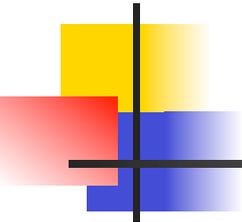


How to give a good research talk

Adapted from talk given by
Simon Peyton Jones
Microsoft Research, Cambridge

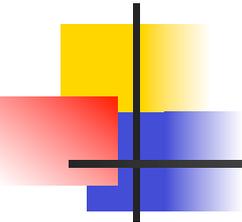


Research is communication

The greatest ideas are worthless if you keep them to yourself

Your papers and talks

- Crystallise your ideas
- Communicate them to others
- Get feedback
- Build relationships
- (And garner research brownie points)

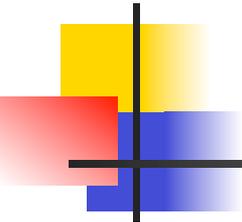


Do it! Do it! Do it!

Good papers and talks are a fundamental part of research excellence

- Invest time
- Learn skills
- Practice

Write a paper, and give a talk, about
any idea,
no matter how weedy and insignificant it
may seem to you

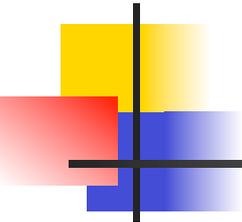


Giving a good talk

This presentation is about how to give a good research talk

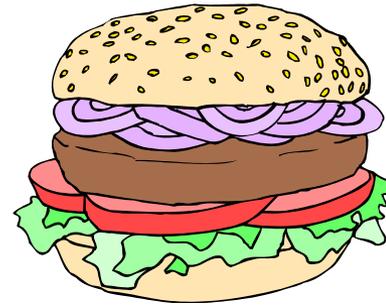
- What your talk is for
- What to put in it (and what not to)
- How to present it





What your talk is for

Your paper = **The beef**



Your talk = **The beef
advertisement**

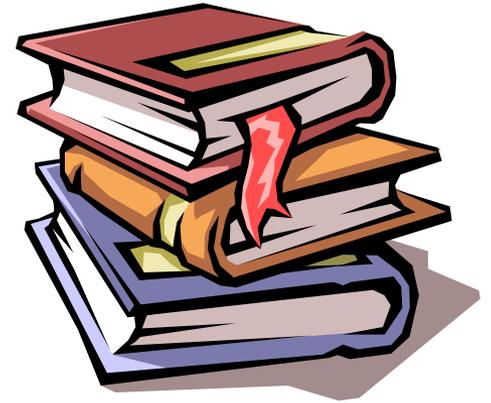


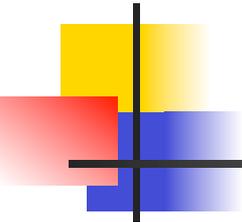
Do not confuse the two

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



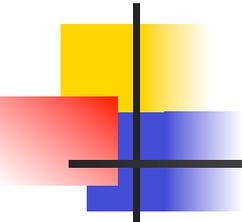


The purpose of your talk...

..but is:

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

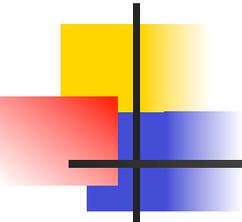




Your audience...

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 (software testing), but wish they hadn't
- Have just had lunch and are ready for a doze

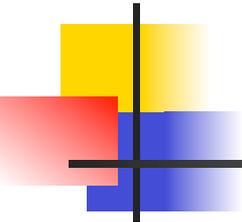
Your mission is to

WAKE THEM UP

And make them glad they did

What to put in





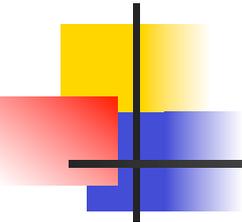
What to put in

1. Motivation (20%)

2. Your key idea (80%)

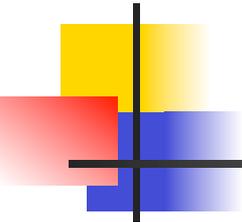
3. There is no 3

- Use PowerPoint or equivalence tools to prepare your slides
- Use at least 24 points
- Slides should not be overloaded.
- Each slide should really only discuss a single idea



Title slide

- Choose title carefully
- Don't use title which is too generic
- A title with a good acronym is more catchy



Motivation

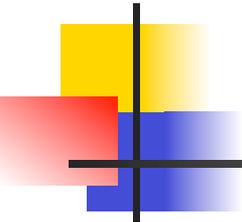
You have 2 minutes to engage your audience before they start to doze

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

Example: Java class files are large (brief figures), and get sent over the network. Can we use language-aware compression to shrink them?

