reatch

Writing about science – a crash course

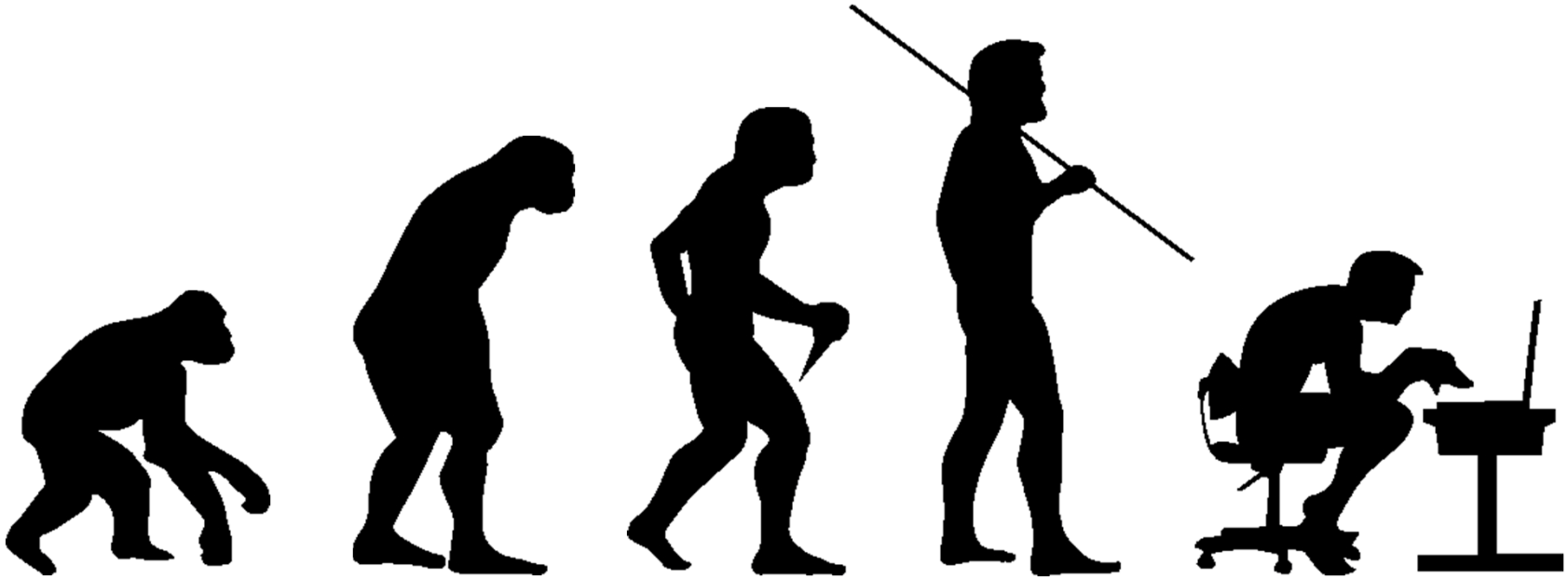
Servan Grüninger, President reatch

www.reatch.ch | www.servangrueninger.ch | @SGruninger

Outline

1) About reatch & me
2) Writing about science – why does it matter?
3) Writing 101 – some general remarks
4) How to structure your text
5) Writing about contentious topics
6) Practical Exercises

My academic evolution



Political Science & Law

Biology & Neuroinformatics

Biostatistics & Computational Science

I write, present and debat a lot

reatch

reatch | for a science-friendly culture

What is reatch?

An independent **idea hatchery**

for a **science-friendly culture,**

where science and society **work side by side.**

Our Mission

Our mission is

to make science relevant and to provide

public discourse with **evidence-based solutions.**

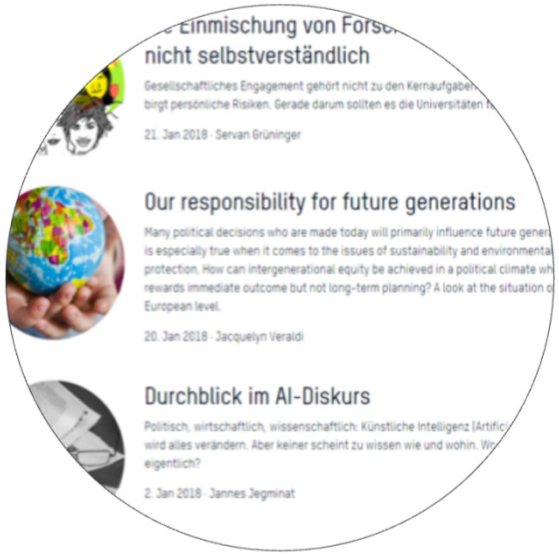
Our Goals

To build trust in the sciences and increase the trustworthiness of scientists.

