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Some thoughts on giving scientific presentations.

1. **Start with good data.** A presentation is only as good as its content, and style never makes up for a lack of content. TED talks and other similar formats are essentially extreme simplification of scientific presentation in which the entire topic has been distilled into a pitch. While some of the stylistic qualities are useful be careful when using this style in scientific presentations. A research talk is a paper in power point form. In the old days people used to say they were going to scientific meeting to "give a paper". You can use what you learn about good writing to inform your presentation style. I highly recommend reading Strunk and White's Elements of style.

2. **Everything you put on the slide is information.** Think of each "slide" as a blank sheet of paper. Each slide should convey a focused point, in much the same way a paragraph should have a topic. A good strategy is to write this point as the tile and then use every single line, color, font, you choose to put on that paper to serve the purpose of explaining and or revealing that point. Ask yourself how each visual element helps with that process.

3. **Ruthlessly remove clutter.** An extension of point 2 is that you should not leave clutter on your slides or figures. What is clutter? It is anything that does not contribute to understanding the information presented. A common term is "chartjunk". Fluffy slide formats, 3D effects, color barf, logos, mismatched fonts, and wonky pictures are common offenders. Don't be sloppy or use low quality images.

4. **"Storyboard" your talks.** You can borrow from the strategy of television and film to sketch out the logical flow of information of your talk so that the story unfolds as you present. It is not unreasonable for one to think of scientific talks as having a "protagonist". For instance, you might think as your favorite critter as the protagonist and your talk unfolding as a story about its unique biology that you are using to discover a drug or understand climate change. If you use storyboarding a simple way to build up towards longer and longer and longer talks is to organize your information such that you have three main points in your "story" each of which can be expanded into longer and longer elements. A 45 minute talk can be built of three 15 minute talks each of which is built of three 5 minute talks.

5. **Builds can be used to reveal information and increase complexity of slides**. The term slide is a misnomer, and many people (myself included) do not use the technology to its full potential. If a slide is going to show multiple ideas, and relationships among ideas are the main point, then builds can be an effective way to reveal information and relationships that would be overwhelming.

6. **The point of figures is to reveal information.** I am usually underwhelmed by exceedingly complex graphics and figures. The point of figures/graphics is to reveal information not obscure it. If the point could be better made by using a table, by all means, do it.

7. **Good talks take a lot of time to prepare.** Some of the best academic speakers I know spend close to an hour per minute of time presented at a high level plenary talk. You

should not try to this for lab meeting or journal club, but if you're giving a "job talk" don't underestimate the time it takes. I don't suggest doing it all at once!

8. **Practice, practice, practice and don't be afraid to screw up.** As student or postdoc, don't pass up any chance to practice giving talk a (scientific) talk. Lab meetings, journal clubs, regional meetings, visits to collaborating labs are all good ways to get the practice you need to improve your skills. The best speakers have been working on it for years. And don't be afraid to screw up. Yours truly has given some real duds over the years. Don't take it too hard, just chalk these up to being valuable learning opportunities.

9. **Have empathy for your audience.** Try to be considerate about what it feels like to sit through a boring, hour-long, death by powerpoint. Engage with your audience. Perhaps think of something that may be going through their minds as you show a specific piece of data and use it to engage. Use humor (if it comes naturally to you). Don't treat your audience as though they are simply passive vessels waiting to be filled with your knowledge. It is important to move through information at a reasonable pace. Do some homework on your audience and make sure to know what aspects of your talk will be self-evident or not.

10. **Don't make reading compete with listening.** It is very hard (at least for me) to read and listen at the same time. Don't make the writing on the slide compete with words you are saying.

11. **Imitate.** Over the years, I have been fortunate enough to attend some wonderful seminars by professors, colleagues and students. When I was first starting out I borrowed heavily from their strategies. Your own style will emerge with time and at first is way less important than making sure people understand your science.

12. **Do what is natural for you.** A lot of harm can be done by trying to follow overly rigid rules (like these) if they do not come naturally to you, or do not fit with the type of data/ talk. When I was a student I recall being told that every slide should be one minute, and many students spent the same amount of time (one minute) on their title slide as their most important conclusion. Which is dumb. Feel free to experiment.

13. **Develop a digital workflow for high quality graphics.** Decide early in your career on some "best practices" for dealing with digital graphics and figures. This will save a lot of headaches ensuring that you always have crisp high quality images.

14. **Please read.** *The Elements of Style.* W. Strunk and E. White. Pearson, 1999 and *The Cognitive Style of Powerpoint.* Edward Tufte. Graphics press, 2006.