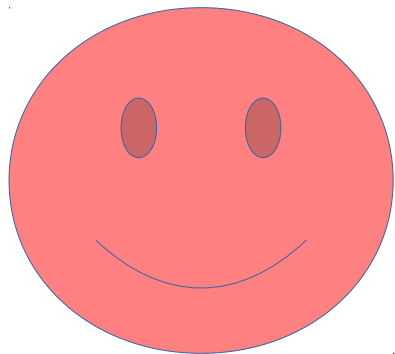


How I got my grey hairs

Joe Armstrong PhD

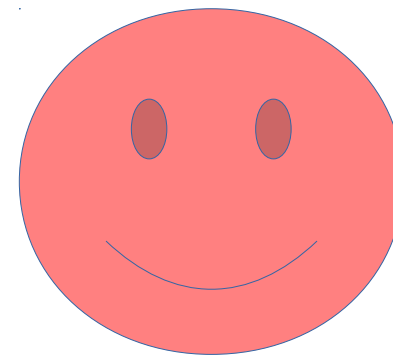
Adj. Professor Computer Science - KTH
Expert Compilers and Computer
Architectures - Ericsson
Founder and Managing Director –
Whoomph Software AB





Me

1972 Start
on PhD in
Physics



Dr Me

2003
Awarded PhD in
Computer Science

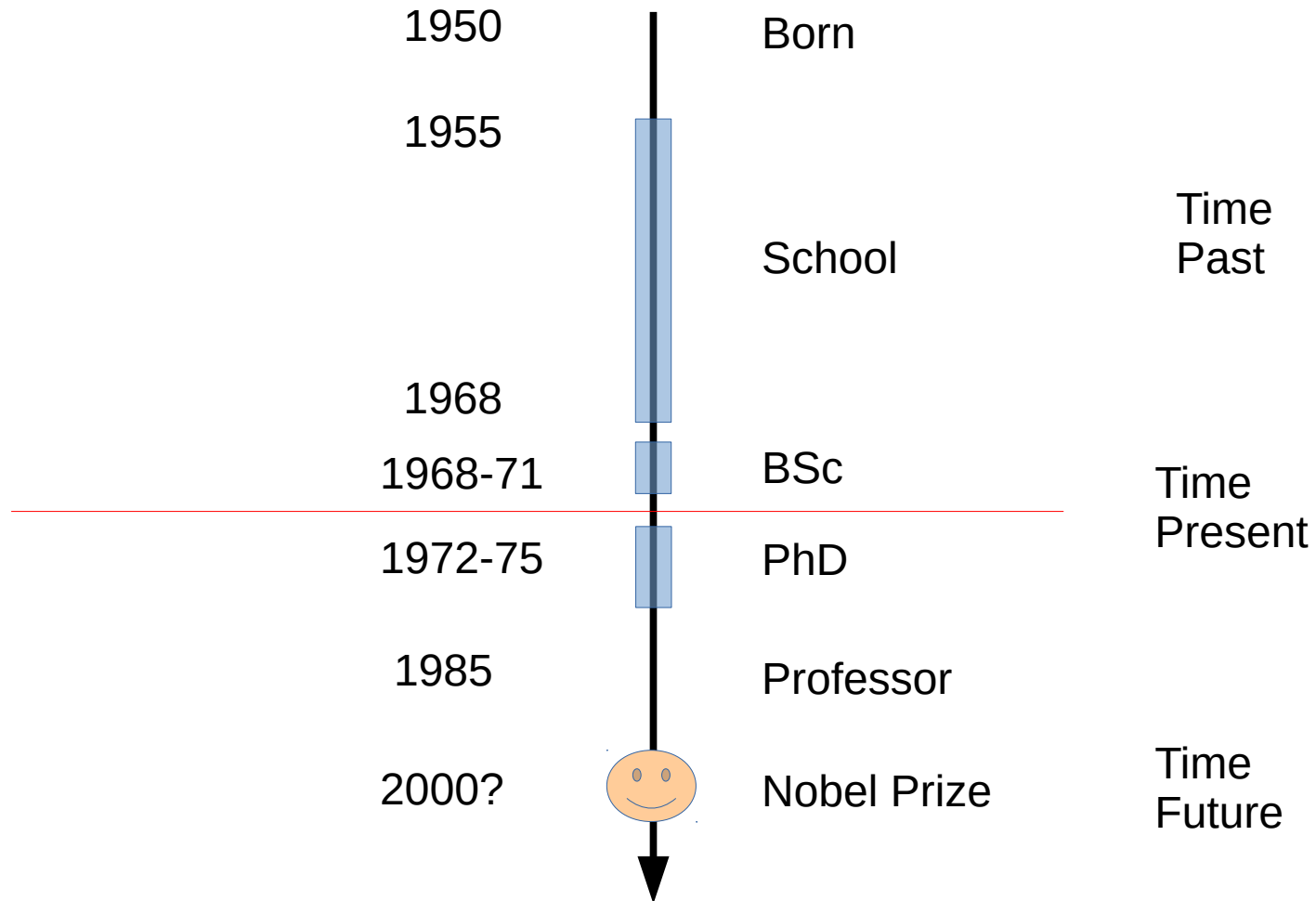


31 years ...

