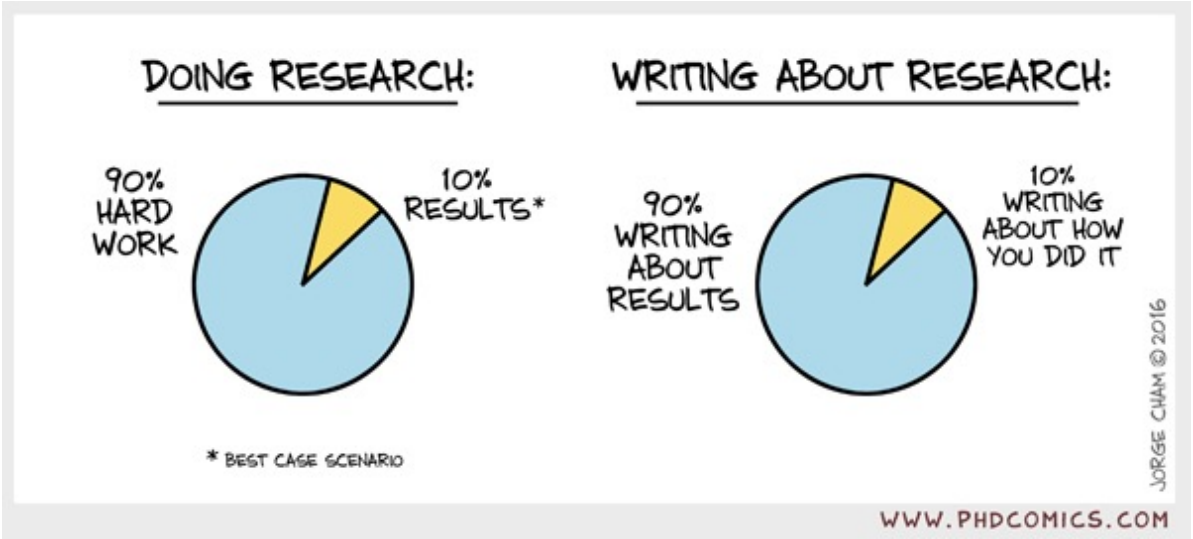
Tip 2: Know when your work is publishable

A piece of research is always abandoned and never completed

- We can always do more tests and refine our analysis, and researchers are great at coming up with suggestions for this!
- However, at some point there is an opportunity cost of the time we are spending!

Tip 3: Know your storyline





- Don’t describe everything you did; identify the key message
- Don’t be afraid to delete things that don’t contribute to the key message or necessary context !!
- Everything should flow in a logical order; aim for clarity
- Having a storyline in mind is particularly important for the introduction and discussion sections

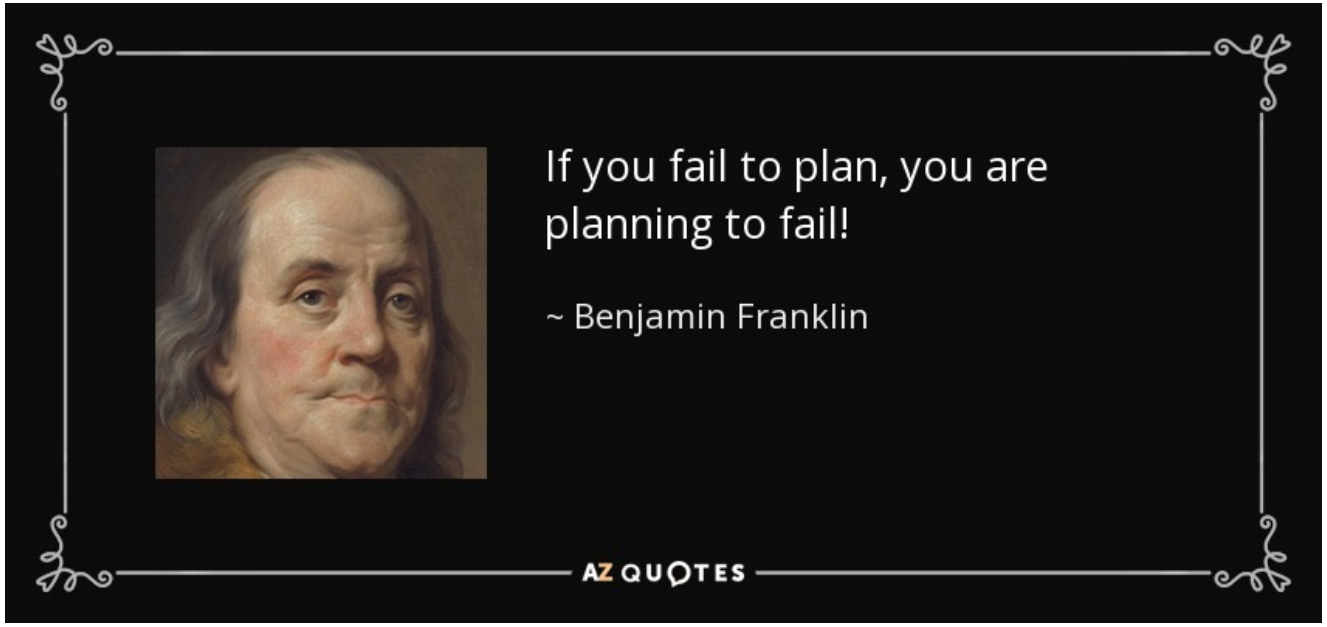
Tip 4: Plan the paper structure in advance

