

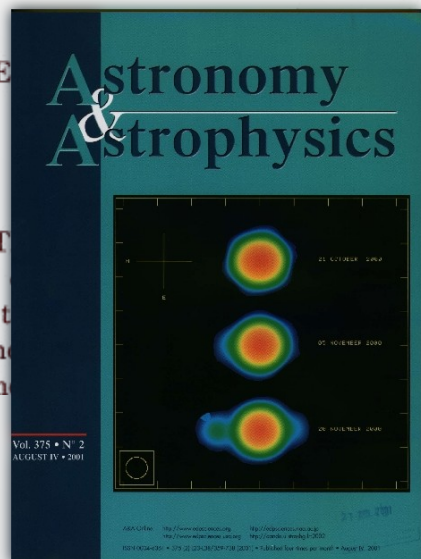
Scientific Writing 6951

THE
ASTROPHYSICAL JOURNAL
AN INTERNATIONAL REVIEW OF SPECTROSCOPY
AND ASTRONOMICAL PHYSICS

VOLUME XXXVII

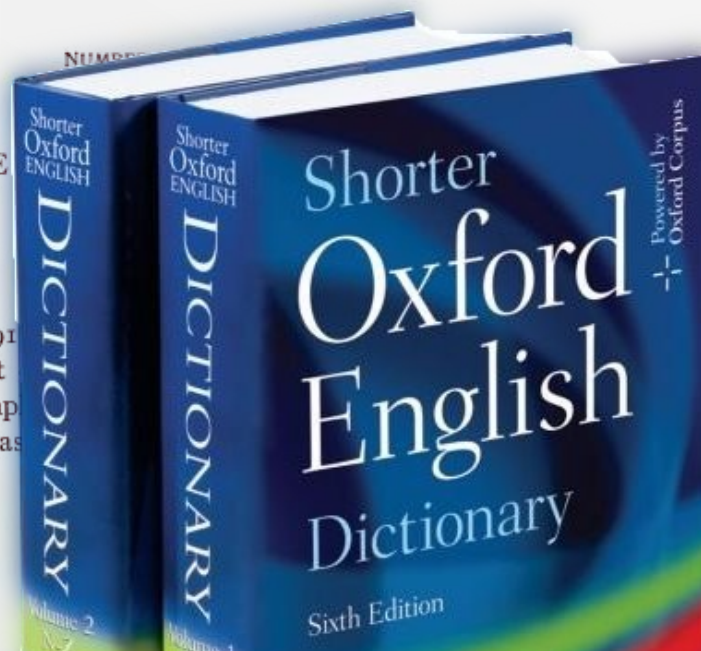
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Wednesdays 10-12 Room 0.008



<http://www.astro.uni-bonn.de/~izzard/writing.html>

Previously on *Scientific Writing 6951* ...

- Abstracts
- 250 words
 - Topic, purpose,
 - your research question
 - Methods and data analysis
 - Results and findings (present as facts!)
 - Conclusions
- You learned how to join sentences
- ... and how not to :)

