

# *What Makes a Paper Great from the Reviewer's Perspective?*

*Jari Saramäki*

Aalto University, Finland

<https://jarisaramaki.fi/>

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Let us start with the bare minimum  
and keep adding ingredients as we go.

# *What makes a paper?*

A research question.

A result.

Surprisingly many papers struggle with these!

# What makes a better paper?

A reason for the question.

A research question.

...a good one

A result.

...that one can understand  
...that one can trust

The result changes things.

# What makes a great paper?

A reason for the question.

...of broad, general interest

A research question.

...formulated to provide  
a clear answer to  
an important problem

A result.

...that one can understand  
...that one can trust

The result changes things.

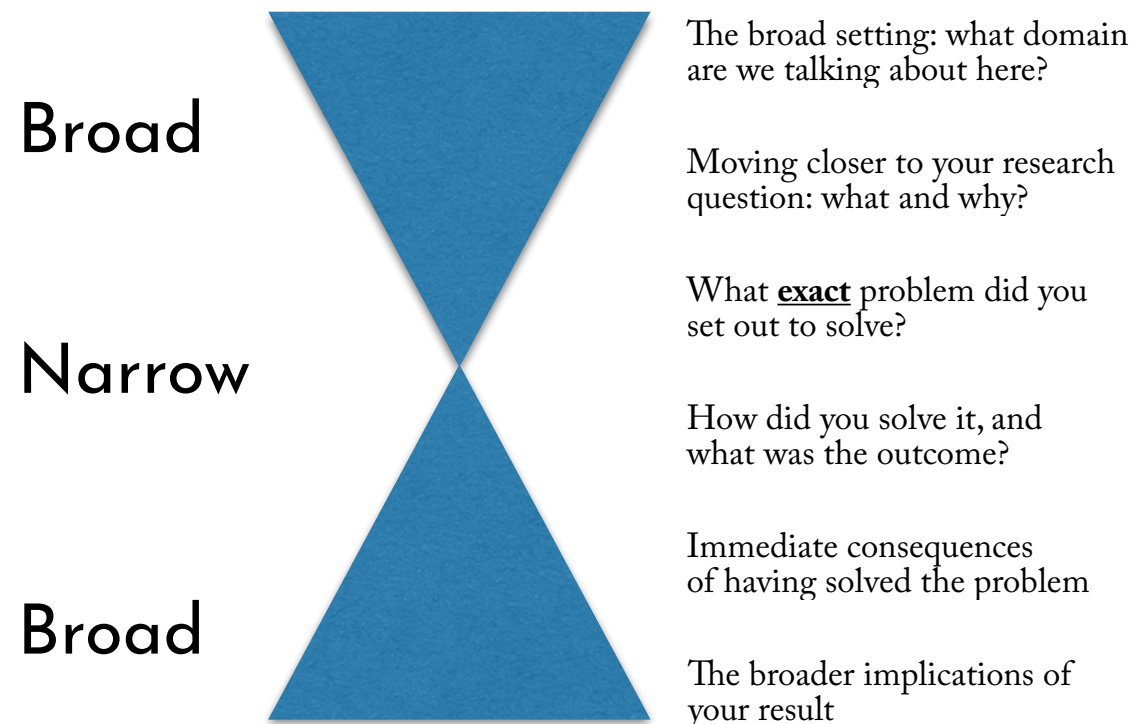
...the result has broad impact,  
it opens many doors

# *Research question: some writing tips*

1. Remember that **the reader doesn't know what you know**
2. **"Show, don't tell"** – instead of using big words and grandiose adjectives, concretely explain why the research question matters
3. **Provide closure** – at the end of the paper, concretely show why your answer to the question matters

