

Lecture 12

Slides and Posters

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Slides

Why Give Talks?

Some people process information better when **listening** or **watching** than when reading.

Moreover, talks are sometimes **unavoidable**:

- ▶ In academia: conference talks, lectures, etc.
- ▶ In industry: yearly reports, project pitches, etc.
- ▶ In both: interviews.

Here we focus on how to design slides for a **scientific presentation** (e.g., seminar talk, thesis defense, workshop or conference talk).

Purposes of your talk:

- ▶ **Advertise** your paper or thesis.
- ▶ **Teach** something interesting.

Some advice:

- ▶ Focus on **one** or **two key ideas**, ruthlessly pruning everything else. In particular, you can usually omit related work and references.
- ▶ Consider your **audience**. Beware of the curse of knowledge.
- ▶ Go into detail as **time permits**.

Many talks have **too many slides**.

As a rule, assume that you will need 1.5 to 2 minutes per slide.

For a 20-minute talk (excluding questions), 15 slides are probably enough.

Use your **slide budget** judiciously.

Keep the introduction and background to a minimum.

Mention the **key ideas** early and often, and summarize them at the end.

You can prepare **extra slides** and put them in an appendix.

These can be useful to answer questions.

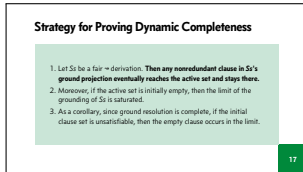
Two Schools of Slide Design

Minimalist



- ▶ The goal is to underscore key points while letting the audience focus on what you are saying.
- ▶ This style is impactful if done right.
- ▶ This style is appropriate for less technical material.

Maximalist



- ▶ The slides alone are sufficient to get the gist of the talk.
- ▶ The slides can serve as a self-contained handout.
- ▶ This style is appropriate for more technical material.

Beware of Clutter

Slides are a **visual aid**, not a paper. These are far too cluttered:

The slide contains a dense collection of mathematical rules and notations, including:

