

Overcoming the second year slump.

Euan Spence

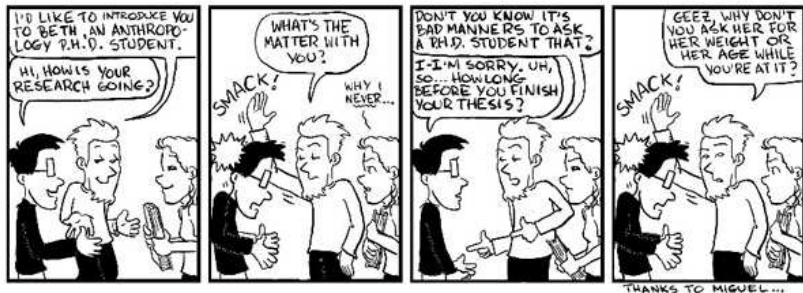
Bath PG Away Day

3 February 2012

Disclaimer:

- ▶ I am not a PhD-self-help guru
- ▶ The advice I'm going to give is based on my own experiences
- ▶ You've probably heard much of it before (hopefully because it's true/useful!)

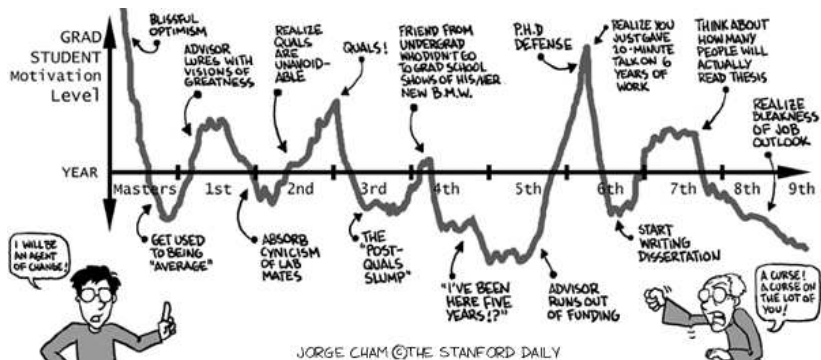
Life as a PhD student....



JORGE CHAM ©THE STANFORD DAILY

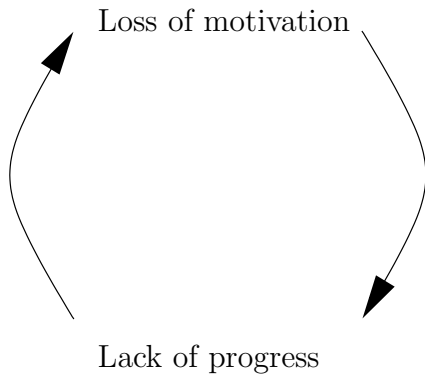
(legal bit) "Piled Higher and Deeper" by Jorge Cham www.phdcomics.com

Timeline:

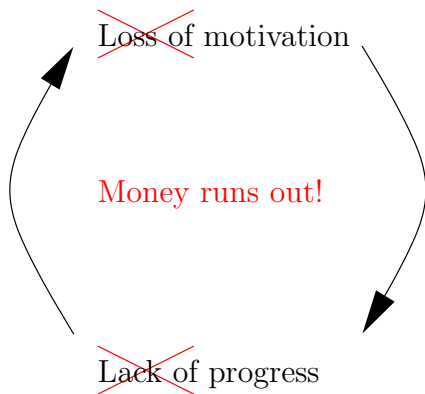


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The fatal attractor of a PhD...



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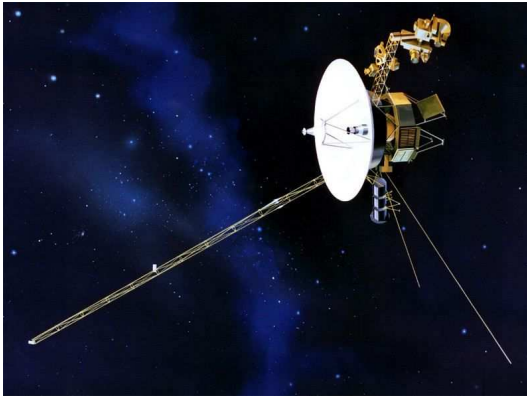
- ▶ Ideally, you don't want to wait until the money runs out

Why is doing a PhD hard?

PhD = do research + explain it

- ▶ Research is difficult:
 - ▶ unpredictable
 - ▶ inherent risk of failure
- ▶ Explaining research is difficult:
 - ▶ need to distinguish between the “forest” and “the trees”
 - ▶ (inherent in explaining is understanding)
- ▶ Environment is challenging

The PhD environment



- ▶ (the price one pays for being on the frontier of knowledge)
- ▶ I claim that the most common limiting factor in doing a PhD is coping mentally with this environment

Thoughts that drag you into the fatal attractor:

- ▶ Think what you're doing/have done is rubbish
- ▶ Think no-one is interested in your research
- ▶ Fed up with the topic
- ▶ Frustrated - things always take longer to do than expected
- ▶ Overwhelmed – too many things to do
- ▶ ...and everyone else seems to be coping fine!

Another take on it...

So imagine that you have written a paper that you think is good. How do you know it is good? Being a mathematician is a bit like being a manic depressive: you spend your life alternating between giddy elation and black despair. You will have difficulty being objective about your own work: before a problem is solved, it seems to be mightily important; after it is solved, the whole matter seems trivial and you wonder how you could have spent so much time on it. How do you cut through this imbroglio?

(From "A primer of mathematical writing" by Steven G. Krantz)

If doing a PhD were a film...

...it would be a **psychological thriller**:

Characters are no longer reliant on physical strength to overcome their brutish enemies (which is often the case in typical action-thrillers), but rather are reliant on their mental resources, whether it be by battling wits with a formidable opponent or by battling for equilibrium in the character's own mind.