To shape public discourse through well-informed, and fact-based debate.

To inform political decision-making from a scientific perspective.

What Does reatch Offer? | Our Activities



We run our own blog and publish in newspapers.

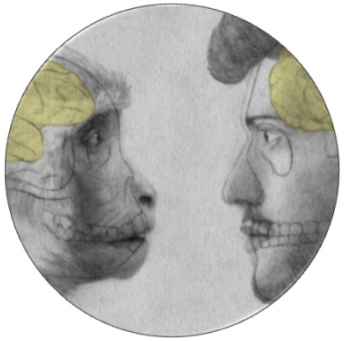
We organise public events.

We provide recommendations to key decision-makers.

Our Topics

Digital Change

Resources for Tomorrow



Responsible Research

Cultures of Today

Human Health

Join our community!

over **250 members** in **Zürich, Bern, Basel, Lausanne**

Sign up for our **newsletter** and stay informed

Become a **member** and get involved!

www.reatch.ch

reatch

Writing about science – why does it matter?

Why write?

Image: Martin Shovel

Why write?

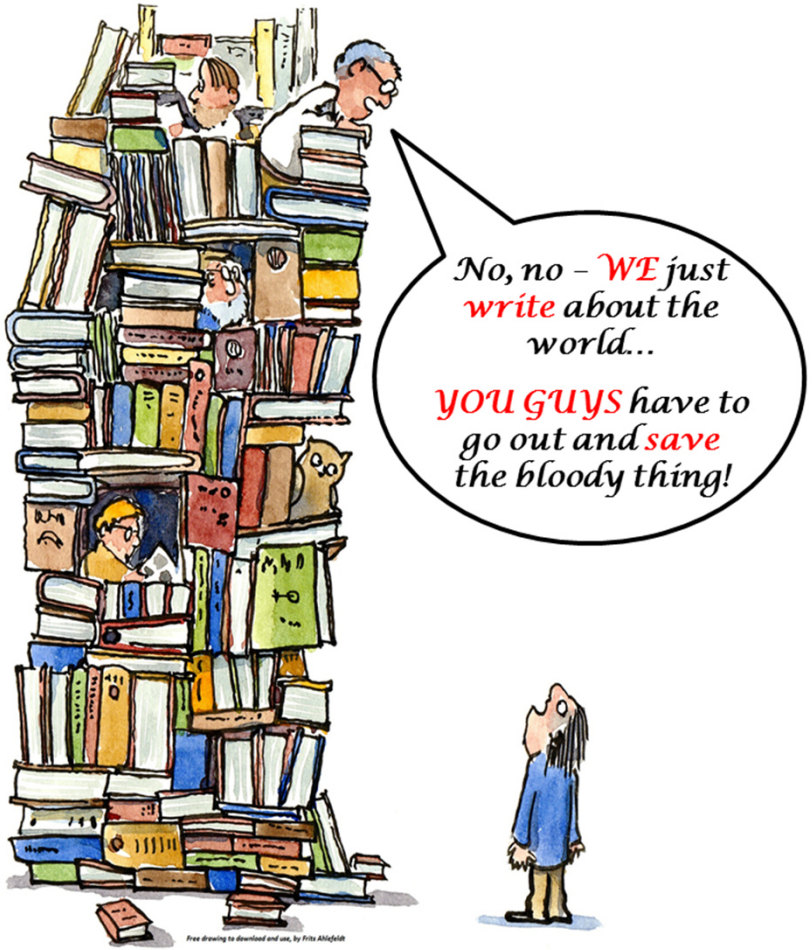


Image: Frits Ahlefeldt

Why write?

Michael Fink: Unterwegs in Pädagogien

Where's the catch?

