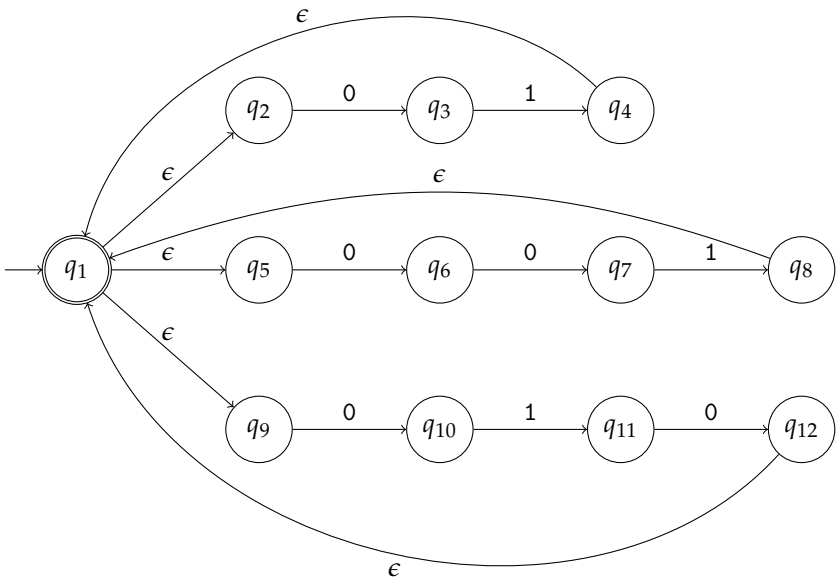
Homework 4

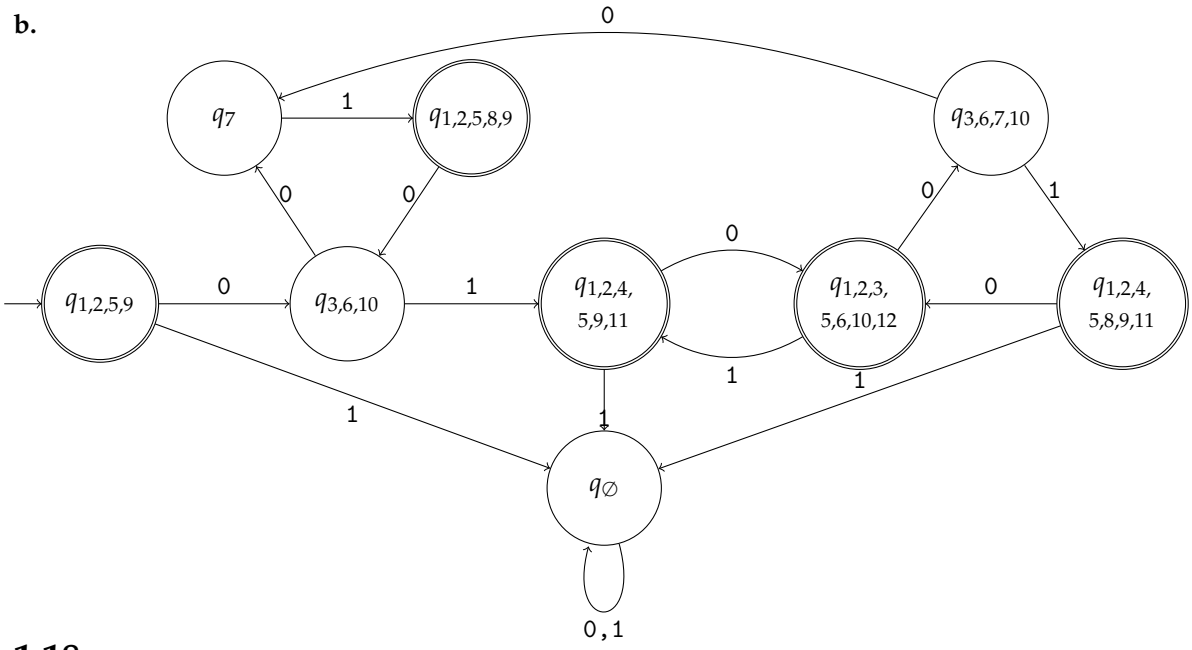
CMPS130 Computational Models, Spring 2015

1.17

a.



b.



