

Vědecká kariéra ve fyzice

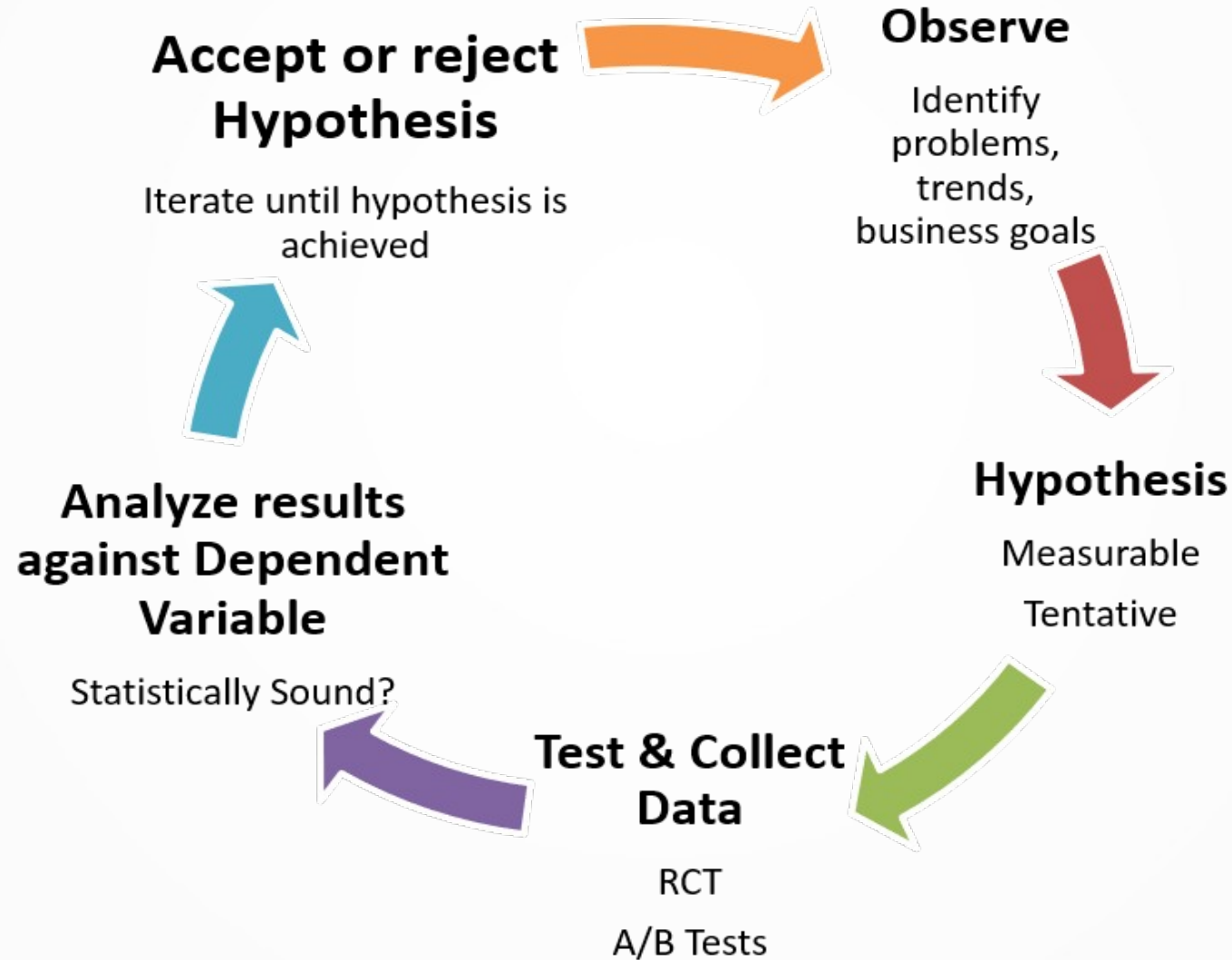
Jan Benáček

20. 10. 2019

Jan Benáček

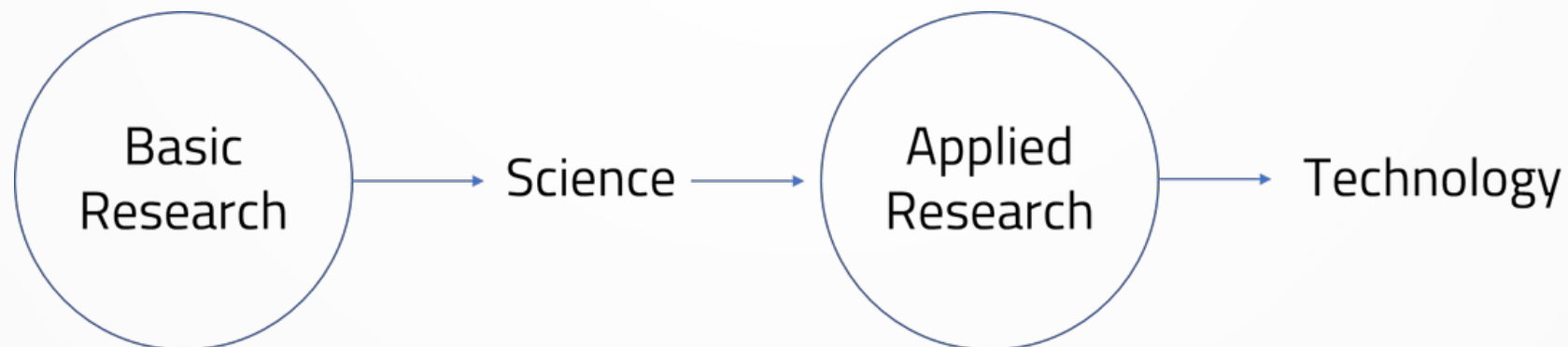
- 2013 Bachelor in Physics
- 2014 Summer Schools in Leiden (NL)
- 2015 Master in Astrophysics
- 2014–2019 Tester, System Engineer and Head of development in Gatema
- 2015-present Ph.D. student (prof. Marian Karlický)

Science



Knowledge transfer

Parameters	Basic Research	Applied Research
Type of knowledge produced	Scientific Discovery (Science)	Technological Application (Technology)
Motivation	Intellectual curiosity	Solving problems
Key questions	Is it true ?	Does it work ?
Objective	To understand	To come up with solutions

