

Exercise 7

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For all regular languages L a finite automaton $M = (Q, \Sigma, \delta, q_0, F)$ exists which recognizes L . $M' = (Q, \Sigma, \delta, q_0, Q \setminus F)$ recognizes the complement of L because every string which ends in an accepting state in M does not end in an accepting state in M' and vice versa. Therefore, the class of regular languages is closed under complementation.