Tips and Tricks on preparing and presenting a technical talk.

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-Dr. Voytas

Physics Department, Wittenberg University

Know your format and your audience

- Many kinds of talks (handout)
- Many kinds of audiences
- For this class, your audience is people like yourself: Jr/Sr Physics majors: know some physics and math, but are not experts.
  - In particular, your audience is you before you knew anything about what you are presenting on.
  - So be sure not to assume the audience knows things you didn't when you started this all

You are telling a story

- In general, your talk should have an arc to it.
- In general, there's more than one thread you could follow through a given set of material.
- Example:
  - Introduction
  - Background
  - Body
  - Conclusions/Summary
- It should flow smoothly from one section to the next
- It is usually helpful to lay out your arc ahead of time and not just plunge in writing slides

Table of Contents (or not)

- Many short talks don't require a TOC
- If your TOC were going to be
  - Intro
  - Background
  - Data
  - Results
  - Conclusions

  You could probably omit it. Not a big deal, it helps some speakers get going.

  If there are things you want to warn your audience about (e.g. that there are going to be 2 major fairly independent aspects to your talk, or some other interesting/nonstandard aspect) you might warn them via a TOC

What to put on slides: Figures

- Super. Wonderful.
- Make them big enough to see, or skip them
- Make them legible (including axes labels and values!) or skip them
- Label them or skip them
- A bad figure is worse than no figure
- Make sure the resolution makes them clear (more later)
- Whenever possible, practice in actual presentation space and view the slides from as far away as anyone could be. Also, remember that person has eyes 20 years older than yours.

What to put on slides: Info (1)

- Titles on slides can be useful.
- Be sure they add something (context, signposts, etc.)
- If it just says “Data”, that’s not as helpful as qualifying it: “Calibration Data”; “Data from flowmeter calibration run”, etc.
- If you find yourself wanting to give 6 slides in a row the same title, that may be a hint that you want to refine the titles (or at least number them)
- Overall slide numbers can be useful too
- Don’t cram slide so full that it’s hard to see things

What to put on slides: Info (2)

- PPT really wants you to use bullet points.
- Not necessarily bad, but not everything works well with that so don't feel locked in.
- Rarely use full sentences.
- Almost never paragraphs.
- Put on slide words and data that are key or unique to your topic:
  - *People are distractable, if you only say in words the number or name or unfamiliar term that makes your entire talk understandable and impressive then if I space out when you say it I'm lost. At least if you put it up there on the slide as well, I can have it when my attention returns.*
  - *Don't be afraid to have that number/word/term repeated on later slides as a reminder, if it is done in a natural way.*

What to put on slides: References, Acknowledgements

- Material directly copied from other sources must be referenced.
- For most things (figures/graphs) it is best to have the reference right there (e.g. journal citation or URL accompanies the figure).
- Alternatively/additionally those and other references may be summarized in an end slide.
- Acknowledgements are fine, though most professional presentations only acknowledge material support, not the friend who listened to your practice talk 29 times.

What to put on slides: Style and Color

- Should you use color? If it helps achieve some goal (including visual interest), sure.
- If it helps organize things (Titles in one color, body in another, etc/) that's good too.
  - Be aware though that roughly 8% of men and 0.5% of women have some sort of color blindness, so relying on color only to convey info is not the best plan
  - Also, color appearance and visibility can vary a lot with color and projector.
- Use consistent style (Fonts, font sizes, etc.)
- The subtitle of this whole talk is really: Help your audience

What to put on slides: Transition tricks

- Can be helpful to have the last thing on a slide be something that will help you remember what the next slide is. Can be as explicit as
  - Next: Data…
  - But something more subtle is probably better
- You don’t want to flip to a new slide and have the expression on your face be “I have never seen that slide before in my life; What in creation will I say about it?”
- You also don’t want to read out loud the title to orient yourself (tends to leave the same impression as previous item).

Technical Stuff: Figure resolution

- Beware screen capture: When you screen capture, what you get has only as much data as required to draw that many screen pixels in that color.
- Whenever possible, copy the image directly to clipboard (right click, save image as).
- If you must screen capture (e.g. from a PDF), magnifiy as much as possible **before** capture to get the most pixels: Demo

Technical Stuff: Equations

- Use equation editor. Always.
- Powerpoint: Insert | Object | MS Equation 3.0
- Compare:

  y=e^-(a*x*y)^2; where a=1x10^-5

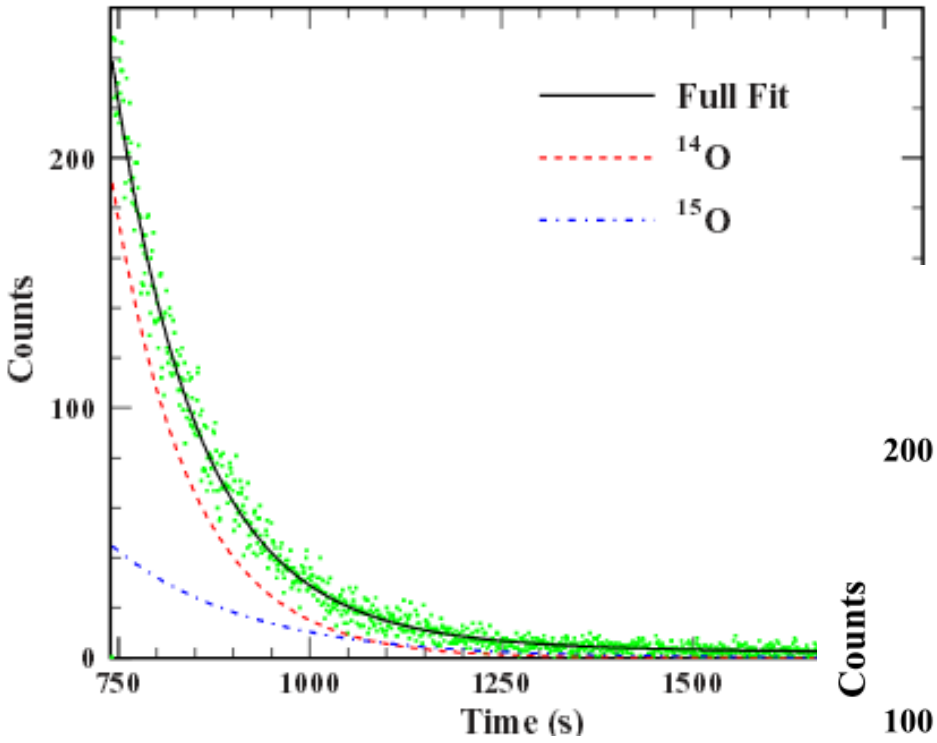
  $y = e^{-(axy)^2}$; where $a = 1 \times 10^{-5}$

  In general use built up equations:

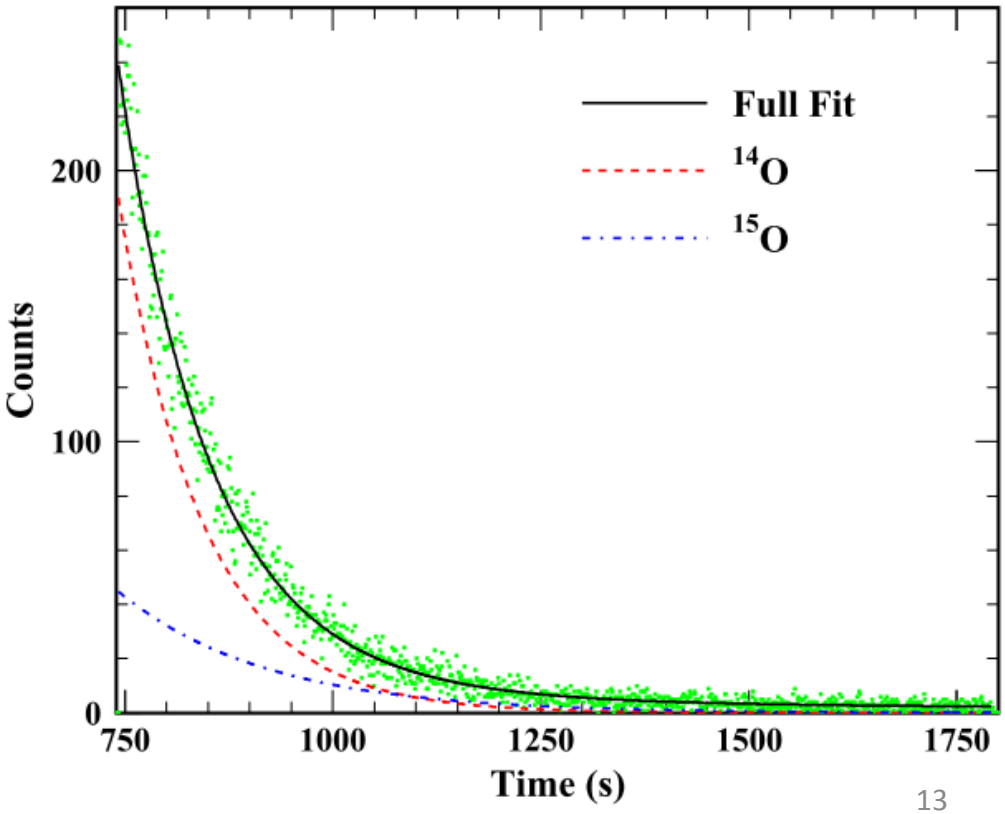
  $y = \frac{x}{az}$ not: y=x/az or y=x/(a*z) or y=x/a*z etc

  In part this removes ambiguity: is x/az this: (x/a)*z or this: x/(a*z)?

