Notes on the Oral Examination
TDA294/DIT271, 2017
Course: Formal Methods for Software Development

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1   Form of Examination

In addition to the Lab hand-in assignments, the course is examined via individual, oral examination of 30 min per student. During the 30 minutes, numerous selected topics from the course will be discussed. Frequent context switch is therefore inevitable and should be expected, to not cause irritation.

Questions by the teacher will be of varying nature, ranging from very concrete questions where the expected answer is a concrete solution (or some steps of a concrete solution, until we switch context), to questions where the expected answer shows high level understanding. In all cases, the teacher will help the student to meet the expected level of detail in the answer.

Please observe the learning outcomes of the course as outlined in the course plan.

2   Coverage of Topics

In general, all topics that were discussed in the lectures and exercises can be subject to questions in the examination. Questions related to the lab assignment are also possible, but will not be the focus. For specific topics from the lectures, the coverage is restricted, in the following way:

Topics that are excluded from the exam

– The guest lecture of Angela Wallenburg
– Decidability, closure properties
– Object creation in dynamic logic

Topics where only rudimentary understanding is expected

– Semantics of first-order logic and dynamic logic, and updates
– Systematic construction of a (generalised) Büchi automaton that corresponds to a given LTL formula, following the algorithm presented in the lecture
– Syntax of KeY input files
– Computing the effect of an update to formulas and terms
– The heap model in dynamic logic
– Translation of JML to dynamic logic (incl. normalisation of JML)
– Handling of method calls in the sequent calculus for dynamic logic