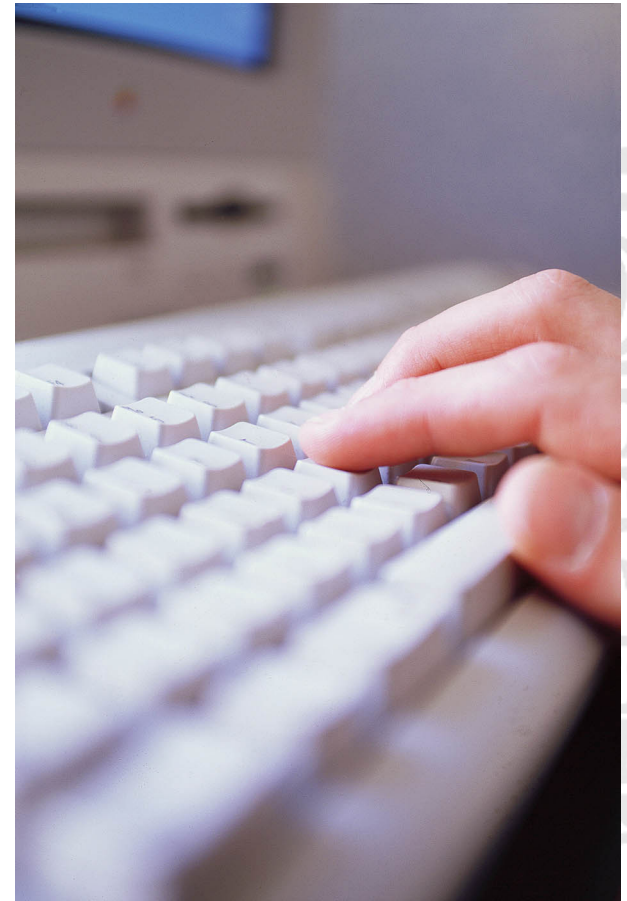




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Scientific writing

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The Language Workshop





Hallmarks of scientific writing

- Clarity
- Precision
- Formality / appropriate register
- Correctness
 - content
 - language

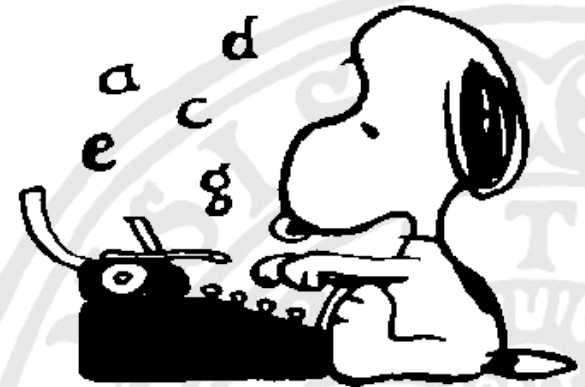




Different types of writers

Revisers: Text before structure

- Start writing, put as much as possible on paper
- Read the text, make notes in the margin
- Sort different parts of the text into a logical order

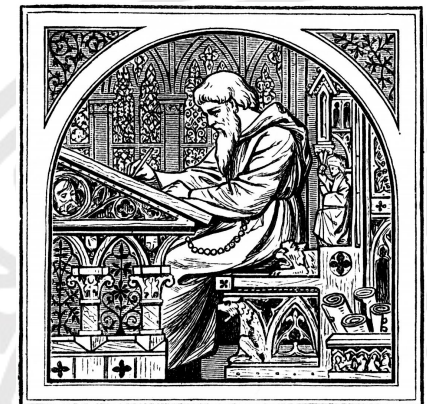




Different types of writers

Planners: Structure before text

- Make a detailed outline
- Start writing within the outline, section by section
- Adjust the structure while you write





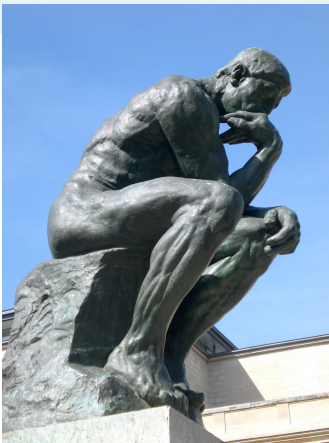
The scientific writer

Your own writing strategies

- How do you think about your writing? Where do you start?
- Where is your focus: on the section you are in the process of writing, or on the final product?
- Do you wait until you have all your data/results and then start writing, or do you write while you are doing your research?
- Writing and continually revising? Writing full or partial drafts and revising each draft? Finishing the text in one go?

