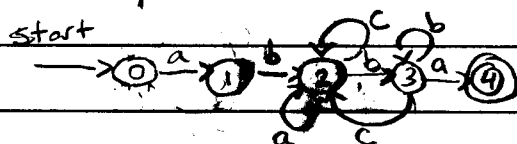


2a. strings of a's, b's, & c's s.t.  $abxba$  where  $x$  does not contain  $a$



b.  $\{(0 \ 1 \ 2 \ 3) \ (4)\}$

$(0 \ 1 \ 2 \ 3)$

$a \rightarrow (0 \ 1 \ 2) \ (3)$

$b \rightarrow (0 \ 1) \ (2)$

$b \rightarrow (0) \ (1)$

So (2a) already has the minimal number of states

- c.
- ① recognizes that it starts w/ a
  - ② recognizes that the second character is b
  - ③ makes sure that  $x$  can be a, b, or c
  - ④ makes sure if the last character <sup>of  $x$  was</sup>  $b$ , if the next is  $a$ , it terminates

d.  $(ab)(b)^*c(a)^*b^*(ba)$

~~$(a^*b^*)^*c(a^*b^*)^*b^*(ba)$~~