Example: synchronisation errors in concurrent programs are a nightmare to find. I'm going to show you a type system that finds many such errors at compile time.

Example: Deep Web sources are autonomous and thus can change their query interfaces anytime, can we create a query engine that can query Deep Web query interfaces which changes dynamically?



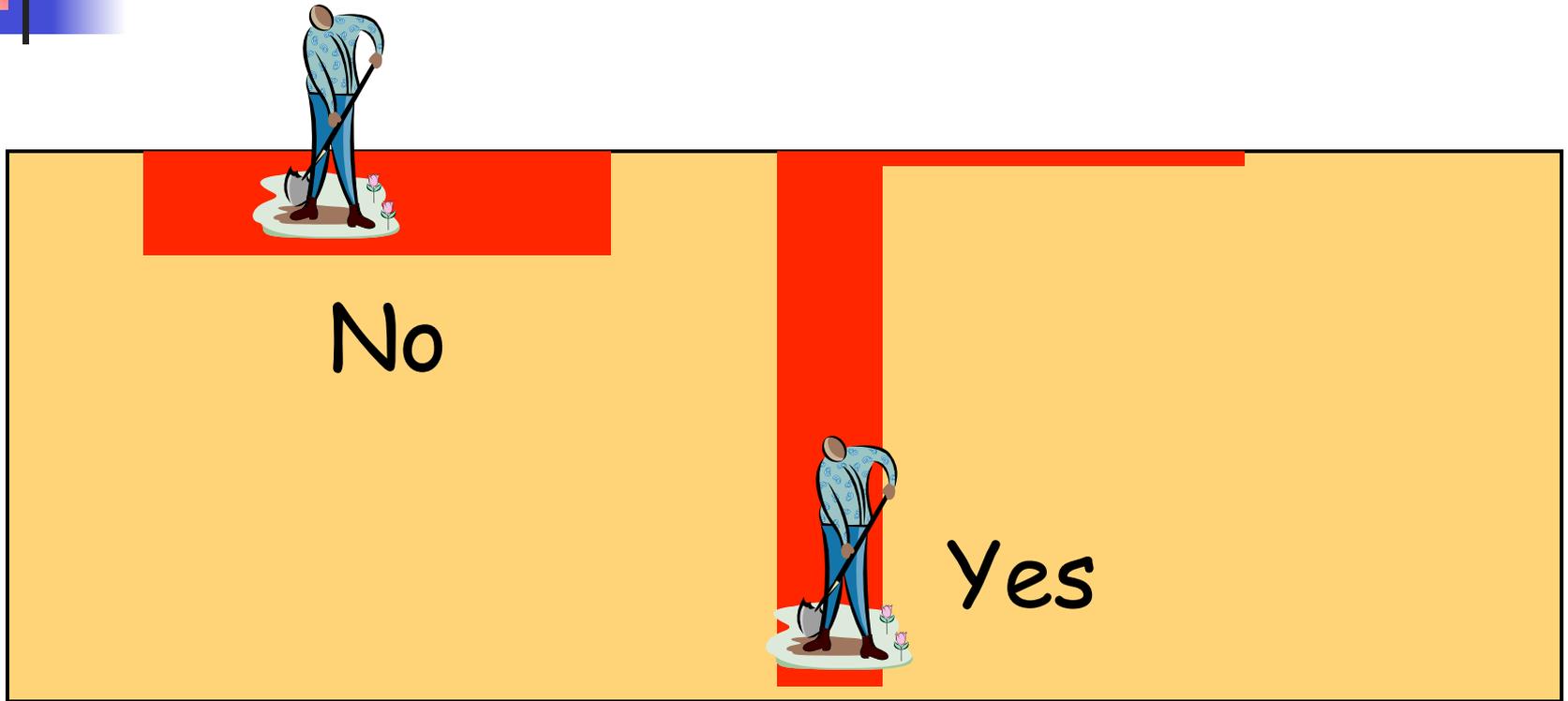
Your key idea

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

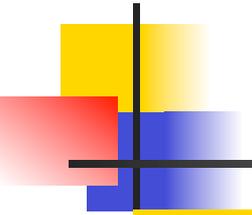
- **You must identify a key idea.** "What I did this summer" is No Good.
- Be specific. Don't leave your audience to figure it out for themselves.
- Be absolutely specific. Say "If you remember nothing else, remember this."
- Organise your talk around this specific goal. Ruthlessly prune material that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



Narrow, deep beats wide, shallow



Avoid shallow overviews at all costs
Cut to the chase: the technical "meat"



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

WARNING: Wednesday April 2nd 2008

The GeneDB Boolean search facility will be unavailable briefly at around 10:00am.

Search for
 Organisms Shortcuts

This analysis [Retrieve result for previous BLAST job.](#)

Query Data

Paste your sequence here. [fasta format](#) or just plain text will do; fasta format will return the sequence name as the e-mail subject

OR select the sequence file you wish to search

Results

Browser, OR Email to

Options

Database
[\(More information on databa](#)
 Executable

SGTC BLAST server: *Cryptococcus neoformans*

We are running [stand-alone BLAST2.2.12](#) available from NCBI.
 To learn more about BLAST, see NCBI's [BLAST page](#)

Your sequence in [FASTA](#) format

