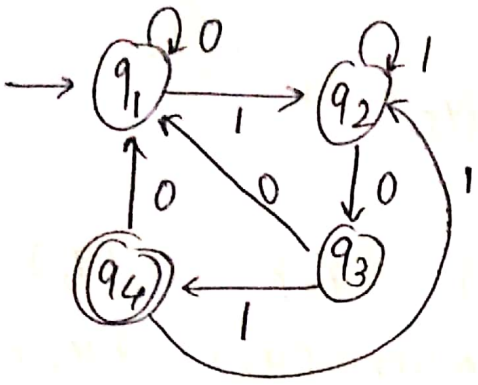
Ardenls Theorm

Ardenls Theorm - if $R = Q + RP$ then $R = QP^*$

Find Req. expr. corresponding to



$q_1 = q_1 0 + q_3 0 + q_4 0 + \epsilon$ — ① [ϵ as q_1 is Initial]

$q_2 = q_1 1 + q_2 1 + q_4 1$ — ②

$q_3 = q_2 0$ — ③ $\quad q_4 = q_3 1$ — ④

$= q_2 01$ put ③ ↳ ⑤ in ④

put ④ in ②

$q_2 = q_1 1 + q_2 1 + q_2 011$

$q_2 = q_1 1 (1 + 011)^*$ —— ⑥

put ③ and ④ in eq. ①

$q_1 = q_1 0 + q_2 00 + q_2 010 + \epsilon$

$= q_1 0 + q_2 (00 + 010) + \epsilon$

$= q_1 0 + q_1 1 (1 + 011)^* (00 + 010) + \epsilon$

$= \epsilon (0 + 1 (1 + 011)^* (00 + 010))^*$

put eq ⑤ in eq. ⑥

$q_4 = q_1 1 (1 + 011)^* 01$

$= (0 + 1 (1 + 011)^* (00 + 010))^* 1 (1 + 011)^* 01$