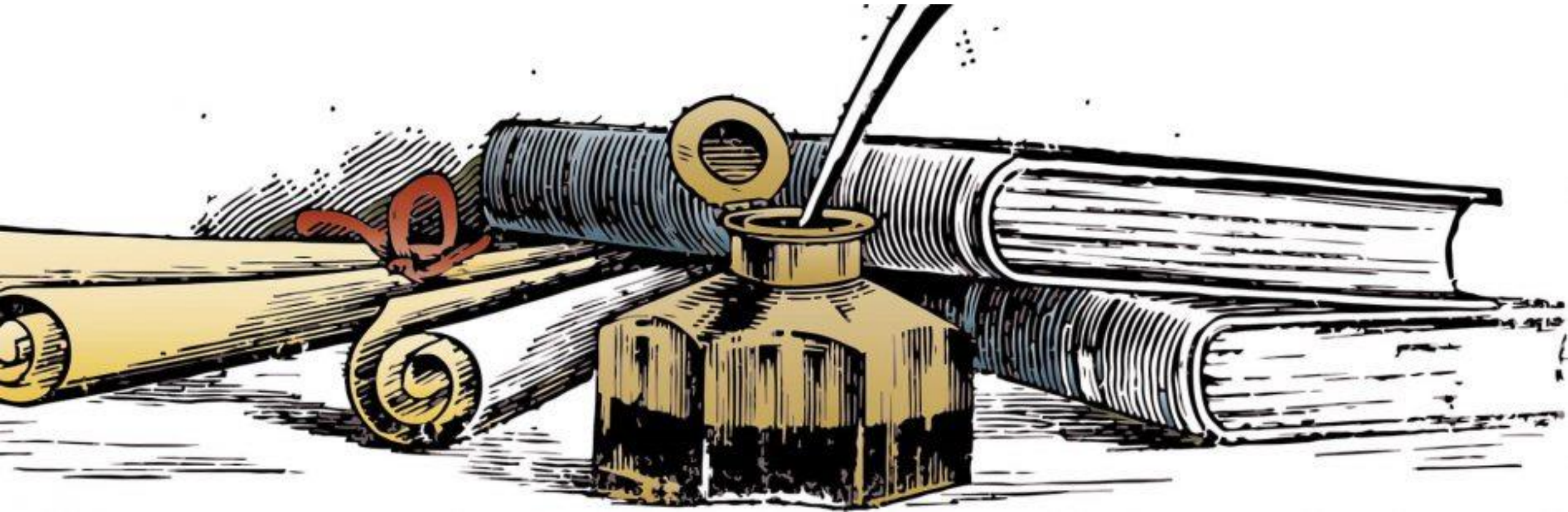


# Scientific writing 101

Gunnar Blohm



# Outline

- Grant writing
- Scholarship applications
  - CCV
- Paper writing



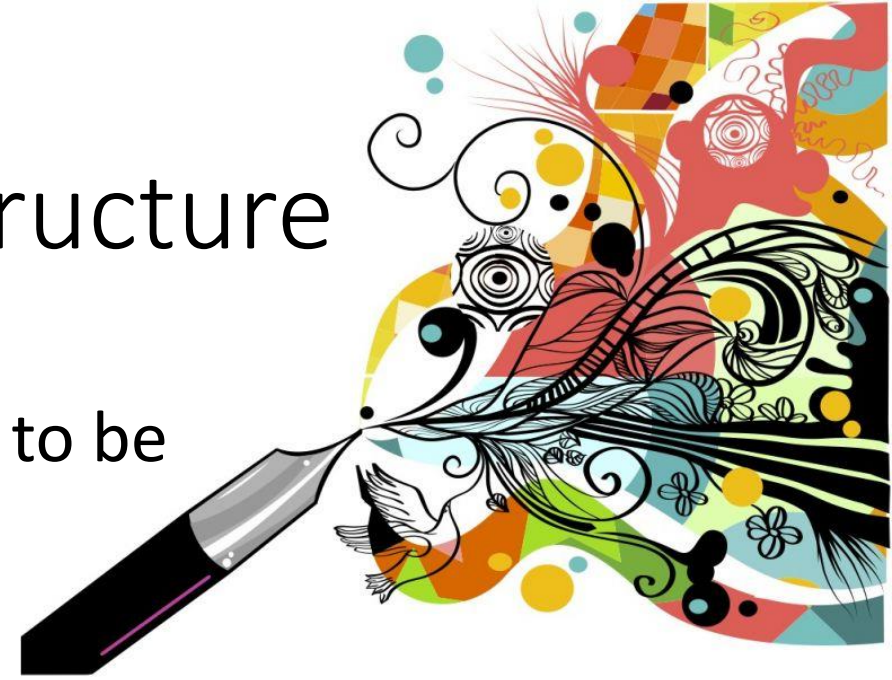
# Grant writing: 10 simple rules

1. Be novel but not too novel
2. Include appropriate background / prelim data as required
3. Find appropriate funding mechanism – read instructions carefully!