Options

| Program | Query | Database |
|---------|-------------|-------------|
| blastn | DNA | DNA |
| blastp | AA | AA |
| blastx | transl. DNA | AA |
| tblastn | AA | transl. DNA |
| tblastx | transl. DNA | transl. DNA |

Enter Query Sequence

Enter accession number, gi, or FASTA sequence

From

To

Or, upload file

Job Title

Enter a descriptive title for your BLAST search

Choose Search Set

Database Human genomic + transcript Mouse genomic + transcript Others (nr etc.):

Entrez Query

Optional Enter an Entrez query to limit search

Program Selection

Optimize for Highly similar sequences (megablast)
 More dissimilar sequences (discontiguous megablast)
 Somewhat similar sequences (blastn)
 Choose a BLAST algorithm

BLAST Search [database Human G+T](#) using [Megablast](#) (Optimize for highly similar sequences)

Exceptions in Haskell?

Exceptions are to do with **control flow**

There is no control flow in a lazy functional program

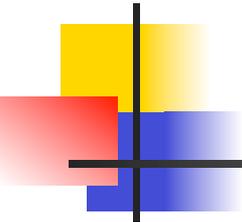
Solution 1: use data values to carry exceptions

```
data Maybe a = Nothing
             | Just a

lookup :: Name -> Dictionary -> Maybe Address
```

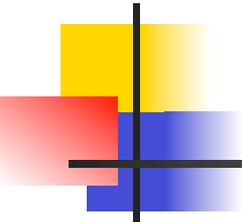
Often this is Just The Right Thing
[Spivey 1990, Wadler “list of successes”]





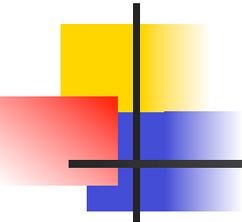
What to leave out





Outline of my talk

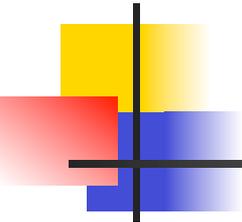
- Background
- Current approaches to discovery and access to Deep Web sources
- Shortcomings of current approaches
- Overview of scalable architecture for discovery and automated access to Deep Web sources
- Automatic identification of site capabilities via SCD modeling
- Experimental results
- Conclusions and further work



No outline!

