



# Conduction of Exams: Analogous vs. Digital

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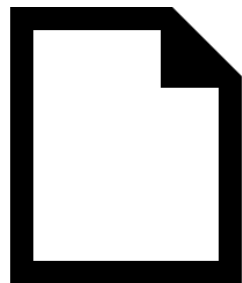


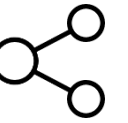
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## Statement of the Problem

- Digital Examinations and Analogous Examinations differ in substantial aspects
  - Formalities
  - Preparation
  - Conduction
  - Grading
- Security concerns for Digital Examinations exist



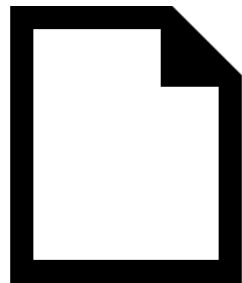


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## Structure of Exams

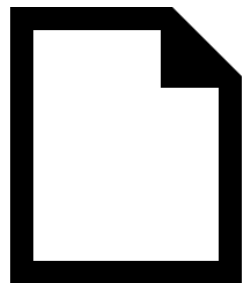
- Three phases
  - Preparation
  - Conduction
  - Grading
- These phases...
  - ... are valid for all types of exams
  - ... differ more or less from each other for Digital and Analogous Examinations





## Structure of Exams - Preparation

- Only small differences
- Exam sheets for Analogous Examinations are mostly prepared on the computer nowadays (but do not have to be printed)



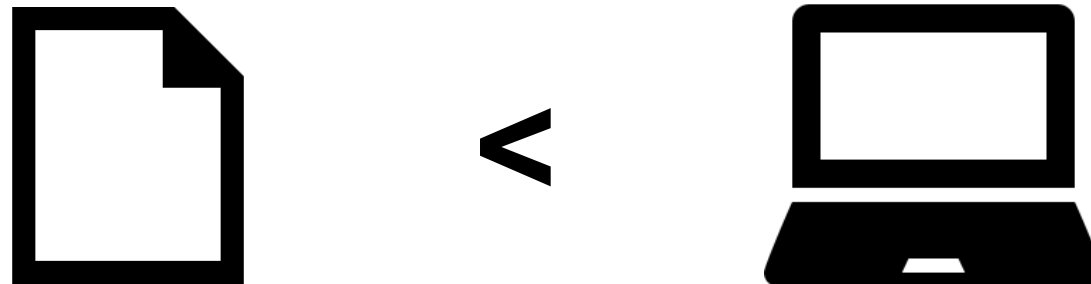


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## Structure of Exams - Conduction

- Digital Examinations improve ...
  - ... timing (same {start, end, operating time})
  - ... the handling of technicalities (attendance list, visiting the toilet)
  - ... the ways of posing and answering questions during the exam
  - ... the (not) handling of sheets of paper (no additional sheets needed, no sheets can get lost)

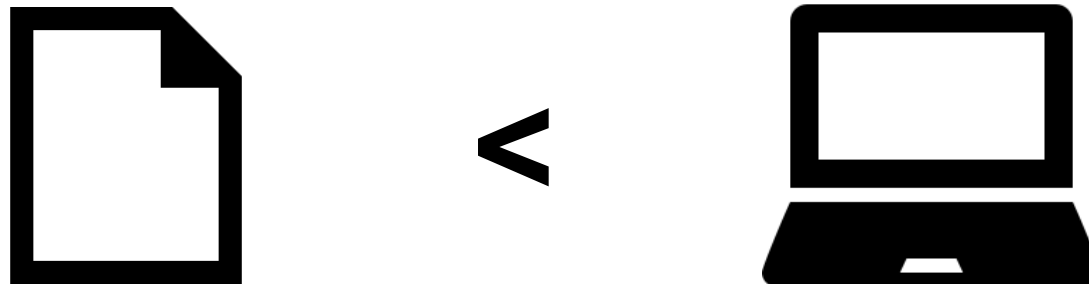




# Conduction of Exams: Analogous vs. Digital

## Structure of Exams - Grading

- In Digital Examinations, students' results are available digitally
  - Readability improves a lot!
  - Digital tools can be used for the correction, e.g. a debugger for programming assessment
  - Answers can be corrected (semi-)automatically
  - No switch between paper for correction and computer for tracking grades, therefore less prone to errors

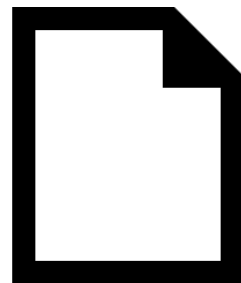




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## Security Threats

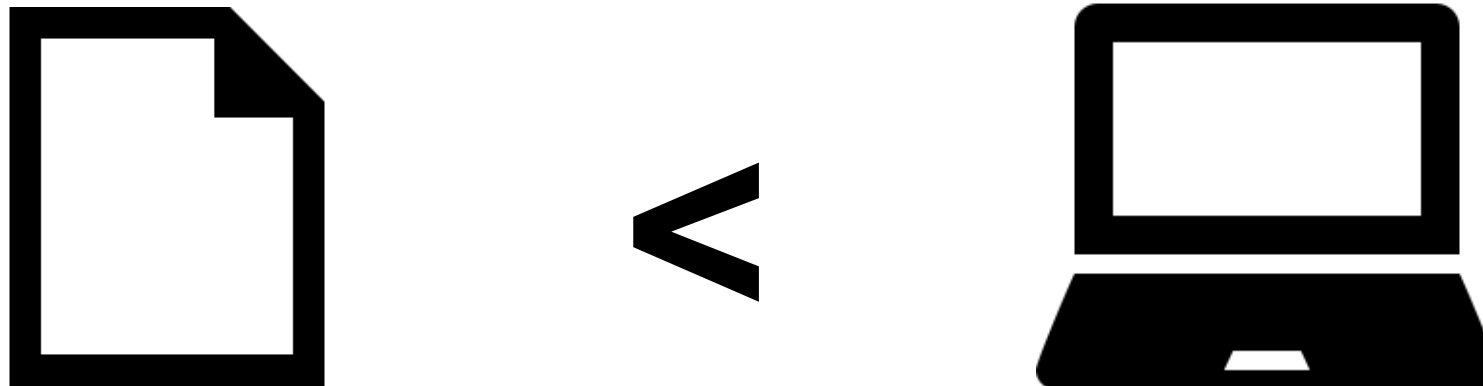
- Threats are the same for Digital and Analogous Examinations
  - Access to unauthorized information
  - Communication with other students
- Digital Examinations offer more opportunities to cheat, but ...
  - ... these opportunities require a lot of effort to exploit
  - ... the traditional opportunities are a lot easier to exploit
  - ... offer more opportunities to detect cheating in the same manner





## Summary

- Security threats exist in similar forms for both, Digital and Analogous Examinations
- Digital Examinations are, from our point of view, at least as secure as Analogous Examinations
- The advantages of Digital Examinations outweigh the disadvantages





**Thanks for your attention!**

Are there any questions or comments?