Three problems with the public debate about science

1) Lack of trust in the sciences (context-dependent)

2) Lack of common ground between scientists and non-scientists

3) Stalemate in the public debate about science

Lack of trust

Lack of trust

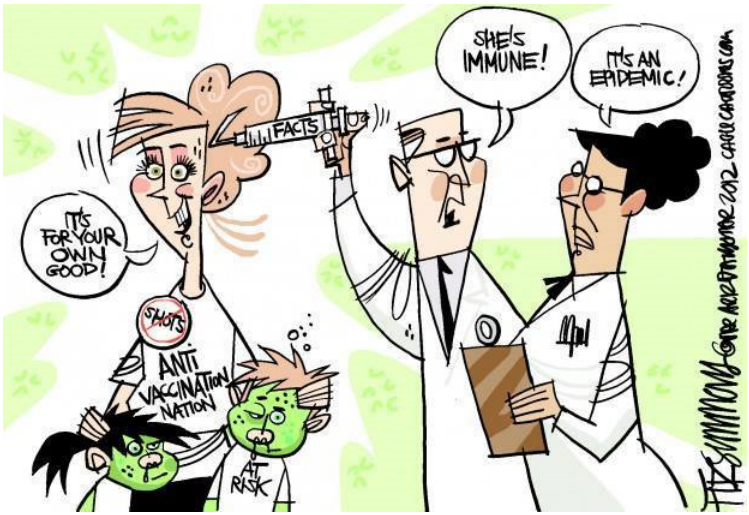
Politicised science

«Merchants of doubt»

Lack of common ground

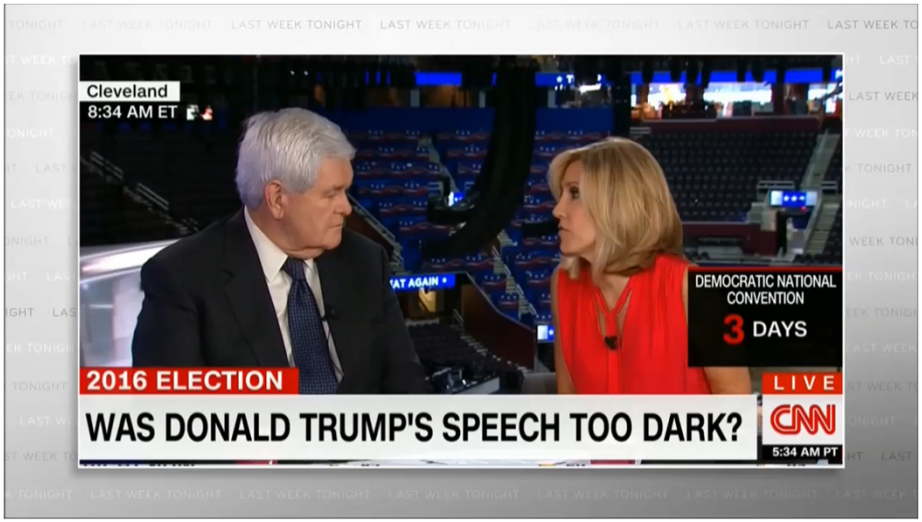
Selective facts

Intellectual arrogance

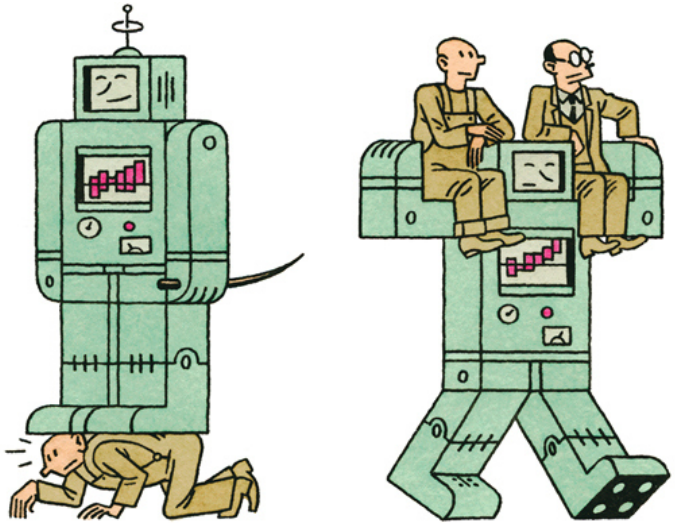


Stalemate

«Fact Fights»



Dystopia vs. Utopia



reatch

Writing 101 – some general remarks

Things to remember

- Hardly anybody knows what you're doing.
- If they know it, they don't understand it or they don't care (or both).
- If they understand it, they're either lying or your colleagues.
- If they care, they either have a very distorted view of what you're doing or they are your parents.
- You should only write about things that you understand well enough to explain to your professor AND your parents.

Writing about science

A rough checklist:

1) Choose a topic that YOU care about!
2) Embed your story – go where the reader is!
3) Don’t assume your reader knows what you know!
4) Don’t treat your readers like idiots!
5) Don’t fool yourself: Being able to write does not mean you can write!
6) Read good (non-scientific) texts – as often as you can!