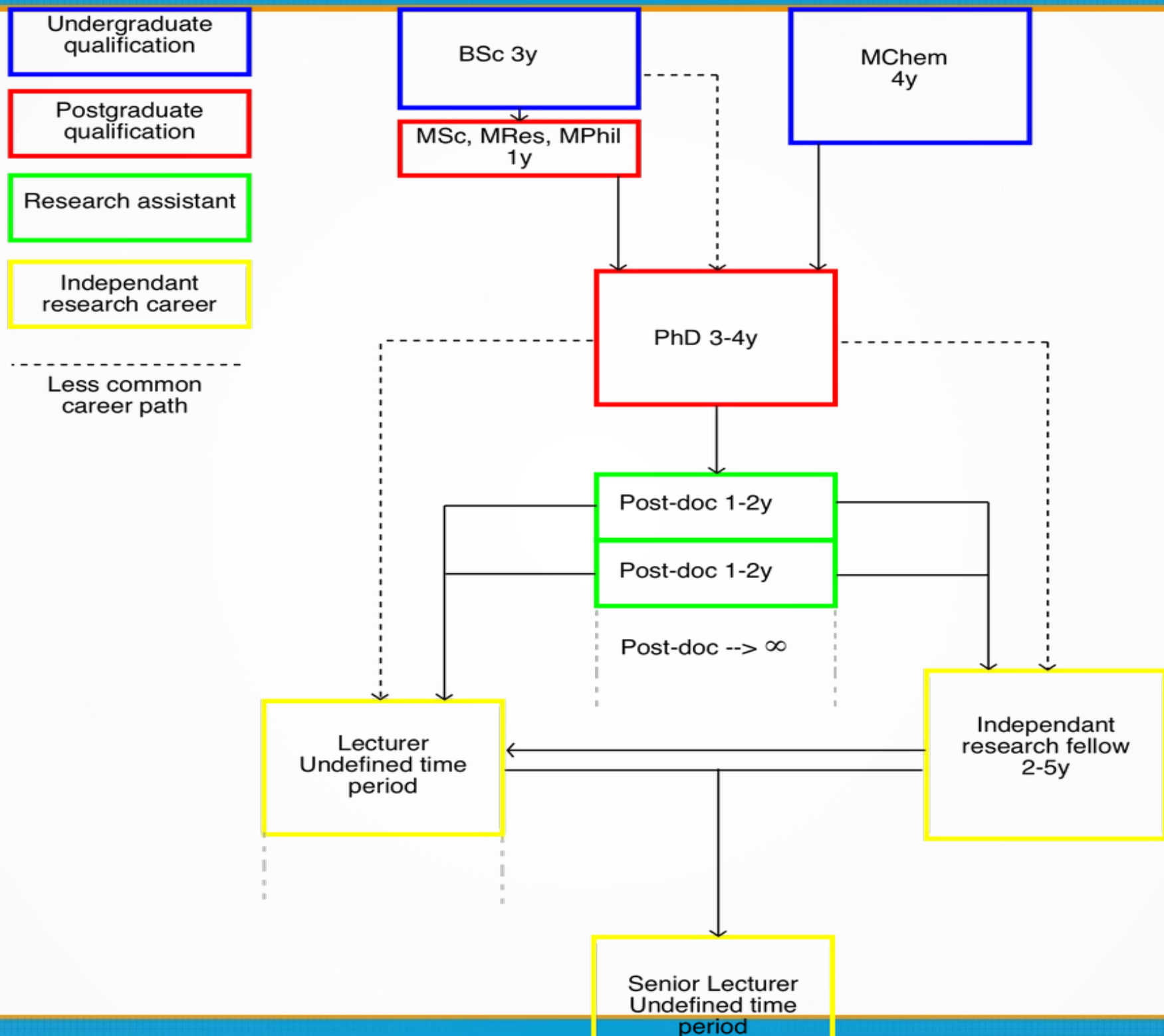


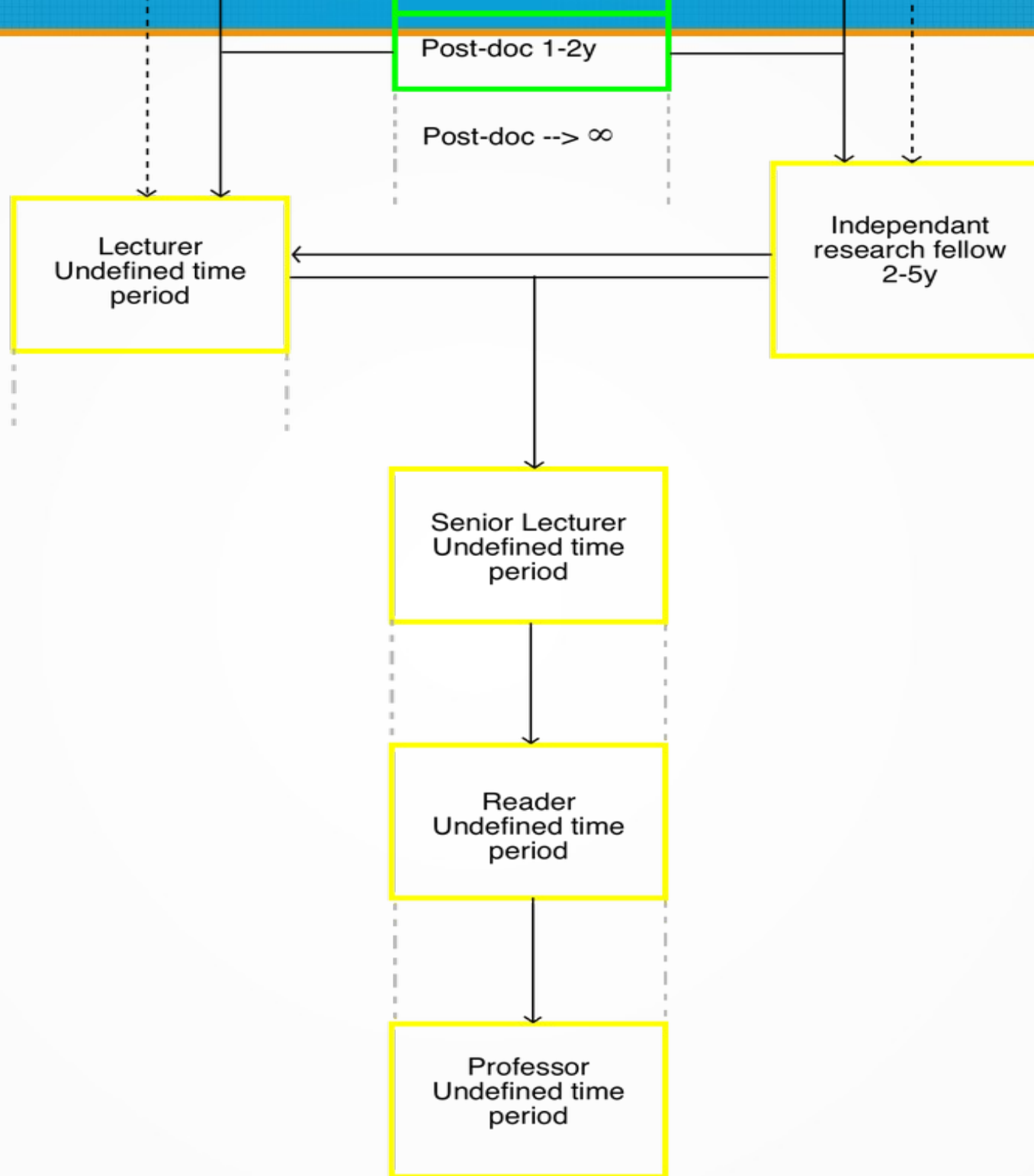
Scientific methods

- Experimental
- Theoretical – analytical + numerical

Scientific career

- Country dependent
- Field dependent
- Personaly dependent





Planing Bc, Ms

- Field
- Supervisor
- Together set problem
- Set aims
- Select method
- Create plan
- Work
- Succeed

Supervisor selection

- The most important choice (of you life)
- 50 % of the (un)success of the student
- Must have time for students
- Must have good time namagement
- Should be active in publishing
- Should be respected in community

**Your PhD advisor when
you are applying for
the PhD program**



**Your PhD advisor when
you got admitted to
the program**



Planing PhD...

THE PLANS:



THE PLAN YOU
TELL YOUR
ADVISOR

- "I'M GOING TO BE A
PROFESSOR AT A MAJOR
RESEARCH UNIVERSITY
AFTER I GRADUATE."



THE REAL
PLAN

- LOOK FOR CAREER
ALTERNATIVES.



THE SECRET
PLAN

- BECOME A
BAKER/ROCKSTAR/WRITER.

PhD study

- Application(s) (abroad), supervisor selection
- Admission
- Study
- Teaching
- Science
- State exam
- Student supervision
- Conferences, workshops
- Paper writing
- Theses submission
- Theses defense

Application

- Good to know somebody from institute
- Read carefully condition
- Preparation can take (lot of) time
- Recommendation letters
- Good CV, motivation letter