- $\Delta, \Gamma \vdash r_1 \leq r_2 \Rightarrow \Gamma^*$
- S-REFL**: $\Delta, \Gamma \vdash r_1 \leq r_1 \Rightarrow \Gamma^*$
- S-TRANS**: $\Delta, \Gamma \vdash r_1 \leq r_2 \Rightarrow \Gamma^*$, $\Delta, \Gamma^* \vdash r_2 \leq r_3 \Rightarrow \Gamma^{**}$ $\Rightarrow \Delta, \Gamma \vdash r_1 \leq r_3 \Rightarrow \Gamma^{**}$
- S-ARRAY**: $\Delta, \Gamma \vdash r_1 \leq r_2 \Rightarrow \Gamma^*$ $\Rightarrow \Delta, \Gamma \vdash [r_1; n] \leq [r_2; n] \Rightarrow \Gamma^*$
- S-SUCCE**: $\Delta, \Gamma \vdash r_1 \leq r_2 \Rightarrow \Gamma^*$ $\Rightarrow \Delta, \Gamma \vdash [r_1] \leq [r_2] \Rightarrow \Gamma^*$
- S-TUPLE**: $\forall i \in \{1, \dots, n\}, \Delta, \Gamma_{i-1} \vdash r_1 \leq r_2^i \Rightarrow \Gamma_i$ $\Rightarrow \Delta, \Gamma \vdash (r_1, \dots, r_n) \leq (r_2^1, \dots, r_2^n) \Rightarrow \Gamma_n$
- S-UNINIT**: $\Delta, \Gamma \vdash r_1^i \leq r_2^i \Rightarrow \Gamma^*$ $\Rightarrow \Delta, \Gamma \vdash r_1^i \leq r_2^i \Rightarrow \Gamma^*$
- S-SHAREDREF**: $\Delta, \Gamma \vdash p_1 \Rightarrow p_2 \Rightarrow \Gamma^*$ $\Rightarrow \Delta, \Gamma \vdash r_1 \leq r_2 \Rightarrow \Gamma^{**}$ $\Rightarrow \Delta, \Gamma \vdash \&p_1 \text{ shrd } r_1 \leq \&p_2 \text{ shrd } r_2 \Rightarrow \Gamma^{**}$
- S-UNIQUEREF**: $\Delta, \Gamma \vdash p_1 \Rightarrow p_2 \Rightarrow \Gamma^*$ $\Rightarrow \Delta, \Gamma^* \vdash r_1 \leq r_2 \Rightarrow \Gamma^{**}$ $\Rightarrow \Delta, \Gamma \vdash r_1 \leq r_2 \Rightarrow \Gamma^{**}$ $\Rightarrow \Delta, \Gamma \vdash \&p_1 \text{ unia } r_1 \leq \&p_2 \text{ unia } r_2 \Rightarrow \Gamma^{**}$
- OL-REFL**: $\Delta, \Gamma \vdash p \Rightarrow p \Rightarrow \Gamma^*$
- OL-ABSTRACTPROVANCES**: $g_1, \text{PROV} \in \Delta$, $g_2, \text{PROV} \in \Delta$, $g_1 \supset g_2 \in \Delta$ $\Rightarrow \Delta, \Gamma \vdash g_1 \supset g_2 \Rightarrow \Gamma^*$
- OL-TRANS**: $\Delta, \Gamma \vdash g_1 \supset g_2 \Rightarrow \Gamma^*$ $\Rightarrow \Delta, \Gamma \vdash g_2 \supset g_3 \Rightarrow \Gamma^{**}$ $\Rightarrow \Delta, \Gamma \vdash g_1 \supset g_3 \Rightarrow \Gamma^{**}$
- OL-LOCALPROVANCES**: $\forall e, \Delta r_1 \in r \in \Gamma, \Delta r_2^{1, \dots, n} \in \Gamma(r^*)$ $\Rightarrow r_1 \text{ occurs before } r_2 \text{ in } \Gamma$ $\Rightarrow \Delta, \Gamma \vdash r_1 \supset r_2 \Rightarrow \Gamma(r_2) \cup \Gamma(r_1) \cup \Gamma$
- OL-LOCALPROVANCEPROV**: $\Gamma, g(r) = \{ \frac{r}{r} \} \neq \emptyset$, $\forall e, g \neq \emptyset$, $\forall i \in \{1, \dots, n\}, \Delta, \Gamma \vdash \text{prov } p_i \Rightarrow \text{PROV}$ $\Rightarrow g, \text{PROV} \in \Delta$, $\forall i \in \{1, \dots, n\}, \forall j \in \{1, \dots, m_j\}, \Delta, \Gamma_{i,j-1} \vdash p_{i,j} \supset q \Rightarrow \Gamma_{i,j}$ $\Rightarrow \Delta, \Gamma_{i,n} \vdash r \supset q \Rightarrow \Gamma_{i,n,m_j}$

How to make a Good First Impression

Making a first good impression can be vital when looking for a new job. Whether we like it or not, people do judge a book by their cover. The first few seconds with someone can be critical to your career.

- Be on time. The person you are just meeting is probably not interested in your excuses, even if it is the first time you are late in your whole life. All they are going to know is that you are not keeping up with a previous agreement. The image you are leaving behind is of someone that is not reliable. Make an extra effort and make sure to arrive on time. Too early is always better than too late.
- Be prepared. Before going to your interview you should have done your research about the company, the position you're applying for, and so on. Think about what kind of questions you could be asked, and how you would answer them. In one word, practice!
- Take care of your clothes and your overall grooming. It has been said that 55% can be determined by the person's appearance. So be careful when choosing how to present yourself in an interview. Dress to impress, maintaining in mind the job you are applying to, and when in doubt, choose the most conservative choice.
- Take into consideration non-verbal communication. You might be feeling nervous, but studies have shown that people who present themselves in a more friendly, confident manner usually have better results. Something as simple as a smile can make a difference.

Slides should **summarize** or **supplement** your message.
They are not for reading out word for word.

Animations

Animations help the audience **follow** you through the slides.

You can reveal elements **one by one**.

But make sure that you always know what is coming.

Highlighting can help draw the audience's attention.

