



How to give a good research talk

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1993 paper joint with John Hughes (Chalmers), John Launchbury (Oregon Graduate Institute)

[Updated a bit 2013 Henry S. Thompson (University of Edinburgh)]

[2015 - slightly adjusted and modified Katharina Heil - UoE]



Do it! Do it! Do it!

Good communication skills will take you
far

- Invest time
- Learn skills
- Practice

Give a talk, about **any idea**,
no matter how weedy and insignificant it
may seem to you!



Giving a good talk

This presentation is about how to give a good research talk!

Think about:

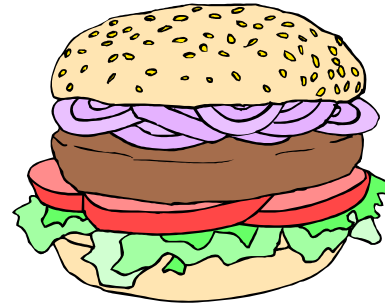
- What your talk is for
- What to put in it (and what not to)
- How to present it





What your talk is for

Your report = **The beef**



Your talk = **The beef advertisement**



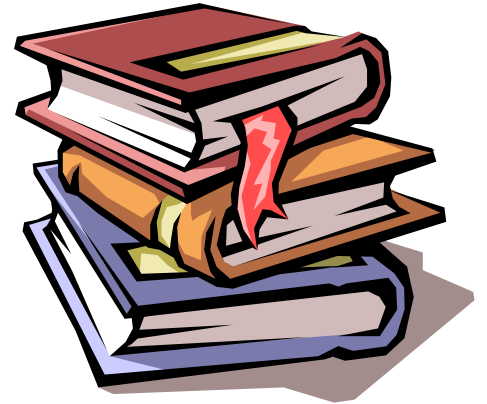
Do not confuse the two



The purpose of your talk...

...is not:

- To impress your audience with your brainpower
- To tell them all you know about your topic
- To present all the technical details





The purpose of your talk...

...but is:

- To give your audience an intuitive feel for your idea
- To make them foam at the mouth with eagerness to read your review
- To engage, excite, provoke them



What to put in





What to put in

1. Motivation (20%)
2. Your key idea (80%)
3. There is no 3



Motivation

You have 30 seconds to one minute to engage the audience and make them understand that it is important to listen to you!

Cover:

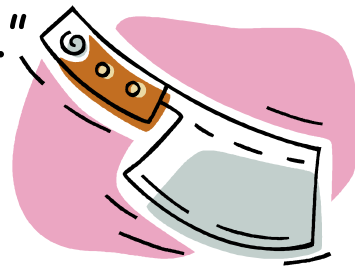
- Why should I tune into this talk?
- What is the problem?
- Why is it an interesting problem?