Skeleton outline including section headings and planned figures

Develop the skeleton into a roadmap (bullet point notes)

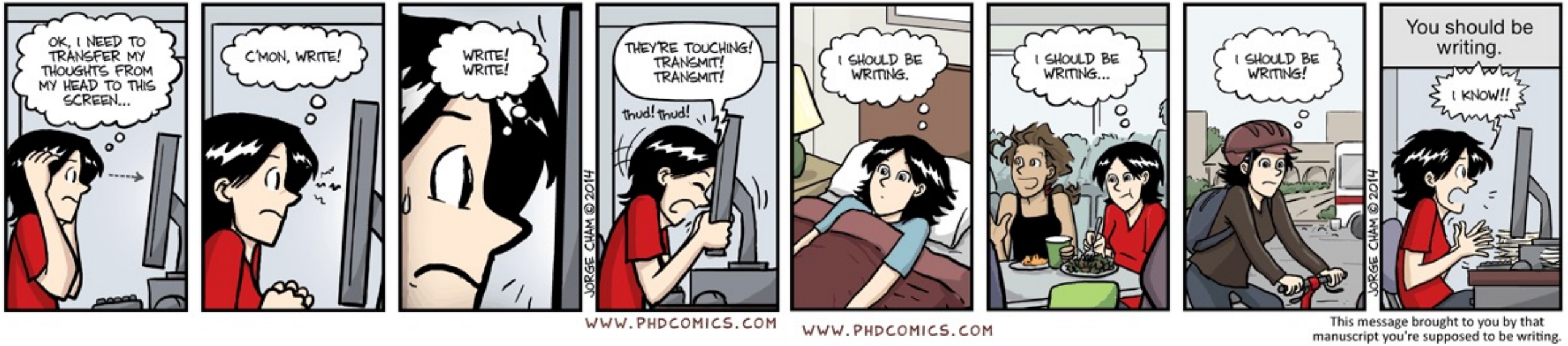
Develop the roadmap into complete sentences

Critically review the draft and re-write



- Planning is useful because it sets the scope and divides the work into chunks
- Don’t be afraid to revise the skeleton if necessary!