Figure resolution: Capture from PDF



- Left: at reading magnification
- Below: as large as possible first



What not to put on slides

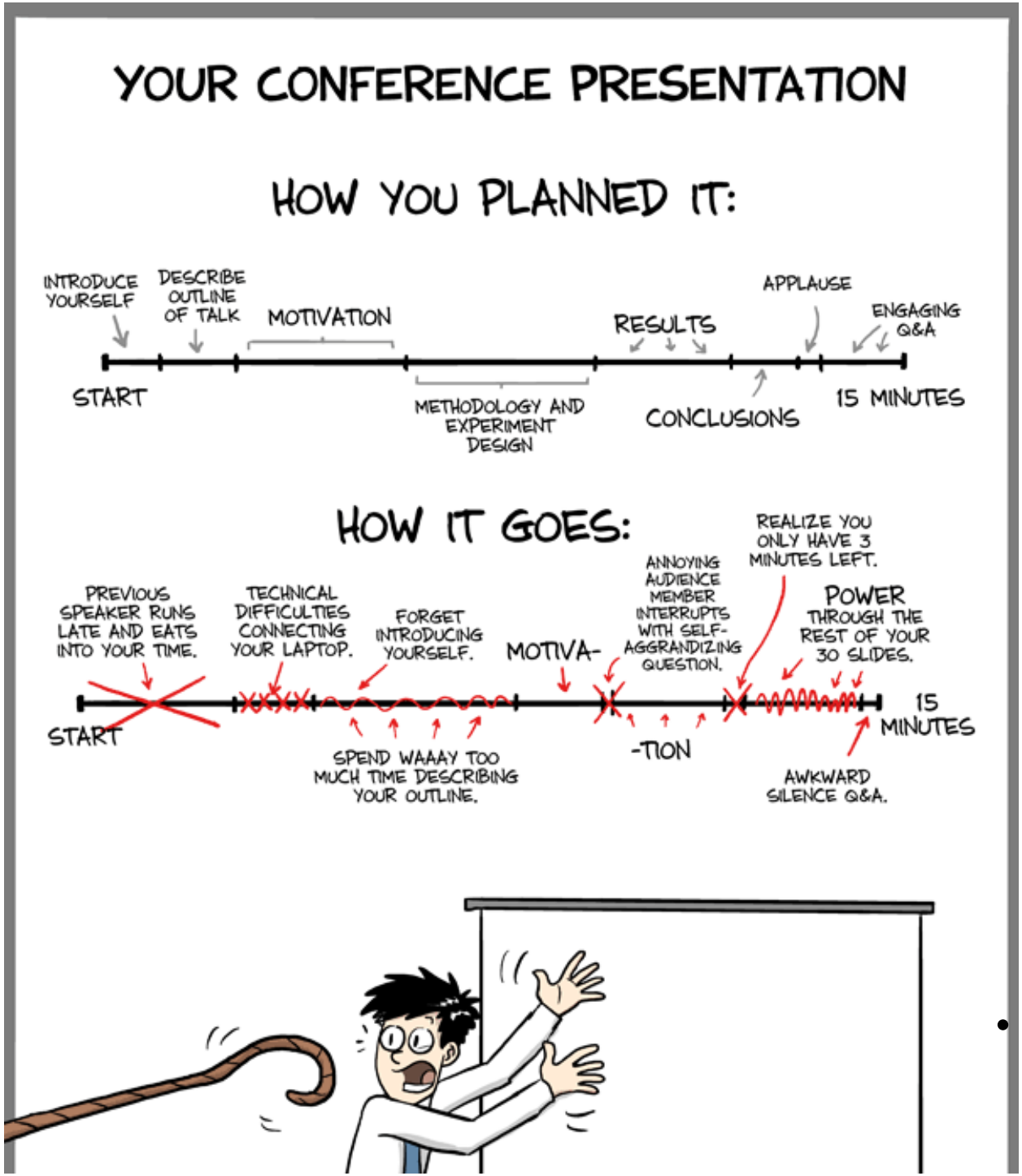
- Distracting backgrounds or backgrounds that make anything on the slide hard to read.
- Needless effects: Usually, any supercool effects in PPT are a mistake. If it doesn't add to what you want your audience to get, leave it out.
- Questions you can't answer (especially those you don't want someone to ask).

Giving the talk: Keep the focus on the topic, not anything you are doing

- Usually someone will introduce you, in which case it is not *necessary* to introduce yourself.
- Generally dress to not distract
- "Business Casual" is fine for our purposes
- Speak loudly and clearly and slowly. No, even moreso than that.
- Be extremely careful not speed up or to trail off at the end of a sentence.
- Keep body motion (especially hand fidgeting) such that it is not distracting. (Some say don't move around at all, but I find that boring and unnatural)
- Length: On average, figure that one slide takes about 1 minute in a presentation.
- Make good use of pointing devices
  - Don't waggle it randomly
  - Don't fidget with it excessively

Giving the talk…

- Avoid jumping around, if you need to refer to an earlier slide, put a copy near where you need it—bits are cheap!
- If you don't know the answer to an audience question it's better to say "I don't know" or "I haven't thought about that before so I'm not sure…" than to confidently say something that ends up being completely wrong.



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