Presentation Skills

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Department of Computer Science, 10 May 2012

with thanks to Tom Melham, whose original slides inspired these

Contents

Strategies and tips for how to **design**, **prepare** and **give** a good talk.

We are thinking about many different types of talk here:

- Academic talks.
- ‘Cakes’ talks.
- Industrial talks.
- The undergraduate group project talk.

Why does this matter?

... to academics:

- **Conference talks & invited seminars are crucially important to your scientific reputation.**
- You can win collaborators and influence.
- Most academic jobs involve a talk as part of the selection process.
- Science only has value if communicated.

... to others:

- Your job security and promotion will depend on your communication skills.
- You can win resources and influence.
- You will need to communicate technical information to get your job done.

Creating a talk

There are seven steps to creating a successful talk.

1. Have something to say!
2. Identify your audience.
3. Determine the main message.
   What is the one thing you most want them to remember?
4. Decide on the broad structure.
   Find a story to tell.
5. Prepare visual aids.
6. Practice.
   Make sure that you will not go over time.
7. Check the venue.

Have something to say

The first rule of style is to have something to say.

The second rule of style is to control yourself when, by chance, you have two things to say; say the first one, then the other, not both at the same time.

George Pólya

Audience & main message

Whom are you talking to?

- Fellow academics?
- Academic colleagues in a different field?
- ‘The man in the street’?
- A prospective partner or employer?

How much **technical knowledge** can you assume?

What examples will they be familiar with?

What will capture their interest?

Why are you talking to them?

What is **the one thing** you most want them to remember?

Structure: beginning

Title

A good title is informative (not too general) and supplies some context.

Not always a good idea to state the main result in the title.

Use humour with great caution.

Opening the talk

Prepare a first sentence.

The rule is: **start general**.

Establish the context and importance of your message.

'Contents' or 'outline' slide

Not obligatory.

Need not be at the beginning.

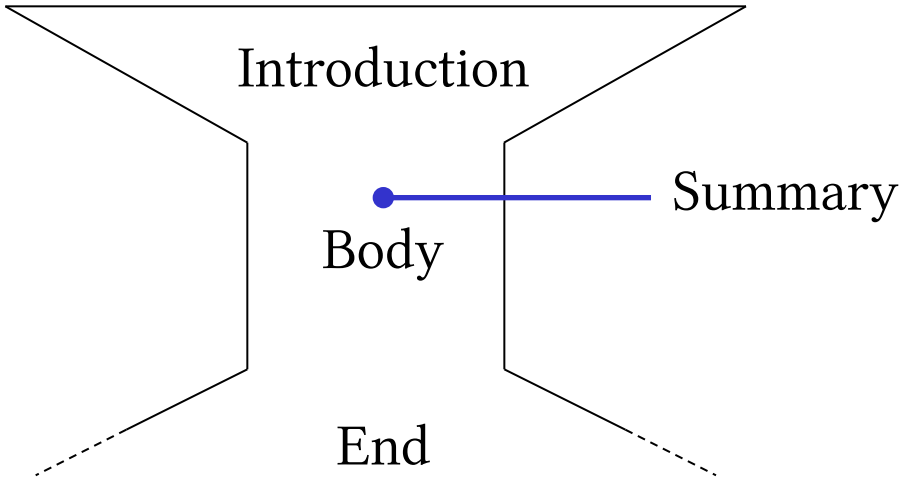
Structure: shape

Shape of talk

Start general

Focus for the contents

End by opening out again



Tell a story

- How did you come to this research?
- View your slides as a ‘storyboard’.
- Think about transitions.

Structure: examples

Examples are a wonderful tool

- Motivating examples.
- Illustrating examples.

Always consider using an example in lieu of a definition.

Keep your examples ***as simple as possible***.

Structure: conclusion

At the end of the talk

The title of the final slide need not be ‘conclusion’.

Repeat the main message, concisely.

Prepare a crisp final sentence.

Remember the Golden Rule

Never, ever, over-run your time.

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Visual aids

You don’t HAVE to use slides, but most people expect them.

Use whatever technology gets the job done:

- PowerPoint / TexPoint.
- LaTeX / Beamer.
- Flip charts & pen.
- Overheads made from clear plastic & permanent marker.

Ground rules for good slides

Minimality is best

- Everything on the slide should be clean, simple, and **necessary**.
- Use an uncluttered background.
- Use colour sparingly, to convey content.

