The perfect talk

Andreas Zeller

Goals of the Seminar

- Find your way into *scientific challenges*
- *Structure and present* scientific material
- Train your social and communication skills

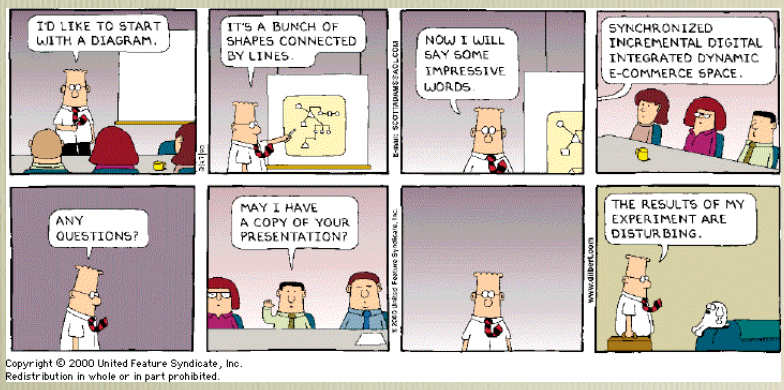
Preparation

- Check the material
- Identify central topics and claims
- Outline the talk
- Make a detailed sketch

Ask Yourself

- Do the claims hold?
- Are the examples illustrative?
- Can I do better in presenting?
- What are the central claims, anyway?
- And how are they supported?

The Perfect Talk



Organizing Your Talk

- Motivation
- Solution (including failures)
- Results
- Conclusion

Motivation

- Present the general topic
  A village in the woods
- Show a *concrete problem*
  Wicked dragon attacks the peasants
- Show that the state of the art is not enough
  Peasants' forks can not pierce dragon armor

Solution + Results

- Show new approach and its advantages
  Hero comes with vorpal blade and fights dragon
- Show how approach solves concrete problem
  Vorpal blade goes snicker-snick; dragon is slayed
- Does the approach generalize?
  Would this work for other dragons, too? Why?

Outline

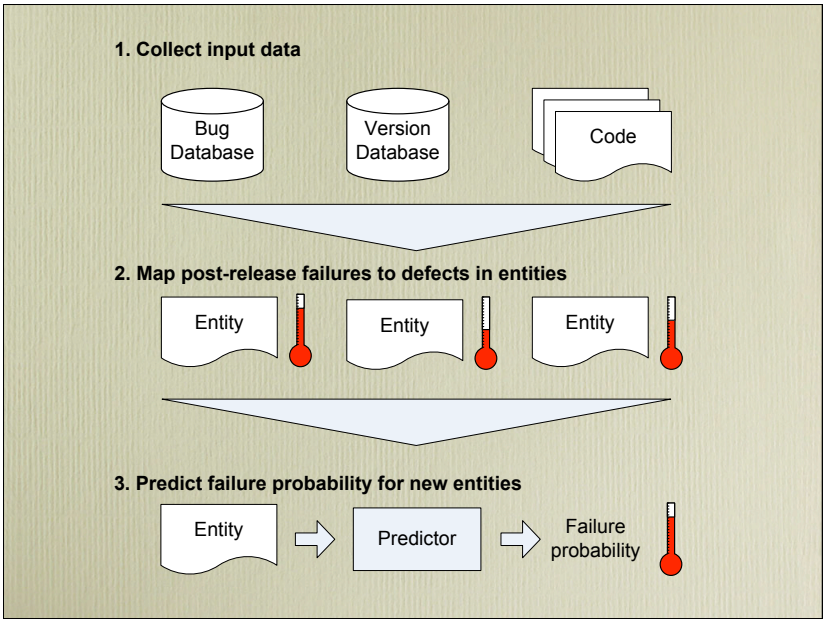
- Tell a story
- Make slides invisible
- Use examples, lots of examples
- Connect to the audience
- Hope for questions and feedback