**Informative Accurate
Clear Concise Attention!**

Homework 1: Keywords

- Assign a few keywords to each of the abstracts from the exercises

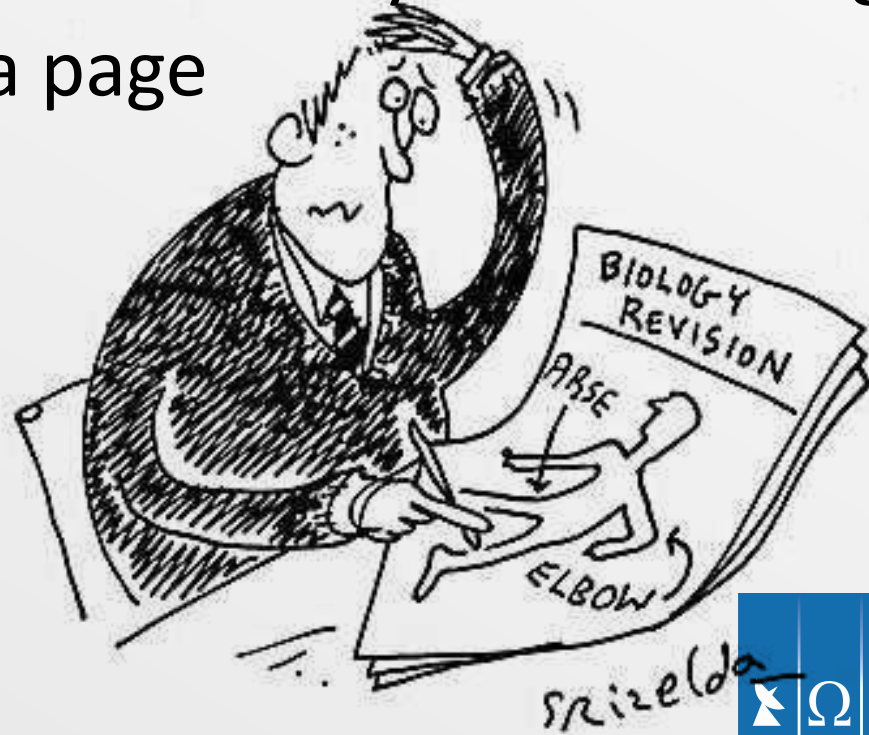
http://www.aanda.org/index2.php?option=com_content&task=view&id=170&Itemid=256

- Why are keywords useful?



Homework 2:

- Choose a subject you studied as an undergraduate
e.g.
quantum mechanics, relativity, electrodynamics
- Read up on this a little to refresh your knowledge
e.g. read the wikipedia page



search ID: grin170

Today: getting started

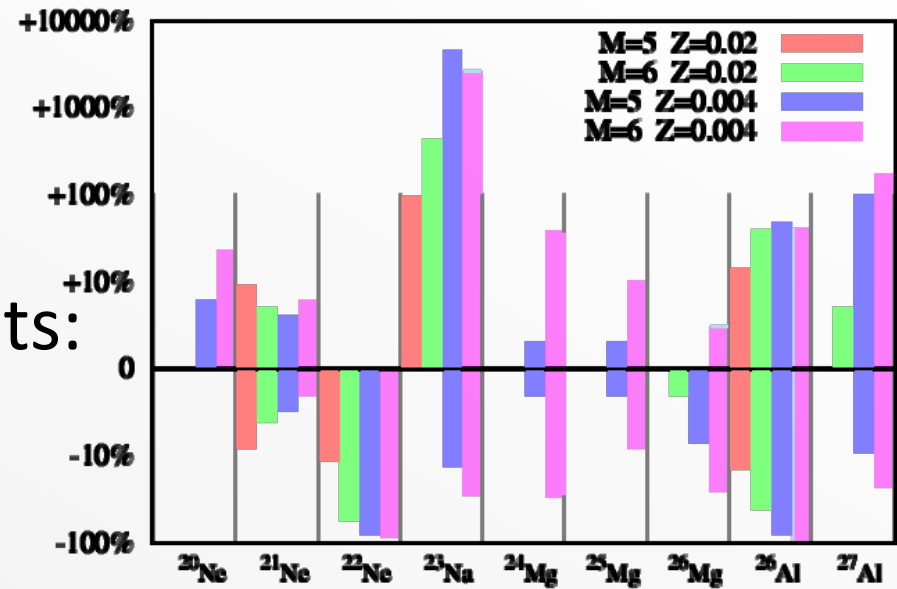
- The hardest part of writing!
- We will examine today:
 - **Planning**
 - **Brainstorming**
 - **Literature**
 - **Freewriting**
 - **Combating writer's block**
- + Exercise on sketching out an article on the subject you chose to revise for your homework

(you did your **homework**, right?)



Raw Material

- Collect together all your results:
- **Graphs, plots**
- Notes
- Computer code(s) : **organise** your data!
- Relevant **papers** (on paper, in a folder)
- Books, lecture notes etc.
- **Coffee, tea** etc. close at hand!



