

# Unveiling the Ivory Tower

## The academic's art of work

Luca Aceto

ICE-TCS, School of Computer Science, Reykjavik University

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John Edensor Littlewood: [The mathematician's art of work](#)



Gian-Carlo Rota: [Ten lessons I wish I had been taught](#)

- I will focus on lessons **I think** that I have been taught.
- An excuse for remembering things past and what I **should** be doing.

*'The advice we give others is the advice that we ourselves need.'* (Rota)

# The (mythical) message of this talk



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- This has not prevented some of us from enjoying it!
- **And it shouldn't prevent you from doing so either!**

- 1 What does the life of an academic consist of?
- 2 How can one try to survive and live to tell the tale?

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## Pitfalls and advice

- Teaching is hard: Grab every opportunity to learn how to do it well (if any is available to you).
- Handle your teaching assignments professionally.
- Teaching well guarantees positive impact on society.
- Do not let teaching become your sole occupation at an early stage in your career, unless that's your goal.







## Reality

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I love to do research, I want to do research, but I hate to sit down and begin to do research. I always try to put it off as long as I can. Isn't there something I must do first? (Paul Halmos)

# Lesson 0: Most people around you have doubts

Have you heard about the impostor syndrome?

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You are not alone!

Most people involved in creative work ask themselves:

- Do I still have what it takes?
- When will my luck run out?
- When will everyone finally realize I am a fraud?

Advice: Focus on improving yourself, not on how well others are doing.

*'The life of a researcher is mostly spent in frustration, punctuated with rare inspirations.'* (Littlewood)

# Lesson 1: What you publish doesn't need to be 'perfect'



'Have no fear of perfection — you'll never reach it.' Salvador Dalí.

Do not be your own worst enemy!

Strive to do the best work you can, but

- Do not wait for the 'perfect' result before publishing.
- Simple can be good. You can generalize your results in a journal paper.

I have seen **very** smart people burn their careers on the altar of 'perfection'.

# Lesson 2: Research is like a marathon



## Stamina is important

- Results come from work and grit, not by flashes of inspiration alone. **Try to do or write up some research every day.**
- Don't be afraid of 'long and technical' proofs. **Technical is not a swear word!**
- Timothy Gowers: 'the most profound contributions to mathematics are often made by tortoises rather than hares'.

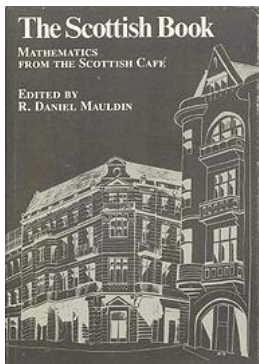


### The devil is in the details

- 'Explanations exist; they have existed for all time; there is always a well-known solution to every human problem — neat, plausible, and wrong.' H. L. Mencken
- Cross every t and dot every i.



# Lesson 4: Research is a social activity



## Create a 'team spirit' in one's group

- Foster collaboration. Work with people who are 'better' than you.
- People learn from one another in the most unlikely circumstances.
- Lone rangers die.

## My advice

Treasure the Hardy-Littlewood axioms.

# Hardy-Littlewood axioms for collaboration



## The axioms (as described by Harald Bohr)

- 1 when one wrote to the other, it was completely indifferent whether what they wrote was right or wrong;
- 2 when one received a letter from the other, he was under no obligation whatsoever to read it, let alone to answer it;
- 3 although it did not really matter if they both thought about the same detail, still, it was preferable that they should not do so;
- 4 it was quite indifferent if one of them had not contributed the least bit to the contents of a paper under their common name.

# Lesson 5: Write good introductions

'A bad beginning makes a bad ending.' (Euripides)

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From Rota's Lesson 9

Nowadays, reading a mathematics paper from top to bottom is a rare event. If we wish our paper to be read, we had better provide our prospective readers with strong motivation to do so. A lengthy introduction, summarizing the history of the subject, giving everybody his due, and perhaps enticingly outlining the content of the paper in a discursive manner, will go some of the way towards getting us a couple of readers.

## Lesson 6: In this job one needs a very thick skin



'Every cockroach is beautiful for its mum.' (Neapolitan proverb)

# Life in the ivory tower: Service

- Service to the university.
- Service to the research community.

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## Pitfalls and advice

- Follow Littlewood's zero-infinity law.
- Do not overestimate your time and energy: Learn to say no.
- Avoid multitasking.

*I believe that every individual owes part of his/her time to the societies he/she is a member of; my yardstick is about 10 to 20 percent. . . . When I accept a new responsibility, I decide, what I am going to give up for it.*  
(Kurt Mehlhorn)

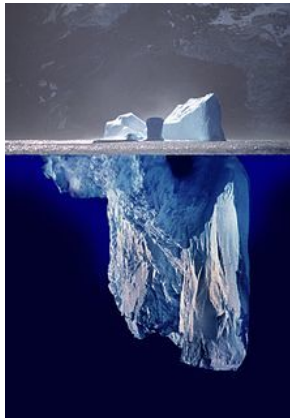
## Lesson 7: Lead by example



### In supervision, get your hands dirty

- At the start, take active part in the work of one's students/postdocs.
- Slowly track down.
- One does not have to be involved in everything one's students/postdocs do.





Academics are supposed to

- write grant proposals,
- disseminate their work by writing accounts of their research that are accessible to the general public,
- deliver specialized seminars describing their work to their peers,
- attract students to the university,
- transfer knowledge to industry,
- play a critical role in our society,
- ...  $\rightsquigarrow$   $\infty$

# Lesson 8: Stay active and enjoy life outside academia



## How to stay in one's prime

- Remain physically active.
- Challenge yourself mentally.
- Be relaxed and enjoy **all** aspects of your lives.
- **Less is often more. Work hard, play hard!**

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**Warning: Abstract from the fact that I am saying this!**



Good luck!



## Message of the talk

Life in academia and research is indeed like fighting the Lernaean Hydra, but you can be successful, have a life and live to tell the tale.

Good luck!

Thanks to all the people who have mentored me throughout the years and to all of you.