



How to give a good research talk

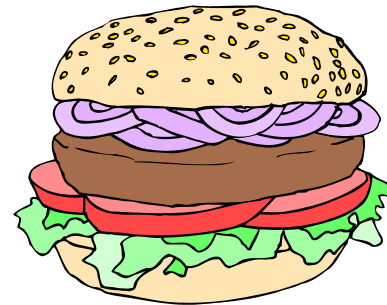
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based on a talk by Simon Peyton Jones
with John Hughes and John Launchbury



What your talk is

Your paper = **The beef**



Your talk = **The beef
advertisement**



***Do not confuse
the two***

The purpose of your talk...

The purpose of your talk is:

- To give your audience an intuitive feel for your idea
- To make them foam at the mouth with eagerness to read your paper
- To engage, excite, provoke them
- To attract the world's most precious commodity: time and attention

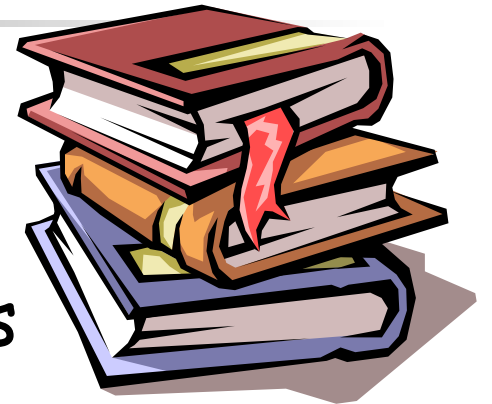




The purpose of your talk...

The purpose of your talk is **not**:

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





Your audience...

The **audience** you would like

- Have read all your earlier papers
- Thoroughly understand all the relevant theory of cartesian closed endomorphic bifunctors
- Are all agog to hear about the latest developments in your work
- Are fresh, alert, and ready for action



Your **actual** audience...

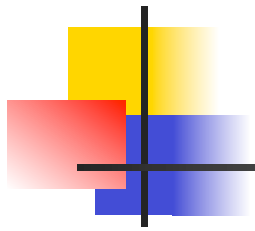
The audience you get

- Have never heard of you
- Have heard of bifunctors, but wish they hadn't
- Have just had lunch and are ready for a doze

Your mission is to

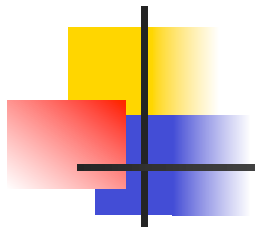
WAKE THEM UP

And make them glad they did



What to put in





What to put in

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



Motivation

*You have 2 minutes
to engage your audience
before they start to doze*

They are thinking...

- Why should I tune into this talk?
- What is the problem?
- Why is it an interesting problem?
- Does this talk describe a worthwhile advance?