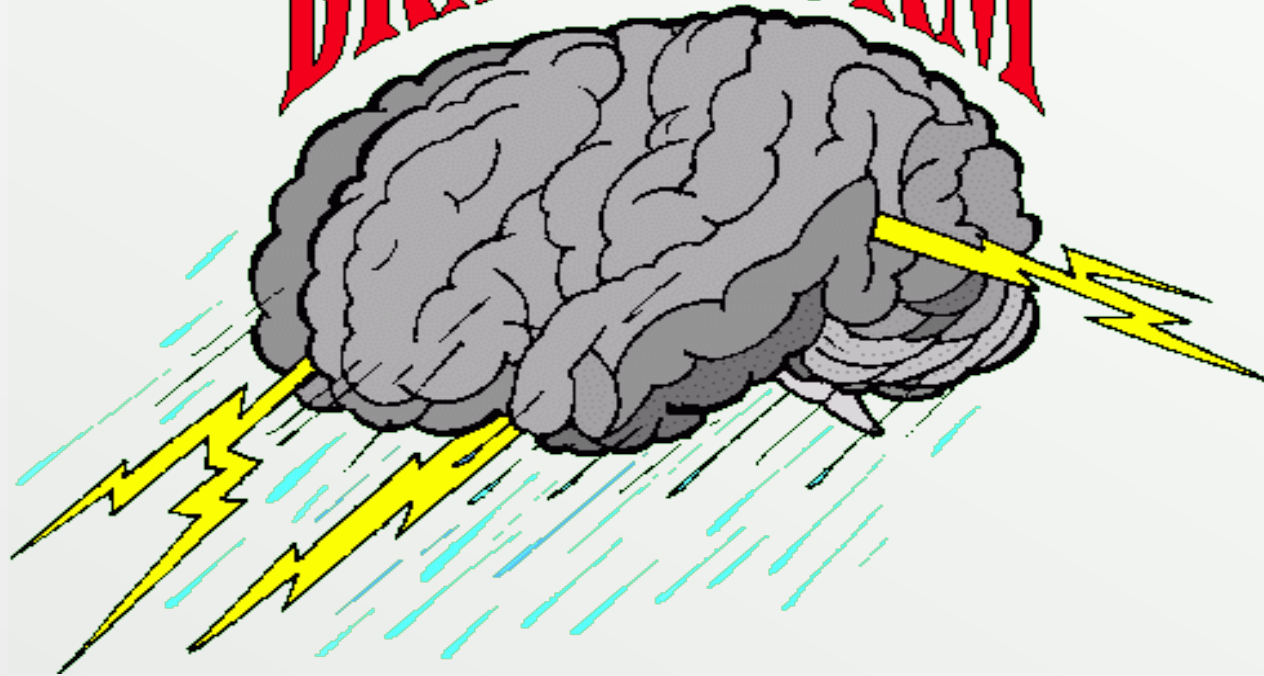
Literature review

- Every project/introduction needs some kind of **review of the literature**
- Reference the **most important papers**
- Also a good review of the topic before you start with the rest of the paper!
- Not too long ...
- But not too short!



Brainstorming

BRAINSTORM



... find a solution for a specific problem by gathering a list of ideas spontaneously contributed ...

<https://en.wikipedia.org/wiki/Brainstorming>

Brainstorming



Problem: either your scientific question,
or “what do I put in the paper?”

Advantages:

- **Quantity** leads to **quality**
- **No criticism!** (do it later)
- **Unusual** ideas
- **Combine** ideas to **improve** them
- *Buffers individuals from negative evaluation*

Osborn 1939

Brainstorming



Difficulties:

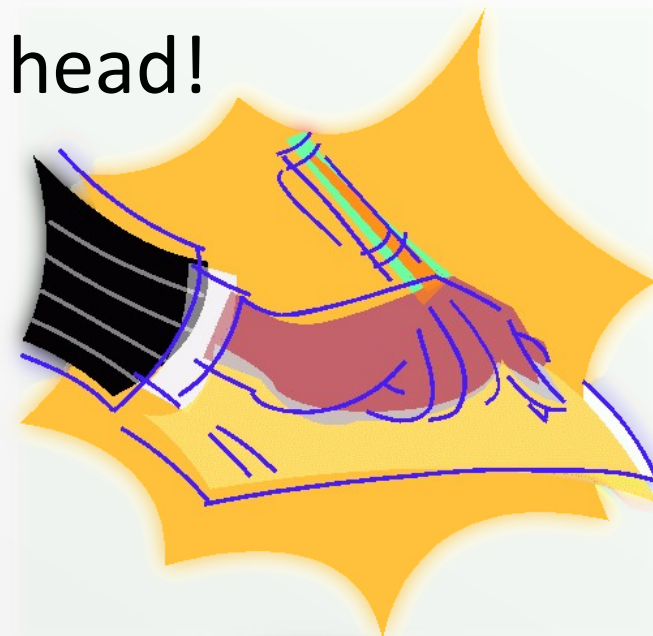
- Ideas not important to the **group**?
- **One person** at once: ideas forgotten
- More effort to be proactive, **easy to sit back**
- Group productivity **illusion**
- **Myopic** view of outside information