Choose a topic that YOU care about!

Embed your story – go where the reader is!

How to Write Posts so Sticky the Reader is Glued to the Page

Don’t assume your reader knows what you know!

Which part of

$$o^* = \frac{-2k\bar{z}_k\bar{z}_o + z^2_{(1-\alpha)} - z_{(1-\alpha)}\sqrt{4k\bar{z}^2_o - 4k\bar{z}_k\bar{z}_o + z^2_{(1-\alpha)}}}{2\bar{z}^2_o}.$$

don’t you understand?

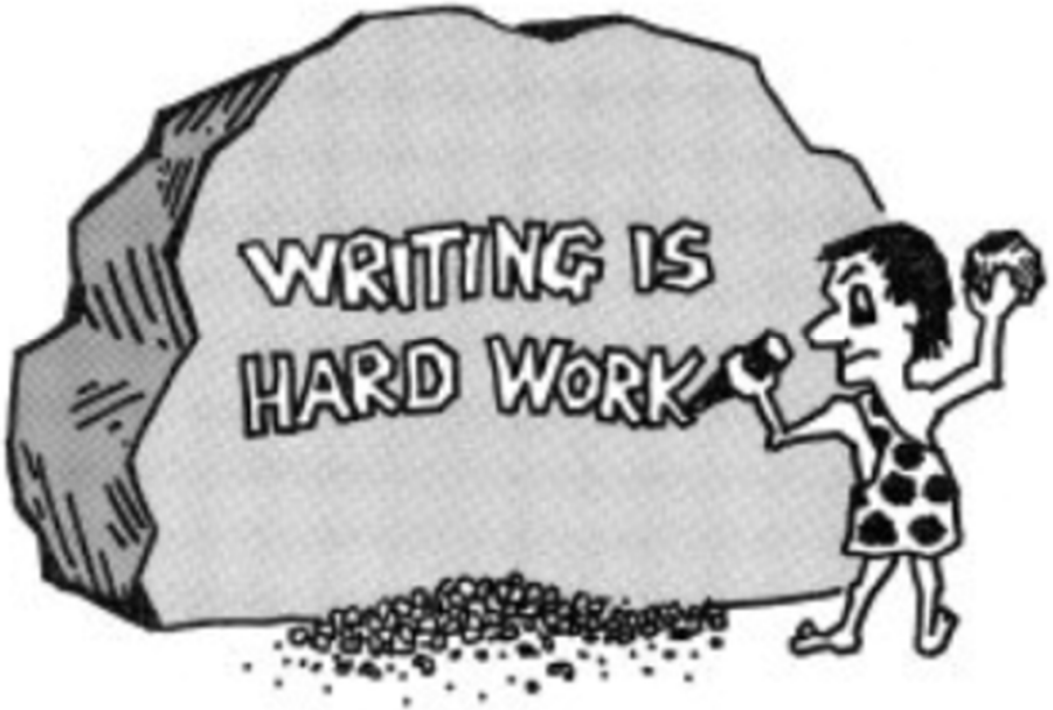
Don’t treat your readers like idiots!

Source: https://philosophy247.org/podcasts/arrogance/

Don’t treat your readers like idiots!

Source: https://philosophy247.org/podcasts/arrogance/

Don’t fool yourself: Being able to write does not mean you can write!



Source: https://www.wur.nl/en/Research-Results/Chair-groups/Plant-Sciences/Horticulture-and-Product-Physiology-group/Education/Improve-writing-skills.htm

Read good (non-scientific) texts – as often as you can!

reatch

How to structure your text

What does your text need?

A rough checklist (again):

1) One – and just one - overarching topic
2) A fitting title
3) An intriguing teaser
4) A catchy hook
5) Convincing (and fleshed-out) arguments / dazzling stories / surprising facts
6) A satisfying conclusion

One – and just one - overarching topic

A fitting title

- Create a working title, then change at the end (and then rewrite it again)
- Attract readers' attention
- The title should fit the text (no clickbait!)
- Make it concise, plain and simple (max, 80 characters, no supercalifragilisticexpialidocious expression)
- Don't be afraid to experiment. You first title is hardly ever your best title

An intriguing teaser

- Understand your key message
- Keep it short (max. 300 characters)
- Make a surprising promise
- Be objective
- Make it interesting but don’t sensationalise
- Again: no clickbait!
- Make it informative but don’t spill the milk
- Invest time in your teaser

A fitting title and an intriguing teaser

Helvetia knows best

There are no politicians left in Switzerland. Swiss citizens are governed by Helvetia, a benign artificial intelligence that develops its policies based on the values and interests of its constituents. A modern utopia or a dystopian nightmare?

