

# How to prepare a talk

with particular focus on Part III Seminars

Julia Goedecke

Graduate Education Officer, DPMMS

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# Introduction

## Main Points

- Transfer of Understanding.
- Considered choice of media.
- Practise.



# What to put in a talk

Questions to ask yourself to decide this:

- Why am I giving this talk?
- Who am I giving it to?
- What do I want them to take away from the talk?
- How long do I have?

# Why am I giving this talk?

Possible answers (not all “good” answers...)

- I want to tell people about some bit of mathematics I’m excited about.
- I want to help people understand a bit of maths that was hard for me but I now understand.
- I want to show off how clever and advanced I am.
- I have been asked to give a talk on a certain topic.
- I want to practice giving a talk.
- ...

# Why am I giving this talk?

Main reason for giving a talk

Transfer of understanding.

# Who am I giving it to?

- My peers (people who have similar knowledge/have attended similar lectures as I have)
- Students of lower years (what do they know already?)
- General audience (do they know any maths?)
- General mathematical audience (but different subject areas)
- Specialists in the given area
- People who invented/have worked many years on the topic of the talk

# What can I assume?

This depends on your audience.

## Rule of Thumb for maths

Assume zero knowledge and infinite intelligence.

Obviously this needs adjusting depending on the situation, e.g. for Part III talks:

- Consider lecture courses for your area.
- Your peers, as you, are excited about maths, but have a long term behind them.

# What do I want them to take away from the talk?

- That I'm cleverer than they are. (Really?)
- An overview over a particular area/topic.
- Understanding of a specific result.
- Understanding of a specific application of a result.
- A good intuition about a particular result.
- ...

# What do I want them to take away from the talk?

Choose one focus

**One** sentence, or **one** specific result, **one** example...

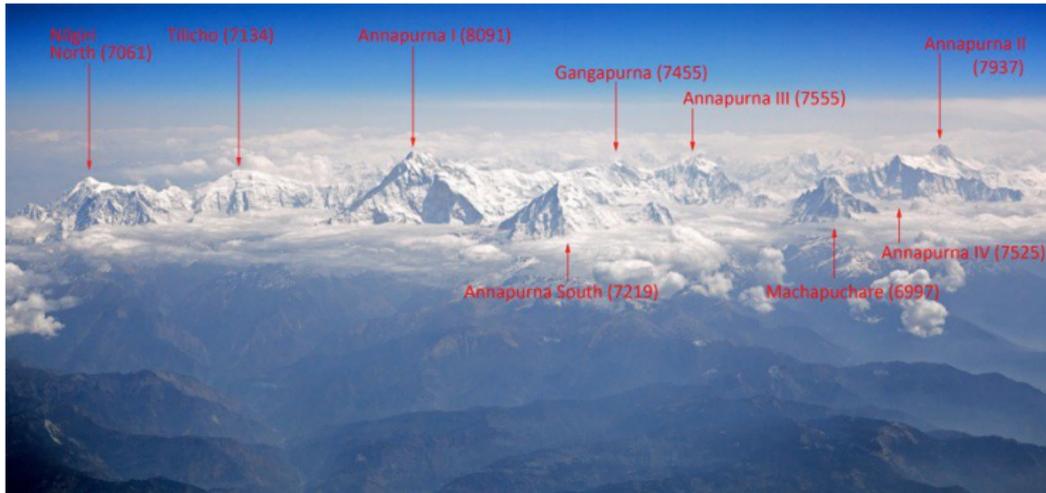
# How to get started

- Don't start writing notes immediately!
- Blackboard in empty room can be useful to try out ideas.
- Be prepared to throw attempts away!

# Focus to Outline

- Take your focus.
- Write down the words you need to explain, with connections.
- Keep audience in mind: what has to be defined and what can be assumed?
- Keep time in mind.
- Make an outline out of the words you need to explain.

