Thinking about applying to grad school?

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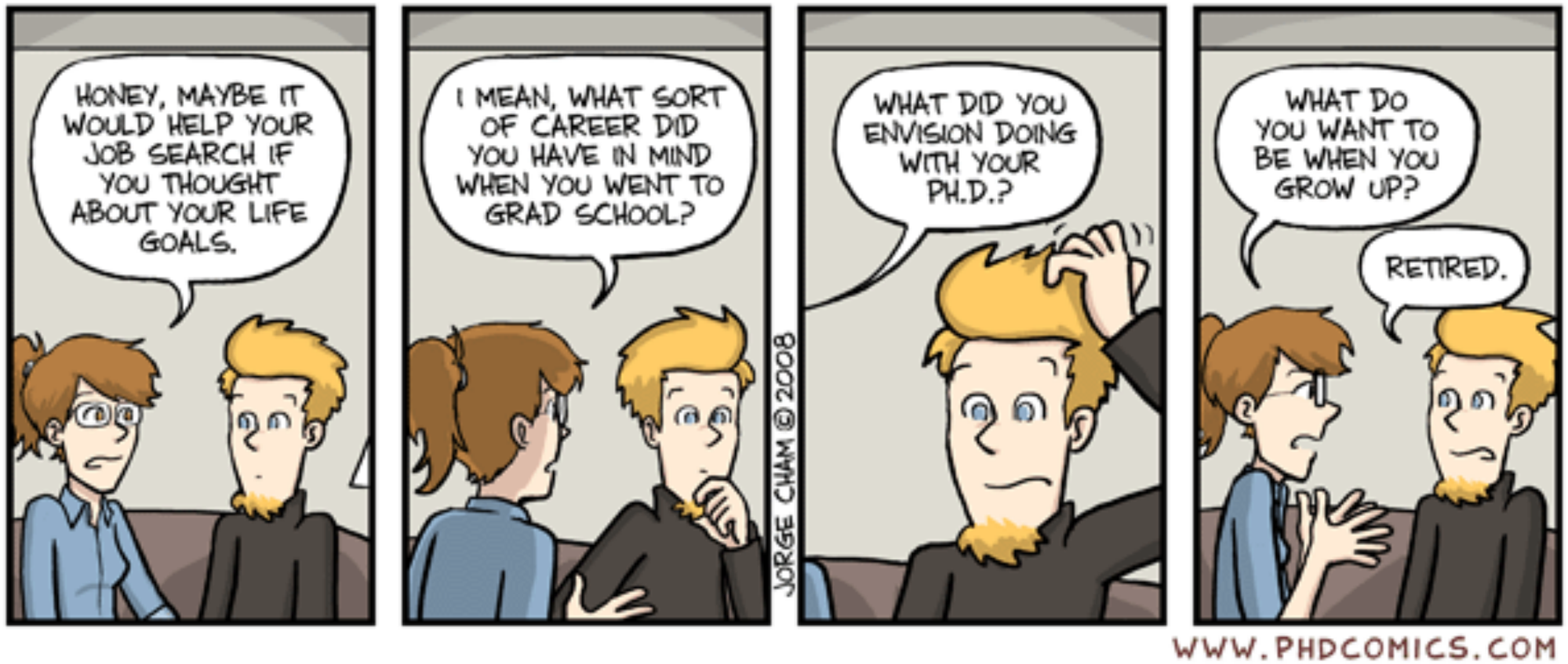
Post-graduation…

Potential options

- gainful employment 
- professional school 
- service programs 
- funemployment 
- grad school ❓

Why grad school?



coursework and (?) thesis

- **MS/MEng:** 1-2 years, *usually self-funded*

coursework and thesis

- **PhD:** 5-6 years (including MS), *usually funded by department and research advisor*

What program is right?

