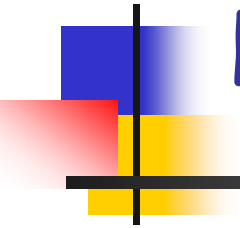


How to give a good research talk

1993 paper joint by Simon Peyton Jones
(Microsoft Research, Cambridge)
with John Hughes (Chalmers) and
John Launchbury (Oregon Graduate Institute)

…and updated for Systems Engineers in 2008 by
Mike Pennotti (Stevens Institute of Technology)

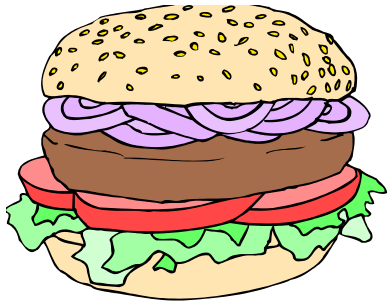
Giving a good talk

This presentation is about how to give a good research talk

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

What your talk is for

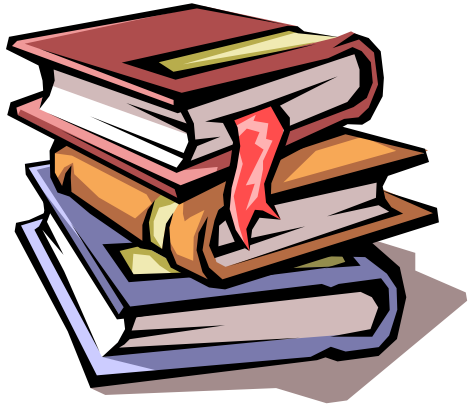
Your paper = **The beef**



Your talk = **The beef advertisment**

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 eager to read your paper
- To engage, excite, provoke them

Your audience…

The audience you would like:

- Have read all your earlier papers
- 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

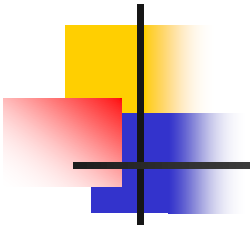
- Have never heard of you
- Have heard of bifunctors, but wish they hadn't
- Have just had lunch and are ready for a doze

Your mission is to

WAKE THEM UP

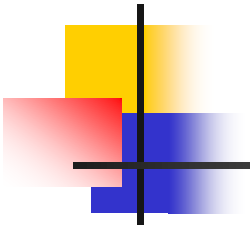
And make them glad they did

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

- 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.
- Be specific. Don't leave your audience to figure it out for themselves.
- Be absolutely specific. Say "If you remember nothing else, remember this."
- Organize your talk around this specific goal. Ruthlessly prune material that is irrelevant to this goal.

Your main weapon

Examples are your main weapon

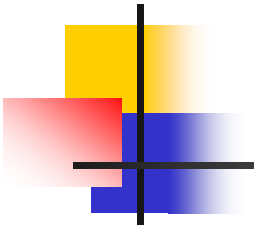
- To motivate the work
- To convey the basic intuition
- To illustrate The Idea in action
- To show extreme cases
- To highlight shortcomings

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

What to leave out

Outline of my talk

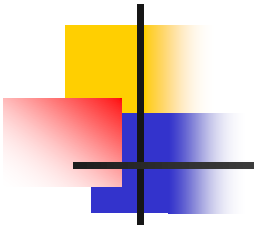
- Background
- The FLUGOL system
- Shortcomings of FLUGOL
- Overview of synthetic epimorphisms
- π-reducible decidability of the pseudo-curried fragment under the Snezkovwski invariant in FLUGOL
- Benchmark results
- Related work
- Conclusions and further work



No outline!