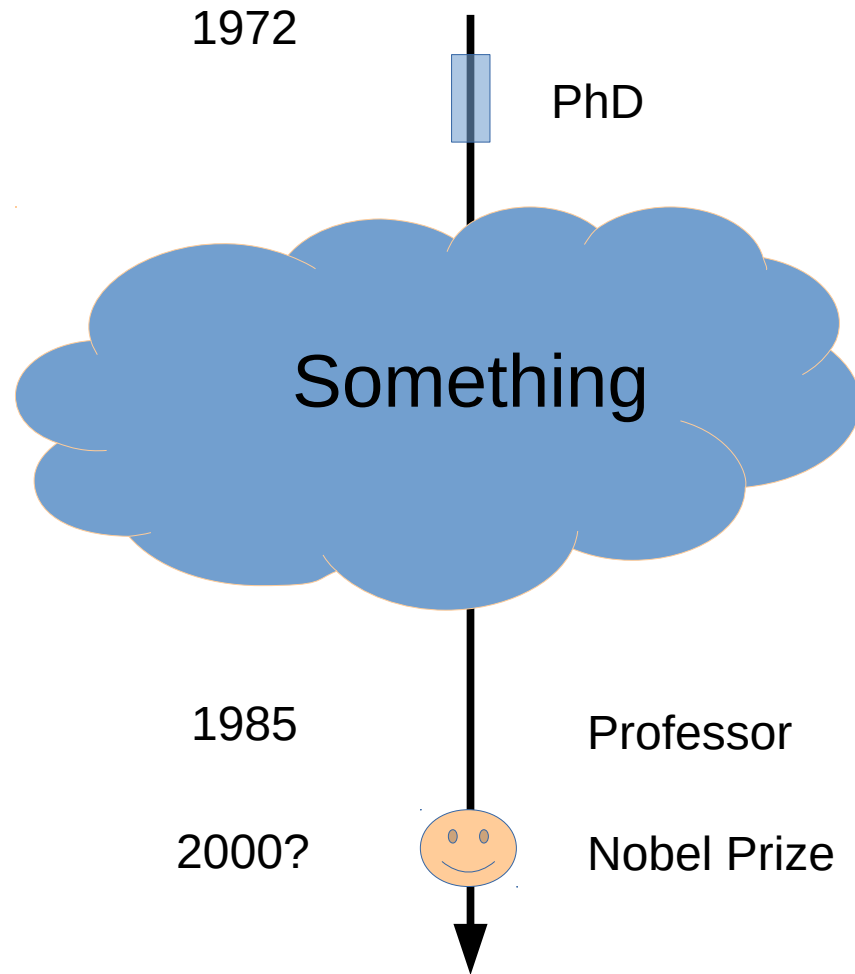
Plan

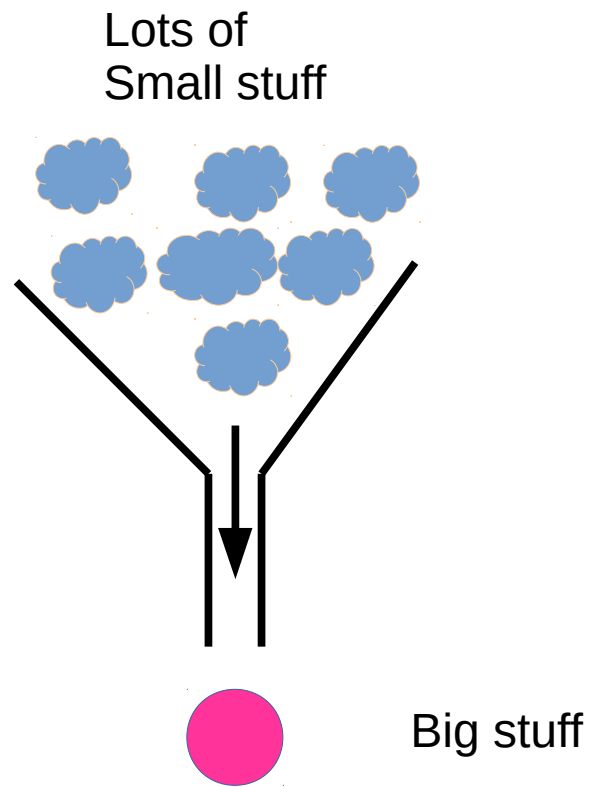
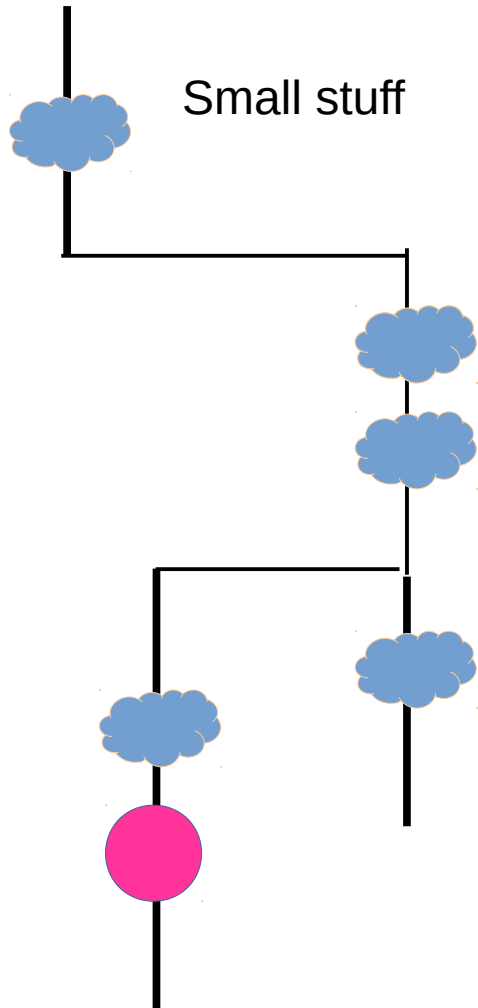
- **What I thought would happen** when I started off for a PhD in 1972
- **What actually happened**
- What useful skills should one pick up on the way?