A fitting title and an intriguing teaser

The scientific method

A tale of mistake and retraction shows that science works—eventually

Kids from religious homes are not less generous than secular children

A fitting title and an intriguing teaser

Curbing greenhouse-gas emissions

The answer to livestock that burp methane may be seaweed

But then you have to grow the seaweed

A fitting title and an intriguing teaser

Eklat an der ETH: Präsident der Beschwerdekommission tritt unter Protest zurück

Gegen ihren Willen müssen drei Mitglieder die ETH-Beschwerdekommission verlassen. Der ehemalige Präsident sieht die Unabhängigkeit der richterlichen Behörde in Gefahr.

A fitting title and an intriguing teaser

Peter Bichsel

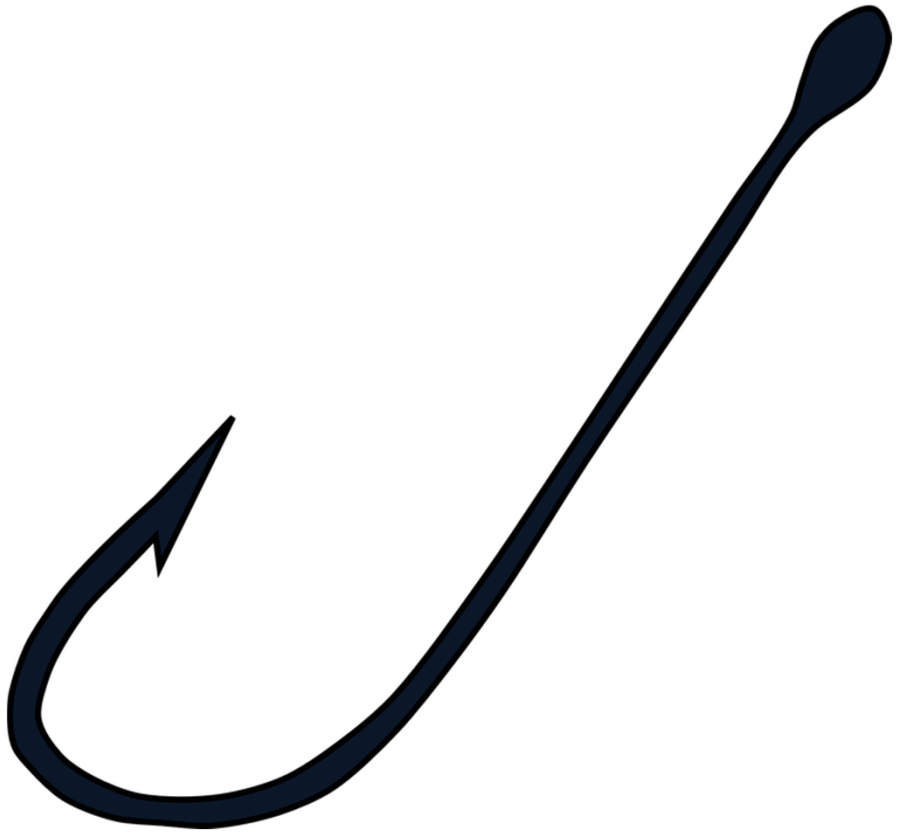
Keine Kommentare

"Ich schreibe immer nur die gleiche Kolumne"

2. Dezember 2017 um 07:36 Uhr | Lesedauer: 5 Minuten

Der 82-jährige Schweizer Autor gehört zu den ungewöhnlichsten und lesenswertesten Schriftstellern der deutschsprachigen Literatur.

A catchy hook



A catchy hook

Embed your text using:

- recent events / debates
- commonly held beliefs
- well-known facts
- an introductory story
- everyday life

A catchy hook

"Should Switzerland embark on negotiations in the next four years to join the Western European Union?" – "No"

"Should the current retirement age of 75 be adapted?" – "Yes, increased to 80".

"Do you approve of schools allowing pupils to be exempted from individual subjects or events on religious grounds (e.g. physical education/swimming, school trips, sex education lessons, etc.)?" – "No"

David skimmed the remaining questions on his retinal display – still eight more to go until he'd completed his daily quota.