Bad slides

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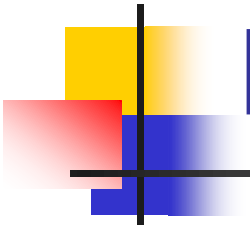

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Sorted version of the objective vector

Initial idea

Maximize the objective vector under using the leximin preorder $\Leftrightarrow$ maximize the successive components of the **ordered** objective vector.

$\rightsquigarrow$ We have to introduce the sorted version of the objective vector:

- **A vector of variables** $(y_1, \ldots, y_n)$.
- **A constraint Sort**$(\overrightarrow{u}, \overrightarrow{y})$ ([Mehlhorn and Thiel, 2000] (filtering in time $O(n \log(n))$).

Mehlhorn, K. and Thiel, S. (2000).
Faster algorithms for bound-consistency of the sortedness and the alldifferent constraint.
In Dechter, R., editor, *Proc. of CP'00*, pages 306–319, Singapore.

Logical Consequences

- An interpretation x is called a model of γ if γ evaluates to 1
- The set of all models of γ is denoted by $N_P(\gamma) \subseteq N_P$
- If $N_P(\gamma) \neq \emptyset$ then γ is called satisfiable

Entailment Relation

- δ is a logical consequence of $\gamma \Leftrightarrow N_P(\gamma) \subseteq N_P(\delta)$
- we write $\gamma \models \delta$

- γ and δ are logical equivalent $(\gamma \equiv \delta) \Leftrightarrow N_P(\gamma) = N_P(\delta)$

Ground rules for good slides

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- Use an uncluttered background.
- Use colour sparingly, to convey content.
- Bulleted lists have their place, but constant use is boring.
  - Deeply nested bullet points
    - ➢ are very irritating
      - ✓ and impossible to parse.

Some advocate dark backgrounds with light text.

Sometimes you need to avoid the very lowest part of the screen.

Ground rules for good slides

Font size

Do not be tempted to go small:

- 24 point font, reasonable
- 20 point font, manageable
- 18 point font, absolute minimum
- 16 point font, too small
- 14 point font, way too small
- 12 point font, almost invisible

Typeface

Stick to the same typeface throughout.

Can use ***italics*** for emphasis, and maybe a different font for code/maths.

Some advocate sans serif fonts for readability.

(This presentation is 22 point Linux Libertine.)

Ground rules for good slides

Density

Each slide should have one ‘topic’.

- One ‘frame’ of the story, like a graphic novel.
- A short title enforces this.

Put only 4-5 things on each slide.

- All items must fit the slide’s focus and be necessary.
- Use more, sparser, slides rather than fewer denser slides.
- Use a series of almost-duplicate slides to add detail.

Timing

Very roughly 1 slide per 2-3 minutes.

What to include?

- Words are for saying.
- What is said out loud need not go on the slides.
- Don't use the slides as your aide-memoire.

Discursive (bad)

Before giving our main result, we need the following definition, given here mainly to fix notation.

Definition: A finite-state machine (or 'automaton') is given by a 5-tuple

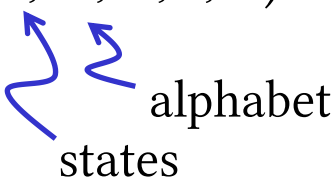
$$M = (S, \Sigma, \delta, i, F)$$

where S is a finite set of *states*, Σ is the *alphabet*, blah, blah, blah…

Outline (good)

FSM definition:

$$M = (S, \Sigma, \delta, i, F)$$



What to include?