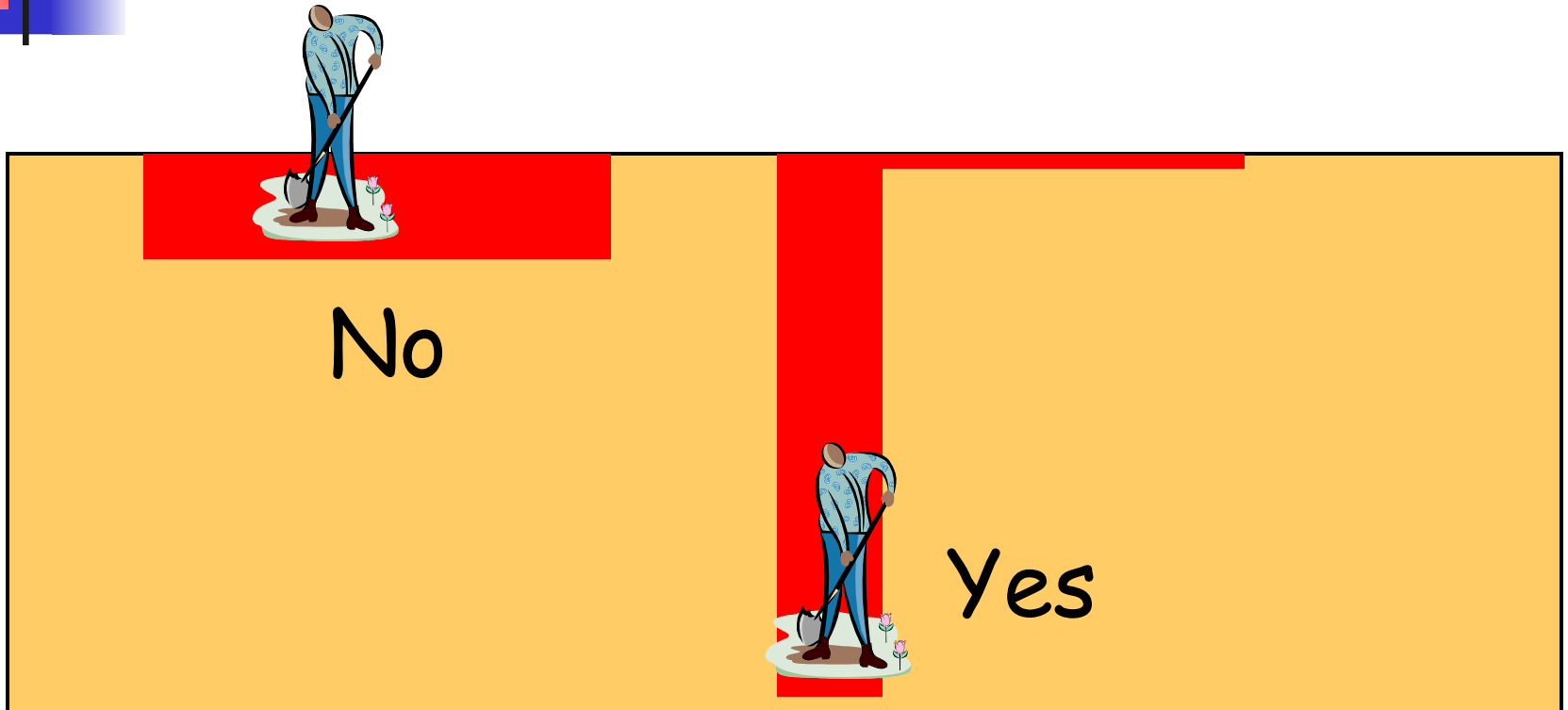
Your key idea

If the audience remembers only one thing from your talk, what should it be?

- **You must identify a key idea.**
 - “Why is your robot special???”
- Be specific. Don't leave your audience to figure it out for themselves.
- Be absolutely specific.
 - “If you remember nothing else, remember this.”
 - “This is our main improvement/advantage/strong point.”
- Organise your talk around this specific goal.
- Ruthlessly prune material that is irrelevant to this goal.



Narrow, deep beats wide, shallow



- Avoid shallow overviews at all costs
- Cut to the chase: the technical “meat”:
 - Which technical improvement makes your robot outstanding?



Your main weapon

Examples are your main weapon

- To motivate the work
- To convey the basic intuition
- To illustrate The Idea in action
- To show extreme cases
- To highlight shortcomings

When time is short, omit the general case, not the example



What to leave out



Outline of my talk

- Background
- The system
- Shortcomings
- Overview of xxx
- Detailed description
- Benchmark results
- Related work
- Conclusions and further work





No outline!

“Outline of my talk”:

- conveys near zero information at the start of your talk

- But maybe put up an outline for orientation after your motivation
- ...and signposts at pause points during the talk

BUT: omit for sure if time is tight



Related work

- [PMW83] The seminal paper
- [SPZ88] First use of xxx
- [PN93] Application of yyy
- [BXX98] Lacks full abstraction
- [XXB99] Only runs on aaa, no integration with bbb



Do not present related work

But

- You absolutely must know the related work; respond readily to questions
- Acknowledge co-authors (title slide), and pre-cursors (as you go along)
- Do not disparage the opposition
 - X's vision code does Y; we have extended it to do Z
 - Make it positive:
 - "We could use X's vision code to adjust it to our needs and implement additional functionalities."

Technical detail

$$\begin{array}{c}
 \frac{}{\Gamma \vdash k : \tau_k} \quad \frac{\Gamma \cup \{x : \tau\} \vdash e : \tau'}{\Gamma \vdash \lambda x. e : \tau \rightarrow \tau'} \quad \frac{\Gamma \vdash e_1 : \text{ST } \tau^\circ \tau \quad \Gamma \vdash e_2 : \tau \rightarrow \text{ST } \tau^\circ \tau'}{\Gamma \vdash e_1 \gg e_2 : \text{ST } \tau^\circ \tau'} \\
 \\
 \frac{\Gamma \vdash e : \tau}{\Gamma \vdash \text{returnST } e : \text{ST } \tau^\circ \tau} \quad \frac{\Gamma \vdash e : \tau}{\Gamma \vdash \text{newVar } e : \text{ST } \tau^\circ (\text{MutVar } \tau^\circ \tau)} \quad \frac{\Gamma \vdash e : \text{MutVar } \tau^\circ \tau}{\Gamma \vdash \text{readVar } e : \text{ST } \tau^\circ \tau} \\
 \\
 \frac{\Gamma \vdash e_1 : \text{MutVar } \tau^\circ \tau \quad \Gamma \vdash e_2 : \tau}{\Gamma \vdash \text{writeVar } e_1 e_2 : \text{ST } \tau^\circ \text{Unit}} \quad \frac{}{\Gamma \cup \{x : \forall \alpha_i. \tau\} \vdash x : \tau[\tau_i/\alpha_i]} \\
 \\
 \frac{\Gamma \vdash e : \tau' \rightarrow \tau \quad \Gamma \vdash e' : \tau'}{\Gamma \vdash e e' : \tau} \quad \frac{\Gamma \vdash e : \text{ST } \alpha^\circ \tau \quad \alpha^\circ \notin FV(\Gamma, \tau)}{\Gamma \vdash \text{runST } e : \tau} \\
 \\
 \frac{\forall j. \Gamma \cup \{x_i : \tau_i\}_i \vdash e_j : \tau_j \quad \Gamma \cup \{x_i : \forall \alpha_{j_i}. \tau_i\}_i \vdash e' : \tau'}{\Gamma \vdash \text{let } \{x_i = e_i\}_i \text{ in } e' : \tau'} \quad \alpha_{j_i} \in FV(\tau_i) - FV(\Gamma)
 \end{array}$$