# The abstract as an acid test

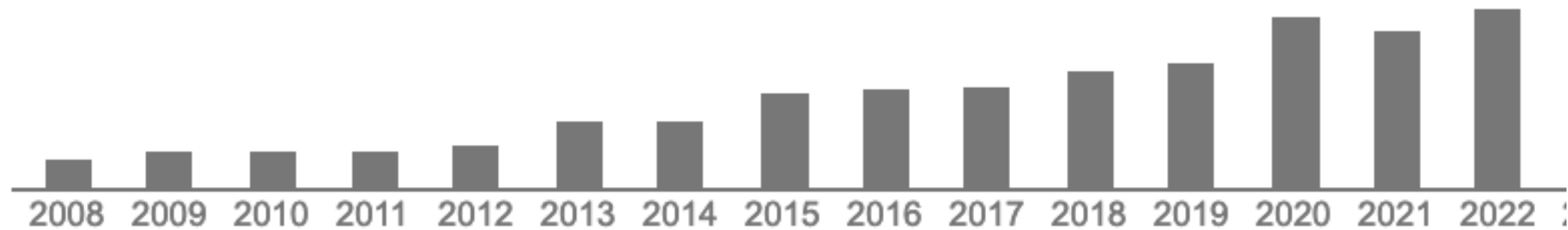
- **Write your abstract first**, using the hourglass format (see, e.g., Nature's sentence-level guidelines)
- If you cannot do this, go back and figure out what your paper is about & why the question and result are important.



*What makes a research  
question great?*



# Anatomy of a great research question



- The research question **addresses something fundamental**
- Thought experiment: will others cite this work 15 years from now? Why/why not?

# Example: Einstein's 1905 papers

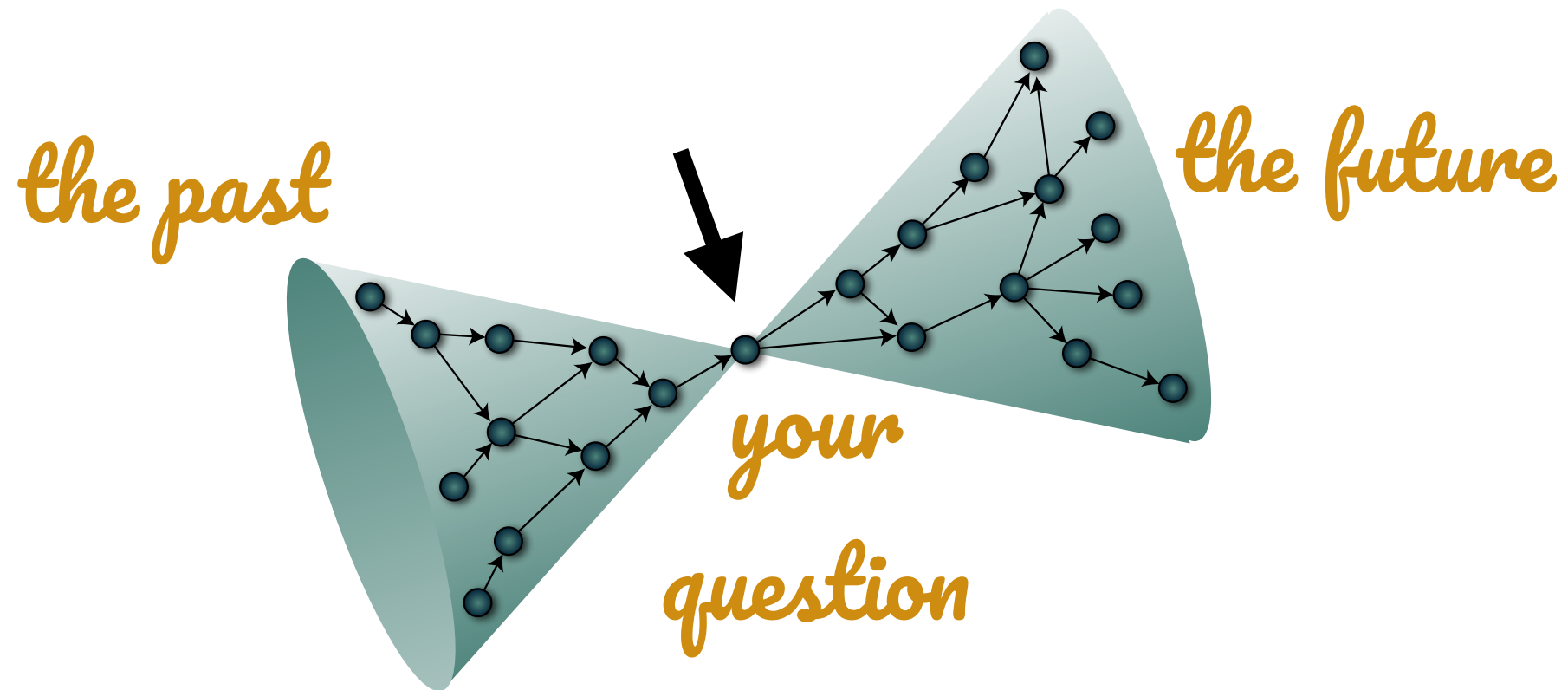
“It will be shown in this paper that, according to the molecular-kinetic theory of heat, bodies of microscopically visible size suspended in liquids must, as a result of thermal molecular motions, perform motions of such magnitude that these motions can easily be detected by a microscope. It is possible that the motions to be discussed here are identical with the so-called "Brownian molecular motion"..."

