

HOMWORK FOR LECTURE
AUTOMATA AND FORMAL LANGUAGES II

TU MÜNCHEN
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HOMWORK SHEET 13

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Aufgabe 13.1. [Acquisition Histories] (10 points)

Specify a tree automaton that „computes” acquisition histories of execution trees of 2-PDS. Its states should contain (at least) the acquisition histories. Try to specify a bottom-up deterministic automaton.

You may assume that locks are well-nested and non-reentrant, and that acquisitions are only done on call rules, and releases are only done on the *corresponding* return rules.

(Hints: Equivalently, specify a recursive function over the tree structure, which computes the acquisition history. You will need a helper-function/some additional states for returning execution trees).

Aufgabe 13.2. [Well-Nested Locks] (10 points)

Specify a tree automaton that accepts all execution trees that use locks in a well-nested and non-reentrant fashion, and where acquisitions only occur on call-rules, and releases are done on the *corresponding* return rules.