

CS 302
QUIZ 3

22 March 2023

ANSWERS (10 pts)

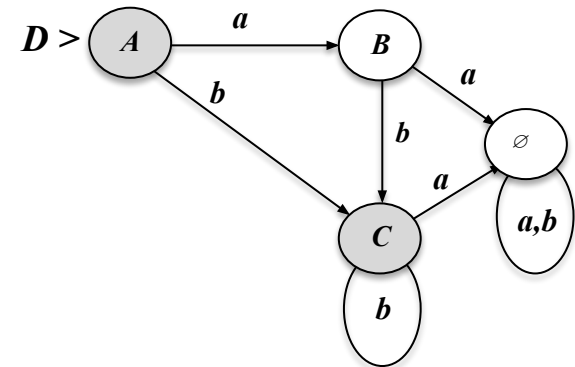
(a) (4 pts)

$E\text{-CLOSURE}(1) = \{1,2,3,4,5\}$; $E\text{-CLOSURE}(2) = \{2,3,4,5\}$; $E\text{-CLOSURE}(3) = \{3,4,5\}$;

$E\text{-CLOSURE}(4) = \{4\}$; $E\text{-CLOSURE}(5) = \{5,4\}$

(b) (6 pts) Compute the language L_X accepted by X .

state set Q	input = σ	next state set Q'
$\triangleright A^* := 1,2,3,4,5$	a	$B := 4$
A^*	b	$C^* := 3,5,4$
B	a	$\text{null} = \emptyset$
B	b	C
C^*	a	$\text{null} = \emptyset$
C^*	b	C
\emptyset	a	\emptyset
\emptyset	b	\emptyset



D is the DFA equivalent of X hence $L_X = L_D = e + a.b^+ + b^+$