4. Follow guidelines for submission
5. 3 Cs – Concise, Clear, Complete
6. Remember, reviewers are people too (write for them!)
7. Timing and internal review are important
8. Become a grant reviewer early in your career
9. Write the executive summary first!
10. Accept rejection and deal with it appropriately...

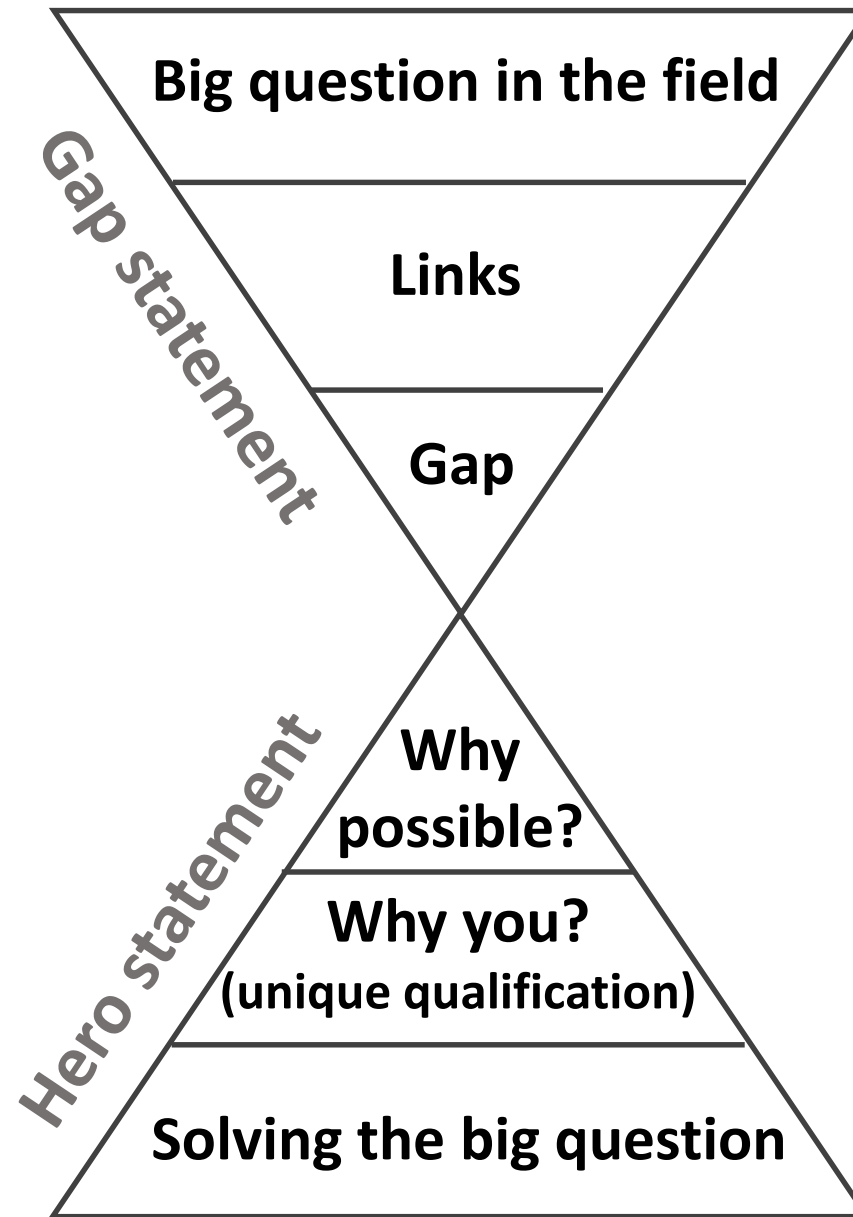
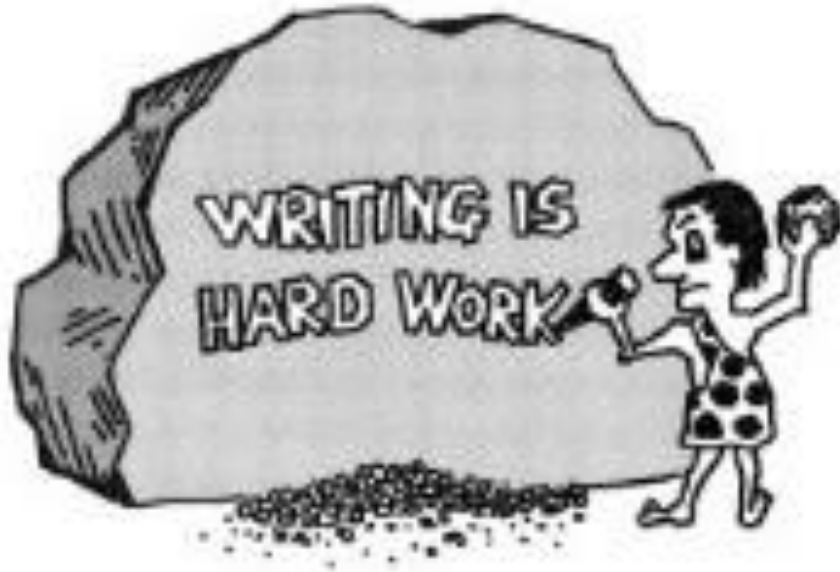


