

Model Checking (SS 2023) Homework 3

Deadline: **April 13 20, 2023, 4:00 pm**

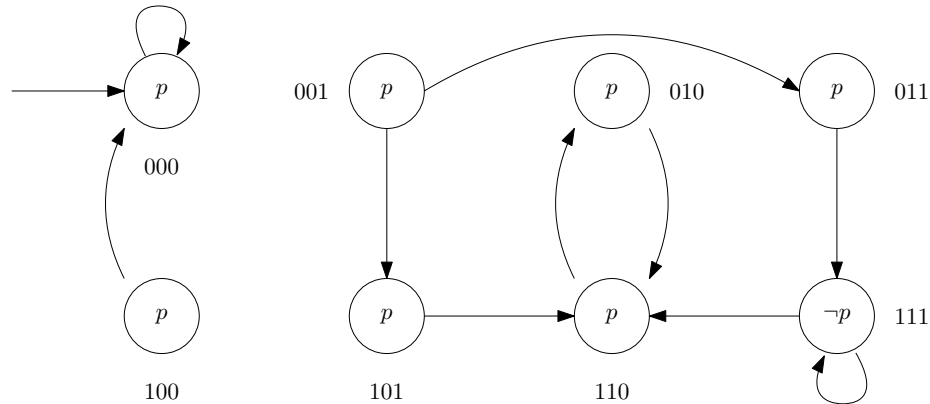
Send your solution to `modelchecking@iaik.tugraz.at`

Homework can be done in groups of 1 or 2 students.

The groups need not be the same for each homework.

Indicate clearly which students present the homework.

Consider the following Kripke structure K , with states $(x_1, x_2, x_3) \in \{0, 1\}^3$ and atomic proposition p .



Task 1. [10 points] Use Model Checking with Craig Interpolants to prove whether the property $AG p$ is true or false.

Clearly indicate the steps. I would like to see the interpolants as formulas, for anything else, you can use set notation. You can also draw the sets, but use enough copies of the Kripke structure to make sure we can understand your steps, at least one for every k .

Use the same heuristic shown in class to find the interpolants. The heuristic shown in class is a hack, but it works in this example.