1.18

a. $1\ (0+1)^*\ 0$

b. $0^*\ 1\ 0^*\ 1\ 0^*\ 1\ (0+1)^*$

c. $(0+1)^*\ 0\ 1\ 0\ 1\ (0+1)^*$

d. $(0+1)\ (0+1)\ 0\ (0+1)^*$

e. $0\ ((0+1)\ (0+1))^* + 1\ (0+1)\ ((0+1)\ (0+1))^*$

f. $(1\ 0\ 0^*)^*(\epsilon + (1\ 1\ 1^*))$

g. $(\epsilon+0+1)\ (\epsilon+0+1)\ (\epsilon+0+1)\ (\epsilon+0+1)\ (\epsilon+0+1)$

h. $\epsilon + 1 + 1\ 1\ 1\ 1\ 1^* + 1^*\ 0\ (0+1)^*$

i. $(1(0+1))^*\ (\epsilon+1)$

j. $0\ 0\ 0^* + 1\ 0\ 0\ 0^* + 0\ 1\ 0\ 0^* + 0^*\ 0\ 0\ 1\ 0^*$

k. $\epsilon + 0$

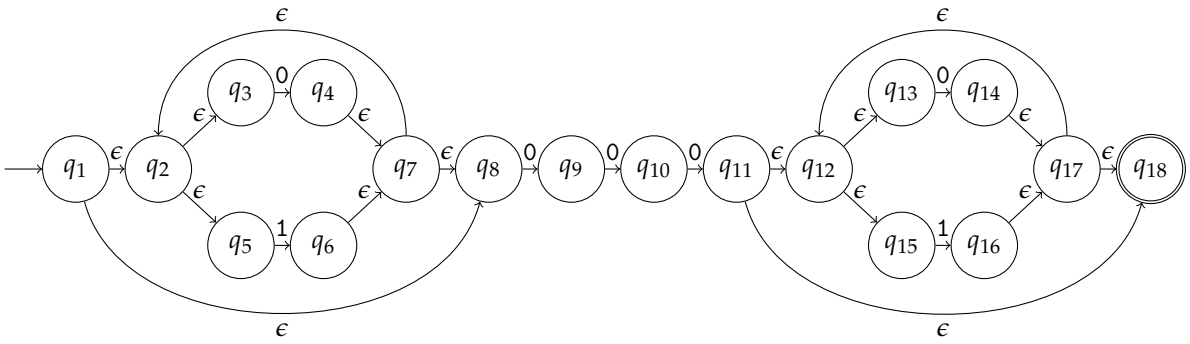
l. $1^*\ (0\ 1^*\ 0\ 1^*)^* + 0^*\ 1\ 0^*\ 1\ 0^*$