Use

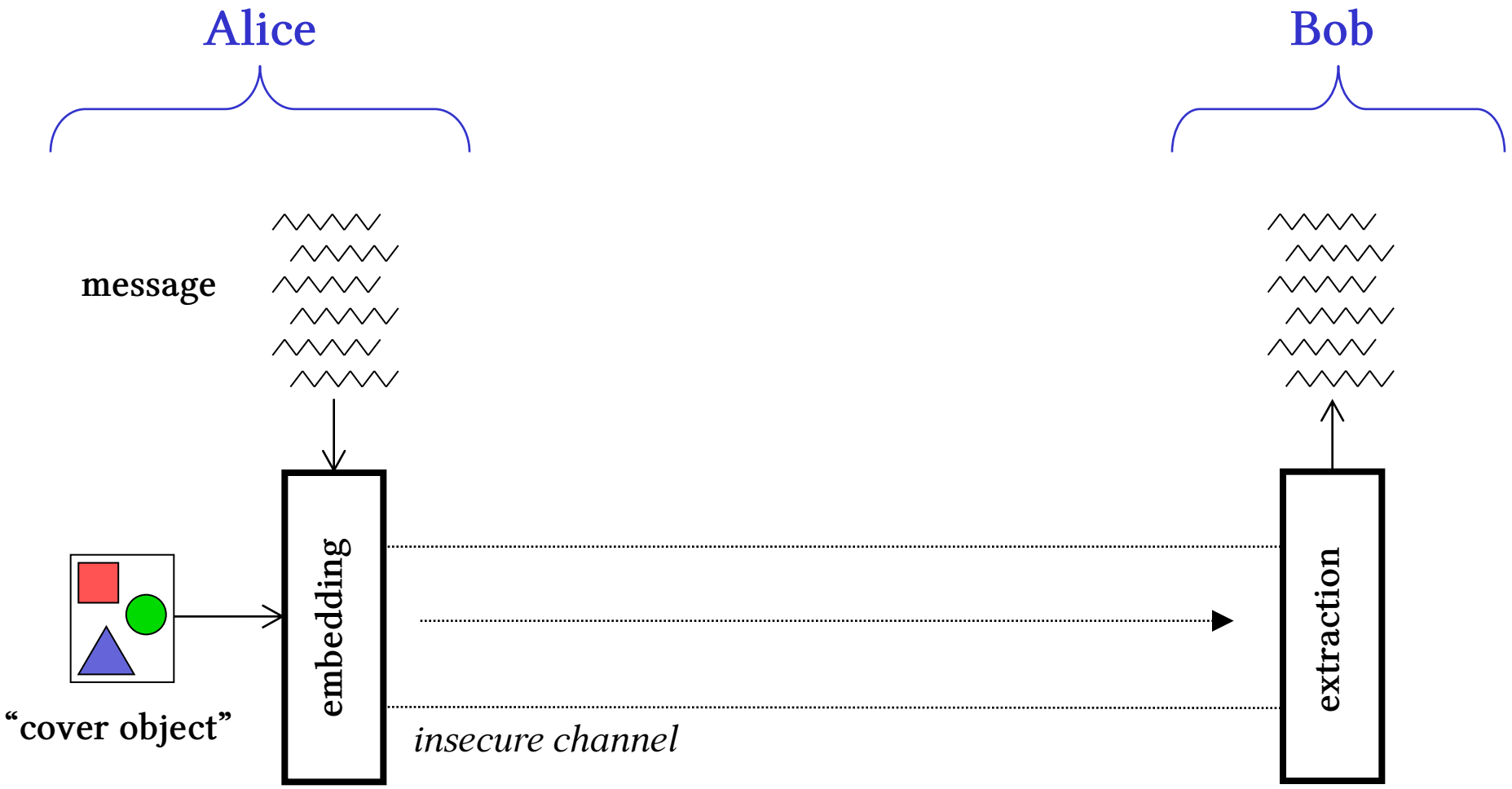
- Pictures & diagrams.
- Simple and memorable examples.
- Simplified formulae.
- Colour, but only to convey meaning or emphasis.

Avoid

- Multiple sentences of text.
- Tables of numbers (show a graph instead).
- Structure which requires you to rewind the slides.

Use all the advantages of the visual medium.

