Report for Part I

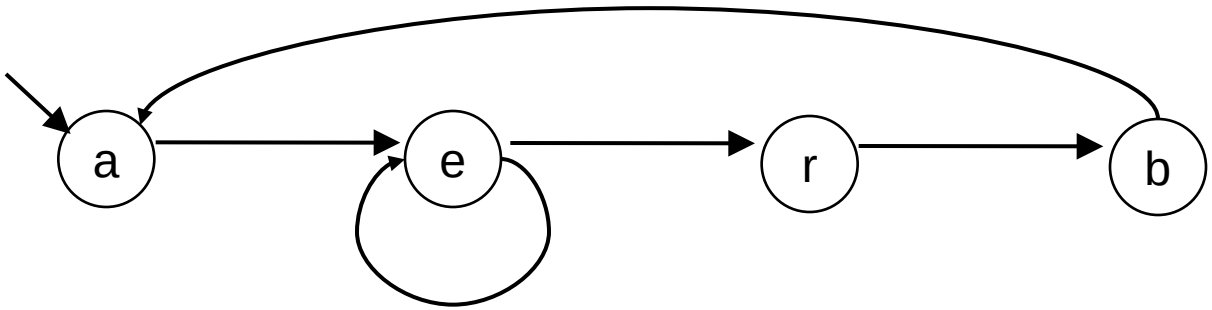
- Deadline: End of November
- To: hagiya@is.s.u-tokyo.ac.jp
- Subject: Verification Report I

If you want to submit a handwritten report, please drop it into レポート提出ボックス on the first floor of Science Building No.7

Report

Don’t forget to negate it

- Construct an ω-automaton for verifying $\Box\Diamond(e \supset r) \supset \Box(a \supset \Diamond b)$
- Verify that the formula holds in each path of the following Kripke structure



Hints

- The ω-automaton consists of 15 states
  - They are classified into three: 6+6+3
    - The first six contain the negation of the formula
    - The second six are identical to the first six except that they do not contain the negation of the formula
  - There are two diamond formulas
    - Compute accepting states for each of the two
- For the second problem, you don't have to explicitly construct the synchronous product
  - Show that there is no infinite path over the ω-automaton that corresponds to an infinite path over the Kripke structure

¬(□◇(e⊃r)⊃□(a⊃◇b))

. . .

□◇(¬e∨r)∧◇(a∧□¬b)

0 ¬e a ◇(¬e∨r) ◇(a∧□¬b) →6, . . .

1 ¬e ◇(¬e∨r) →. . .

. . .

6 ¬b ¬e ◇(¬e∨r) →. . .

. . .

0→6, . . .

□◇(¬e∨r)

◇(¬e∨r)

¬e∨r

¬e

○□◇(¬e∨r)

◇(a∧□¬b)

a

□¬b

¬b

○□¬b

Report′

- Construct an ω-automaton for verifying $(\Box\Diamond e \supset \Box\Diamond r) \supset \Box(a \supset \Diamond b)$
- Verify that the formula holds in each path of the following Kripke structure