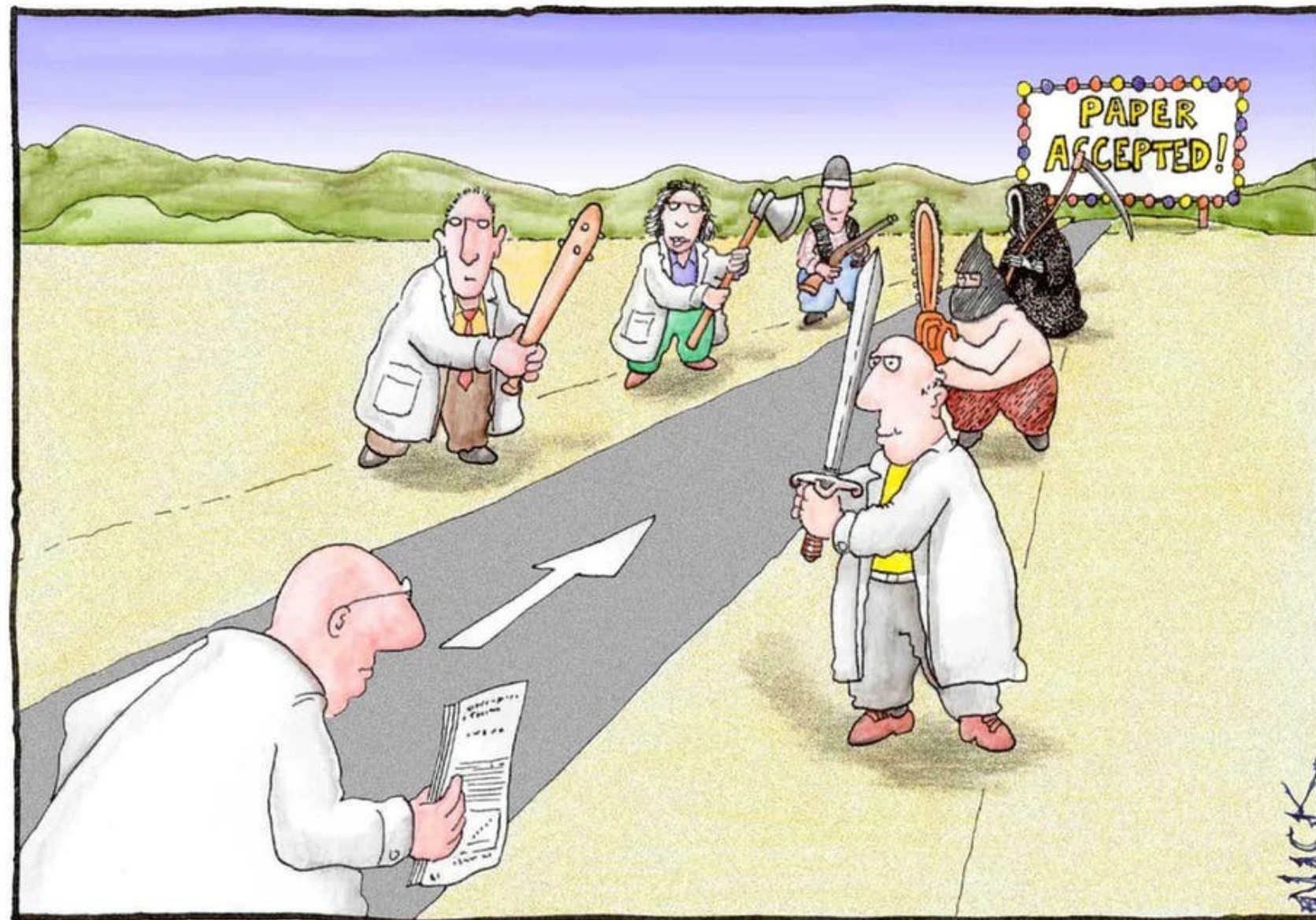
Study

- Don't overload yourself
- Select appropriate courses
- Don't waste time on credits

State exam, theses and defence

- State exam as soon as possible
- Different administration
- Learn enough
- Understand
-
- Thesis has 2 options
- Write English
- Don't wait for anything

Academic publishing



Most scientists regarded the new streamlined peer-review process as "quite an improvement."

