Every exercise is 10 points. The students have to deliver their work by 10th of October (17:00) at the secretary office of the Formal Methods Group H.G. 7.22

Exercise 1  Consider the following model:

Using the LTL model checking algorithm, model check the LTL formula: \( p \mathbin{U} (q \mathbin{U} r) \).

Exercise 2  Consider the following model:

For each state of this model, check the validity of the CTL formula: \( EF(AGp) \) using the labeling algorithm.

Exercise 3  1) Give the corresponding modal \( \mu \)-calculus formula \( f \) of the CTL formula: \( EX \ AX (E(\neg q \mathbin{U} p)) \)

2) Consider the following model:

Compute \([f]\) using the iterative evaluation of fixpoints.