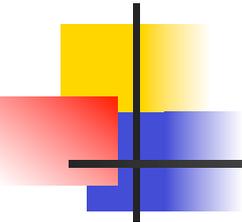
“Outline of my talk”: conveys near zero information at the start of your talk

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



Related work/current approaches

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

Technical detail

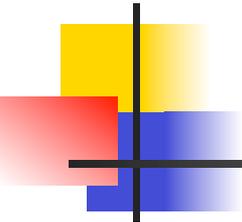
$$\begin{array}{c}
 \frac{}{\Gamma \vdash k : \tau_k} \qquad \frac{\Gamma \cup \{x : \tau\} \vdash e : \tau'}{\Gamma \vdash \lambda x. e : \tau \rightarrow \tau'} \qquad \frac{\Gamma \vdash e_1 : \text{ST } \tau^\circ \tau \quad \Gamma \vdash e_2 : \tau \rightarrow \text{ST } \tau^\circ \tau'}{\Gamma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

Figure 1. Typing Rules

Omit technical details

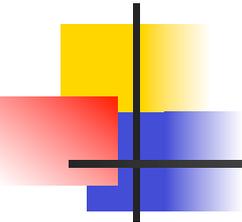
- Even though every line is **drenched** in your **blood** and **sweat**, dense clouds of notation will send your audience to sleep
- Present specific aspects only; refer to the paper for the details
- By all means have backup slides to use in response to questions





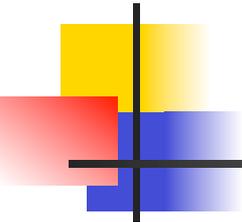
Do not apologise

- “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



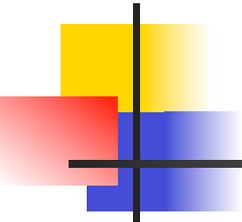


Check your slides the night before

(...or at least, polish it then)

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
- Run through your talk at least once in advance so that you know how long it takes
- Plan your slides with some visual content. Pictures should be worth a thousand words
- Remember that the audience can read. Rather than reciting the result, talk about how you get them.

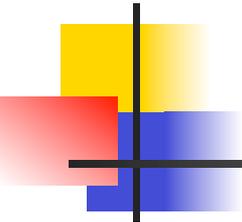


How to present your talk

By far the most important thing is to

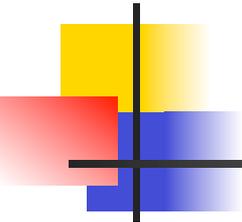
be enthusiastic





Enthusiasm

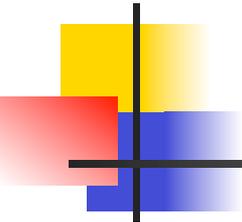
- If you do not seem excited by your idea, why should the audience be?
- It wakes 'em up
- Enthusiasm makes people dramatically more receptive
- It gets you loosened up, breathing, moving around



The jelly effect

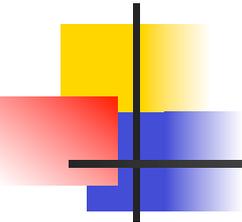
If you are anything like me, you will experience apparently-severe pre-talk symptoms

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



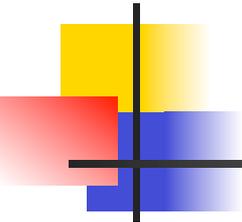
What to do about it

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



Being seen, being heard

- Point at the screen for important ideas.
- 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

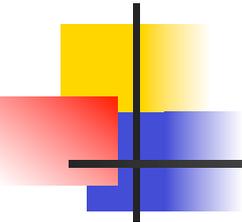
- Questions are not a problem
- Questions are a **golden golden golden** opportunity to connect with your audience
- Specifically encourage questions during your talk: pause briefly now and then, ask for questions
- Be prepared to truncate your talk if you run out of time. Better to connect, and not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

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

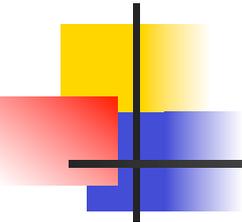
very

very

very

very

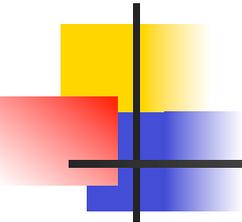
sparingly



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.