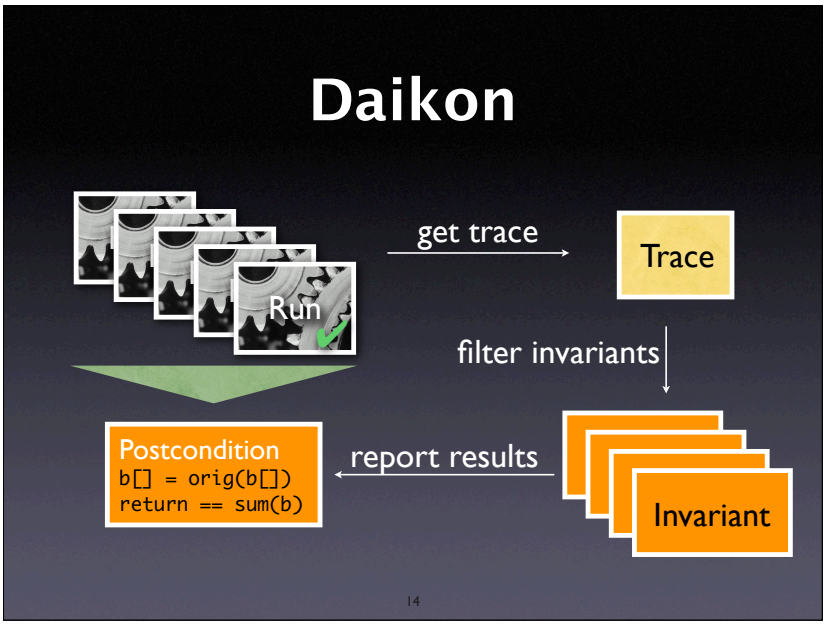
What's wrong with this slide?

Outlines

- Don't use talk outlines *at the beginning*
- Don't use talk outlines *in between*
- Actually, don't use talk outlines *at all*
- Better: Use a graphic after 5 minutes
- Think of this graphic as a *memorizable image*

Model Mining



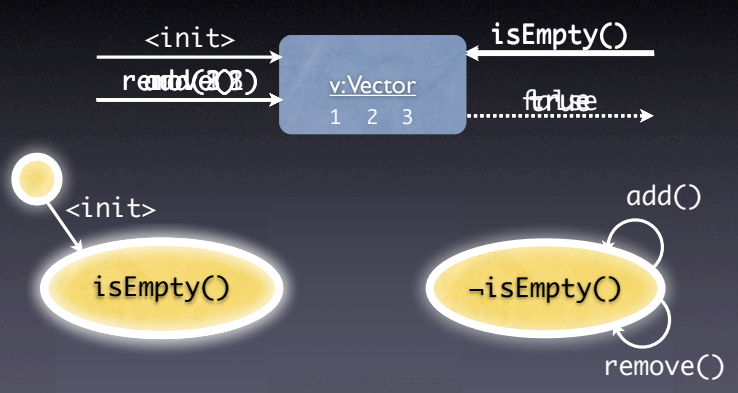


Slide contents

- Use *examples* first, *abstraction* afterwards
- Concentrate on the bare necessities (e.g. at most 5 bullets per slide)
- Do not present full sentences on a slide, because these are far too long and hard to read; also, they may tempt you in reading
- Use milestones to summarize result

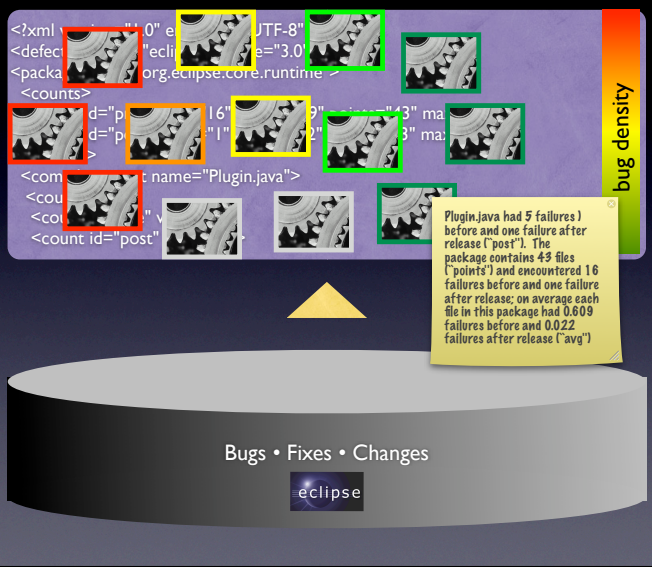
Read full sentence aloud

Building Models



Slide layout

- Focus on *clarity*
- Avoid all that distracts from the message
- Slides should support your (spoken) word.
- Always prefer graphics over text
- Avoid bullet lists (like this one)