From a reflective text to a presentation text

From this	To this
the writer's perspective	a reader's perspective
structured according to the writer's own thinking	structured according to an overarching plan
implicit, the writer alone knows how the text should be interpreted	explicit, the writer helps the reader interpret the text





The reader

The basic questions: Who is your imagined reader, what do they expect, and what do they know?

- background
- context
- terminology





The reader

The reader interprets the content and facts based on their previous knowledge and preconceptions...

...but also based on the structure of the presentation, and the structure of the text!

Clarity: Information structure

time (min)	temperature (°C)
0	25
3	27
6	29
9	31
12	32
15	32

temperature (°C)	time (min)
25	0
27	3
29	6
31	9
32	12
32	15

Gopen and Swan (1990)



Clarity: Language structure

Paragraph level

Move from old information to new information

“new” information can include things the reader might be expected to know but which has not yet been discussed in the paper



Clarity

Sentence level

If the *subject* and the *verb* are too far apart, it makes the text more difficult to parse.





Clarity

Precipitation in the form of crystalline water ice, consisting of snowflakes that fall from clouds, **is** called snow.

Snow **is** precipitation in the form of crystalline water ice, consisting of snowflakes that fall from clouds.



Clarity

“I find the argument that allowing editors the freedom to engage in tomfoolery that hurts no-one is not an improvement to the project to be ridiculously spurious.”

Wikipedia internal discussion page, 16 Feb 2017



Clarity

“I find the argument {that {allowing editors {the freedom to engage in tomfoolery that hurts no-one} is {not an improvement to the project}}} to be ridiculously spurious.”



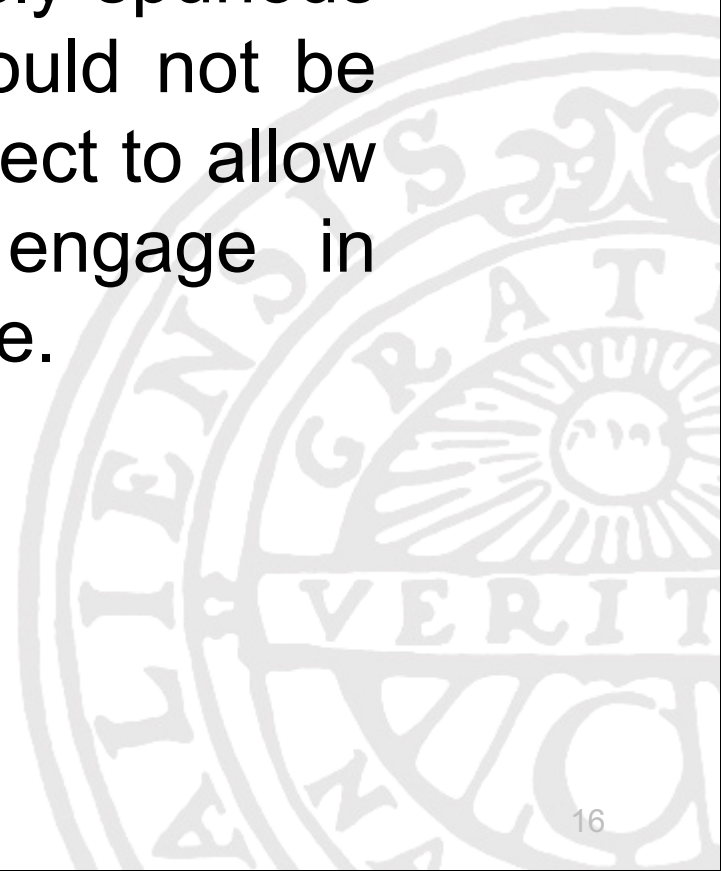
Clarity

“I find the argument
that
allowing editors
the freedom to
engage in tomfoolery
that hurts no-one
is
not an improvement
to the project
to be ridiculously spurious.”



Clarity

I think that it is a ridiculously spurious argument to say that it would not be an improvement to the project to allow editors the freedom to engage in tomfoolery that hurts no-one.



Precision

Terminology versus jargon

What does your reader know and understand?

What do you need to define or explain?



Precision

Precision is also connected to...

...*specificity* – avoid vague expressions!

...*level of detail*

how much is necessary/required?

how much is ideal?





Formality / appropriate register

What is an “appropriate” level of formality for a scientific paper?

How does a text become more formal?

What are the risks of overly formal writing?



Passive voice?

We performed the experiment using...

vs

The experiment was performed using...

We found that...

vs

It was found that...





Passive voice?