“I want to learn more about X”

→ Class-based MS program

“I want to work on a project involving new technologies that use Y”

→ Thesis-based MS program

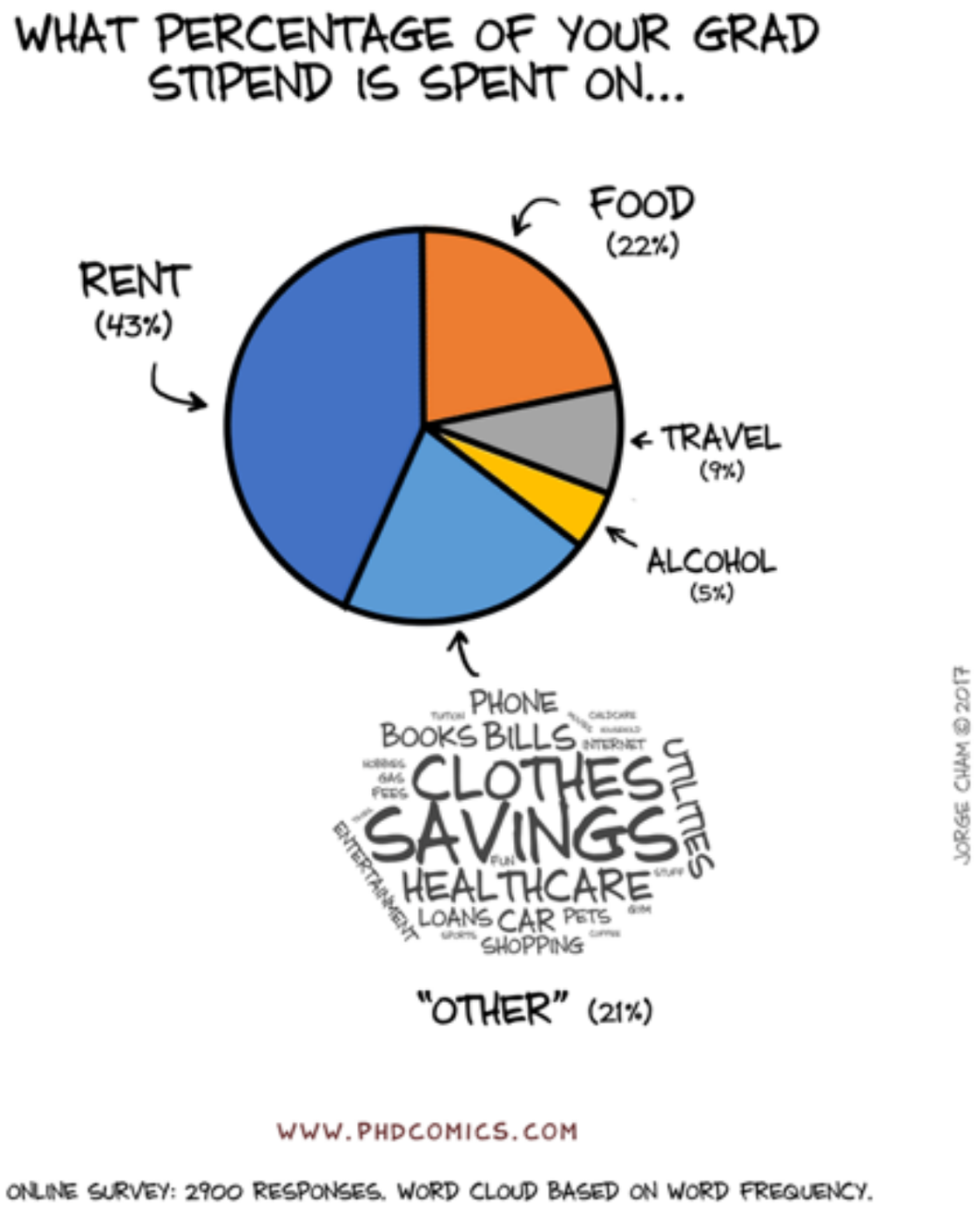
“I want to design new technologies to address problem Z.”