My plan (in 1972)

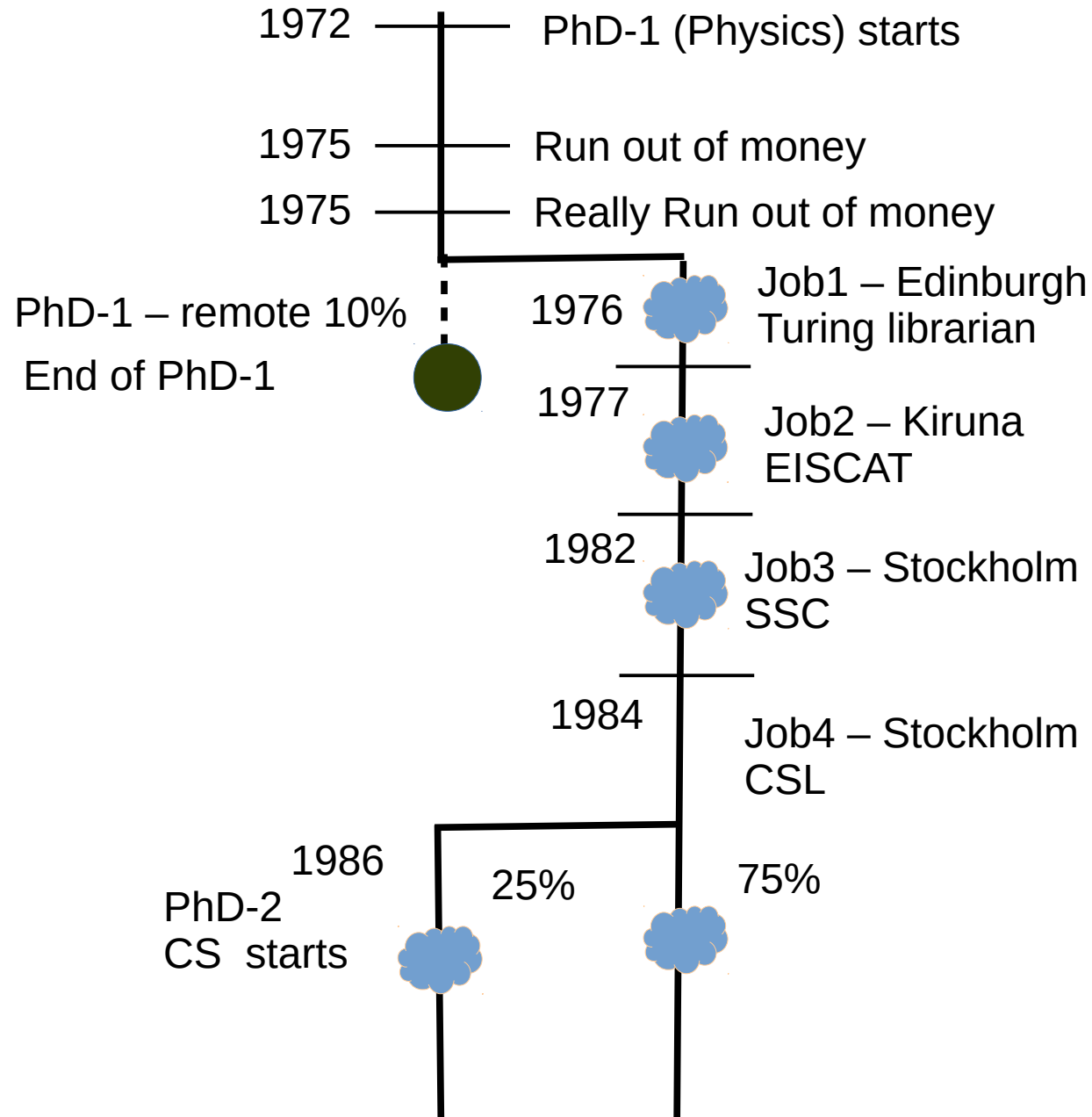


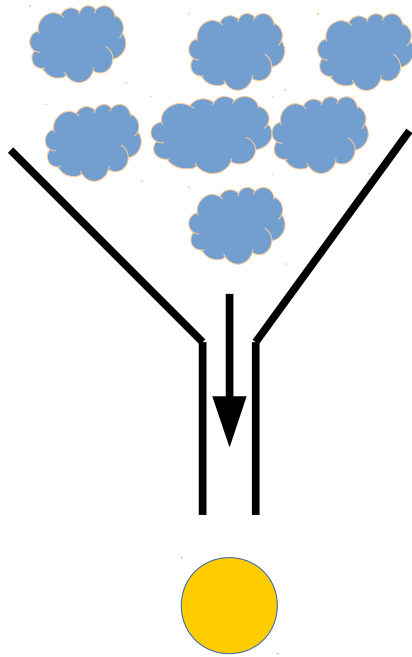
My plan (in 1972)





What happened?