Example – set the scene



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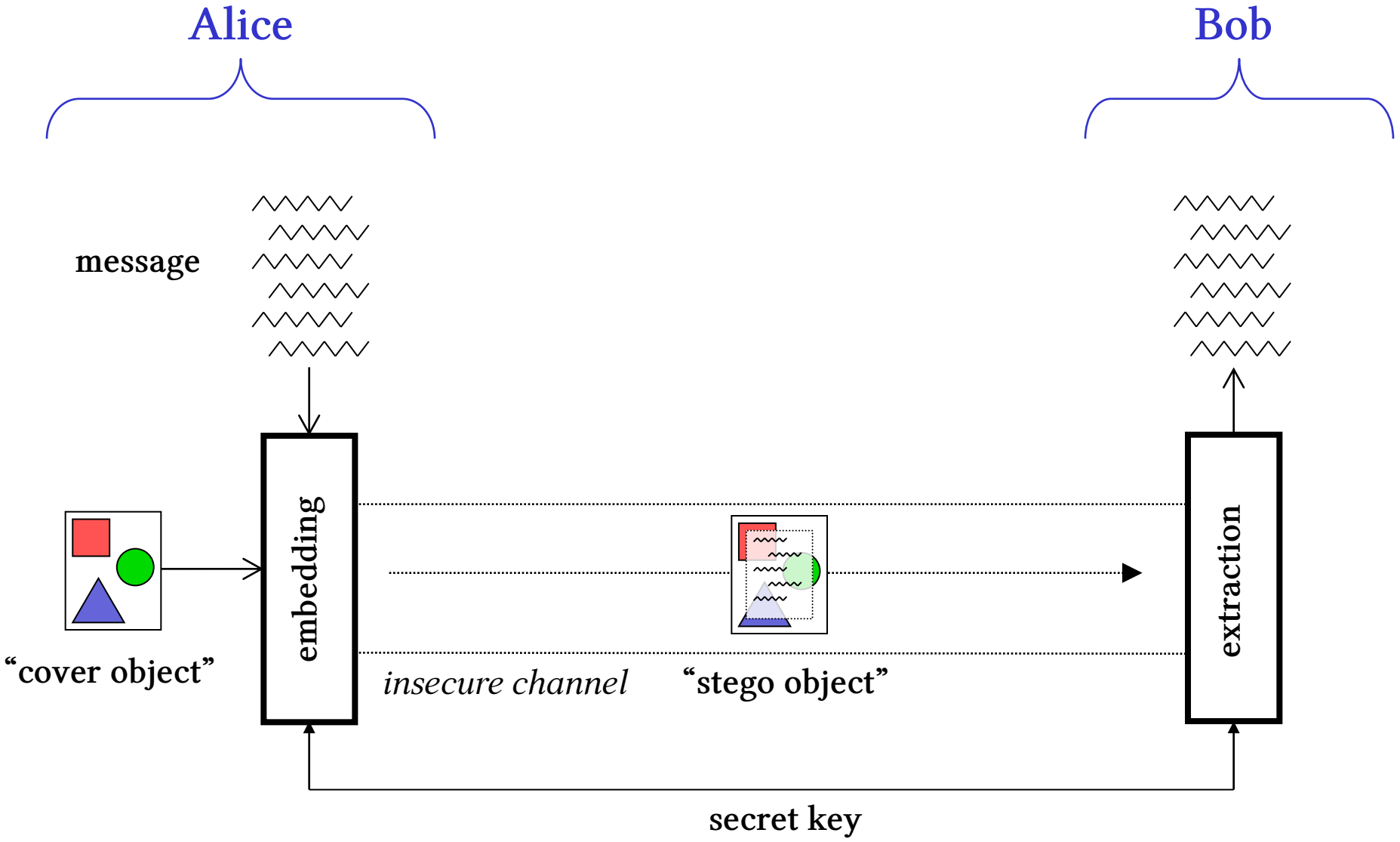

