Chapter G:I

I. Scientific Toolbox

- Literature Research
- Oral Presentations
- Scientific Writing
Oral Presentations

Content of a talk

- Scientific presentation is storytelling
  - Tell a coherent story with a central theme
  - Plan what points to make and how to get there
  - Make it exciting, show importance
  - Don’t be complete, be selective
    Holds for talks; different in writing
  - Avoid surprise: Clarify why you tell something

- Science needs to be understood
  - Adjust complexity to audience
  - Leave out formal things, unless really needed
    Holds for talks; probably different in writing
  - Be precise and clear
  - Introduce terms, use them consistently
  - Figures and examples help

"Sometimes reality is too complex. Stories give it a form."

Jean-Luc Godard

“Everything should be as simple as possible, but not simpler.”
Oral Presentations

Figures

- Charts, diagrams, graphs, pictures, drawings, ...
- Slides are visual
  Rule of thumb: No slide without a figure

- What to use figures for
  - Primary. Replace text, visually explain concepts
  - Secondary. Support your message with pictures
    (as often done in this presentation)

- Formatting
  - Vector graphics whenever possible
  - Others: Optimize sharpness, scale down smartly
    Don’t scale > 100%; 50% is better than 53% – why?
  - Instead of squeezing or stretching the aspect ratio
    try to cut figures on any side
  - Think of color-blind people – contrast helps
  - Check readability of included text

“A picture is worth a 1000 words.”

“Unsharpness is the mistake that even lay persons see.”

Herbert Kania
Oral Presentations
Presentation and slide structure

- Overall structure of a presentation
  - Title slide. Title, authors, maybe date
  - Outline slide. Only for longer talks of \( \geq 30 \) minutes
  - Content slides. Your story
  - Conclusion slide. Take aways, future work
    But no separate “Thank you”-slide!
  - Maybe references. But only shown when asked for

- Structure of content slides
  - Header. Clear unique title
    Remark: Titles often not read by the audience.
  - Body. Bullet points, figures, tables, etc.
  - Footer. Title, presenter, page number, maybe “progress”

- Space for separation
  - Leave space between different slide parts
  - Leave some space to slide borders
    Sometimes clipped + it is getting harder and harder to read down here . . . isn’t it? ;-)
Oral Presentations

Style of slides

- General slide style
  - Decide what to put on a slide and what to say
  - Vary slides to maintain attention
    Larger figures here, some more text there...
  - Animations only when useful; use consistently
    Avoid playful ones, unless they really match your message.
  - Clarify what is from you and what from others
    Cite others’ work as you do in writing (comes later).

- Text style
  - Avoid grammar and spelling errors
  - No full sentences, rather key phrases
  - AUA
    Avoid unnecessary acronyms

- Amount of text
  - Some say 7x7  maximum 7 bullet points per slide, 7 words per point
  - Others say 3x3  3 top-level points with 3 sub-points
Oral Presentations

Fonts

- Sans-serif fonts (Helvetica, Arial, ...) much more readable on slides
- Serif fonts (Times, Garamond, ...) maybe for example texts

- Font size – Do not mix too many on one slide
  - This text is 26pt – Maybe for titles
  - This text is 24pt
  - This text is 21pt
  - This text is 18pt – About minimum for text that should be read
  - This text is 15pt
  - This text is 12pt – Minimum for extra information that may be skipped
  - This text is 10pt
  - This text is 8pt
  - This text is 6pt – maybe for text that should not be readable ;-) 

- Font shapes and colors
  - Use italics, boldface, monospace, and colors consistently
  - And do not mix too many on a slide
Oral Presentations

Talking and timing

- Giving a talk
  - Match words on slides, but complement them
  - No pre-phrased sentences
  - Look at the audience, speak to everybody
  - Don’t be too formal, but be serious, avoid slang
    Jokes may be nice if you know how to use them.

- Timing
  - Use your time, but stick with given time limit
  - Expect 1.5–2 minutes per (animated) content slide
  - Rule of thumb: Audience can read slide twice
  - Leave time for questions and discussion at the end

- Practice your complete talk . . . and practice again
  - How much time do you need?
  - Do your story and slide transitions work?
  - Look for honest feedback