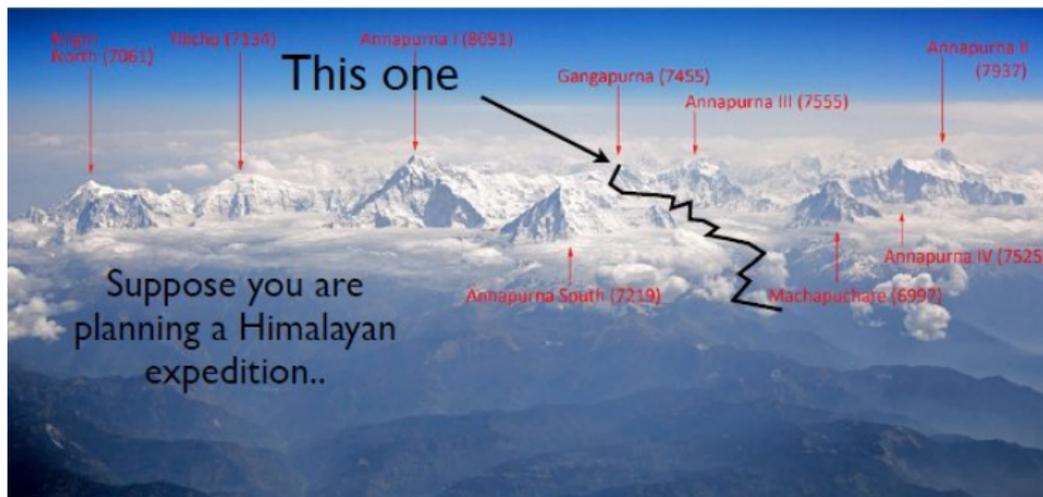
# Mountain analogy



# Mountain analogy

- You decide to go walking in the Himalayas. (Topic)
- Decide on the peak you want to climb. (Focus)
- Where will I put my caravan/book a hotel room/have my base camp? (Starting point)
- What route do I have to take to get to the peak? (Outline)

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- What route do I have to take to get to the peak? (Outline)
- I can't go over snow. Oh, it might be dark by then, we'd better get down soon. (Constraints: audience and time)
- **If there happens to be time:** While here, let's pop up that small ridge to see the view. (Small detours. Not too many!)

# Structure

- Introduction
  - Put main message into the first 5 minutes (in the intro).
  - Give a little overview over what you will cover.
- Main part
  - Follow outline.
  - Keep it simple.
- Summary
  - Restate focus.
  - What are possible further directions?



# Choosing your medium

Different media are appropriate for different situations.

- Want people to follow proofs? Use blackboard or write in talk on overheads.
- Need to show data? Use pre-prepared overheads or computer.
- Want to show animations/clips/...? Use a computer.
- A mix of media is often very useful (but not always possible).
- There are probably other considerations you can think about.

# Tables of Contents

Differing opinions.

Some people say:

- Knowing “Structure” or “List of Sections” helps audience to follow your argument.
- Audience wants to know how far into the talk you’ve got.

Other people say:

- “List of Sections” and “page k out of n” distracts audience.
- They will just think “how long to go” or “when do we get to that bit” or “when is the talk finally finished” instead of listening/concentrating.

# Common Mistakes

- Don't go too fast.
- When using slides: don't go too fast.
- When using slides: don't go to next slide too fast.



# Practice

Practise, practise practise!

- With the media you will use.
- For blackboards: Where will you write what? Practise with similar size blackboards.
- For slides: Make sure you don't go too fast: people will want to read **and digest** your slides.
- Practise in the time constraints: Almost all people take longer than they think.

# Common Sense

- Speak loudly and clearly (and slowly).
- Connect with audience (e.g. eye contact).
- Appear confident (but not arrogant).
- Don't fidget.
- Hands out of pockets.

# Improving

## Best way to improve

- Keep giving talks.
- Think about what went well, what didn't.
- Attend many talks.
- Think about what went well, what didn't.

# Summary

## For Part III Seminars:

- Talks should transfer understanding.
- Choose **one** focus: a result, an example, an application.
- More people put too much into a talk than too little.
- Think about appropriate media.
- Practise to time!

Go and prepare nice talks!