# Proposal summary / abstract structure

- A is an important scientific problem that needs to be solved
- It hasn't been solved before because of B
- We now have the ability to solve it because of C
- We propose to do D, E, and F to solve it.
- We may find either solution G or H, either of which is interesting
- The solution will have these important broader implications for science



# Proposal summary logic



# Proposal: literature review

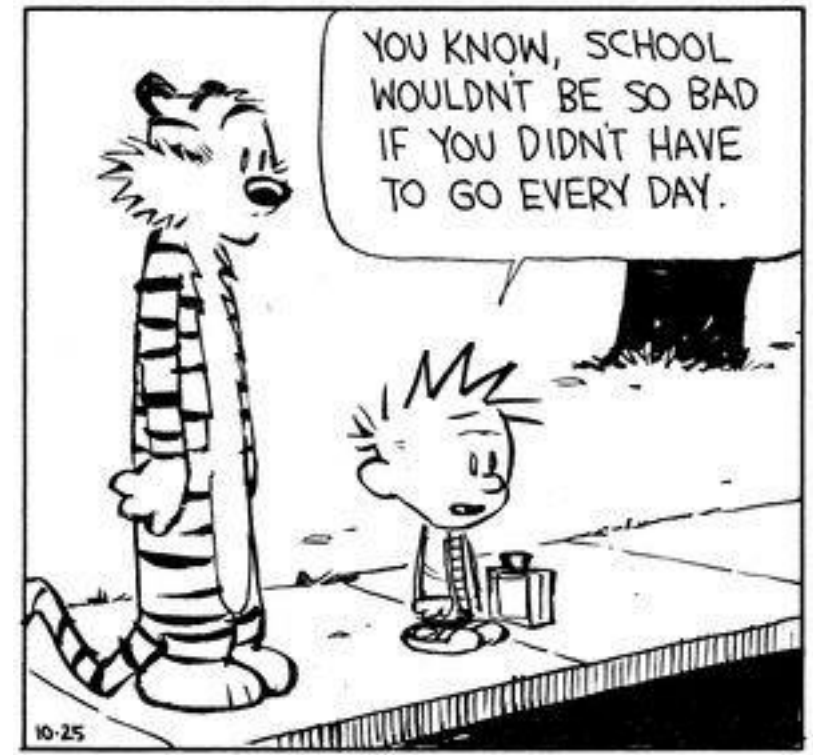


- Your project is important because it is responding to a gap in resources, knowledge, or opportunity that really needs to be filled
  - clarify the need or problem
  - establish the context of this problem (i.e., the background)
  - affects a particular population?
  - include data if appropriate
- short literature review clarifying that you've read extensively on this topic and understand your project's scholarly context and significance
  - why this project will make a wider, positive impact

# Proposal: project description



- Now that you've established a need for your project, you have to describe your project. Make sure you answer these questions
  - What are the goals of your project or your research questions?
  - What will your project's outcomes be?
  - How are you going to achieve those outcomes? What methods will you use?
  - How will you measure or recognize your project's achievements?
  - How can you be sure that your project will productively respond to the need or problem you have identified?
  - What will the timeline for your project be?
- Delineating the impact is important because funders want to see that you've clearly established the realistic benefits of your work along with how you plan to verify and assess your achievements



Scholarship applications



# Proposal guidelines



- See grant writing above...
- Read the instructions and evaluation criteria! You will be judged exactly based on those! There is no mercy here! It's clear, it's explicit. Your move...
- Spell everything out!
- Look at ALL evaluation criteria: make headers with same wording
- Reference my own work to show feasibility!
- at least half of your review committee will be non-experts, so make sure to write accordingly and avoid jargon and abbreviations
- spell everything out explicitly and make sure all relevant information is in the application package. If you don't tell them, it doesn't exist.

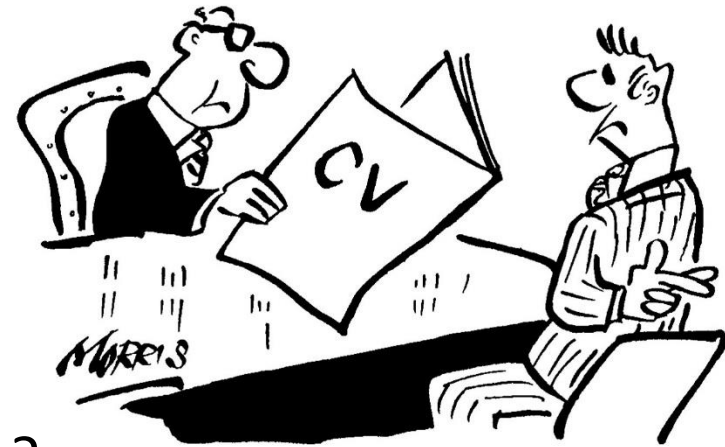
# How to stand out...

- There is a lot of competition. You want to stand out!
  - Figure out what others might write about / how they write
  - Write something else / write differently
- Why? Because you don't want to bore judges again...
  - Subvert judges' expectations!
- Write unique essays!
  - Take new perspectives
  - Personalize professionally
  - Surprise!
- Run it by 2-3 other people!!!



