

Assignment 5

Deadline: Friday 08.12.2023 23:55

Notes:

- Solve the assignment **on your own** — no groups allowed.
- Hand-written solutions will not be accepted, except for graphs and diagrams.
- If you hand in non-pdf files or multiple files, name your submission as `stla23_05_SURNAME.zip`, replacing `SURNAME` with your surname. Otherwise `stla23_05_SURNAME.pdf`. Also include your full name in the submitted PDF.
- Submit your solution via **Ilias**.

Exercise 5.1 Checking Liveness Properties (Right)

20 Points

Run TLC to check the *LiveInternalMemory* specifications, using the files attached.

- a) Use TLC to find a counterexample to show that the specification *LISpec* of *LiveInternalMemory* does not satisfy the following property

$$\forall p \in Proc : (ctl[p] = \text{"rdy"}) \leadsto (ctl[p] = \text{"busy"}).$$

Explain which actions are executed in the counterexample. Explain what characterizes the counterexample as a violation of the property. **(12 points)**

- b) Explain the difference between *ISpec* and *LISpec*. To undermine your arguments check the property *LivenessProperty* with TLC using the *ISpec* specification instead of *LISpec*. Explain the counterexample and what lead to the violation in difference to using *ISpec*. **(8 points)**

Hand in all relevant files.

Total: 20 Points