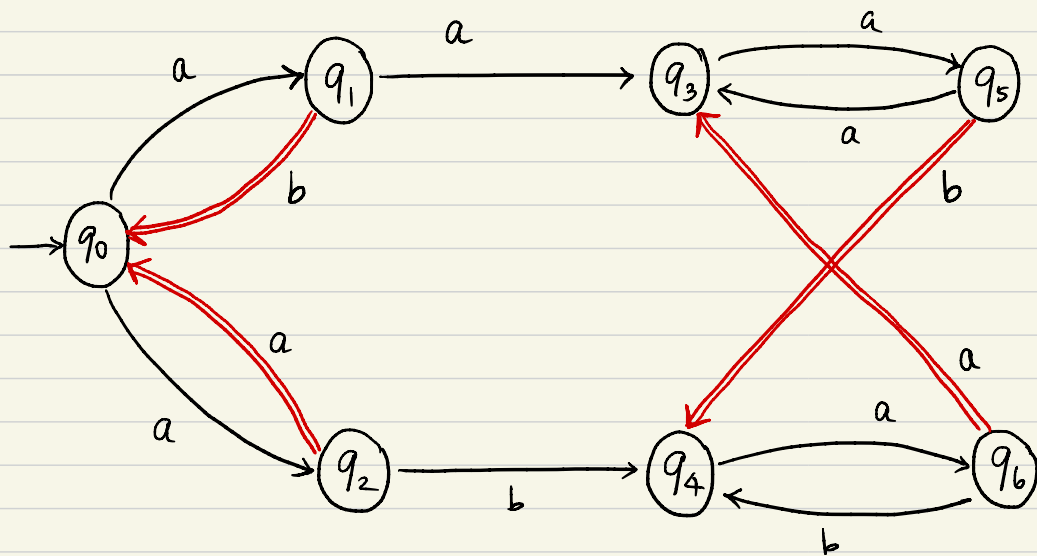


MAAT: Assignment 1 (20 marks)

1. Consider the following coBüchi automaton.



Accepting transitions: all black transitions.

Therefore in an accepting run, red transitions can occur only finitely often.

- 1.1. Provide a Muller automaton for this language whose acceptance condition contains only two sets, i.e., it is of the form $\{F_1, F_2\}$. [3 marks]
- 1.2. Show that a resolver which alternates between q_1 and q_2 provides an accepting run for all words in the language. [4 marks]
- 1.3. Who wins the 1-token game on this automaton? Justify. [4 marks]
- 1.4. Who wins the 2-token game on this automaton? Justify. [4 marks]

2. Prove that k -token games are finitely determined.

[5 marks]