1986
PhD-2 starts

25%

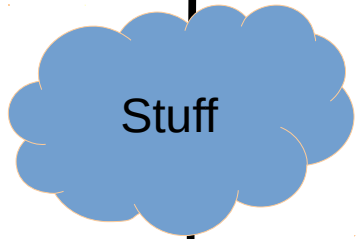
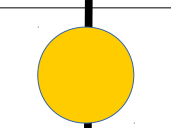
Job4 – Stockholm
CSL

75%

1986 - I invent Erlang

1987

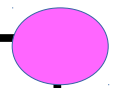
Parked



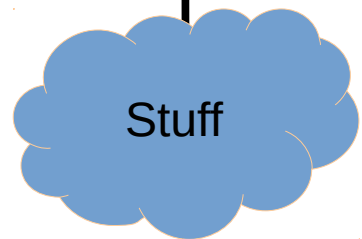
1998 – AXD301 – great
success

1998 – Erlang Banned

1998

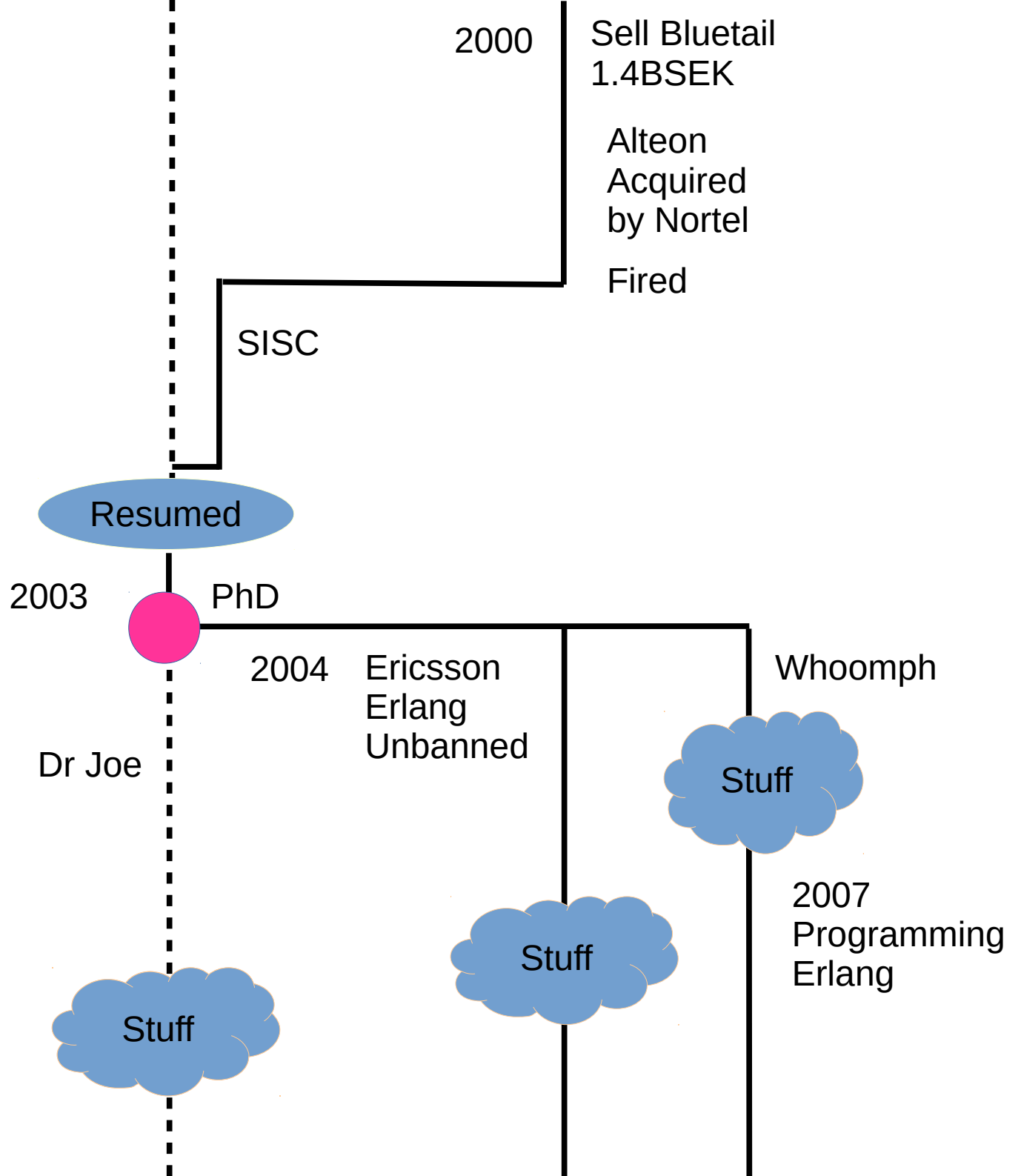
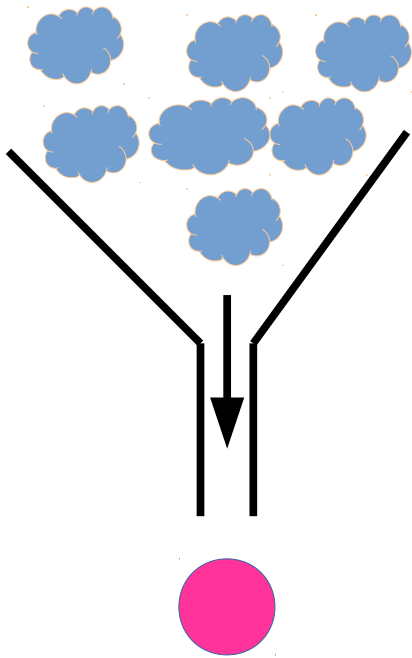