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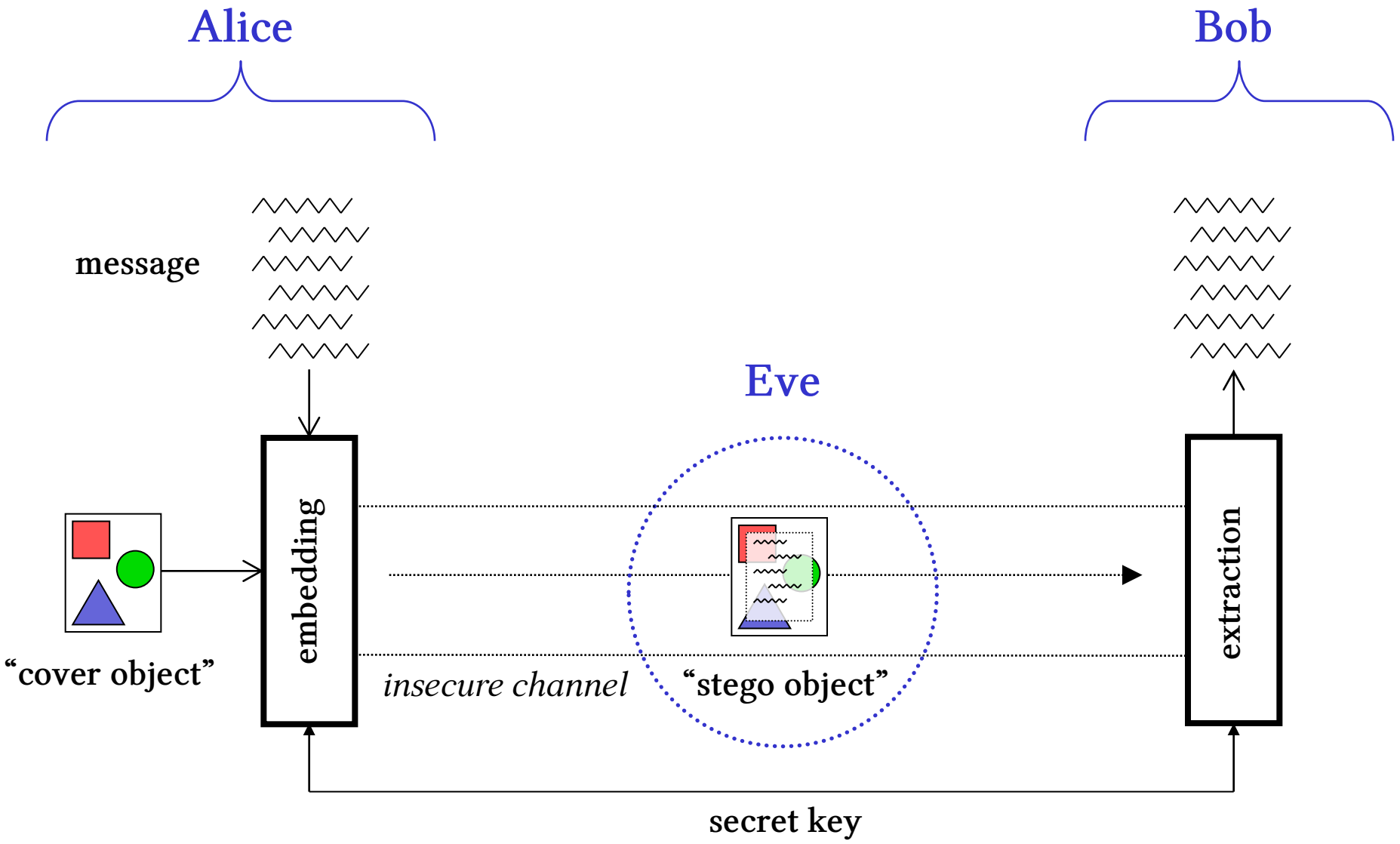

