

1.1

Regex:  $(a(ba)^*b? | b(ab)^*a? | )c^+$

Three starting options:

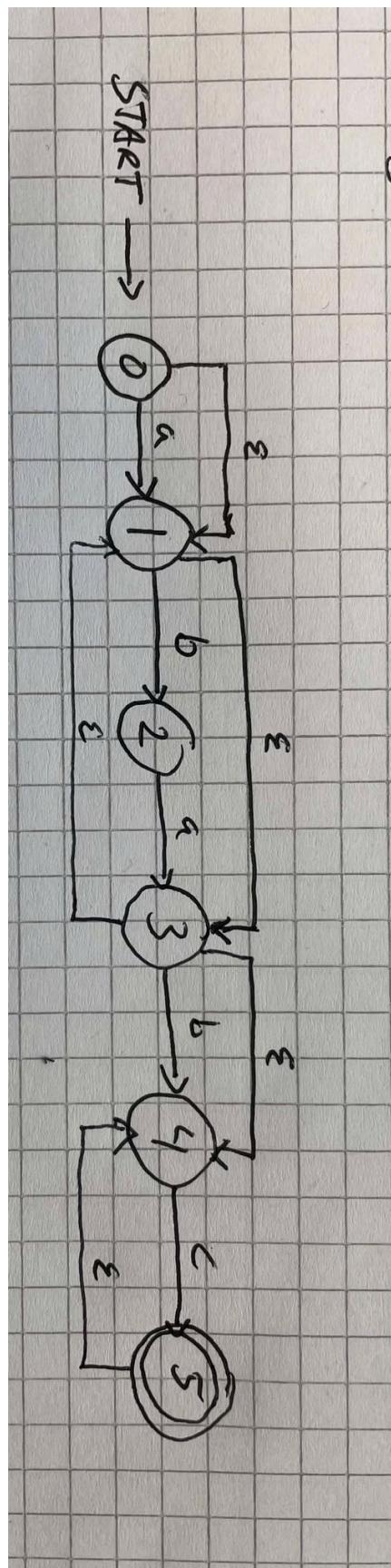
1.  $a$ , followed by any number of  $ba$  before an optional  $b$ .
2.  $b$ , followed by any number of  $ab$  before an optional  $a$ .
3. “Nothing”, i.e. we move to the  $c$  which becomes the start.

Followed by 1 or more number of  $c$ .

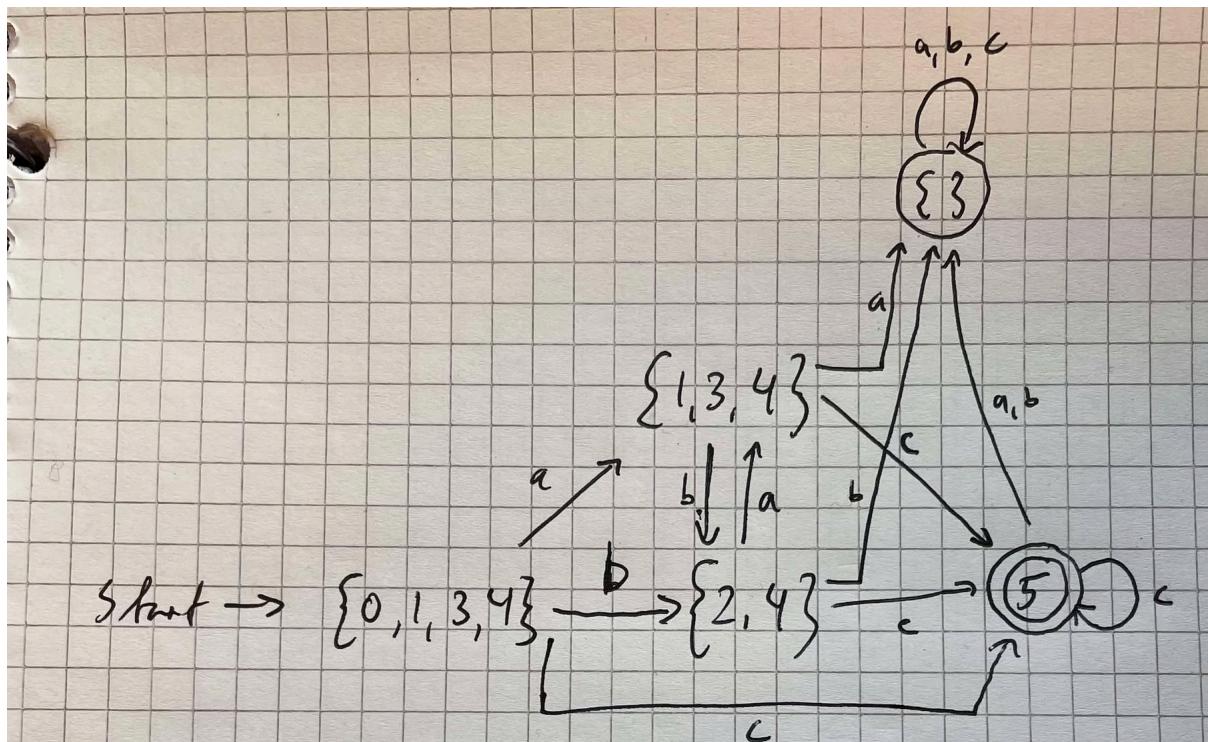
Simplified version:

Regex:  $a?(ba)^*b?c^+$

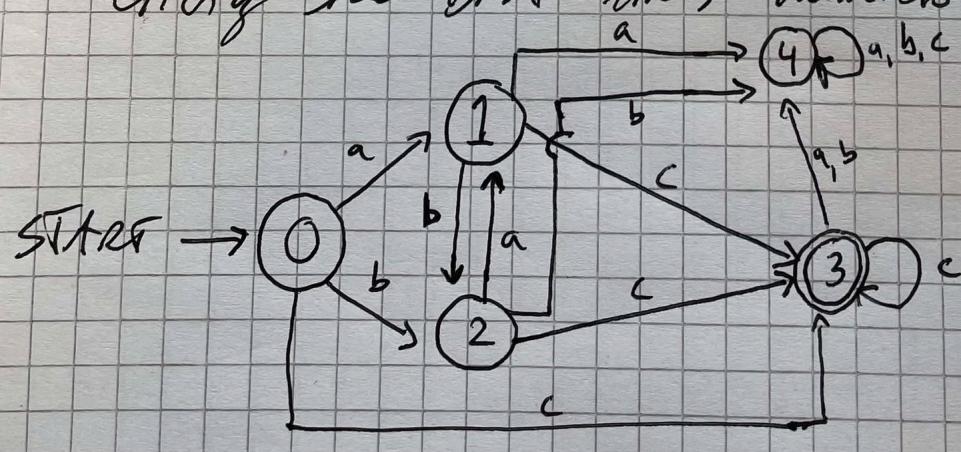
1.2



1.3



Giving the DFA-states numbers:



1.4

	0	1	2	3	4
0					
1	X				
2	X	X			
3	X	X	X		
4	X	X	X	X	

1.5

Creating a regex for the opposite language is very difficult as the regexes have no similarities / pattern to follow. “Inverting” the DFA is much easier and can be done by switching all accepting  $\leftrightarrow$  non-accepting states.