“The passive voice is disliked by many because convoluted sentence structure, the understanding of which is not easily achieved, is lead [sic] to by it.” Mahrer, K. 2005. Still writing in passive voice? *The Leading Edge* 24 (11), p. 1137.



Nominalisation

Scientific texts often use *nouns* and *noun-based phrases* rather than verb phrases.

Verb based

Interest rates have been low and this has fuelled the housing market.

The professor **refused** to **extend** the deadline, which made the students feel annoyed.

Noun based

Low interest rates have fuelled the housing market.

The professor's **refusal** of a deadline **extension** caused student annoyance.



Lexical density

Scientific texts are often *lexically dense*, i.e., they contain many content-bearing words.

This is often done by using *modifiers* with nouns

Methods that are **currently used** for **research** → **Current research methods**



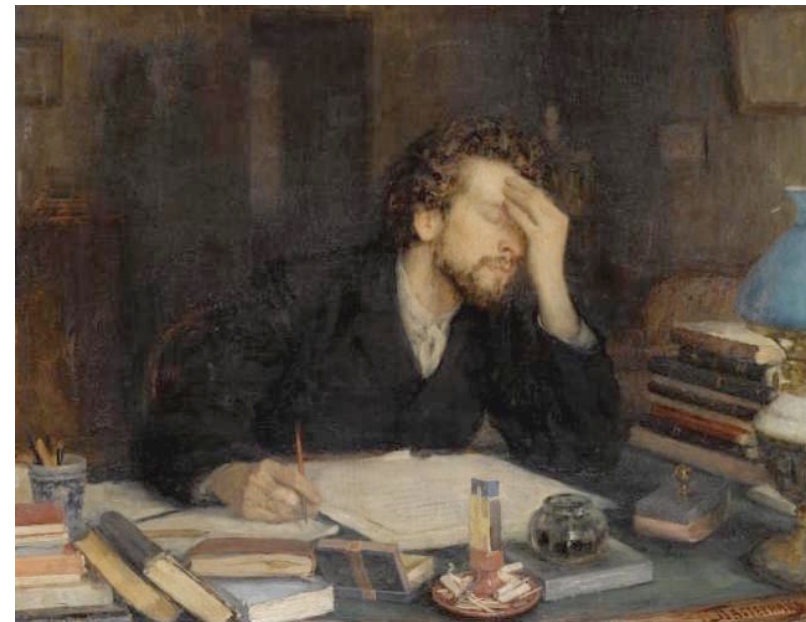
Getting past the writer's block

Change your focus: from structure to text or vice versa

Make a plan for your writing

- time of day
- part of the text to focus on

Acknowledge your own successes

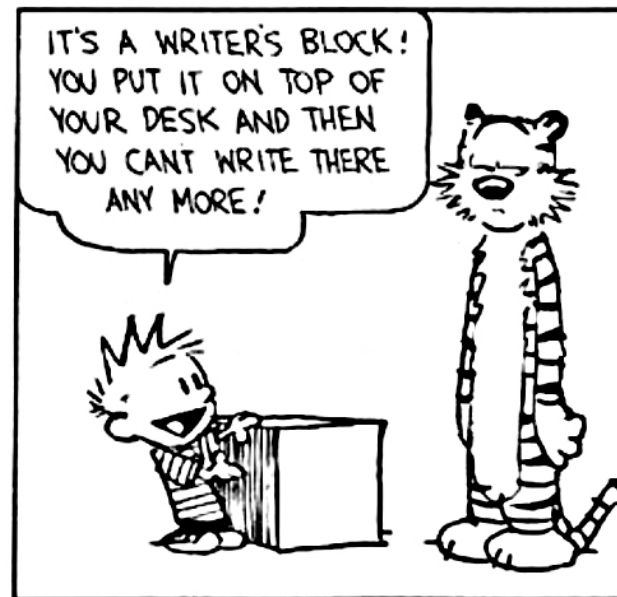




Getting past the writer's block

Get test readers for your text

Read other peoples' texts actively





The Language Workshop

Offers support for students, including
PhD students, at UU

Written texts

articles, abstracts, posters...

Spoken texts

conference presentations
preparation for the defence



The Language Workshop

Other resources for PhD students

- Unit for Professional English (UPE)
at the English Department
 - workshops and courses
- UU Careers
 - help with e.g. CVs and personal letters



References / further reading

- Gopen, G, and J Swan. 1990. The Science of Scientific Writing. *American Scientist* **78**, 550–558.
- Knight, J. 2003. Clear as Mud. *Nature* **422**, 22 May 2003. 376–378.





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Thank you for your attention!

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