Automi e Linguaggi Formali
Homework 3

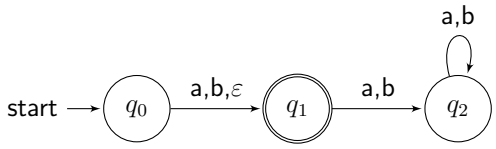
Es.3 Sia $\mathcal{L}$ il linguaggio definito dalla concatenazione $\mathcal{L}_1\mathcal{L}_2$ dei seguenti linguaggi sull'alfabeto $\Sigma^{a,b}$.

- $L1 = \{w||w| \leq 1\}$
- $L2 = \{w|ogniposizionidispariinwe'occupatadaunsimbolob\}$

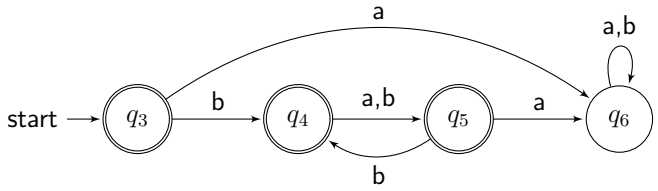
✎ Costruire l'NFA corrispondente e minimizzarlo

Soluzione:

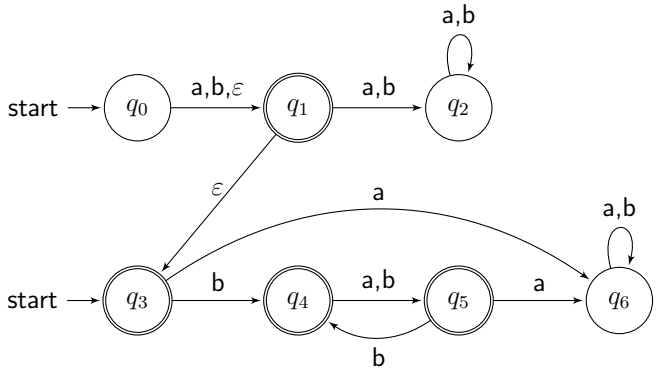
DFA(L1)



DFA(L2)



Concatenazione



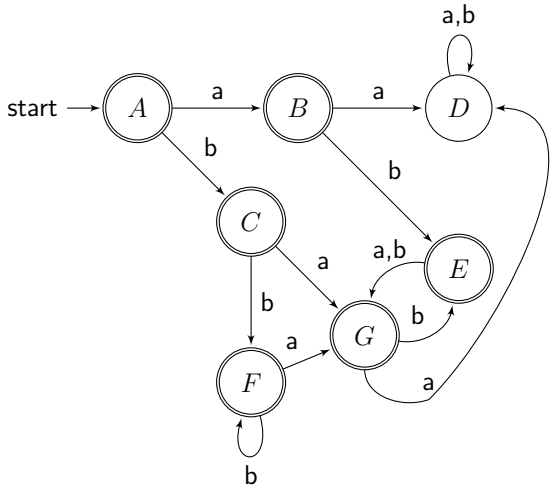
NFA$\rightarrow$ DFA

Tabella delle transizioni DFA

	a	b
$\vec{\star}\{q_0, q_1, q_3\}$	$\{q_1, q_2, q_3, q_6\}$	$\{q_1, q_2, q_3, q_4\}$
$\star\{q_1, q_2, q_3, q_6\}$	$\{q_2, q_6\}$	$\{q_2, q_4, q_6\}$
$\star\{q_1, q_2, q_3, q_4\}$	$\{q_2, q_5, q_6\}$	$\{q_2, q_4, q_5\}$
$\{q_2, q_6\}$	$\{q_2, q_6\}$	$\{q_2, q_6\}$
$\star\{q_2, q_4, q_6\}$	$\{q_2, q_5, q_6\}$	$\{q_2, q_5, q_6\}$
$\star\{q_2, q_4, q_5\}$	$\{q_2, q_5, q_6\}$	$\{q_2, q_4, q_5\}$
$\star\ \{q_2, q_5, q_6\}$	$\{q_2, q_6\}$	$\{q_2, q_4, q_6\}$

	a	b
$\vec{\star}$A	B	C
$\star$B	D	E
$\star$C	G	F
D	D	D
$\star$E	G	G
$\star$F	G	F
$\star$G	D	E

DFA



B						
C						
D	X	X	X			
E				X		
F				X		
G				X		
	A	B	C	D	E	F

A, B, C, E, F, G stati finali

B	X					
C		X				
D	X	X	X			
E		X		X		
F		X		X		
G	X		X	X	X	X
	A	B	C	D	E	F

$G, B \neq A, C, E, F$

B	X					
C		X				
D	X	X	X			
E	X	X	X	X		
F		X		X	X	
G	X		X	X	X	X
	A	B	C	D	E	F

$E \neq A, C, F$

DFA minimo