A catchy hook

IN NOVEMBER 2015 a team of psychologists led by Jean Decety of the University of Chicago published an unexpected finding. Based on an experiment involving coloured stickers (trinkets valued by the children who took part) they concluded that youngsters living in religious households are less generous than those who dwell in non-religious households. Many news outlets, including *The Economist*, reported this result—precisely because it was so surprising. It turns out, though, that it was wrong. In August *Current Biology*, the journal which published the original paper, published a retraction, saying:

A catchy hook

Die ETH stand in letzter Zeit auch abseits von wissenschaftlicher Exzellenz in den Schlagzeilen. Für Aufsehen sorgte vor allem die erste Entlassung einer Professorin oder eines Professors in der 164-jährigen Geschichte des Instituts. Die Astrophysikerin Marcella Carollo musste im Juli ihr Pult räumen, weil Mobbingvorwürfe gegen sie erhoben wurden. Dass arbeitsrechtliche Konflikte an der Hochschule derart

Convincing (and fleshed-out) arguments / dazzling stories / surprising facts

- Guide your readers: YOU need to convince / entertain them
- Try to actively use verbs, don't hide behind passive nominalisations
- Facts need sources, normative claims need arguments.
- Eschew vernacular and jargon
- Reduce to the max: Remove unnecessary filler words
- Keep your main topic in mind – don't go astray!
- Remember your audience: If they don't understand it, it's YOUR fault, not theirs.

A satisfying conclusion

- Effective endings show (or suggest) the resolution of your article's main issue
- A satisfying conclusion doesn't just happen – you have to actively build towards it.
- Satisfying endings use elements from the article's beginning and middle.
- Great story endings make the reader feel something.

reatch

Writing about contentious topics

Which scientific topics can be contentious?

- Animal research
- Genetic engineering
- Migration
- Reproductive medicine
- Climate change
- Ecology
- Energy sources
- Evolution
- Vaccinations
- Artifical intelligence
- Etc.

Writing about contentious topics

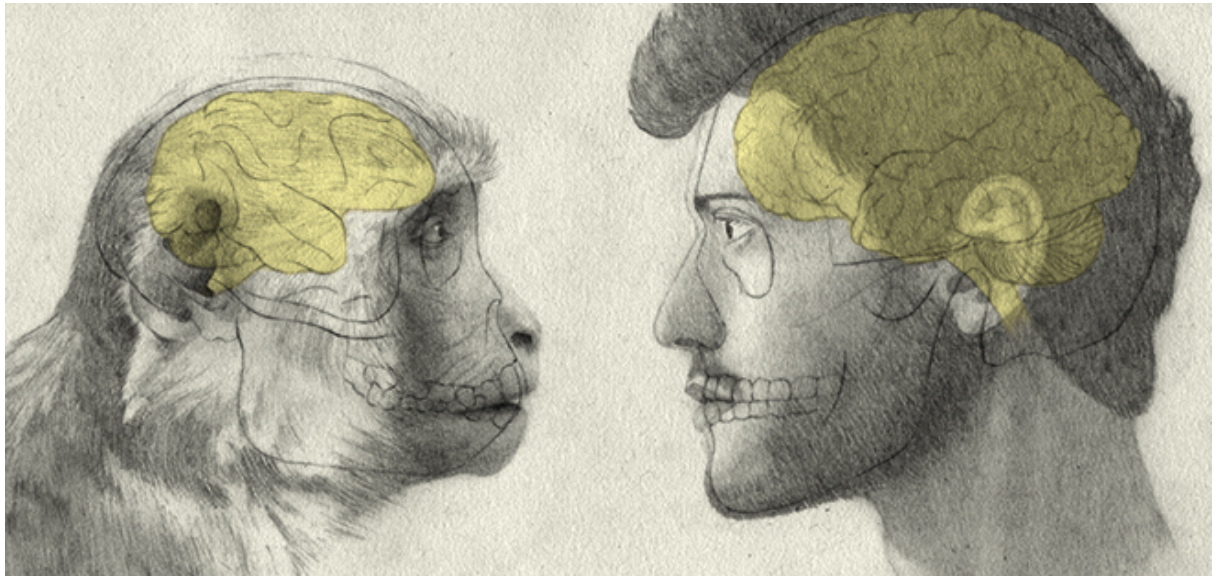
A rough checklist (the last, I promise):

1) Embed your story – go where the reader is!
2) Acknowledge reality!
3) Identify and voice common needs and concerns!
4) Flesh out the roots of the disagreement!
5) Show how to do things better!
6) Embrace the haters and welcome constructive feedback