Founded
Bluetail



2000

Sell Bluetail
1.4BSEK



2000

Sell Bluetail
1.4BSEK

Alteon
Acquired
by Nortel

Fired

SISC

Resumed

2003

PhD

Dr Joe

2004

Ericsson
Erlang
Unbanned

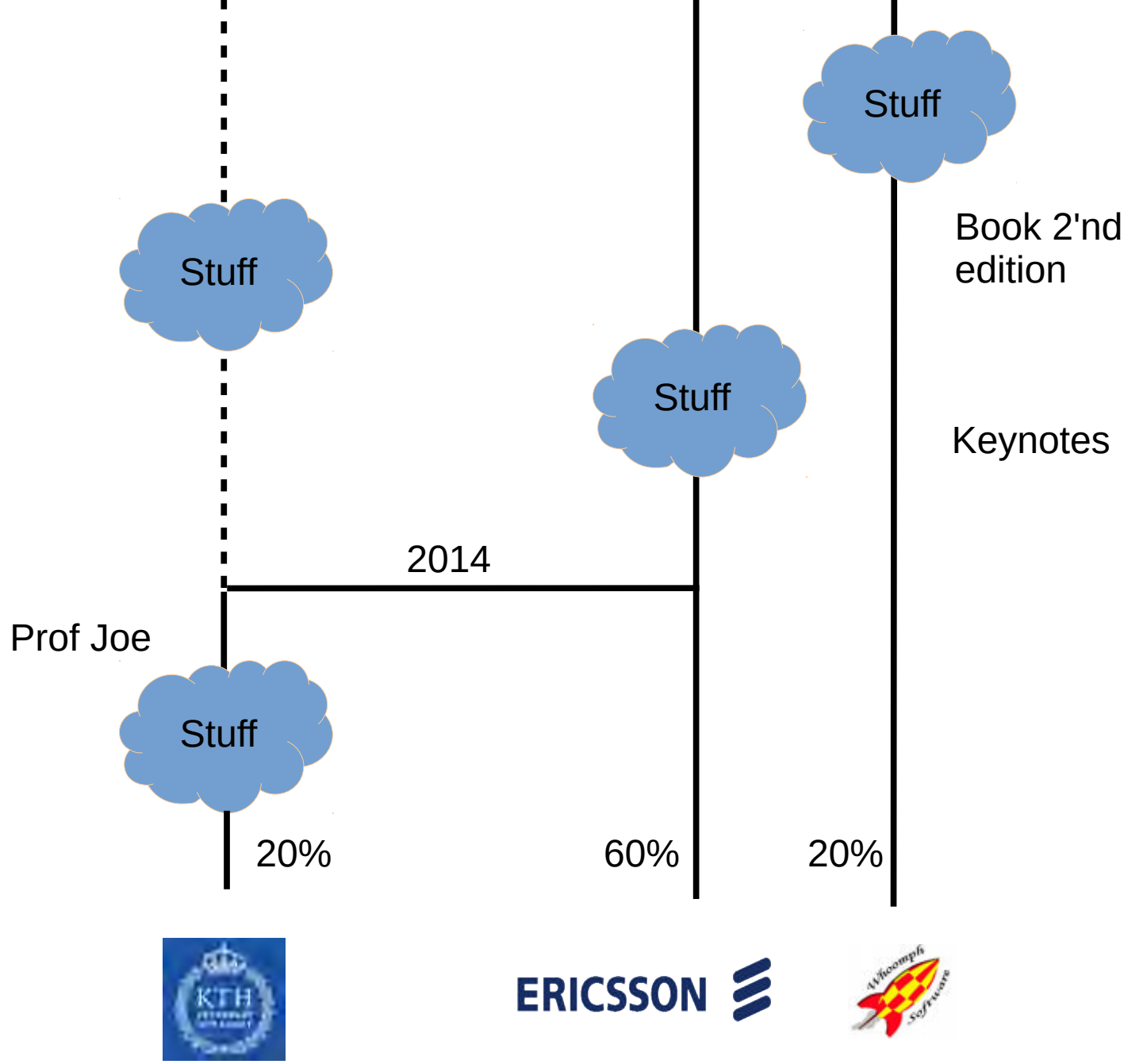
Whoomph

Stuff

2007
Programming
Erlang

Stuff

Stuff



Funnel Events

- Need lots of small stuff
- Unpredictable
- Seem to come from nowhere

Progress is funny (*I made no progress last week*) – (*I made great progress last year*)

Observations

- Strange period of apparent inactivity followed by focused activity
- Always learning new stuff
- Follow instincts
- Core interest has remained the same
- I still don't know what I want to do when I grow up

The Value of a PhD

- It's not what you think it is (*it's not the big stuff it's all the small stuff*)
- **It's a research degree**
- At the end you know how to do research – you are not an expert in X (your topic) – you realize you know very little about X