Maths

$$
\begin{aligned}
f_{h,\varepsilon}(x,y) &= \varepsilon \mathbf{E}_{x,y} \int_0^{t_\varepsilon} L_{x,y_\varepsilon(\varepsilon u)} \varphi(x)\, du \\
&= h \int L_{x,z} \varphi(x) \rho_x(dz) \\
&\quad + h\left[\frac{1}{t_\varepsilon}\left(\mathbf{E}_y \int_0^{t_\varepsilon} L_{x,y^x(s)} \varphi(x)\, ds - t_\varepsilon \int L_{x,z} \varphi(x) \rho_x(dz)\right)\right. \\
&\quad \left. + \frac{1}{t_\varepsilon}\left(\mathbf{E}_y \int_0^{t_\varepsilon} L_{x,y^x(s)} \varphi(x)\, ds - \mathbf{E}_{x,y} \int_0^{t_\varepsilon} L_{x,y_\varepsilon(\varepsilon s)} \varphi(x)\, ds\right)\right] \\
&= h\widehat{L}_x \varphi(x) + h\theta_\varepsilon(x,y)
\end{aligned}
$$

Formal Background

Concrete state $v \in V$ with $v = (x_1, x_2, \ldots, x_n)$
x_i – Return value of an inspector

Trace $t = [(v_1, m_1, v_1'), (v_2, m_2, v_2'), \ldots]$
with $v_i \in V$ and m_i – name of a mutator

State abstraction $abs: V \to S$

Model with transitions $s \xrightarrow{m} s'$ and states $s, s' \in S$

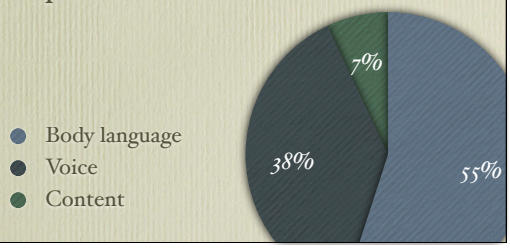
Transition condition $s \xrightarrow{m} s'$ with $s, s' \in S$ iff
$\exists (v, m, v') \in t \cdot abs(v) = s \wedge abs(v') = s'$

Maths

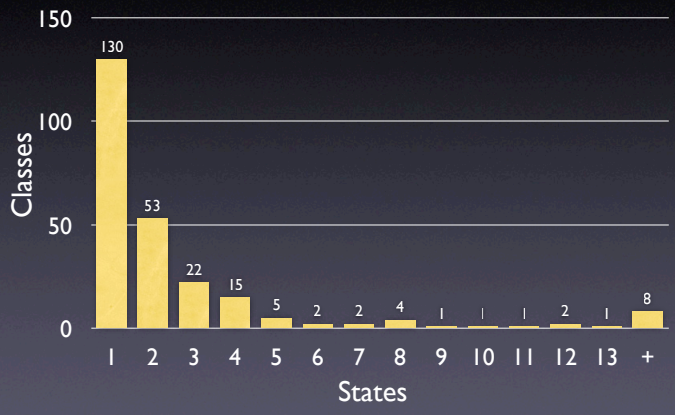
- Avoid maths.
  - Formulae are for papers, not slides
  - Few people can read + understand complex formulae in 30 seconds
- Demonstrate that the formal foundation can be presented on demand
- *Examples are more important than maths*

Graphics

- Use simple, clear graphics
- Convey exactly *one* message per graphics
- Usage of color helps



Model Sizes



The human factor

- Every presenter is nervous (and so am I)
  - Legs start shaking
  - Need for air
  - Brain goes into stand-by mode
- ... but nobody will notice, let alone worry

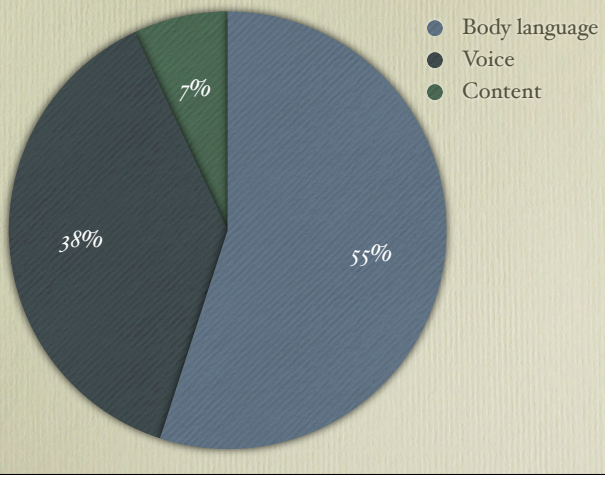
The human factor

- Before the talk:
  - Sit down
  - Go through your slides
  - Remember the first sentences
- *All presenters are nervous!*

The talk

- Do not *read your slides* (from paper or slides)
- Speak slowly, loudly and clearly
- Speak *personally* (Use "I", not "one")
- Change your *tone* – and use *breaks*

