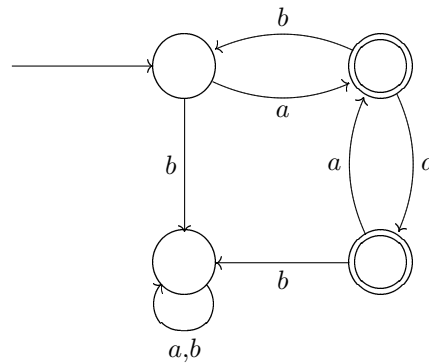


1988 Paper 2 Question 3

Formal Languages and Automata

- (a) Produce a regular expression for the language of this acceptor:



In answering, you may assume Arden's rule which states:
for $R, S, T \subseteq \Sigma^*$, if $\varepsilon \notin S$ and $R = T \cup SR$ then $R = S^*T$.

- (b) Prove that if L is a regular language then so is $\{x^R \mid x \in L\}$, where x^R is the reverse of a string x . You may use any well-known results provided you state them clearly.

(Hint: consider the different ways of constructing regular expressions)