Examples

Work with **examples**. Compare:

A DFA is a tuple $(Q, \Sigma, \delta, q_0, E)$...

Consider the DFA



Keep slide examples as **simple** as possible.

Images, graphs, and tiny code excerpts are doubly useful:

- ▶ They are efficient ways to **convey information**.
- ▶ They relieve from the **monotony** of textual slides.

Make sure to **explain** them in detail.

Much **writing advice** also applies to slides:

- ▶ Omit needless words.
- ▶ Use short sentences.
- ▶ Prefer the active voice over the passive.
- ▶ Prefer verbs over zombie nouns.
- ▶ Use abbreviations sparingly.

Moreover, use **consistent punctuation**, especially periods.

Formatting

Some **formatting** advice:

- ▶ Be consistent.
- ▶ Use emphasis sparingly.
- ▶ Use a pleasing color scheme.
- ▶ Use large enough fonts.
- ▶ Leave space between elements.

Live Demonstrations

Live demonstrations, including live coding and writing on the white- or blackboard, can be part of a successful talk.

You need to be **very well prepared** and have good nerves.

Presenter Notes or Scripts

You can prepare presenter notes if necessary. This may increase your confidence. They are also helpful if you have difficulties expressing yourself in English.

However, if you stick too rigidly to the notes, your presentation might become **stilted** and **unnatural**.

Most presentation software allows you to **see the notes** while you present the slides. You can also print the notes.

Some presentation software:

- ▶ **Microsoft PowerPoint** and **Apple Keynote** offer a “what you see is what you get” interface.
- ▶ **Google Slides** is a basic alternative that supports collaborative slide writing.
- ▶ **L^AT_EX**’s `beamer` class is ideal for highly mathematical content. It is very flexible but difficult to master. Customization is necessary to make your slides look attractive.

Examples of Slide Decks

Let us look at a minimalist slide deck for a PhD defense and a maximalist a slide deck for a scientific conference talk (first draft and final version):

- ▶ Roy Overbeek, “**A Unifying Theory for Graph Transformation,**” 2024.
- ▶ Lydia Kondylidou, “**Augmenting Model-Based Instantiation with Fast Enumeration: Extending SMT Solving,**” 2025 (first draft).
- ▶ Lydia Kondylidou, “**Augmenting Model-Based Instantiation with Fast Enumeration in SMT,**” 2025 (final version).

Posters

Poster Presentations

Poster presentations are a way to present your research, beyond conference and workshop talks.

During a poster session, researchers present their work **in parallel** to individual visitors who walk around from one poster to the next.

Purposes of your poster:

- ▶ **Advertise** your paper or thesis.
- ▶ **Teach** something interesting.

Some advice:

- ▶ Focus on **one** or **two key ideas**, ruthlessly pruning everything else. In particular, you can usually omit related work.
- ▶ Consider your **audience**. Beware of the curse of knowledge.
- ▶ Go into detail as **space permits**.

Posters often consist of a number of sections or text boxes, each of which is **similar to a slide**.

Much of the advice on slide writing also applies here, but you generally have even less space for content (1 poster $\approx$ 9 slides).

Appealing visuals are crucial to attract attention.

Two Schools of Poster Design

Minimalist

- ▶ The goal is to underscore key points while letting the visitor focus on what you are saying.
- ▶ This style is appropriate for less technical material.

Maximalist

- ▶ The poster makes sense on its own, so it can be viewed without explicit explanation.
- ▶ This style is appropriate for more technical material, or if you will not stand next to the poster.

Some poster software:

- ▶ **Microsoft PowerPoint** and **Apple Keynote** can be tweaked to produce a poster as one large slide. There is then no need to learn a new tool.
- ▶ **Adobe Illustrator** supports sophisticated graphic design and image processing.
- ▶ **L^AT_EX** is ideal for highly mathematical content. It is very flexible but difficult to master. Customization is necessary to make your poster look attractive.

Examples of Posters

Let us look at two posters:

- ▶ Maximilian Schöffeler, “**Verified Solution Methods for Markov Decision Processes**,” 2024.
- ▶ Sara Taheri, “**ML Certification Against Data Poisoning by Barrier Function**,” 2025.