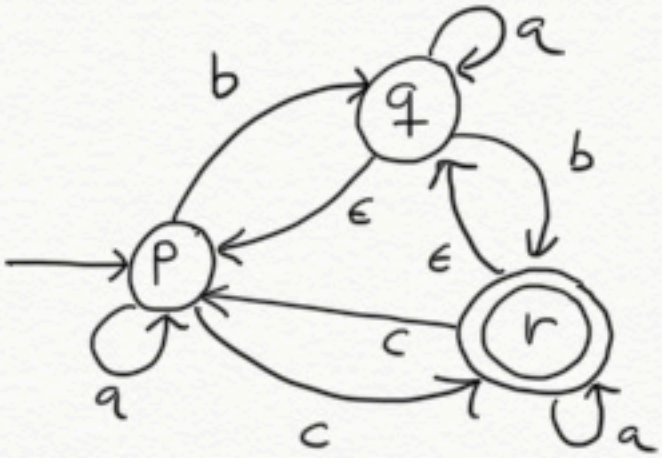
Exercise 2.5.1



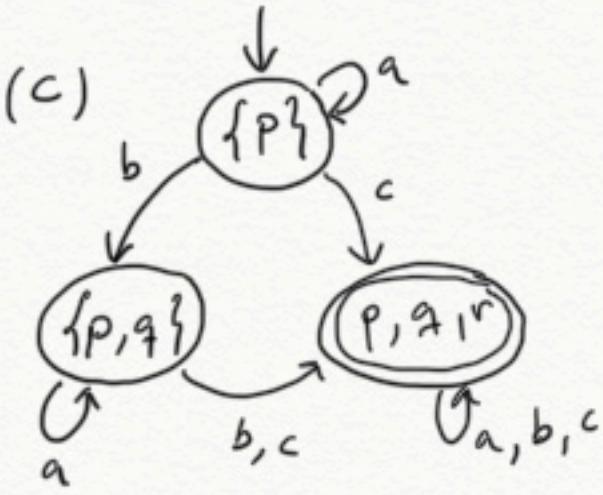
(a)

	ECLOSE
p	{p}
q	{q, p}
r	{r, q, p}

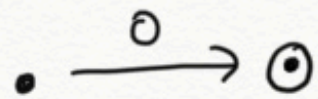
(b)

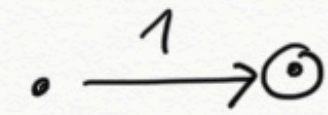
ω	accept?
ε	✗
a	✗
b	✗
c	✓
a a	✗
a b	✗
a c	✓
b a	✗
b b	✓
b c	✓
c a	✓
c b	✓
c c	✓

(c)

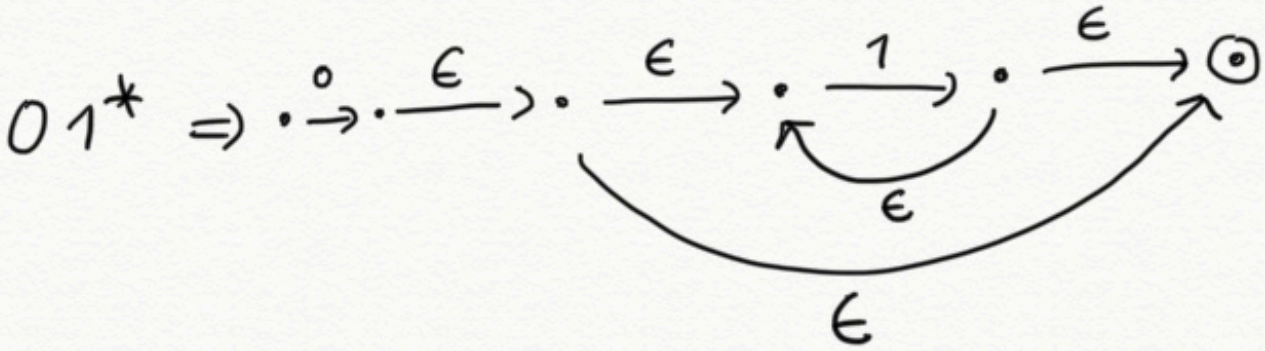


Exercise 3.2.4 (a)