→ Ph.D. program

Upsides

- It's exciting to work on cutting-edge research!
- Higher starting salary! For 2014: BS = $62,300, MS = $72,600
- "A second chance"

Downsides



- MS/MEng programs cost money, TA/GA stipends are not great
- Delaying the start of your career / savings / paying off student loans
- Coursework and research can be more challenging than undergrad
- “A bad fit”

The application

Ingredients

- Transcripts
- GRE (general)
- Personal statement / essay (s)
- Letters of rec. (3-4)

<u>#1 rule</u>

consider your audience… the admission committee

Grades

- How well have you done in your core classes (including pre-reqs)?
- What electives did you take? Are they the right preparation for the topics you want to study further?
- Will you successfully graduate in time from the graduate program?
- What about extenuating circumstances?

The GRE

- Can’t save you, can sink you.
- Math + Analytical are the most important
- Material is not too advanced, but studying is still worth it.

The personal statement

- Why do you want to go to grad school?
- What are you interested in? Why did you major in engineering?
- What have you *learned* from your experiences? This is different than *listing* your experiences…
- Why do you want to go to this school? Which professor(s) might you want to work with?

Structure of a statement

A. **(1 paragraph)** Something about why you are interested in engineering (could be personal) and why grad school is a good choice for you.
You don't have to be grandiose.

B. **(few paragraphs)** Description(s) of course project/internship/ research experience: why it was interesting, what you did, and how this informed your choice to go to grad school or what you want to study.
Good to have these match your rec letter writers

C. **(1-2 paragraphs)** Why the particular school you're applying to is a good fit, professors whose research you find interesting, and why
Profs will often look at applications that mention them

Letters of Recommendation

Recommendation letters are a ***very important*** part of your application:

- provides insight into whether you would be a good fit beyond the numbers and generics
- admissions committee may know your letter writer
- letters can give more context to your activities

Choosing letter writers

1. Professor with whom you did some research
   Getting involved in UG research is important

2. Professor for a relevant course where you did well
   Go to office hours, ask for advice

3. Supervisor (pref. with a Ph.D.) from an internship
   Ask them earlier rather than later

4. Non-academic or non-research supervisor
   Needs to know your academic qualifications well

Your audience

Goal: convince the *admissions committee (professors)* that you will succeed in grad school

1. **Grades/GRE** show that you have a *good grasp of the fundamentals*
   → ***success in coursework***

2. **Statement** show that you can express yourself clearly in writing
   → ***success in writing (projects, papers, theses)***

3. **Letters** show that you have motivation and ability
   → ***success in research and graduation***

Fellowships

Several opportunities for external funding with *earlier deadlines.*

1. National Science Foundation Graduate Research Fellowship Program (NSF GRFP)

2. National Defense Science and Engineering Graduate Fellowship (NDSEG)

3. Hertz Fellowship

4. Others…

The application, revisited

1. Grades are important, especially in core classes:
   – play to your strengths

2. Take the GRE early if you can
   – get it out of the way
   – more time to retake if needed

3. Draft your personal statement early!
   – letter writers will often want your transcript + draft

4. Ask letter writers early!
   – some profs have a *lot* of letters to write
   – people may say no if they can't write a strong letter

What to do now?

Is research for you?

Research and R&D experiences:

1. UG Research: REUs, Aresty, WINLAB, or ad-hoc
   See presentation from last semester
2. Internships at companies that do R&D
   Gain experience with developing new tech

Things you can learn:

1. What is doing research like? Do you enjoy it?
2. What grad students do outside of TA-ing.
3. What topics do (and do not!) interest you.