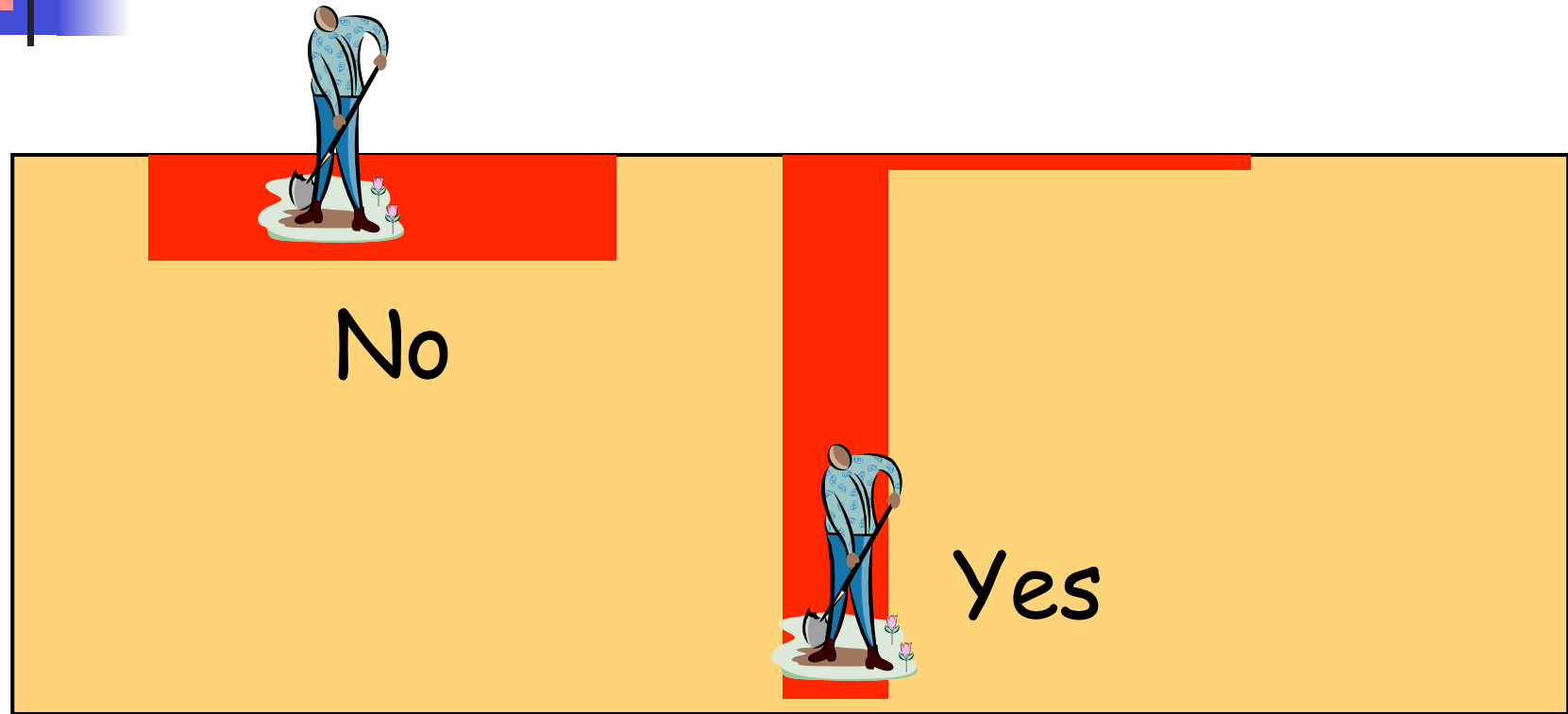
Your key idea

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

- **You must identify a key idea.** "What I did this summer" is No Good.
- **Be specific.** Don't leave your audience to figure it out for themselves.
- **Be absolutely specific.** Say "If you remember nothing else, remember this."
- **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"

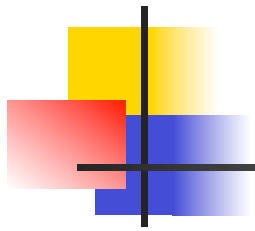
It's ok to cover only part of your paper



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 FLUGOL system
- Shortcomings of FLUGOL
- Overview of synthetic epimorphisms
- π -reducible decidability of the pseudo-carried fragment under the Snezkowski invariant in FLUGOL
- Benchmark results
- Related work
- Conclusions and further work





No outline!

“Outline of my talk”: conveys near zero information at the start of your talk

Worse, since your audience only gives you 2 minutes before dozing, you've just lost them



Related work slide

- [PMW83] The seminal paper
- [SPZ88] First use of epimorphisms
- [PN93] Application of epimorphisms to wibblification
- [BXX98] Lacks full abstraction
- [XXB99] Only runs on Sparc, no integration with GUI



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)
- Praise the opposition

"X's very interesting work does Y; I have extended it to do Z"



Technical detail

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

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 aspects only; refer to the paper for the details
- By all means have backup slides to use in response to questions





Presenting your talk





How to present your talk

Your most potent weapon, by far, is your

enthusiasm





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



~~Write~~ Practice your slides the night before

- Your talk absolutely must be fresh in your mind
- Ideas will occur to you during the conference, as you obsess on your talk during other people's presentations



The jelly effect

You will experience apparently-severe pre-talk symptoms

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

You are not a wimp.
Everyone feels this
way.





What to do about it

- *Script your first few sentences precisely*
(=> no brain required)
- Confidence poses: use large gestures, wave your arms, stand on chairs
- It's really Enthusiasm!
- Go to the loo first



Do not apologize

- “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’m sorry I’m not Simon PJ”



Being seen, being heard

- Face the **audience**, not the **screen**
- Point at the screen, not at your 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...



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")



Conclusion: you can do it!

The general standard is often low.
You don't have to be outstanding to
stand out

Don't stop here. You will attend 50x as
many talks as you give.

Watch carefully and learn.