$0 \Rightarrow$ 

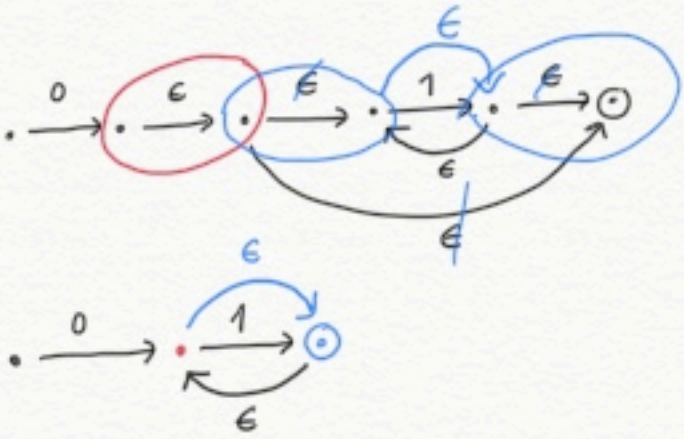
$1 \Rightarrow$ 

$1^* \Rightarrow$ 

$01^* \Rightarrow$ 

Exercise 3.2.7 (b)

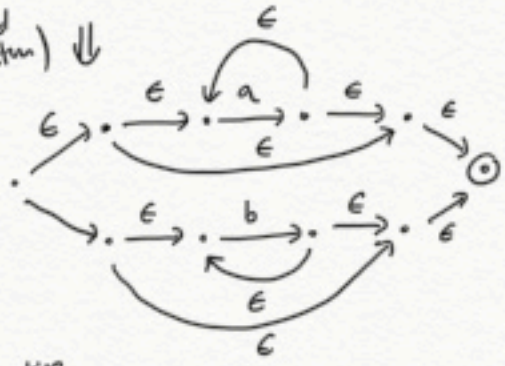
Applying simplifications (2) & (3) to 01^*



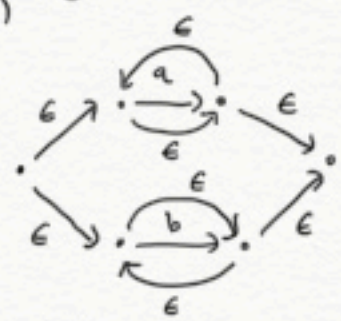
Example where simplification (1) & (3) do not work well