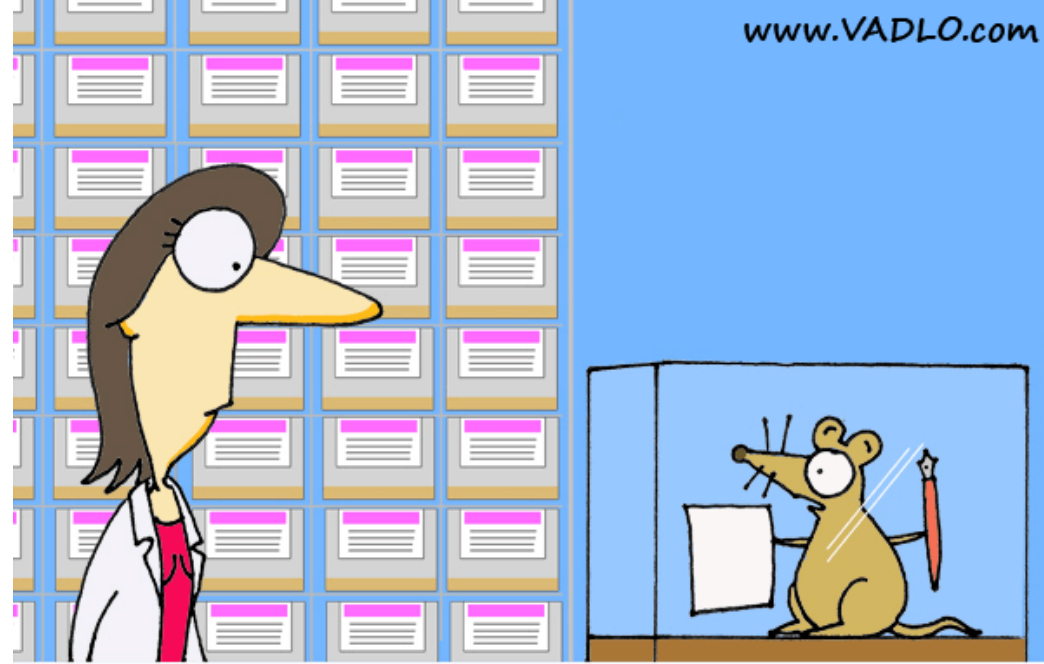
# (C)CV

- Provide as much information as possible!
- Specify role in non first/last author contributions & collaborative work / supervision
- Provide explanations for everything, not just a list!
  - E.g. what skill have you learned when volunteering?
  - What was your involvement in projects?
  - What are your goals in associations / clubs?
  - How do your hobbies/activities develop meaningful skills?
- Know your strengths and highlight them appropriately!



# Letters of recommendation

- Get meaningful letters!!!
- Reach out and give referees
  - a broad view of what you want them to highlight
  - 2-3 key points they should touch on (maybe it's something specific to the scholarship?)
  - your resume so they have a reference to your accomplishments
- Reach out in a timely fashion!
  - Referees are all busy and need 3-4 weeks heads-up!



"If your PI doesn't give you a reference letter,  
I can write one for you!"

