

Problem 1.72. Let M_1 and M_2 be DFAs that have k_1 and k_2 states, respectively, and then let $U = L(M_1) \cup L(M_2)$.

Part a. Show that if $U \neq \phi$, then U contains some string s , where $|s| < \max(k_1, k_2)$.

Proof. Solution Replace this text with the details of your proof or solution. □

Part b. Show that if $U \neq \Sigma^*$, then U excludes some string s , where $|s| < k_1 k_2$.

Proof. Solution Replace this text with the details of your proof or solution. □