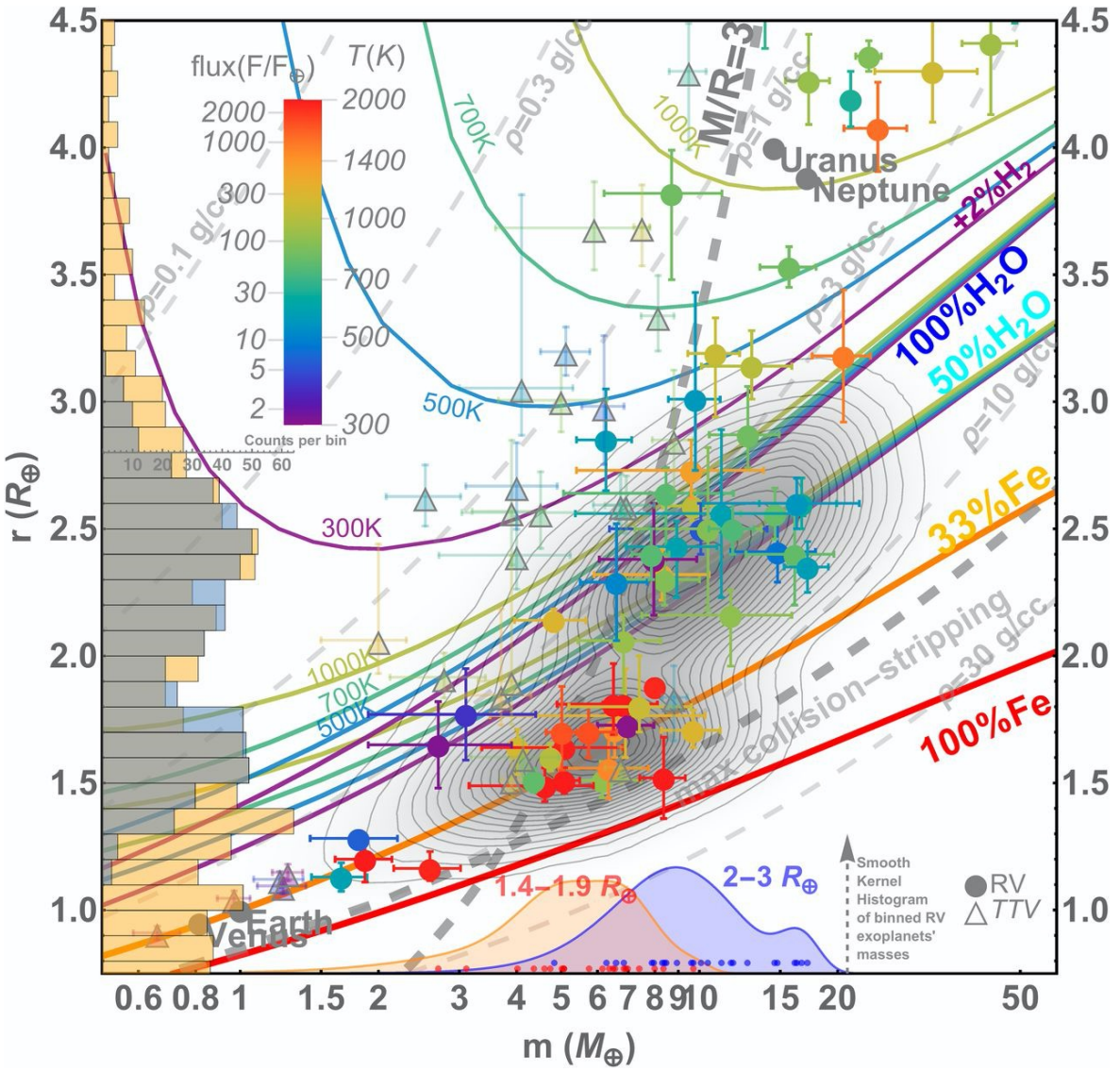
Tip 5: Develop an effective writing routine



- Aim for steady progress not a sprint
- Take regular breaks
- Try and avoid rabbit-holes! (You can add missing information later)
- Try and find “The Writing Zone”
- “Stop, Go Back, Read, Write, Repeat”
- Writing is always an iterative process of drafting and re-drafting

Tip 6: Don’t under-estimate figures

- The only takeaway for many readers will be your figures
- Basics: figures should have legible axes, not too crowded, clear labels
- Higher level: good figures tell your story and could be re-used by others
- Helping yourself: getting the figures in place early can help clarify your paper structure and message



Any reflections on these tips?

Papers about writing papers!