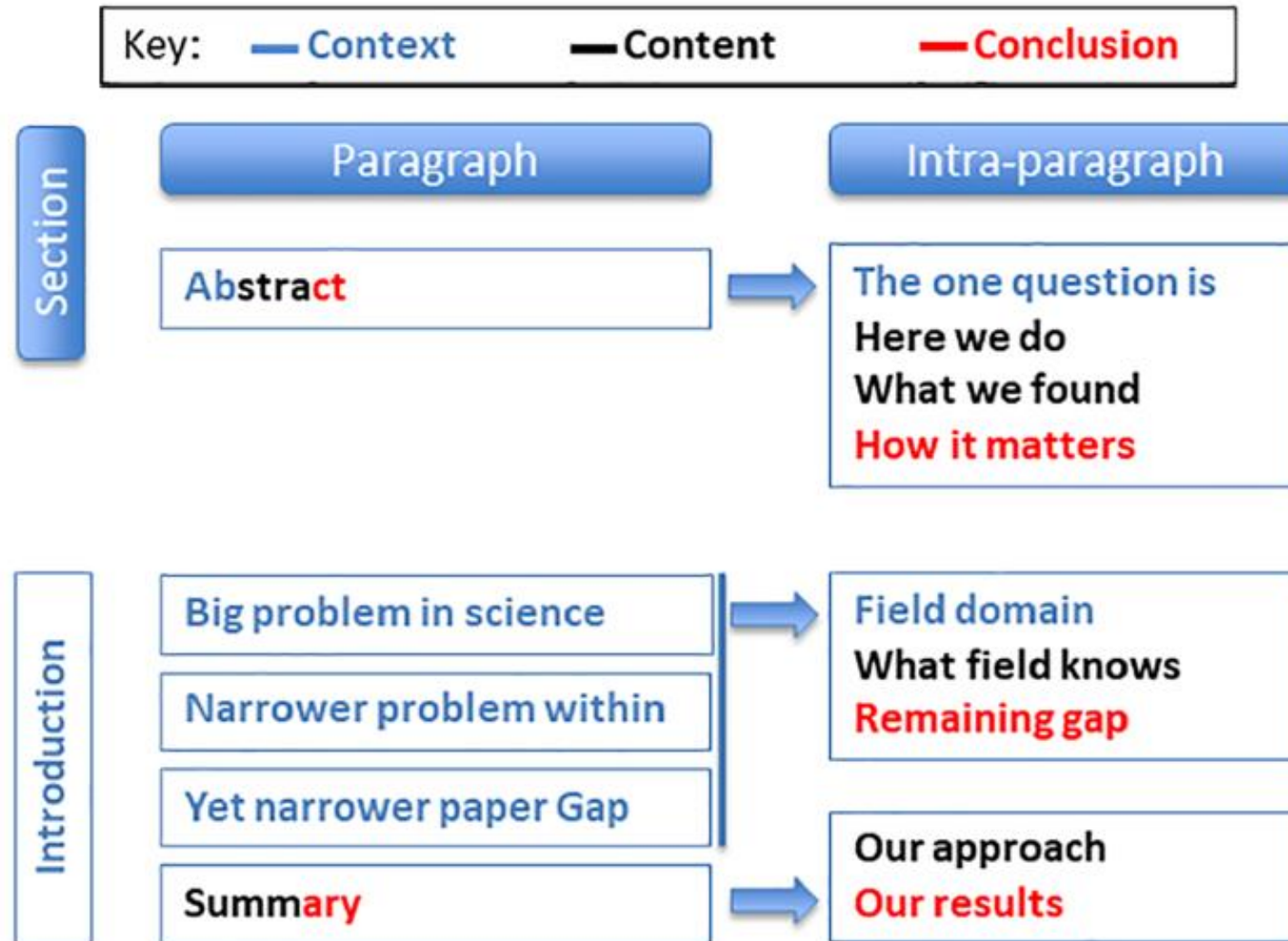


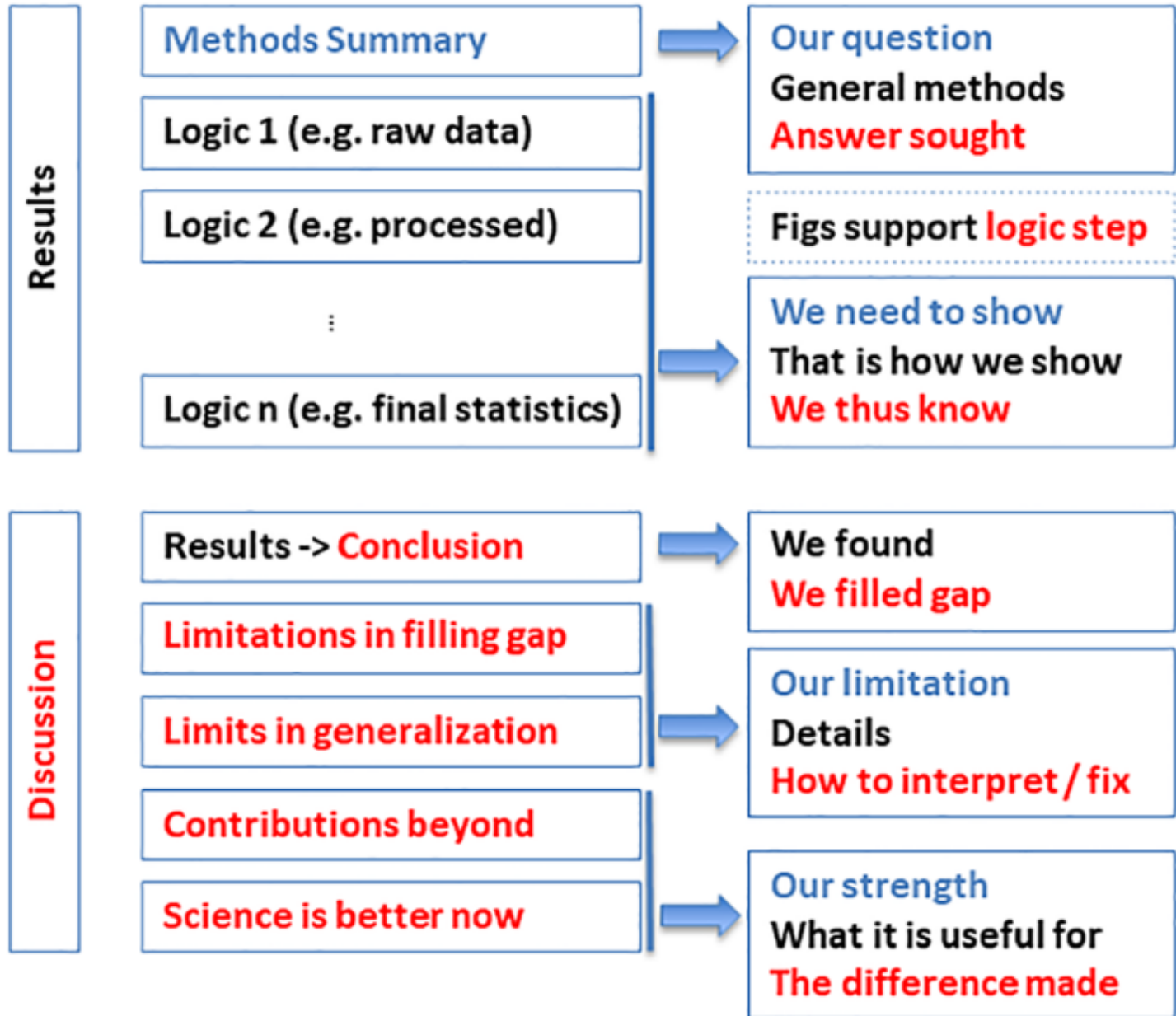
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Paper writing