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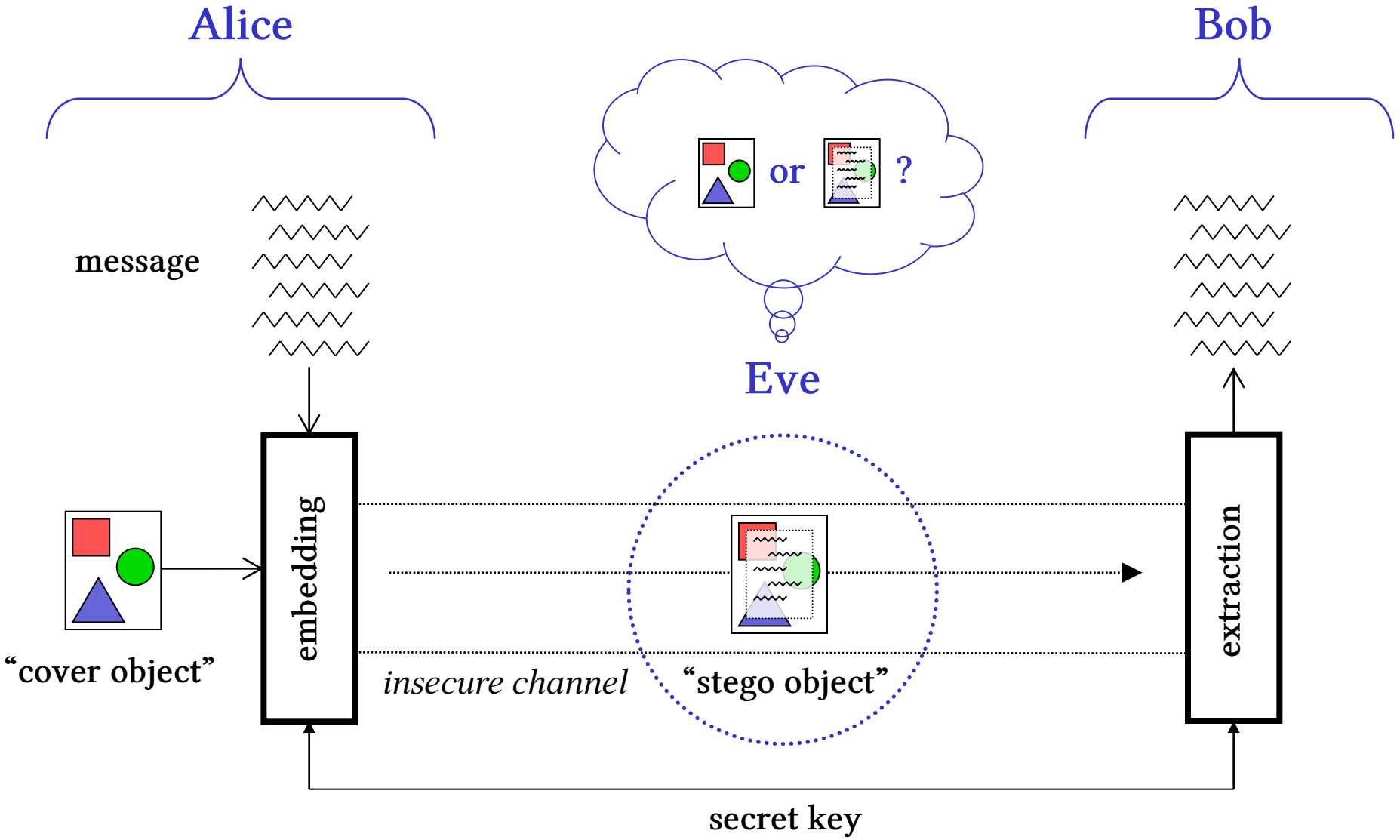
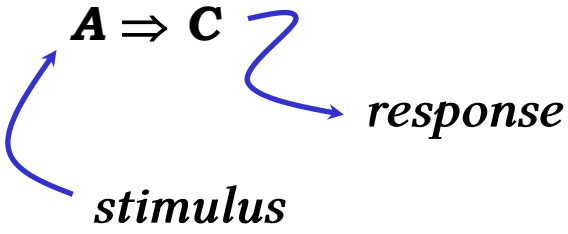