Minson & Mueller, *Psychological Science* (2012)

Also Schultze, Mojzisch & Schulz-Harz (2013)

Freewriting

- Write down whatever comes into your head!
- Great way to get started
- Like brainstorming on your own:
can be (much) more productive!



Carry a **notebook** around with you!
Ideas can arrive at any time!

Writer's block

- Can't think of anything?
 - Define **topic** and **audience**
- Plan goals by a certain time
- **Avoid internet!** (no phone!)
- Go somewhere else (**cafe?** Library?)
- **Do not edit** at all (yet)
- Try writing on **paper**
- Try freewriting



Combating Writer's block

- Break your work into **small pieces**
- Stuck? Leave it until tomorrow
- Discuss with friends and colleagues
- Get **feedback** on your draft
- Remember to rest e.g. weekends!
- Treat yourself when you succeed!

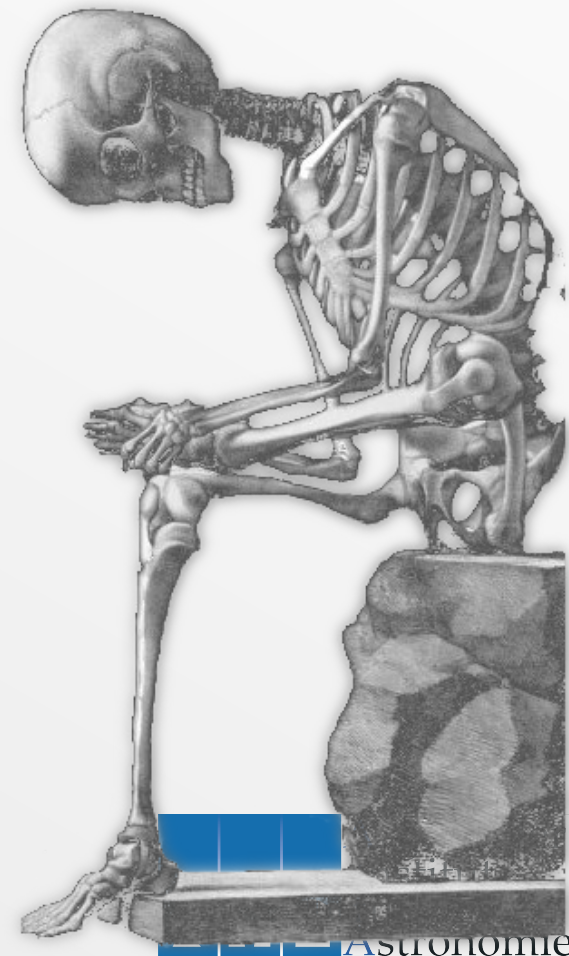
- Remember: it's just a job

like any other part of your research.