$a^* + b^*$

(standard algorithm) ⇓



simplification (3) ⇓

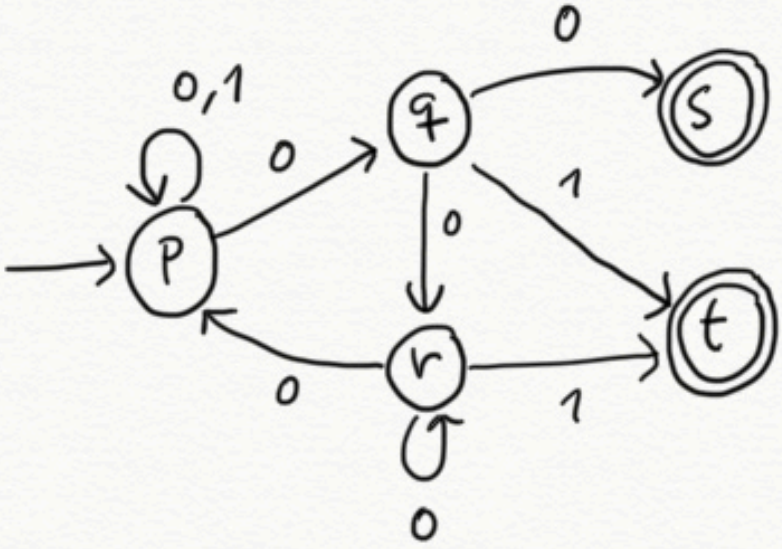


simplification (2) ⇓

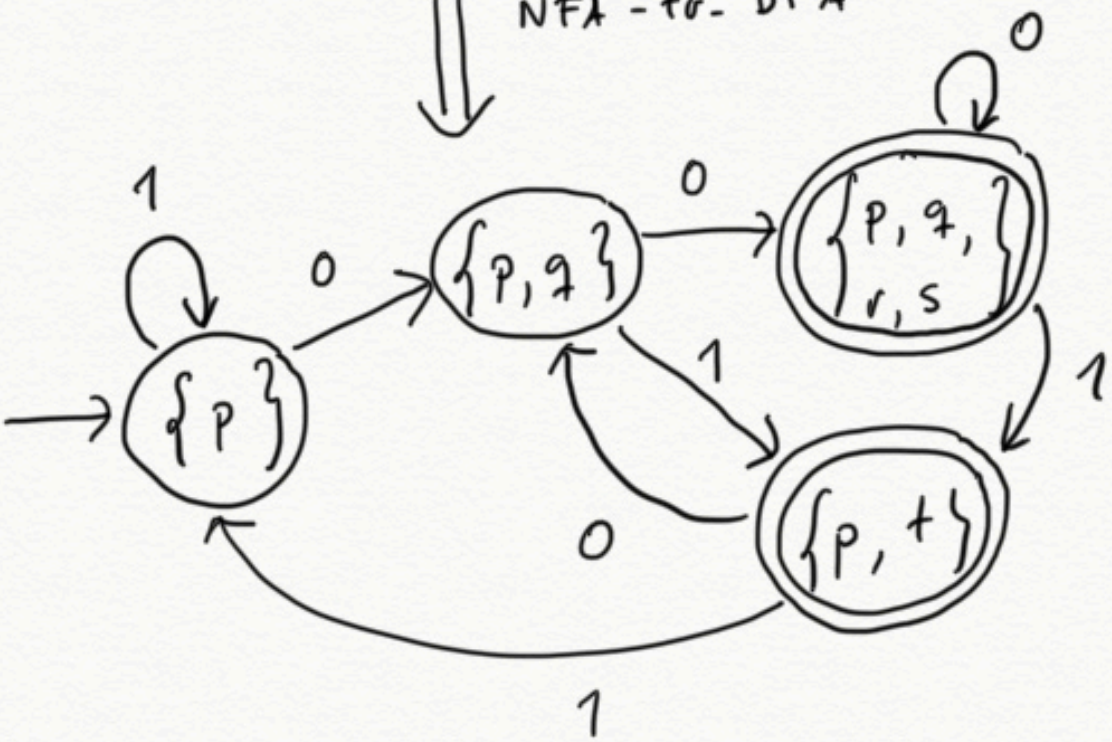
this is not $a^* + b^*$!

it is $(a+b)^*$

Exercise 2.3.3



NFA - to - DFA



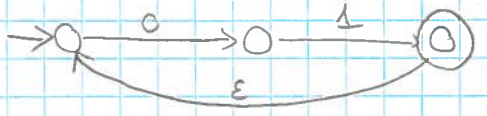
Strings of 0's and 1's that finish with

00 or 01

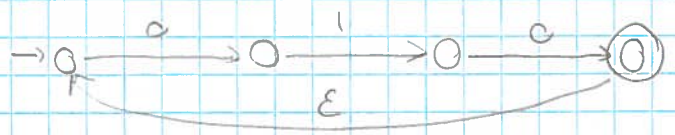
Exercise HMU 2.5.3 (b)

Design an ε-NFA for the set of strings consisting of either 01 repeated one or more times or 010 repeated one or more times.

The following ε-NFA will accept strings with 01 repeated one or more times:



The following ε-NFA will accept strings with 010 repeated one or more times:



For the combined language we therefore take