STYLES OF WRITING

ACTIVE WRITING



PASSIVE WRITING



CONSTRAINED WRITING



FLOWERY WRITING



EXPERIMENTAL WRITING



FIGURATIVE WRITING



STRONG WRITING



FORCED WRITING



GHOSTWRITING



FRAGMENTED WRITING



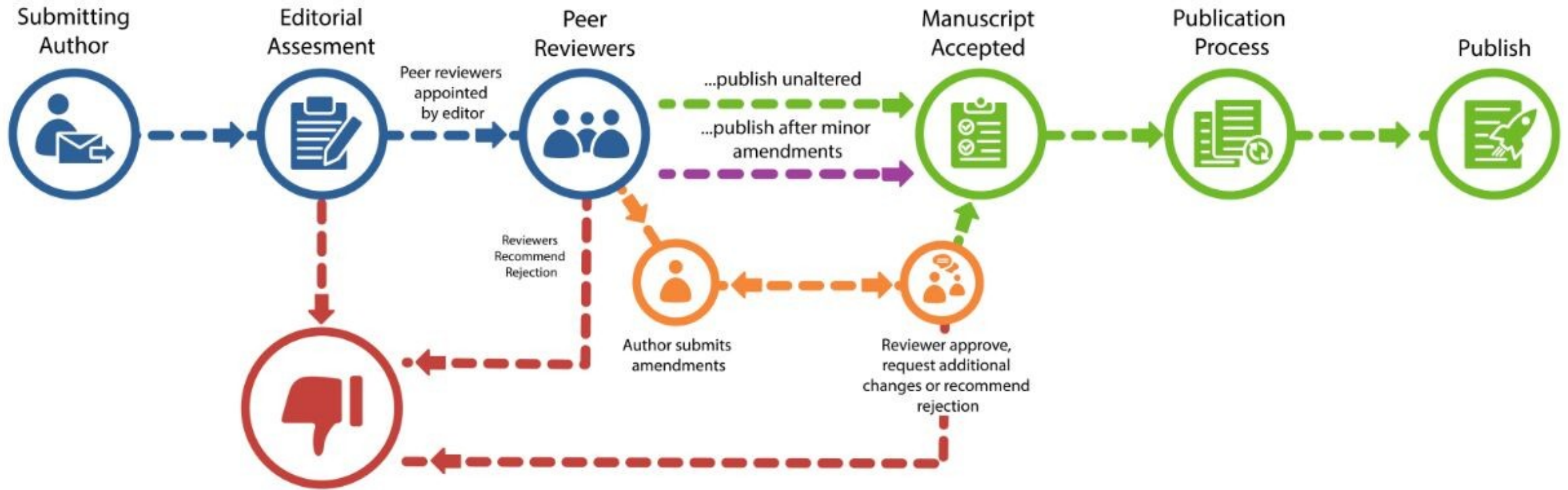
REWRITING



PERSUASIVE WRITING



Publication process



ACADEMIC TRANSLATOR

What academics say	What they mean
Various sources	I forgot the name and author of that one paper
We are grateful to the two anonymous peer reviewers for their constructive comments	God help them if I ever find out who they are
A promising area for an initial study	I have to do this to get funding
Widely discussed in the academic community	I accidentally ended up in the middle of a heated Twitter argument
The notes were meticulously transcribed	I was drunk and missed out at least seven pages
An extensive literature review	A quick Google search
A complex phenomenon	I don't understand
Has long evaded the understanding of scientists	I don't understand why I don't understand
Is impossible to summarise simply	I still don't understand
Approaching the traditional threshold for statistical significance	Not significant
More research is required	I need funding

Academic publishing

- Journals – peer reviewed, impact factor
- Articles focused on one idea
- 5-10 pages (exceptions)
- After series of papers → review
- Read title
- Read abstract
- List the paper
- Read conclusions
- Focus on interesting graphs
- Read introduction
- Detailed reading

Soft Skills

- Mailing
- Communication in English
- Personal communication
- Presentation skills
- Grant writing
- Politicians persuading

Pros and Cons

Allows:

- Teaching
- Mentoring Students
- Follow Your Interests
- Freedom Over Your Time
- Do What You Love All the Time
- Autonomy
- Collaboration Opportunities
- Stability
- Have a Long-Term Impact
- Travel

Requires

- Personal commmitement
- Soft skills
- Dependent on supervisor
- Endurance and resilience
- Low salaries

Me if my University burned down

king cobra



Thank you for your attention