*-A. Einstein, On the movement of small particles suspended in stationary liquids required by the molecular-kinetic theory of heat, Annalen der Physik 1905*

“It is well known that Maxwell's electrodynamics-as usually understood at present-when applied to moving bodies, leads to asymmetries that do not seem to attach to the phenomena ... Examples of a similar kind, and the failure of attempts to detect a motion of the earth relative to the "light medium", lead to the conjecture that not only in mechanics, but in electrodynamics as well, the phenomena do not have any properties corresponding to the concept of absolute rest, but that in all coordinate systems in which the mechanical equations are valid, also the same electrodynamic and optical laws are valid...We shall raise this conjecture (whose content will be called "the principle of relativity" hereafter) to the status of a postulate..."

*-A. Einstein, On the electrodynamics of moving bodies, Annalen der Physik 1905*

# Anatomy of a great research question



- The question should **build on something** (e.g., an existing body of theory) and contribute to its progress
- A good research question is **focused**

# *Anatomy of a great result*

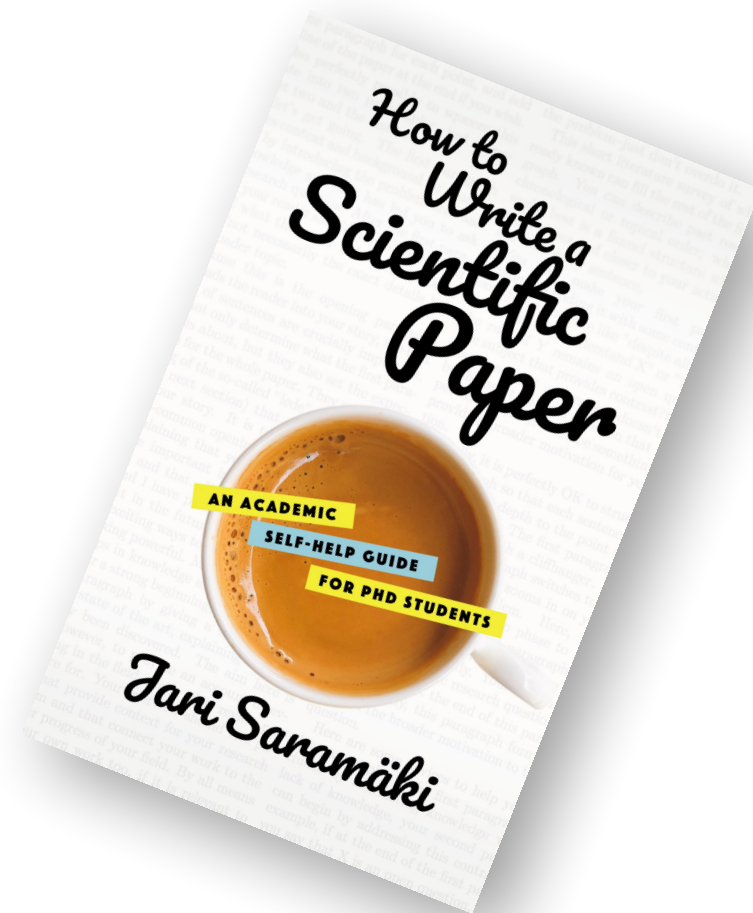
- Often, based on an **unexpected point of view**  
(“the speed of light is constant in all frames of reference”)
- Often, based on a **novel combination** of viewpoints/methods/  
approaches (e.g., early network science: many bodies of  
literature collide – stat mech, pure maths, social sciences, ...)
- Opens new doors and new avenues for exploration

# *How to come up with great questions and great results?*

## **Pro tips for young scientists:**

- **Read a lot of diverse literature**
  - the quality of your input directly affects the quality of your output!
- **Talk to a lot of people**
  - When interacting with people, you think differently than when interacting with your computer

# Thank you!



For blog posts on writing, see <https://jarisaramaki.fi/>  
For my writing book, see <https://books2read.com/howtowriteapaper>  
(printed version available from Amazon)