

Model Checking Homework 10

Deadline: 17th June 4:00pm

Send solution to: modelchecking@iaik.tugraz.at

From LTL to Generalized Büchi

[4 Punkte - Bonus] Compare the simple algorithm for the construction of a generalized Büchi automaton from an LTL formula that we discussed in the lecture (pushing labels backwards) with the algorithm that is proposed in the book in chapter 7.9 (pushing labels forwards). Argue why both algorithms are correct (in a few sentences).

[10 Punkte] Use the efficient-LTL-to-Büchi algorithm [Gerth, Peled, Vardiand, Wolper] to compute the Generalized Büchi automaton for the following formula:

$$\varphi := GF(a) \wedge G(a \rightarrow Fb)$$

Note, that you first have to translate the formula such that you only use the X and U operator and transform it into NNF. You do not have to perform the last step of the algorithm that is transforming the generalized Büchi Automaton to a Büchi automaton.