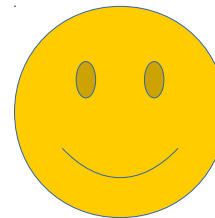
As you progress things will change



Young Me

Learn
Research

40+
years

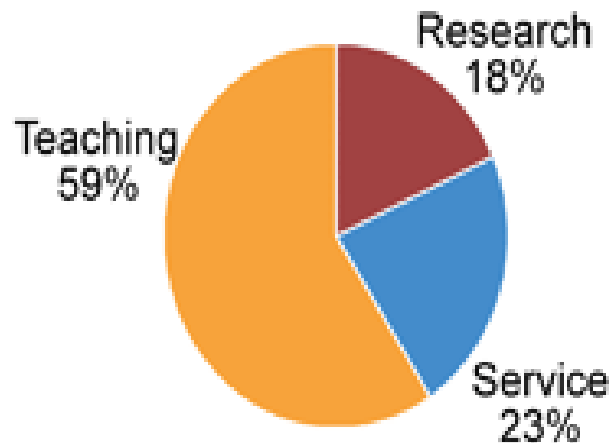


Dr Me

Teach
Research
Direct Research
Get Funding
Go to meetings
Communicate
Administer

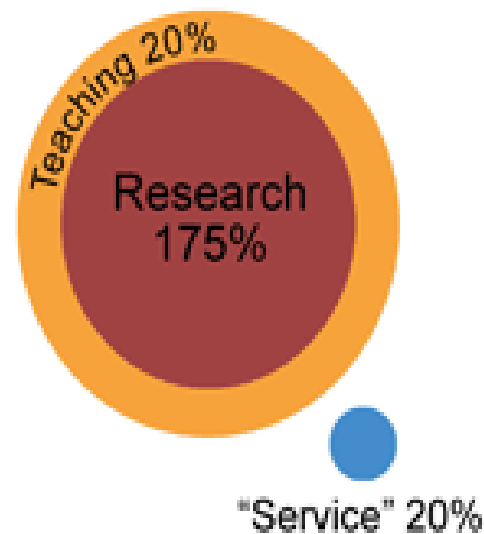
HOW PROFESSORS SPEND THEIR TIME

How they actually spend their time:



Source: Higher Education Research Institute Survey (1999)

How departments expect them to spend their time:



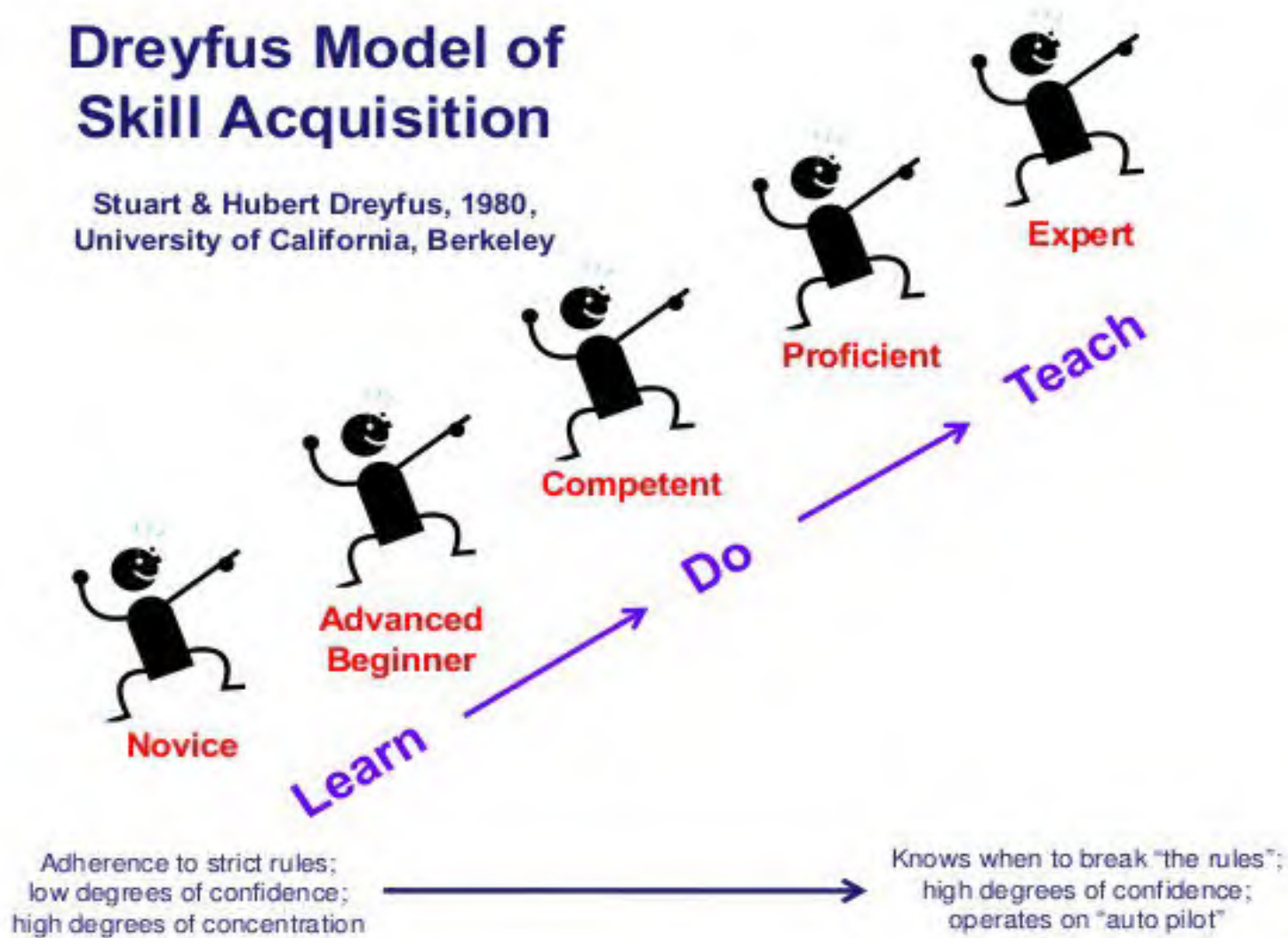
How Professors would like to spend their time:



WWW.PHDCOMICS.COM

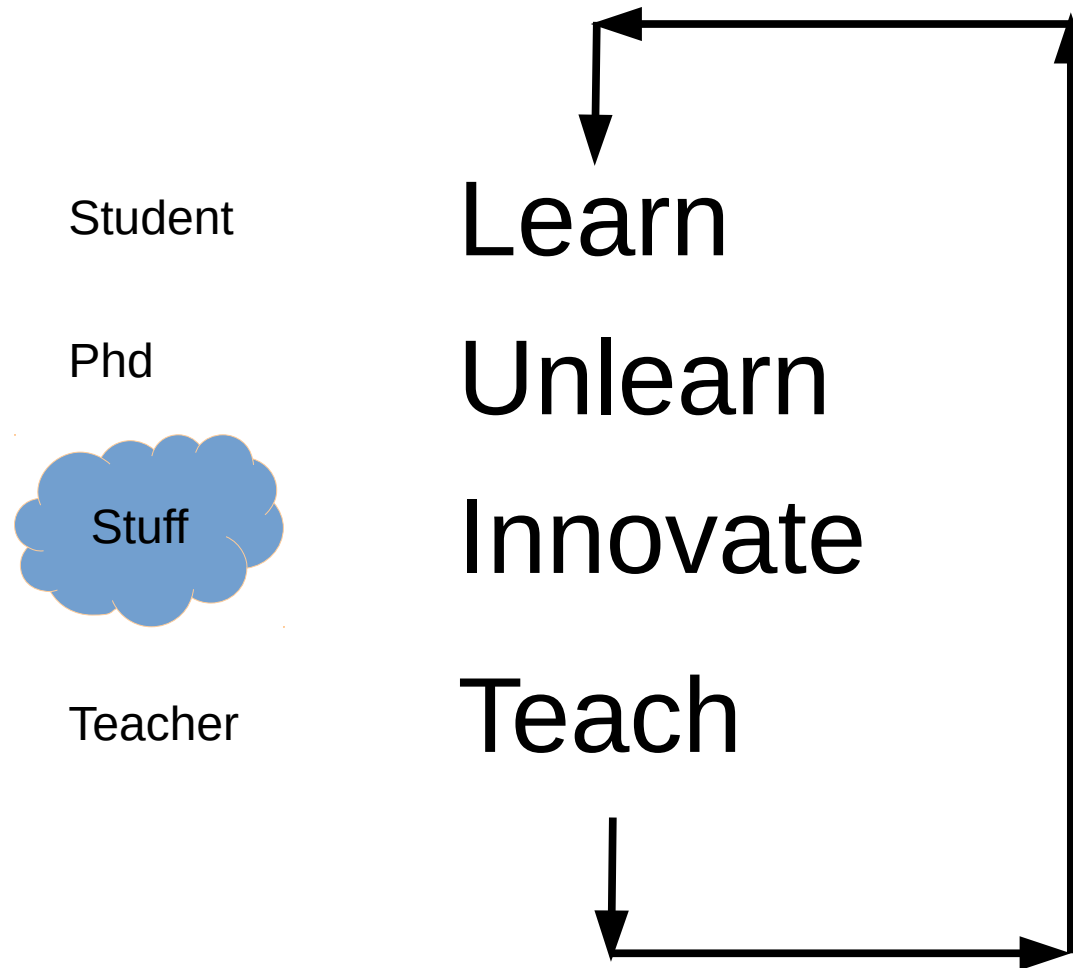
Dreyfus Model of Skill Acquisition

Stuart & Hubert Dreyfus, 1980,
University of California, Berkeley



13

The cycle



As time goes on the emphasis changes from learning to teaching

Useful skills

- The elevator pitch
- Explaining stuff to people
- Communicating
- Teaching
- Writing
- Selling your ideas
- Detecting Bullshit
- Researching
- All the small things you learn
(Note Hamming observation on compound interest)

And ...

