How (Not?) to Give a Talk

Directed Reading Program at Texas A&M University

Outline

What is a Good Talk?

A *good* talk should...

1. Be **comprehensible**
2. Be **engaging**
3. Be **informative**
4. Contain **interesting mathematics**

The most common error for speakers: Focus too much on (4) that (1) is not considered.

A non-example

"Let X be a variety...an reduced separated scheme of finite type over an algebraically closed field"

Preparation

Ideally, **you should start thinking about your presentation weeks in advance**.

1. Who is your audience?
2. What is your goal?
3. How can you make the audience understand your goal **in the allotted time**?
4. What type of clothing should I wear?
5. Assess the location of the talk
   - Will there be a board?
   - Do I need to bring my own computer?
   - Have your slides on email and USB
   - Check for quality on projector (text size, stretched out graphics, some colors do not show well)
6. Practice your talk **at least 2 times**! With your DRP mentor, with peers, etc.

When Giving a Talk

You should **always**...

1. Start by thanking someone (ex. audience, organizers)
2. Put your title up
3. Put your plan up and divide your talk into sections
4. Begin with an introduction. **It must be understandable by everyone!** Otherwise, why is your audience there? Why is your talk interesting?
5. Show **examples**! Before or immediately after a definition/theorem!
   - Generic examples: "Most gadgets in nature are like this,"
   - Featured examples: "but we will be most interested in..."
   - Counter-examples: "however, the world is a scary place..."

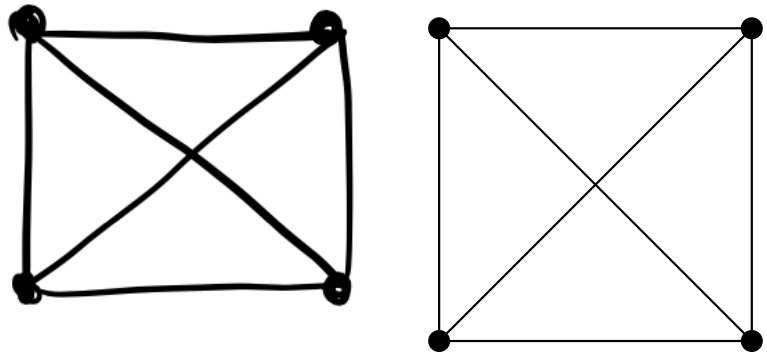
When Giving a Talk

You should **never**...

1. Run overtime
2. Use hand-drawn pictures (ok, unles they're *pretty good*)
3. Use a wall of text
4. Leave your main point at the end

Example

Hand-drawn pictures typically look unprofessional:



Instead, some people use Tikz, Desmos, Geogebra, and Surfer.

The Fibonacci Sequence is the sequence of numbers 1,1,2,3,5,8,13,... They can be defined recursively as the sequence F_n where $F_1 = 1, F_2 = 1$, and $F_n = F_{n-1} + F_{n-2}$ for $n \geq 3$. The Fibonacci numbers are named after Italian mathematician Leonardo of Pisa, known as Fibonacci. They appear in many scientific areas such as Pascal's triangle, pseudo-random number generators, and economics.
Our goal: Find a closed form solution for F_n.

Example

The **Fibonacci Sequence** F_n is a recursive sequence where $F_1 = 1, F_2 = 1$, and $F_n = F_{n-1} + F_{n-2}$ for $n \geq 3$.

The first seven terms of F_n are $1, 1, 2, 3, 5, 8, 13$.

Historical notes

- Named after Italian mathematician Leonardo of Pisa (aka Fibonacci)
- Found in many scientific areas: Pascal's triangle, pseudo-random number generators, and economics.

Goal: Find a closed form for F_n.

Common Mistakes and How to Avoid Them

Mistake #1: Not making your goal/result stand out.

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Solution:

- State the goal early in the talk
- Explain why it's non-trivial and important. Show us **examples**!
- Make the result stand out visually

Result

This is our **big result**.

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Solution:

- Step away from the computer/remote while speaking
- Use pauses in your slides; command is \pause in LaTeX
- Print out the slides of your talk and write notes on what you want to say to the audience. *Especially helpful in proofs*
- Imagine your talk as a conversation
- Breathe through your diaphragm

Common Mistakes and How to Avoid Them

Mistake # 3: Speaking too quietly or too quickly. Common cause: being nervous

Note: Mathfest/JMM Conference rooms often have poor acoustics

Solution:

- Look at the audience to help project your voice
- Keep your hands/hair away from your face

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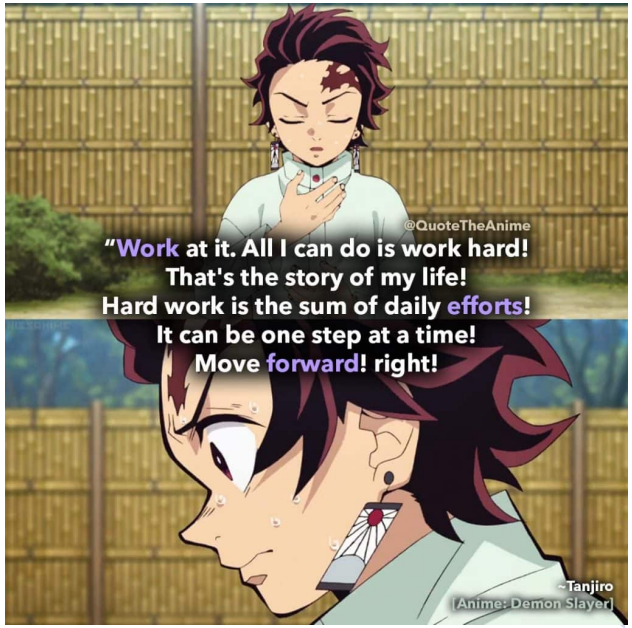

Ending a Talk

- Future directions?
- References
- Acknowledgements
- If there is a moderator in the room, DO NOT ask for questions
- The Q&A Session

References

1. Cheng, Eugenia. "Category Theory Virtual PostGraduate Seminar Guidelines 2021." You may read it through this link.
2. Phillipson, Kaitlyn. "How (Not?) to Give a Talk."
3. MIT Talbot. "Giving a Talbot Talk."