# Konrad's 10 simple rules





# Konrad's 10 simple rules

- Principles
  - Rule 1: focus on central contribution, communicated in title
  - Rule 2: write for human being who do not know your work
  - Rule 3: stick to Context, Content, Conclusion (C-C-C) scheme
  - Rule 4: optimize logic flow: avoid zig-zag and use parallelism
- Paper components
  - Rule 5: tell a complete story in the abstract
  - Rule 6: communicate why the paper matters in the introduction
  - Rule 7: results = logical sequence of statements + figures to support central contribution
  - Rule 8: discuss how gap was filled, limitations, and relevance
- Process
  - Rule 9: allocate time where it matters – title, abstract, figures, and outlining
  - Rule 10: get feedback to reduce, reuse, and recycle the story





# Signs of violation of rules

| <b>Rule</b>  | <b>Sign it is violated</b>  |
|--|---|
| 1: Focus on one big idea                             | Readers cannot give 1-sentence summary.   |
| 2: Write for naive humans                            | Readers do not “get” the paper.   |
| 3: Use context, content, conclusion structure        | Readers ask why something matters or what it means.                                       |
| 4: Optimize logical flow                             | Readers stumble on a small section of the text.   |
| 5: Abstract: Compact summary of paper                | Readers cannot give the “elevator pitch” of your work after reading it.                   |
| 6: Introduction: Why the paper matters               | Readers show little interest in the paper.  |
| 7: Results: Why the conclusion is justified          | Readers do not agree with your conclusion.  |
| 8: Discussion: Preempt criticism, give future impact | Readers are left with unanswered criticisms and/or questions on their mind.               |
| 9: Allocate time wisely                              | Readers struggle to understand your central contribution despite your having worked hard. |
| 10: Iterate the story                                | The paper’s contribution is rejected by test readers, editors, or reviewers.              |

# More...

- **Sentences**

- Do not use brackets that contain more than 6 words.
- Use parallel structure across sentences whenever possible.
- Use active voice whenever possible.
- Do not try to make the language sound scientific. Say things simply.
- Use short sentences. No sentence should be longer than 3 lines.
- Explain why something is important or interesting instead of saying that it is.

- **Words**

- Do not try to use scientific words, use simple words.
- Do not use “rather”, “very”, “little”, or “pretty”
- Do not use acronyms if you can avoid it. If you need to, use only as few as possible.
- Avoid jargon.



Let's start writing...