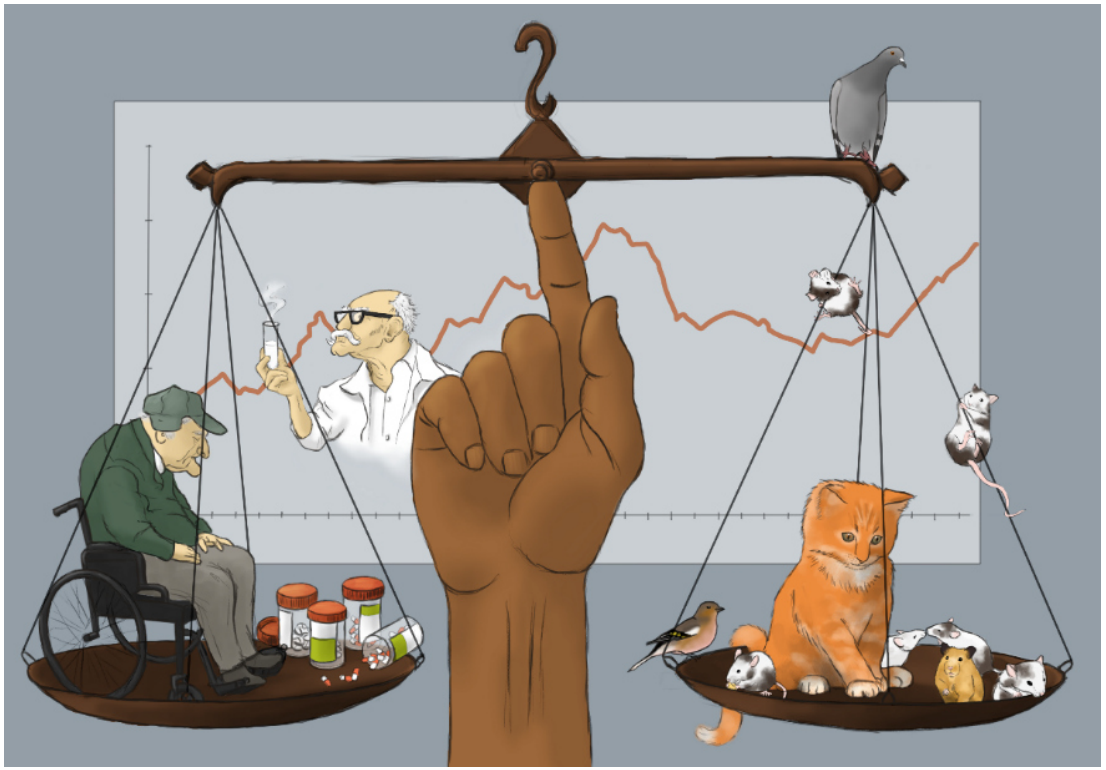
Embed your story – go where the reader is!

How to Write Posts so Sticky the Reader is Glued to the Page

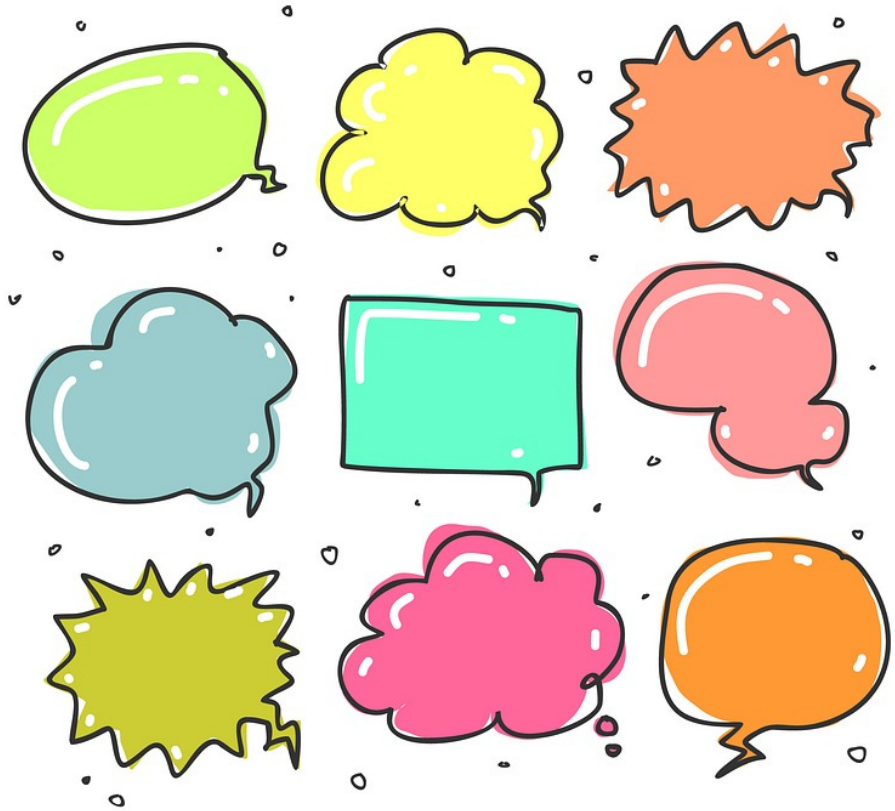
Acknowledge reality!