Some useful recent perspectives and tips in Nature Astronomy …

How to plan your astronomy research paper in ten steps

Nushkia Chamba[1]✉, Johan H. Knapen[2,3,5] and Diane Black[4,5]

Scientific writing is an important skill for a career as a professional astrophysicist. However, very few researchers receive any formal training in how to write scientific research papers of high quality in an efficient manner. This Perspective is the first of a two-part self-help guide to scientific writing to address this skills gap. This part focusses on planning your academic research paper in astronomy. We discuss how to crystallize the ideas that underlie a research project, analyse how the paper can be constructed considering the audience and the chosen journal, and give an overview of the publishing process. Whether you are a student writing your first paper or an experienced author, you may find the ideas presented here useful.

https://arxiv.org/abs/2207.12959

How to write and develop your astronomy research paper

Johan H. Knapen[1,2,5]✉, Nushkia Chamba[3,5] and Diane Black[4,5]

Writing is a vital component of a modern career in scientific research. But how to write correctly and effectively is often not included in the training that young astronomers receive from their supervisors and departments. We offer a step-by-step guide to tackle this deficiency, published as a set of two Perspectives. In the first, we addressed how to plan and outline your paper and decide where to publish. In this second Perspective, we describe the various sections that constitute a typical research paper in astronomy, sharing best practice for the most efficient use of each of them. We also discuss a selection of issues that often cause trouble for writers from sentence to paragraph structure—the 'writing mechanics' used to develop a manuscript. Our two-part guide is aimed primarily at MSc- and PhD-level students who face the daunting task of writing their first scientific paper, but more senior researchers or writing instructors may well find the ideas presented here useful.

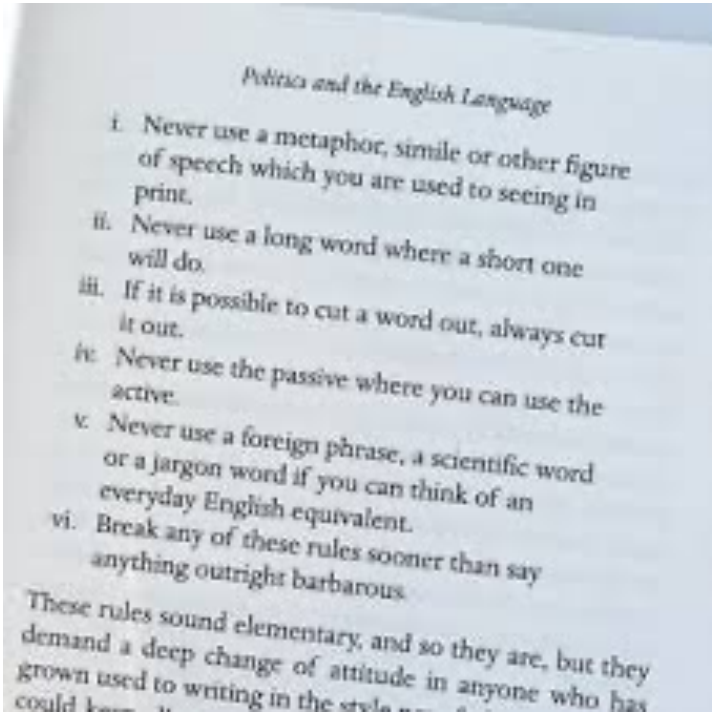
https://arxiv.org/abs/2110.05503

Other considerations?

Feedback:

Make sure you allow time to work through it, and you don't need to incorporate *all* suggestions

Writing style: some people have feelings about the passive tense!



Politics and the English Language

i. Never use a metaphor, simile or other figure of speech which you are used to seeing in print.
ii. Never use a long word where a short one will do.
iii. If it is possible to cut a word out, always cut it out.
iv. Never use the passive where you can use the active.
v. Never use a foreign phrase, a scientific word or a jargon word if you can think of an everyday English equivalent.
vi. Break any of these rules sooner than say anything outright barbarous.

These rules sound elementary, and so they are, but they demand a deep change of attitude in anyone who has grown used to writing in the style

Where to submit papers?

Watch out for article processing charges!

How to use Generative AI as a useful tool?

Take a few minutes to discuss with your neighbours any ways in which you find generative AI useful in your writing process

That’s all for today!