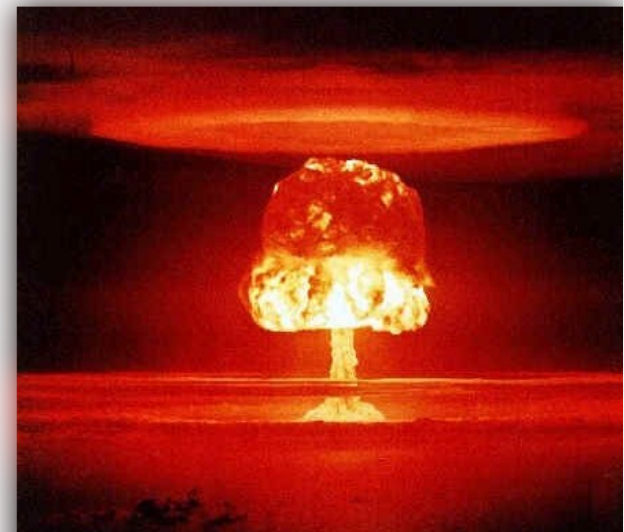
Skeleton Article

- *Abstract, Introduction, Method, Results, Discussion, Conclusions*
- Skeleton article contains the **main points only**
e.g. bullet point list (one per paragraph?)
- Perhaps then add data **figures** and **tables**
- Write *Introduction's* literature review
- **Method** and **Results** :
you know these best!
- Then finish the *Introduction* and *Discussion*
- Finally **Conclusions** and **Abstract** (?)



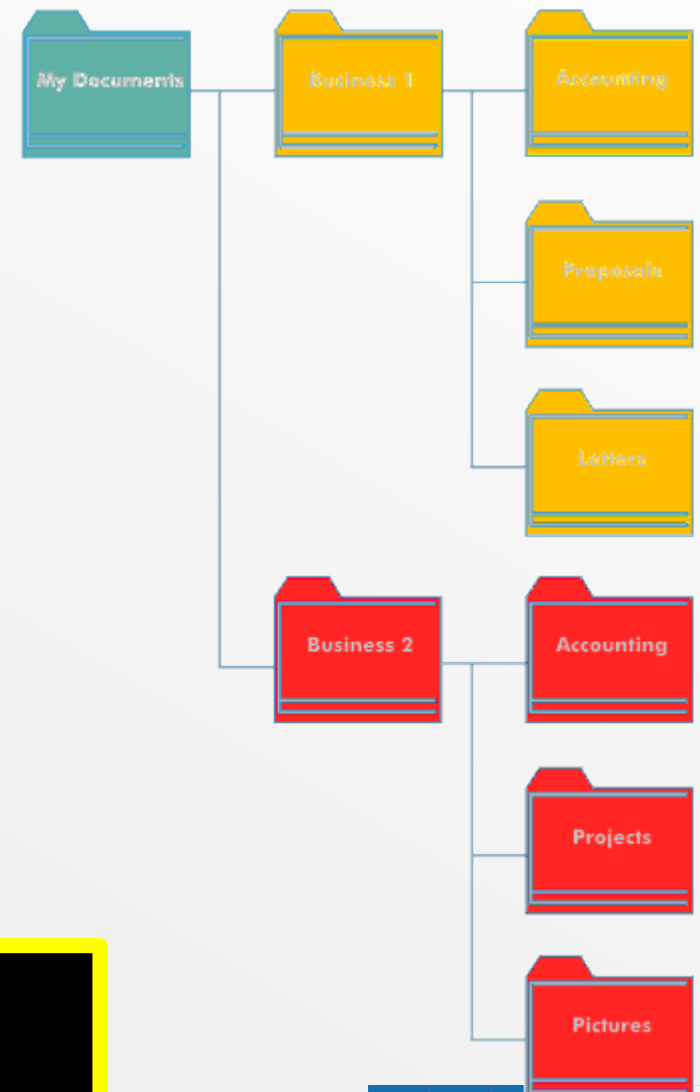
Practical advice

- If you are working on a **computer**:
keep timestamped backups!
- e.g. **label** filenames
`review_paper_v123.tex`
- Or use version control e.g. **CVS/SVN/Git**
<http://svnbook.red-bean.com/>
- Keep an **off site** backup(s)!



Practical advice 2

- Before you start, **structure** your document storage:
- `svn/tex/`
- `svn/tex/2011`
- `svn/tex/2011/papers`
- `svn/tex/2011/minutes`
- `svn/tex/2011/refereeing`
- `svn/tex/2011/reports`



AlfA has an SVN server
Or use *github* (or similar)

Exercise

- You each chose a **homework subject**
(I hope!)
- In groups of **three** (each with different subjects!)
- You have to **write a paper for 1st year undergraduates on your subject**
- **15 minutes** of brainstorming for each of you :
remember to think outside the box!
- **What ideas will you put into the paper?**
- For now (or homework) write paper skeleton.