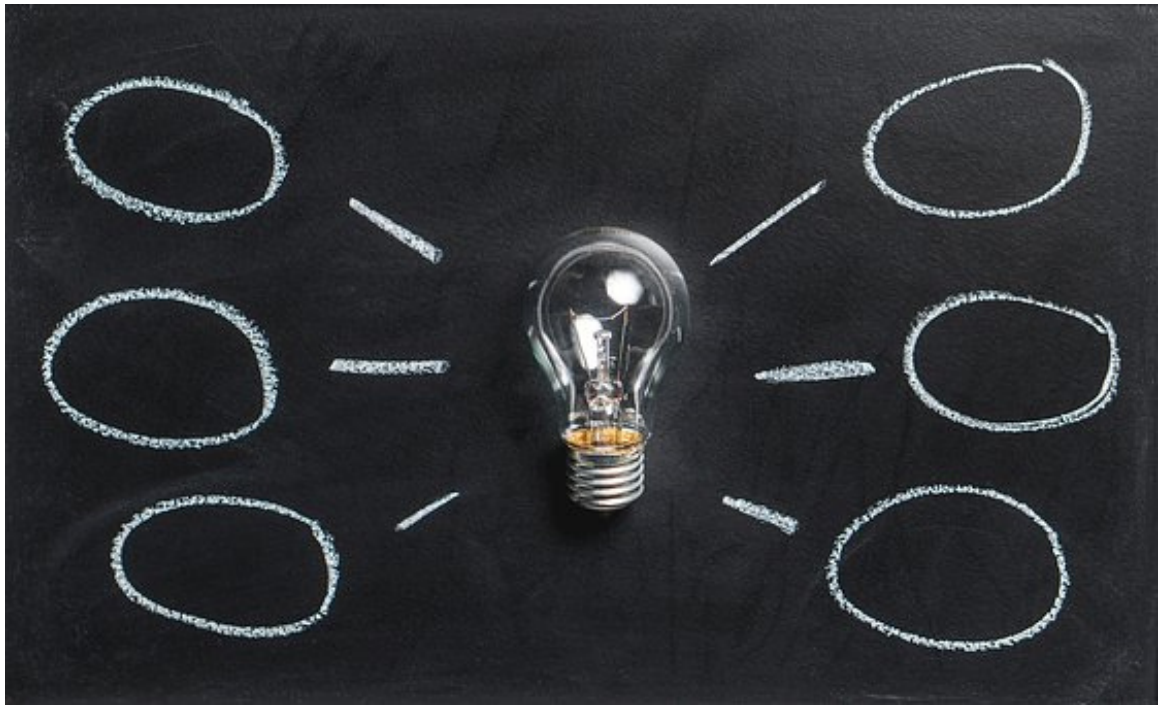
Identify and voice common needs and concerns!



Flesh out the roots of the disagreement!



Show how to do it better!



Embrace the haters and welcome constructive feedback!

Embrace the haters and welcome constructive feedback!

reatch

Practical Exercises

What's next?

1) Today: Find a topic and write quick overview; get personal feedback on how to go on

2) By 25th of November: Hand in the first version of your text, get personal feedback on how to go on

3) By 16th of December: Hand in the second version of your text; potentially publication on the reatch-blog or other outlet.

Find a topic & write an overview

- Find a topic that you care about
- Describe your topic in maximally half a page and answer the following questions
  - Why is it relevant/interesting?
  - How can people relate (how do you get them hooked)?
  - What's your main message?
  - What are the three key elements of this message (key arguments / story arch etc.)
  - What's your conclusion?
- Write a working title and a teaser

reatch

How to get started

Strategies to get started

1) Plan it all out at the beginning
2) Just start writing
3) Version control
4) Patchworking