Example – STE

- Syntax of formulae

$$
\begin{aligned}
f \;:=\;& n \text{ is } 0 \\
\mid\;& n \text{ is } 1 \\
\mid\;& f_1 \wedge f_2 \\
\mid\;& \mathbf{N}\, f \\
\mid\;& E \rightarrow f
\end{aligned}
$$

- Assertions



- STE model checking

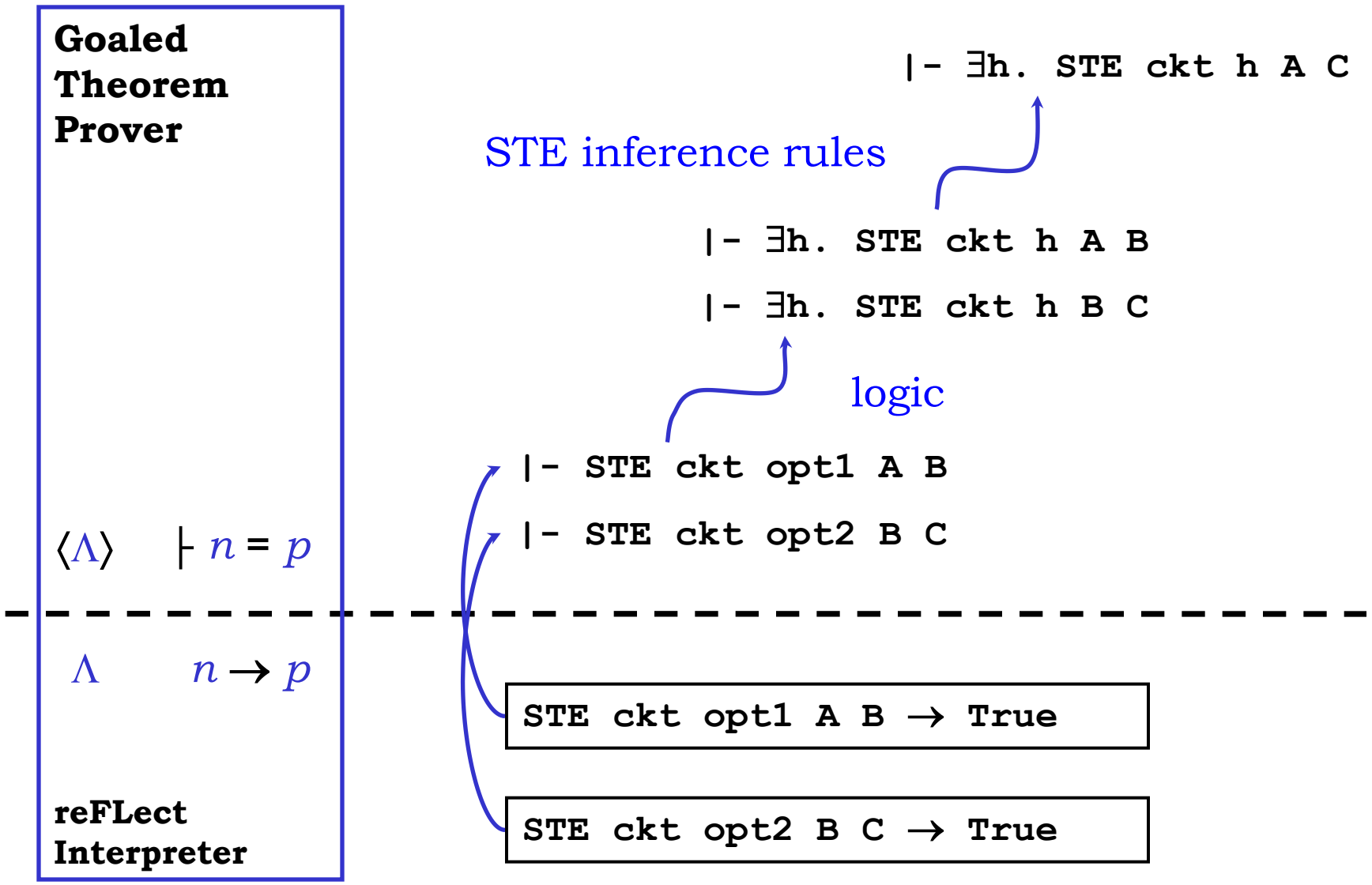
$$P := \mathbf{STE}\ M\ A\ C$$

$$\phi \models P \quad \textit{iff} \quad \phi \models_{M} A \Rightarrow C$$

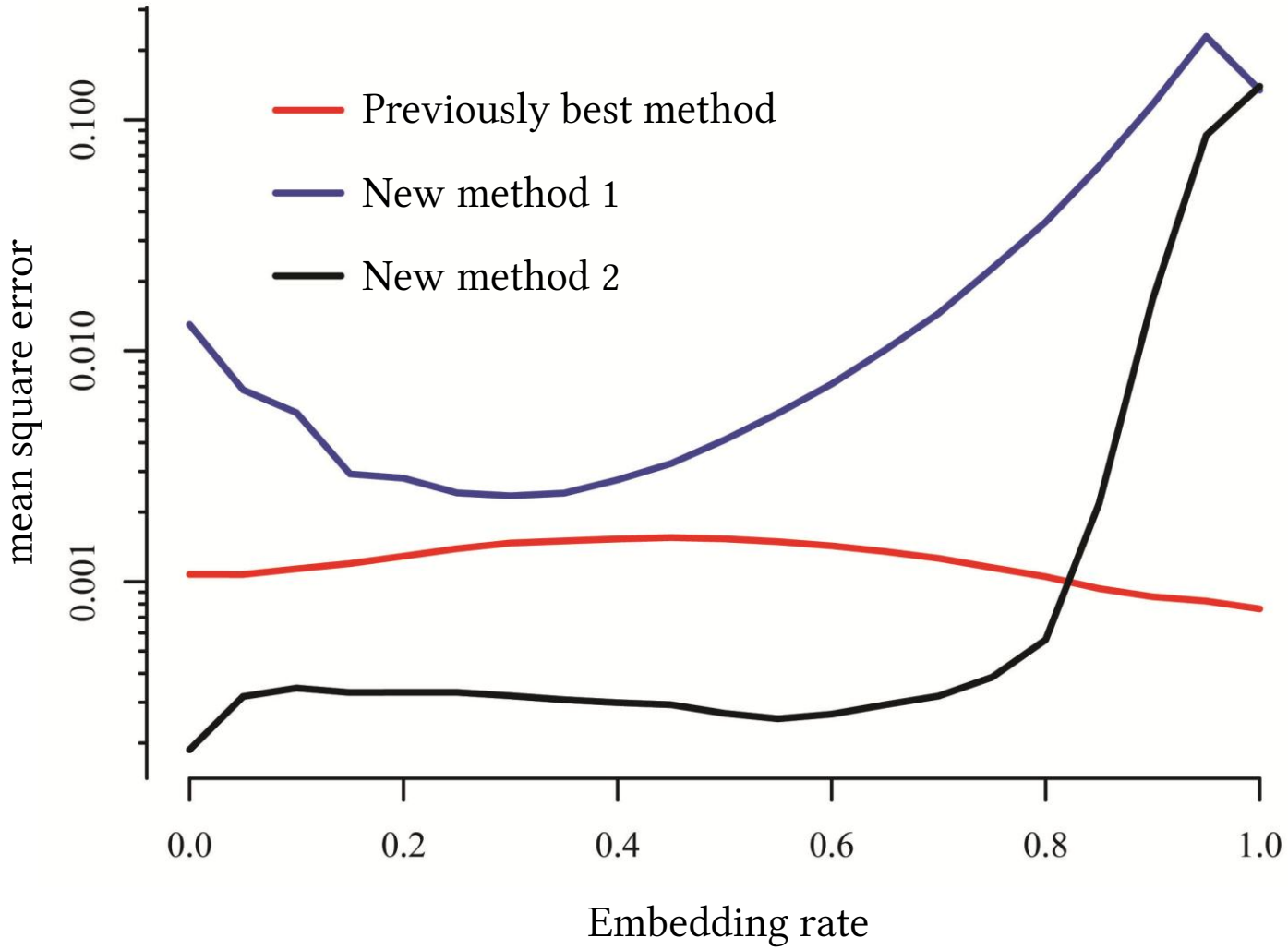
- Abbreviation

$$n \text{ is } E \;=\; E \rightarrow (n \text{ is } 1) \;\wedge\; \neg E \rightarrow (n \text{ is } 0)$$

Example – a complicated process



Example – experimental results



More bad slides

The Striptease

- Revealing your points
- one at a time
- is patronizing and distracting.

But adding to or decorating previous slides can be a useful technique.

Transitions

- Animated transitions are irritating and juvenile.
- Ditto sound effects.

Be aware of what cannot be saved in a pdf (sounds, movement, transparent objects).

Practice

Practice is important:

- Ensures that you have thought everything through properly.
- Gives you confidence.
- Allows you to time the talk.
  - ***The only way to know how long your talk takes is to say it out loud.***
- Short talks are much harder than long ones.

Leave plenty of time for practice.

Short talks

Typical conference talk: **30 minutes**

'Cakes' talks: **20 minutes**

Undergraduate group project seminars: **7 minutes**

Short talks are difficult.

Short talks

Undergraduate group project seminars: 7 **minutes**

Short talks are difficult.

Too long an introduction/conclusion eats up all the time

- Be ruthless about the contents.
- Don't waste time on the first slide.
- No outline.

No time to present a full story

- 3-5 slides of content.