Ways to make your application stronger

1. Choose relevant courses, especially electives
   → ***shows you are pursuing your interests***

2. Get involved in science/tech organizations on or off campus (IEEE, meetups, Hackathons, etc.)
   → ***shows engagement beyond coursework***

3. Get a github or other developer account. Document/share projects.
   → ***shows independence and commitment***

Timelines

1. First + second year: keep on top of coursework and try to get involved in research/internships, especially over the summer

2. Third year: talk to professors about your interest, get advice about whether grad school is a good option (and what type), try to get involved in research

3. Fourth year: prepare your application (fall) and start early!

Some self-examination

Use your time to *explore your options* to clarify your professional goals.

1. Why are you majoring in engineering? What is personally interesting to you?

2. What kinds of work do you like doing? Analyzing, designing, building/implementing/fabricating, or a mix?

3. Do you enjoy the research process?

Some final thoughts

Graduate school (MS or PhD) is only one option, but work you do now to build a strong application will help you regardless of what you do.

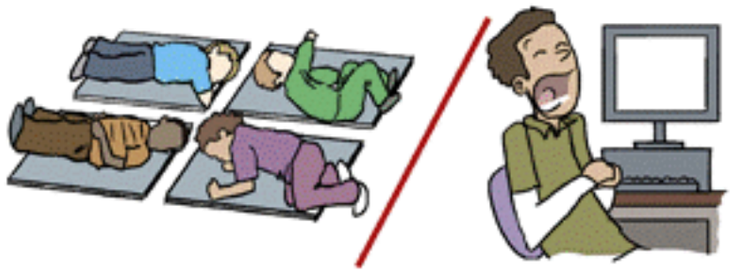
1. UG research and internships give experience using cutting-edge ideas and tools.

2. Doing work outside the classroom (through clubs/ organizations or projects) gives more hands-on experience.

3. Getting to know professors/supervisors can give you more advising/support.

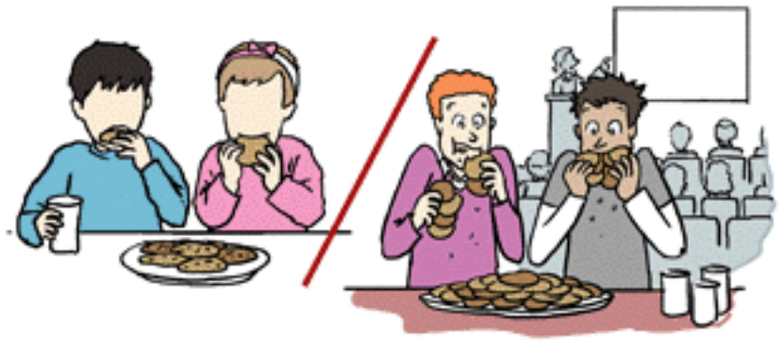
HOW GRAD SCHOOL IS JUST LIKE KINDERGARTEN

ALL DAY NAPPING IS ACCEPTABLE

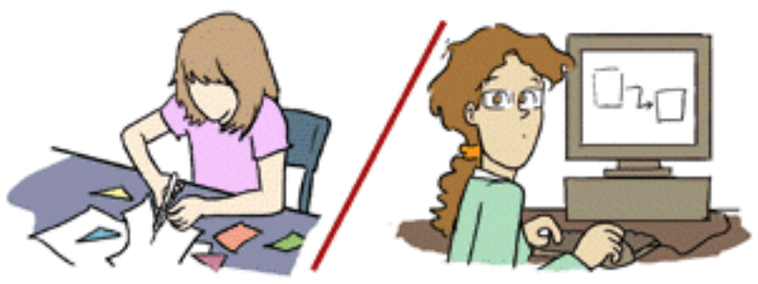


THERE IS CONSTANT ADULT SUPERVISION

YOU GET COOKIES FOR LUNCH



MOST COMMON ACTIVITY: CUTTING AND PASTING



THERE ARE NO GRADES
(YOU JUST HAVE TO PLAY WELL WITH OTHERS)

CRYING FOR YOUR MOMMY IS NORMAL