



Wrap-Up



Holger Schlingloff
with help from
Markus Roggenbach

Wrap-Up

- Thanks for all the nice talks, we enjoyed them very much!
- We've all learned a lot about
 - testing
 - making a presentation
- What else is there to say?

Structure Of This Talk

- What has been achieved
- What's next

What Has Been Achieved

- Two sides of testing
 - established body of knowledge
 - functional and structural testing, coverage issues, levels of testing, OO-testing, ...
 - research items
 - test generation, test specification, test evaluation
- Insight: Testing is an engineering activity
 - test case design \in software design (\approx CS)
 - testing research \in software engineering research

Where Is This Knowledge Important?

- Industry
 - costly but necessary part of system's design
 - day-to-day problems, pragmatic solutions
 - what and when to test
 - how to make and run test cases
 - when to stop, how to give evidence
- Academia
 - challenging software engineering problems (often massively underestimated)
 - generalisation of pragmatic approaches
 - how to formalise and automatise
 - how to prove and decide
 - how to understand and master

We Haven't Looked At ...

- ... testing languages (TTCN-3, UML testing profile, ...)
- ... specific testing objectives
 - (load, stress, robustness, reliability, security, ...)
- ... test management
- ... test execution environments
- ... hardware-in-the-loop tests
- ... test evaluation problems
- ... test documentation
- ... test certification
- ... testing and quality assurance
- ... testing and verification
- ... testing and other life-cycle models
 - (model-based testing, **extreme programming**, ...)
- ...

- no stopping at any time...

Structure Of This Talk

- What has been achieved
- What's next

When to Apply Your Knowledge

- As any SE activity, testing can and should be supported by tools
 - well-established commercially successful
 - IBM Rational, Telelogic, Rhapsody, Cantata, McCabe, ...
 - huge market, huge secondary market
 - trial versions: try them (e.g. in your 3rd year project)!
 - academic research tools
 - UppAal, UseCaseValidator, RT-Tester, ...
 - open domain versions: improve them (e.g. as part of postgraduate studies)!
- Learning (only) by doing!

The Next Step...

... is of course your dissertation.
Here are some hints for writing!

Formal requirements

- (approx. 10k words)
- 2 weeks (=10 days) of work
- quality over quantity



Quality of the Dissertation?

- A first step towards a scientific contribution
 - exhibiting the state of knowledge in a restricted area
- A coherent, consistent scientific story
 - abstract – what's to be found subsequently
 - introduction – why this is important
 - usually ending with related work and structure
 - main part – what you have to say
 - definitions and background information, problem statement
 - methods and results, suggested solution
 - examples and applications, benefits, experimental results
 - conclusion – summary and further work
 - references
 - appendix (if needed)

How To Write The Dissertation

- Make sure that you understood your topic
 - use background material, look at the given references
 - experiment with tools
- Say it in your own words
 - the book chapter is outlining the theme; you are allowed to shorten or expand – it's your choice!
 - your text should be easy to read: Be straightforward, make use of short sentences
 - discuss the text in the book from various perspectives – don't just paraphrase!
- Use your talk as a guidance
 - usually, it's easy to expand a good talk into a paper, and to abstract a good paper into a talk

Do's And Don'ts

- Look at examples, use your own examples!
 - ideally: one master example, different points of view onto the same example
 - examples should be such that abstract concepts are made concrete
 - no “and so on” in the example; if necessary, move to appendix
- Be self-contained
 - if you use a defined notion, give the definition
 - if you use a theorem, quote it (completely)
- Never, *never*, **never** just copy/paste!
 - it's a criterion for rejectance and worse!
 - the supervisor *will* find out!

Tips and Tricks

- Some clues how to achieve a good grade
 - Put yourself in the role of the reader, explain to her
 - Start with the main part (definitions), then prepare your examples, then methods and results, then the rest
 - Make sure the order is reasonable
 - definition before use
 - cause before effect
 - problem before solution
 - Use a spell-checker
 - Have a second reader
 - Don't be afraid to delete and rewrite
- I'm sure it will be a perfect dissertation! 😊

The Very Next Step ...

- ... is the course evaluation!
You have five minutes...

The Last Step...

- enjoy the rest of the weekend!