- What is the one thing you want your audience to remember?

Needs more practice

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Check venue

Arrive early

- Test the technology.
- Check microphone levels if possible.
- Work out where to stand.
- Think about lighting.
- Get comfortable.

What to bring?

- Clock.
- Laser pointer (or stick).

If necessary, prepare laptop in advance.

Talk to the chairperson before the session.

Giving the talk

Thank the person who invited or introduced you.

Memorize your first and last sentence.

- *use notes for entire talk?*

Delivery

- Stand up straight.
- Move around (a bit).
- Make eye contact, with more than one person.
- Speak slowly and articulate clearly.

Techniques

Pause and/or lengthen vowels for emphasis.

Lead into next slide.

Questions

There is usually a protocol for questions:

- You or the chairperson invites questions.
- You or the chairperson selects question to answer.

- Repeat the question (especially if using a microphone).
- Be brief.
- Be honest.
  - ***'I don't know'***
  - ***'I haven't thought about that'***
  - ***'I'll have to check and get back to you'***

  … are perfectly good answers.

Remember that you can always offer to discuss 'off-line'.

Review

The process for creating this talk:

1. Have something to say!
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Students with CS knowledge but limited experience of giving talks.

Must practice the talk.

Story: process for creating a talk.

How many slides were actually needed?

Final tips

- Don’t be over- or under-confident.
- Do the correct thing, not what others appear to do.
- Always look for improvements.
- Beware of cultural sensitivities.

- **Practice.**

Remember the Golden Rule

Never, ever, over-run your time.