Figure 1. Typing Rules

Omit technical details

- Even though every line is **drenched** in your **blood** and **sweat**, dense clouds of notation will send your audience to sleep
- Present specific and outstanding aspects only; refer to the report
- and offer to go into details after the talk
- Have backup slides to use in response to questions





Do not apologise

- “I didn’t have time to prepare this talk properly”
- “My computer broke down, so I don’t have the results I expected”
- “I don’t have time to tell you about this”
- “I don’t feel qualified to address this audience”



Presenting your talk





Prepare your slides

...and know their order/flow!

Your talk absolutely must be fresh in your mind

- Ideas will occur to you during the presentations of other groups - but:
 - *Do not make edits at this point - too risky*
- Always bring a USB stick with your talk as a backup
 - In case your laptop doesn't interface well with the available projector

Keep your slides simple

- Use:
 - Pictures, Illustrations
 - Key words
- Don't use:
 - Full sentences



Presenting your slides

A very annoying technique

- is to reveal
- your points
- one
- by one
- by one, unless...
- there is a punch line





Presenting your slides

Use animation effects

very

very

very

very

very

very

very

sparingly

Better still, use them not at all



Know your own speed(s)

Less is definitely more

- Fewer slides, well-delivered

Don't fool yourself

- Every slide takes at *least* 30 seconds
- Most slides take 2 minutes
-

Practice, with a friend if possible

- So you can get an accurate timing

If it's to be a joint presentation

- Allow at least 30 seconds for each changeover



How to present your talk

By far the most important thing is to

be enthusiastic





Enthusiasm

- If you do not seem excited by your idea, why should the audience be?
- It wakes 'em up
- Enthusiasm makes people dramatically more receptive
- It gets you loosened up, breathing, moving around



The jelly effect

If you are anything like me, you will experience apparently-severe pre-talk symptoms

- Inability to breathe
- Inability to stand up (legs give way)
- Inability to operate brain



What to do about it

- Deep breathing during previous talk
- *Script your first few sentences precisely*
(=> no brain required)
- Move around a lot, use large gestures, wave your arms
- Go to the loo first
- You are not a wimp. Everyone feels this way.



Being seen, being heard

- Point at the screen, not at the laptop
- Speak to someone at the back of the room, even if you have a microphone on
- Make eye contact; identify a **nodder**, and speak to him or her (better still, more than one)
- Watch audience for questions...



Questions

- Questions are not a problem
- Questions are a **golden golden golden** opportunity to connect with your audience
- Specifically encourage questions during your talk: pause briefly now and then, ask for questions
- Be prepared to truncate your talk if you run out of time. Better to connect, and not to present all your material

Due to the time limit the audience might keep questions to the end!



Finishing

Absolutely without fail,
finish on time

- Audiences get restive and essentially **stop listening** when your time is up. Continuing is very counter productive
- Simply truncate and conclude
- Do **not** say "would you like me to go on?" (it's hard to say "no thanks")



There is hope

Enjoy and have fun!
You are the expert!

You will attend 50x as many talks/lectures as you give.
Watch other people's talks intelligently, and pick up ideas for
what to do and what to avoid.



YOUR PRESENTATIONS

- What is your key point?
- Who is preparing the slides?
 - Who can take pictures/supply videos/give information
 - Who will be the presenter?
- How will the audience remember you?



Planning "deadlines"

- Prepare presentation - *start now*
 - Think about:
 - Pictures
 - Maybe videos?
 - Key points, text and message
- 1st practise
 - Not later than Monday 28th of March
- Friday April 1st
 - Final Day