m. $\emptyset$

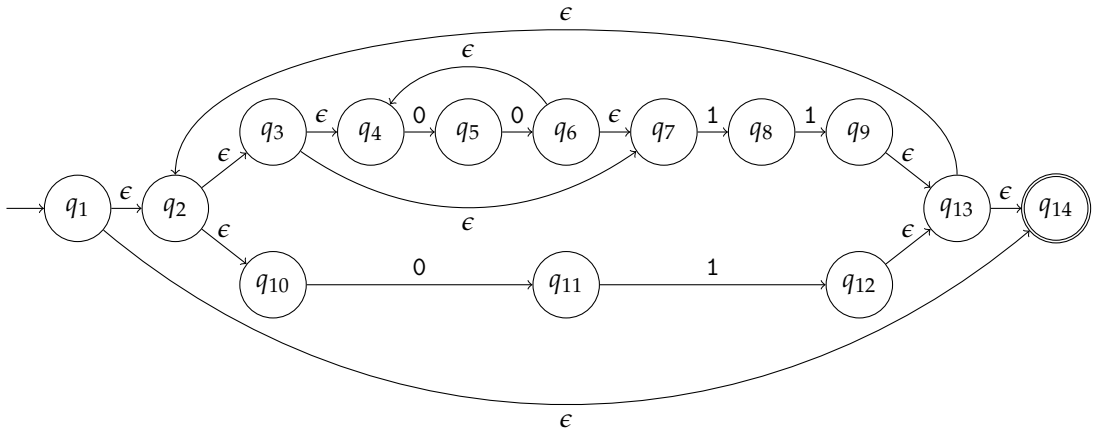
n. $(0+1)\ (0+1)^*$

1.19

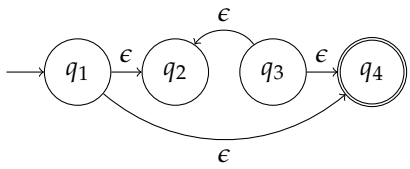
a.


q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
q14
q15
q16
q17
q18
ϵ
0
1

b.


q1
q2
q3
q4
q5
q6
q7
q8
q9
q10
q11
q12
q13
q14
ϵ
0
1

c.


q1
q2
q3
q4
ϵ

1.20

a. $\texttt{ab}, \texttt{aaabbb} \in L$ $\quad \texttt{ba}, \texttt{bbbaaa} \notin L$

b. $\texttt{ab}, \texttt{abababab} \in L$ $\quad \texttt{aa}, \texttt{bb} \notin L$

c. $\texttt{a}, \texttt{bbb} \in L$ $\quad \texttt{ab}, \texttt{bbaa} \notin L$

d. $\texttt{aaa}, \texttt{aaaaaa} \in L$ $\quad \texttt{b}, \texttt{aa} \notin L$

e. $\texttt{aba}, \texttt{aabbbaa} \in L$ $\quad \texttt{ab}, \texttt{ba} \notin L$

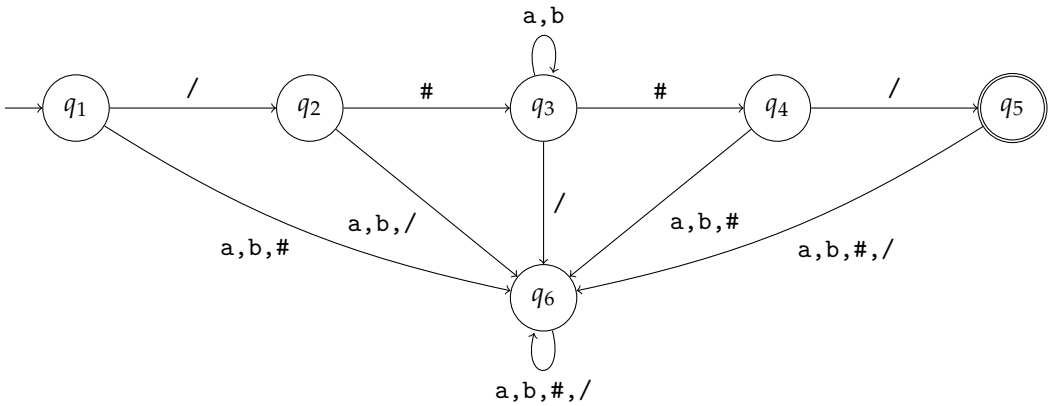
f. $\texttt{aba}, \texttt{bab} \in L$ $\quad \texttt{aa}, \texttt{bb} \notin L$

g. $\texttt{b}, \texttt{ab} \in L$ $\quad \texttt{a}, \texttt{aabb} \notin L$

h. $\texttt{ab}, \texttt{bbaa} \in L$ $\quad \epsilon, \texttt{b} \notin L$

1.22

a.



b. / # $(\texttt{a} + \texttt{b})^*$ # /