Your impression

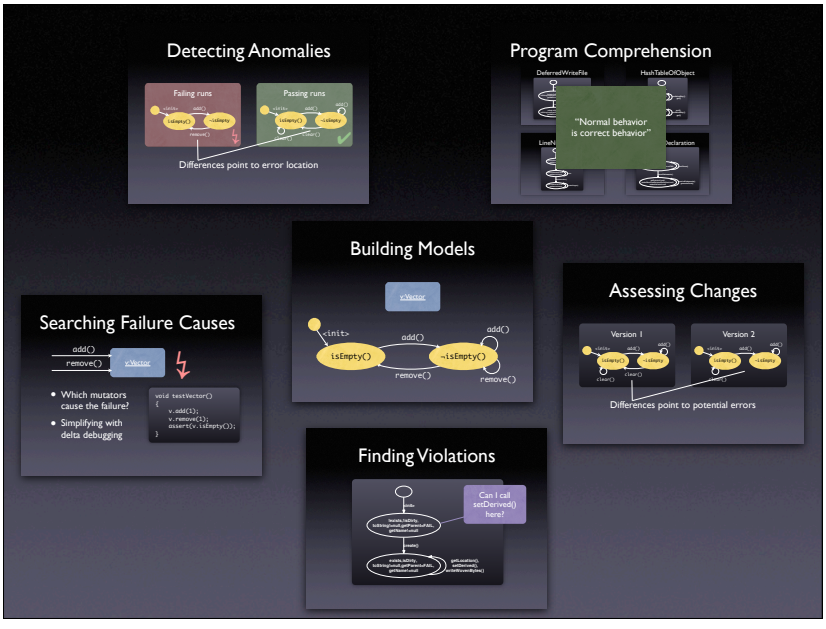


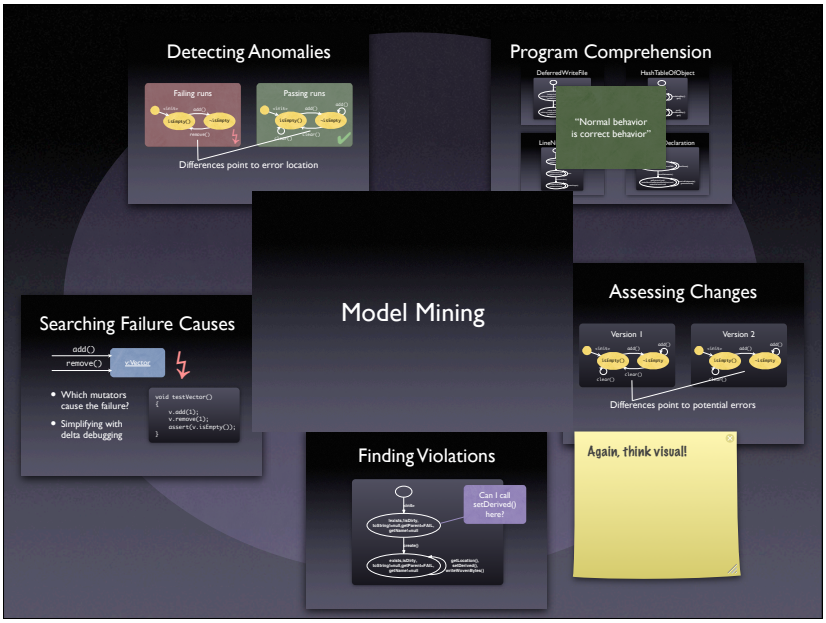
Connecting to the audience

- Talk *directly* to the audience
- Ask *rhetorical questions*
  ("What should the poor peasants do?")
- Search *eye contact* to audience
  (not to slides, not to professor)

Conclusion

- Refer to the beginning
  ...and they lived in peace henceforth
- Summarize
  ...and the key point is:
- Open issues
  ...but there are more dragons that loom in the dark
- Consequences
  If you ever see a dragon, ...





Any Questions

- Questions after a talk may be embarrassing...
- ...but the worst embarrassment is to *have no questions at all*
- Questions help to direct and shape own work

Dealing with Questions

- Repeat question (helpful for audience + gives time for preparing an answer)
- In doubt: “I don’t know, but I’ll look into it”
- Or: “Let’s just take this offline”
- Be respectful to the audience – no punching in the lecture room

Summary

- Tell a story
- Make slides invisible
- Use examples, lots of examples
- Connect to the audience
- Hope for questions and feedback