(Wikipedia)

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(Wikipedia)

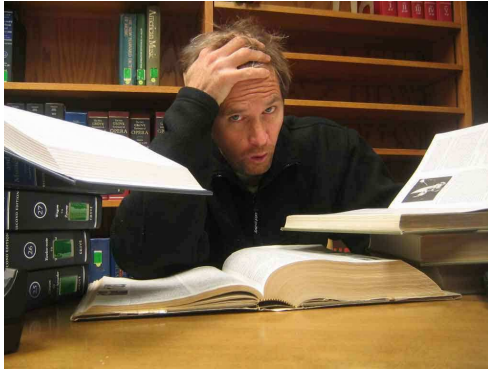
Top Level Sport



Getty Images

- ▶ 10% physical
- ▶ 90% mental
(ish?)

Top Level Maths



- ▶ 10% mental - maths
- ▶ 90% mental - “psychological strength”

What is the goal?



- ▶ Get out of fatal attractor and get a PhD
- ▶ i.e.
 - ▶ do the right research...
 - ▶ ...working productively...
 - ▶ ...and being (relatively) stress free

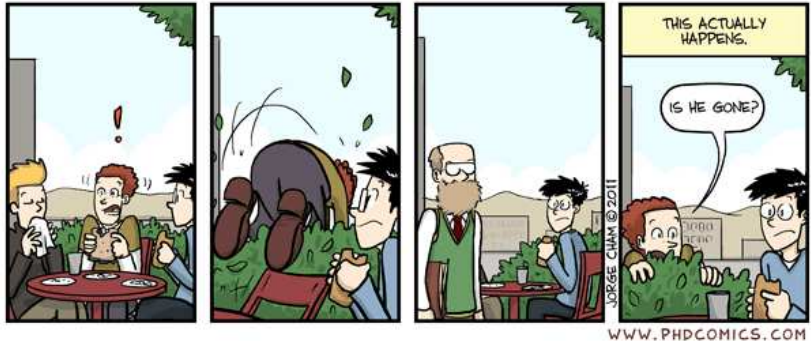
But how to do it?

Rest of the talk:

6 pieces of advice

- ▶ range from actions to mindset
- ▶ all consequences of understanding the environment

Maintain a good relationship with your supervisor



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Maintain a good relationship with your supervisor

- ▶ Supervisor is interested in what you're doing!
- ▶ Supervisor has more experience in research than you have
- ▶ During most PhDs the plan changes, need to be flexible

Talk to people

You are now doing the toughest thing you will ever have done in your life. It is *essential* that you talk to people—all the time. In this way you can orient yourself, keep to your course, be sure you are doing the right thing, and have a constant reality check.

(From “A Mathematician’s Survival Guide” by Steven G. Krantz.)

Talk to people

- ▶ Other students
- ▶ Other mathematicians (e.g. give talks, go to conferences)
- ▶ Non-mathematicians

Write things...

- ▶ up – maths
- ▶ down – plans, ideas, goals, thoughts, fears, obstacles, achievements...

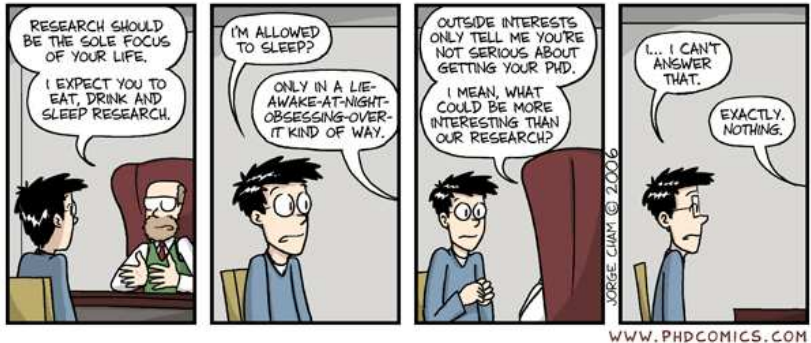
Writing forces you to organise your thoughts

“Aim: to fly high, but keep the spirit level”

(from John Toland)

- ▶ Be realistic about the potential impact of your research, but optimistic that you can achieve this
- ▶ It's fairly easy to be critical of even the best maths out there
- ▶ Doing research and being a pessimist is not fun!

Don't try to work all the time!



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Don't try to work all the time!

- ▶ You are not your PhD
- ▶ Do other things
- ▶ Littlewood
- ▶ Try to keep a sense of perspective

“Know thyself”

- ▶ Try and understand your mental processes
 - ▶ What are you afraid of?
 - ▶ What are you doing to distract yourself from doing the important stuff?
- ▶ “Get yourself out of the way”

Some resources

Time management:

- ▶ Tim Ferriss: book (“4 Hour Work Week”) and blog
- ▶ Randy Pausch time management lecture (YouTube)
- ▶ Leo Babauta: “Focus” ebook (free!)

Psychology:

- ▶ Robert Wiseman, “59 Seconds” – easily digestible and scientifically tested “self-help” advice on e.g. motivation
- ▶ PhD comics

Maths specific:

- ▶ Steven G. Krantz, “A Mathematician’s Survival Guide: Graduate School and Early Career Development”
- ▶ (These slides will be on my webpage)

Summary:

- ▶ Most important factor in getting PhD is **psychological strength**.
- ▶ Easy to get sucked into the “fatal attractor” of loss of motivation \iff lack of progress
- ▶ To combat:
 1. Maintain a good relationship with your supervisor
 2. Talk to people
 3. Write things up and down
 4. “Aim: to fly high, but keep the spirit level”
 5. Don't try to work all the time
 6. “Know thyself”