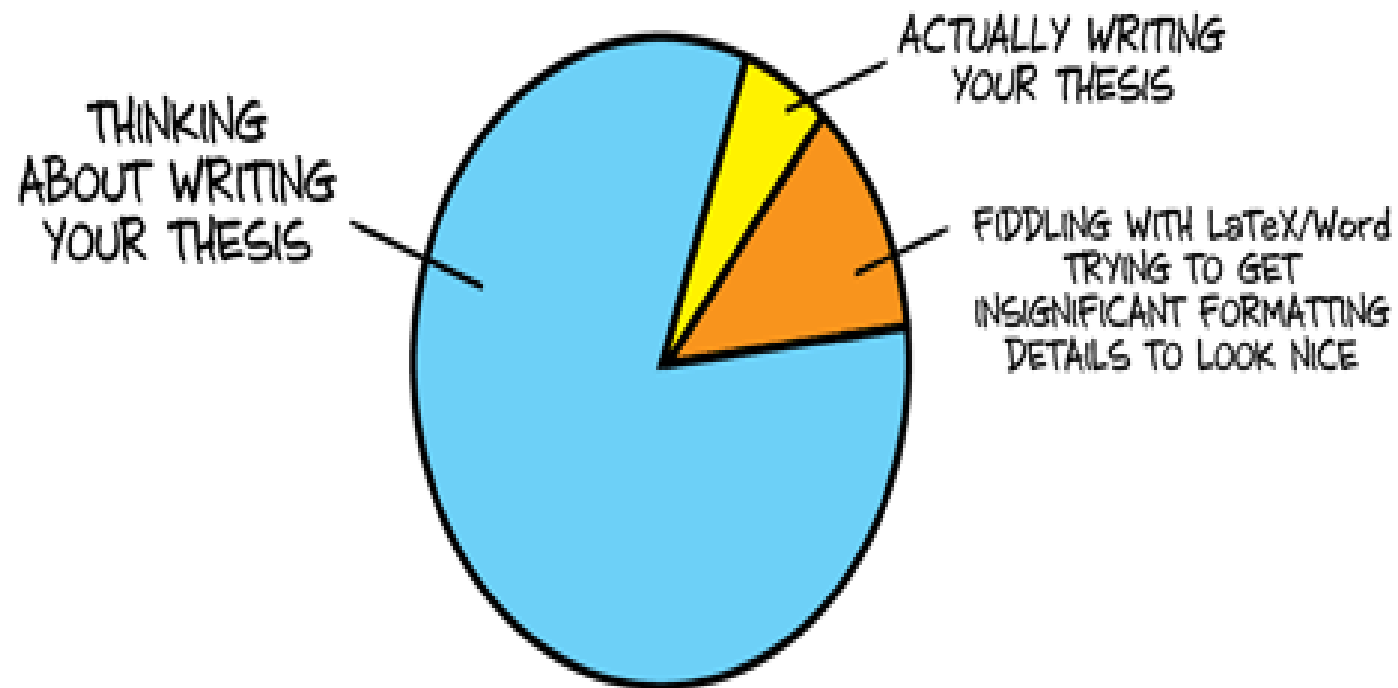
- Ask really stupid questions

You have earned the right to ask mid bogglingly, bone grindingly stupid questions

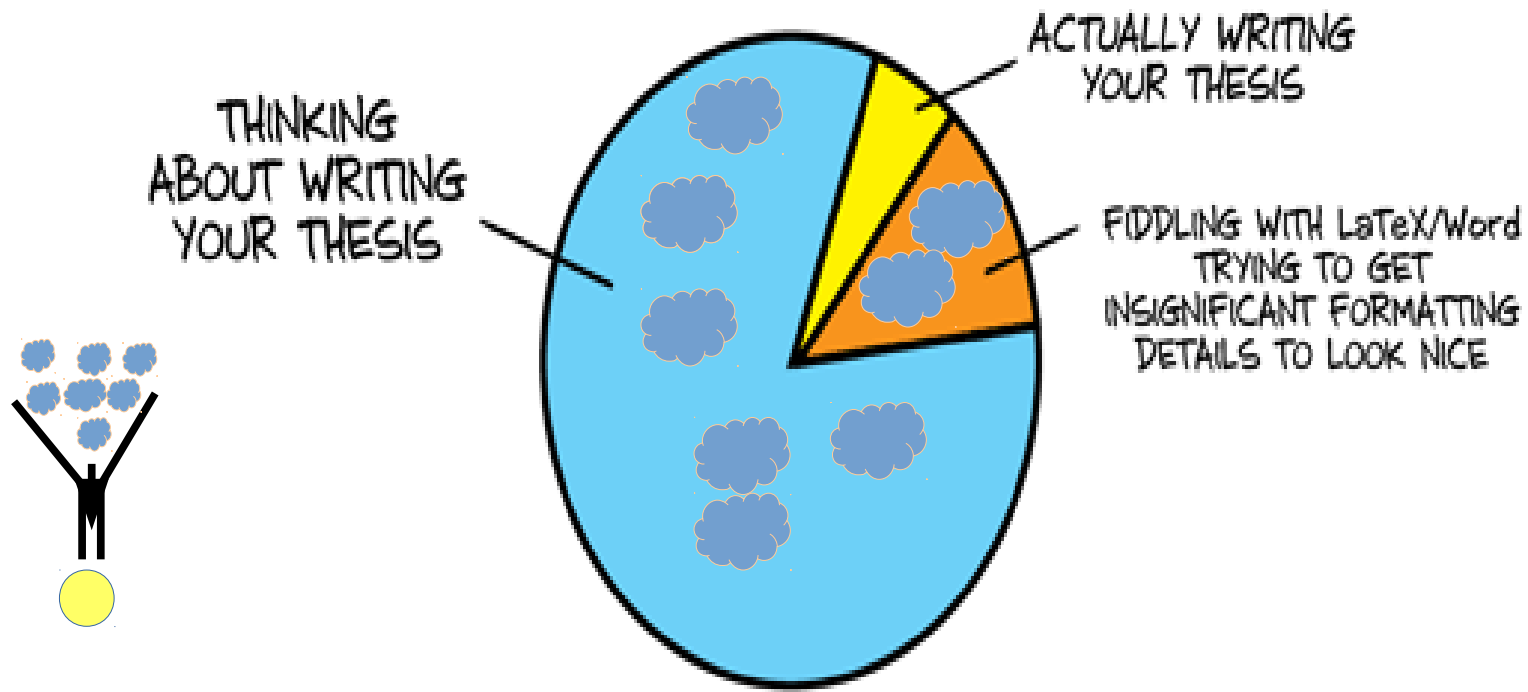
- Work on important problems (*not interesting problems*)
- Learn new stuff all the time (compound interest)

(Read Richard Hamming “You and Your Research”)

WRITING YOUR THESIS:

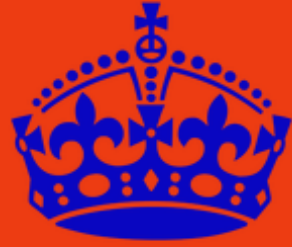


WRITING YOUR THESIS:



Some Things to read

- www.phdcomics.com
- <http://www.itu.dk/people/bardram/pmwiki/uploads/Main/UbiComp.2007.Art.PhD.pdf>
- <http://www.cs.utexas.edu/~dahlin/bookshelf/hamming.html>



**KEEP
CALM
AND
GET A
PhD**