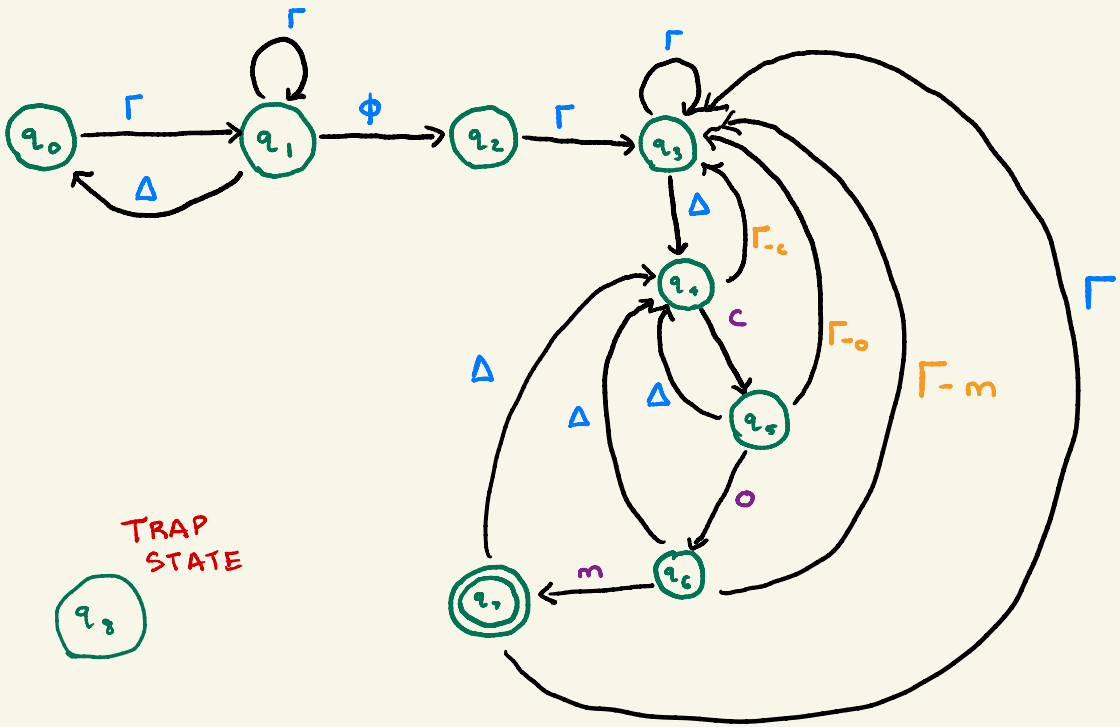
Parth Merchant
pmm44

DFA $M = (Q, \Sigma, \delta, q_0, F)$ recognizing L



* ALL EDGES NOT SPECIFIED GO TO A TRAP STATE *

$\Gamma = \{a, b, c, \ldots, z\}$

$\Delta = \{.\}$

$\Phi = \{@\}$

$\Sigma = \Gamma \cup \Delta \cup \Phi$

$S_1 = \Gamma\Gamma^*$

$S_2 = \Delta\Gamma\Gamma^*$

$S_3 = \{.com\}$

$L_1 = S_1 \Phi S_1 S_3$

$L_2 = S_1 S_2^* \Phi S_1 S_2^* S_3$

$L = L_1 \cup L_2$

COMPLETE SOLUTION:

Project 1:

language L

SETS ↓

$\Gamma = \{a, b, c, \ldots, z\}$ — set of lower-case Roman letters

$\Delta = \{.\}$ — period character

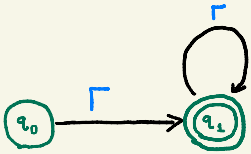
$\Phi = \{@\}$ — at character

$\Sigma = \Gamma \cup \Delta \cup \Phi$

SETS OF STRINGS ↓

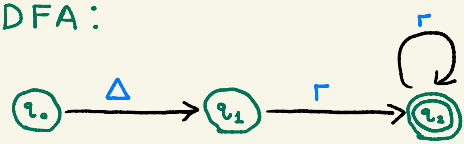
$S_1 = \Gamma\Gamma^*$ — Strings over Γ of length one or more

DFA:



$S_2 = \Delta\Gamma\Gamma^*$ — Strings starting with Δ and followed by one or more symbols from Γ

DFA:

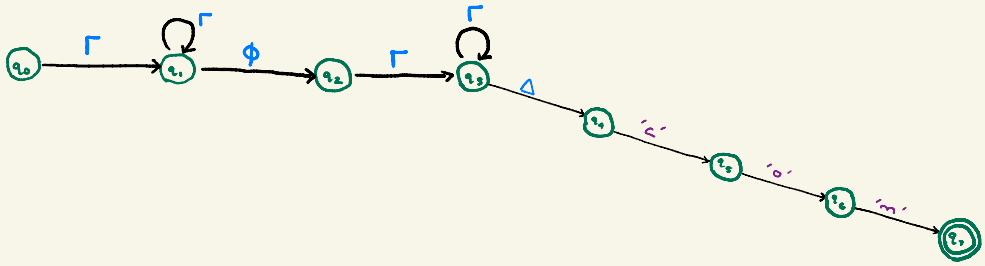


$S_3 = \{.com\}$] Strings starting with Δ followed by the consecutive characters 'c', 'o', 'm' from Γ

DFA:

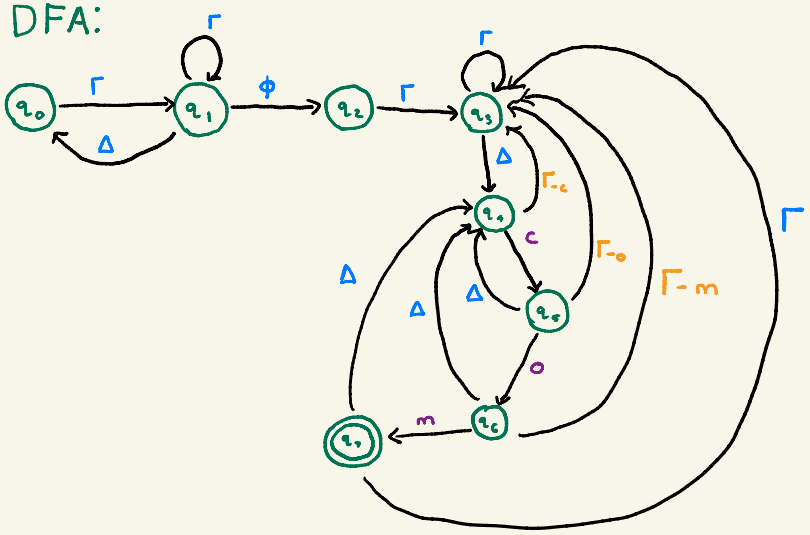
$L_1 = S_1 \phi S_1 S_3$ } EXAMPLE : johnsmith@gmail.com

DFA:



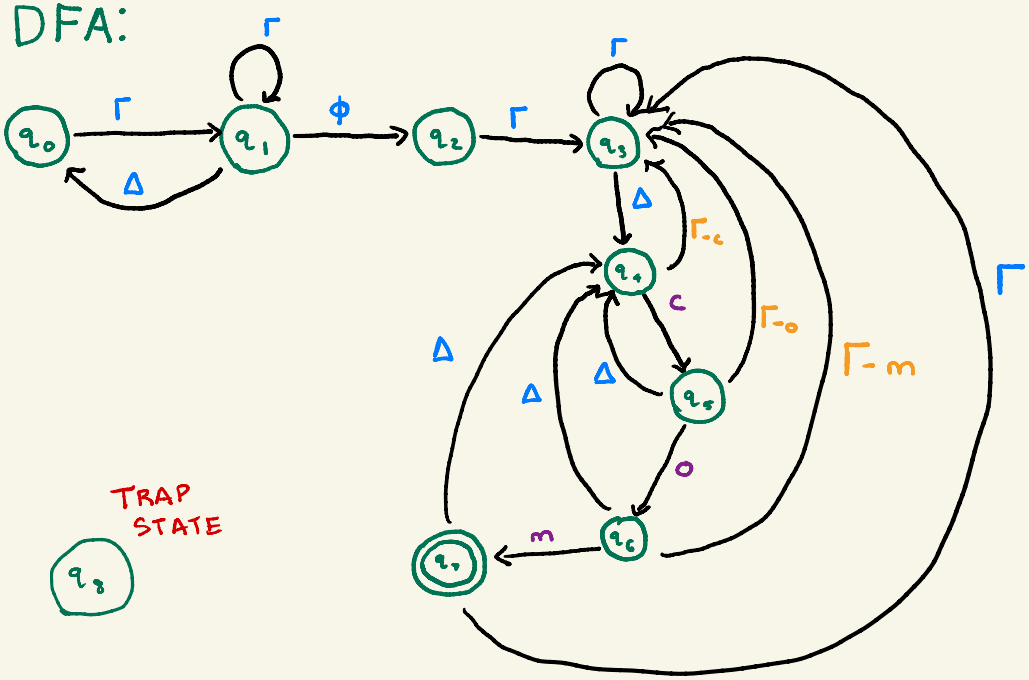
$L_2 = S_1 S_2^* \phi S_1 S_2^* S_3$ } EXAMPLE: john.smith@john.smith.com

DFA:



$L = L_1 \cup L_2$ } Strings that represent certain email addresses

DFA:



* ALL EDGES NOT SPECIFIED GO TO A TRAP STATE *