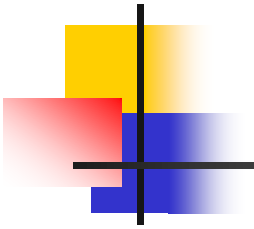
"Outline of my talk": conveys near zero information at the start of your talk

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



Related work

[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)
- Do not disparage the competition
  - X's very interesting work does Y; I have extended it to do Z

Technical detail

$$\frac{}{\Gamma \vdash k : \tau_k} \qquad \frac{\Gamma \cup \{x : \tau\} \vdash e : \tau'}{\Gamma \vdash \lambda x.e : \tau \to \tau'} \qquad \frac{\Gamma \vdash e_1 : \mathtt{ST}\ \tau^\circ\ \tau \qquad \Gamma \vdash e_2 : \tau \to \mathtt{ST}\ \tau^\circ\ \tau'}{\Gamma \vdash e_1\ \mathtt{>>=}\ e_2 : \mathtt{ST}\ \tau^\circ\ \tau'}$$

$$\frac{\Gamma \vdash e : \tau}{\Gamma \vdash \mathtt{returnST}\ e : \mathtt{ST}\ \tau^\circ\ \tau} \qquad \frac{\Gamma \vdash e : \tau}{\Gamma \vdash \mathtt{newVar}\ e : \mathtt{ST}\ \tau^\circ\ (\mathtt{MutVar}\ \tau^\circ\ \tau)} \qquad \frac{\Gamma \vdash e : \mathtt{MutVar}\ \tau^\circ\ \tau}{\Gamma \vdash \mathtt{readVar}\ e : \mathtt{ST}\ \tau^\circ\ \tau}$$

$$\frac{\Gamma \vdash e_1 : \mathtt{MutVar}\ \tau^\circ\ \tau \qquad \Gamma \vdash e_2 : \tau}{\Gamma \vdash \mathtt{writeVar}\ e_1\ e_2 : \mathtt{ST}\ \tau^\circ\ \mathtt{Unit}} \qquad \frac{}{\Gamma \cup \{x : \forall \alpha_i.\tau\} \vdash x : \tau[\tau_i/\alpha_i]}$$

$$\frac{\Gamma \vdash e : \tau' \to \tau \qquad \Gamma \vdash e' : \tau'}{\Gamma \vdash e\ e' : \tau} \qquad \frac{\Gamma \vdash e : \mathtt{ST}\ \alpha^\circ\ \tau}{\Gamma \vdash \mathtt{runST}\ e : \tau}\ \alpha^\circ \notin FV(\Gamma, \tau)$$

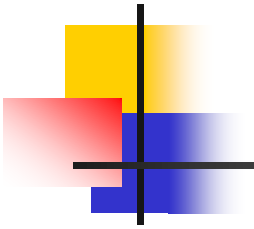
$$\frac{\forall j.\Gamma \cup \{x_i : \tau_i\}_i \vdash e_j : \tau_j \qquad \Gamma \cup \{x_i : \forall \alpha_{j_i}.\tau_i\}_i \vdash e' : \tau'}{\Gamma \vdash \mathtt{let}\ \{x_i = e_i\}_i\ \mathtt{in}\ e' : \tau'}\ \alpha_{j_i} \in FV(\tau_i) - FV(\Gamma)$$

Figure 1. Typing Rules

Omit technical details

- Clouds of notation will send your audience to sleep

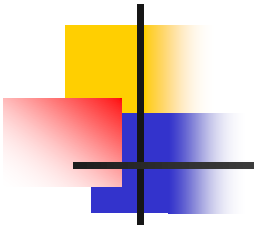
- Present specific aspects only; refer to the paper for the details
- By all means have backup slides to use in response to questions



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 don't feel qualified to address this audience"

Presenting your talk



Preparing effective slides

- Make sure that each slide has ***one*** key point
  - Use the slide's title to emphasize that point
- Slides should contain what you will talk ABOUT, not what you will say
- Don't exceed the audience's visual bandwidth
  - Six or seven "things" on a slide are quite enough
- One picture is worth 1,000 bullet points!

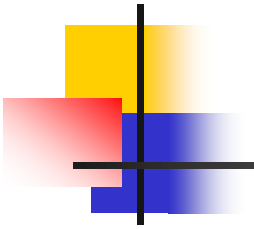
How to present your talk

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



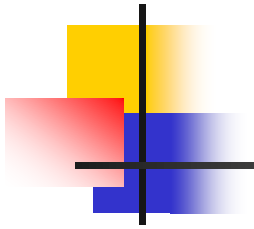
Questions

- 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

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

The general standard is so low that you don't have to be outstanding to stand out

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