

How to Give a Good Research Talk

Etienne Renault

4 octobre 2018

<https://www.lrde.epita.fr/~renault/teaching/biblio/>

Purpose

Research is Communication

- How often you think : *I'm really glad I went to this talk !*
- Simple ideas that can make your talks much better even if we are not professionnall of communication
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Research talk give you access to the most priceless commodity :
time and **attention** of other people !

Don't waste it !

The purpose of your talk is not

- To impress the audience with your brainpower
- Tell them everything you know about the subject
- Present all the technical details

The purpose of your talk is

- To give the audience an intuitive feel of your idea (*even if they are not specialists of your domain*)
- To convince them to read your paper
- To engage, excite, provoke them
- To make them glad they came

Audience

The audience you would like

- Specialists of your domain
- Have already read all of your papers
- Hardly waiting your talk
- Are fresh, alert, ready to action

Your actual audience

- Have never heard of you
- Have just have lunch and are ready for a doze

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Your mission is to WAKE THEM UP and make them glad you did

What to put in ?

What to put into a talk ?

- ① Motivation : 20%
- ② You key idea : 80%
- ③ There is no 3.

Motivation

You have 2 minutes of attention from your audience !

They are thinking :

- Does this talk worthwhile ?
- What is the problem ?
- Why is it an interesting problem ?

Your key idea

- You must indentify a key idea
- Be specific
don't let your audience figure it out by themselves.
- Be absolutly specific
Say if you remember only one thing, remember this.
- Organise your talk around this specific goal

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

Technical Details (and bad images like this)

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

Figure 1. Typing Rules

What to leave out ?

Outline of my Talk

- Background
- The FLUGOL system
- Shortcoming of FLUGOL
- Overview of synthetic epimorphism
- π reducible decidability of the pseudo curried fragment under the Snezkowski invariant in FLUGOL
- Benchmark and result
- Related work
- Conclusion and Future Work

Related Work

- [PMW83] The seminal paper
- [SPZ88] First use of epimorphism
- [PN83] Application of epimorphisms to Wibbification
- [BXX98] Lacks of full abstraction
- [XXB99] Only runs on Sparc, no integration with GUI

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Do not present related work as an incomprehensible list. . . but :

- you must absolutely know the related work
- acknowledge authors as you go along
- praise the opposition

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

Enthusiasm !

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

Polish (or write) 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

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*

The Jelly Effect

- Inability to breathe
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- Inability to operate brain

The Jelly Effect

- Inability to breathe
 - Inability to stand up (legs give way)
 - Inability to operate brain
- Deep breathing during previous talk
 - Script your first few sentences precisely
 - Move around a lot, use large gestures, wave your arms, stand on chairs
 - Go to the loo first

Being seen

- Face the audience, not the screen
- Know your material
- Put your laptop in front of you, screen towards you
- Don't point much, but when you do, point at the screen, not at your laptop

Being heard

- 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
- Test that your laptop works with the projector, in advance
- Laptops break : leave a backup copy on the web ; bring a backup copy on a disk or USB key
- Don't use useless animation effects

Finishing

- 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?"

Absolutely without fail, finish on time