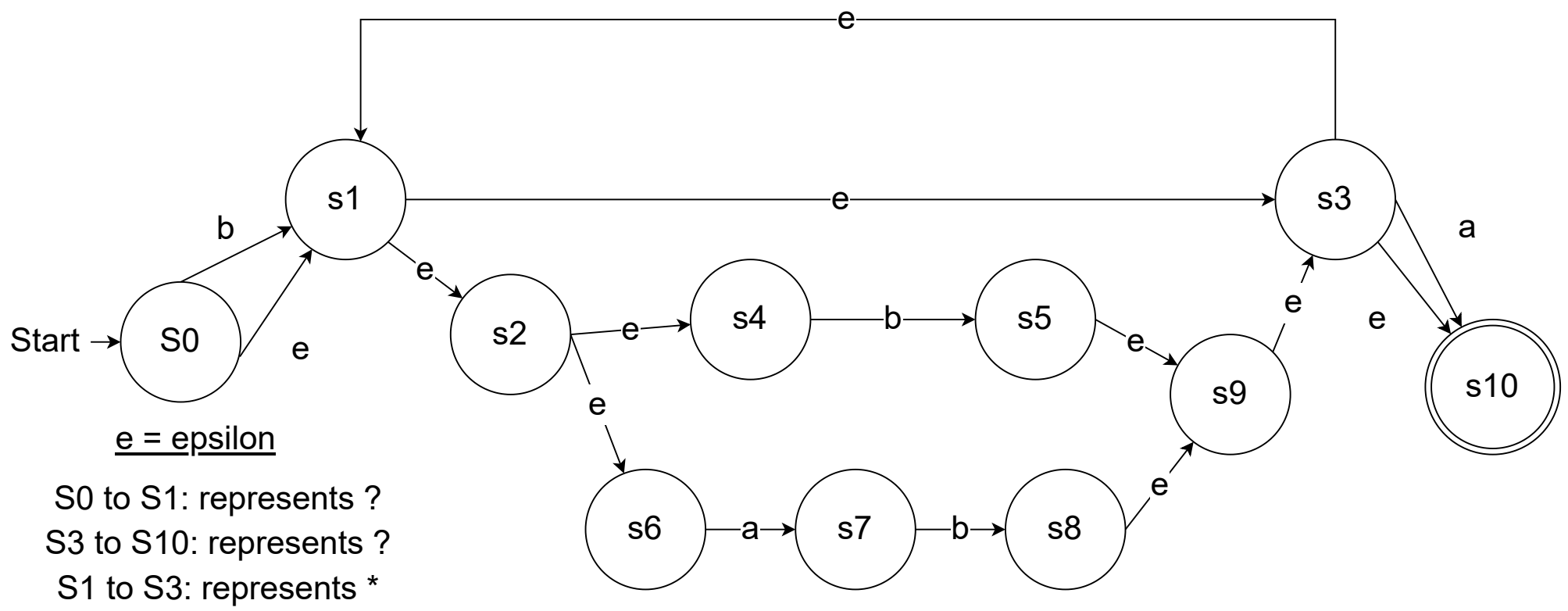
# REGEX

`b?(ab|b)*a?`

# NFA

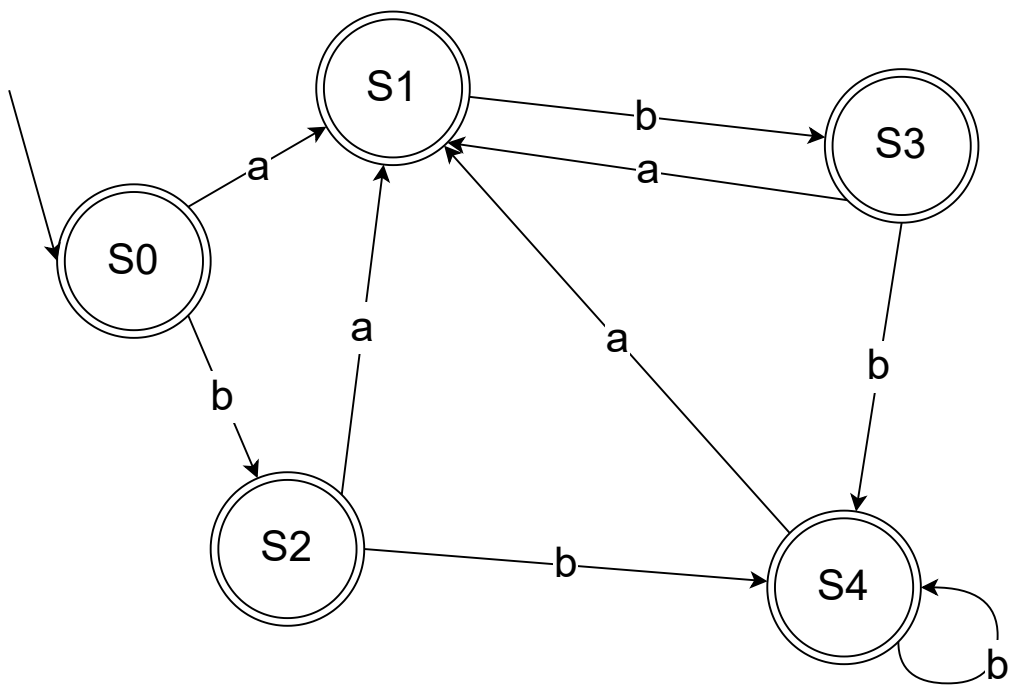



S0 to S1: represents ?
S3 to S10: represents ?
S1 to S3: represents *
S2 to S9: represents |

# DFA

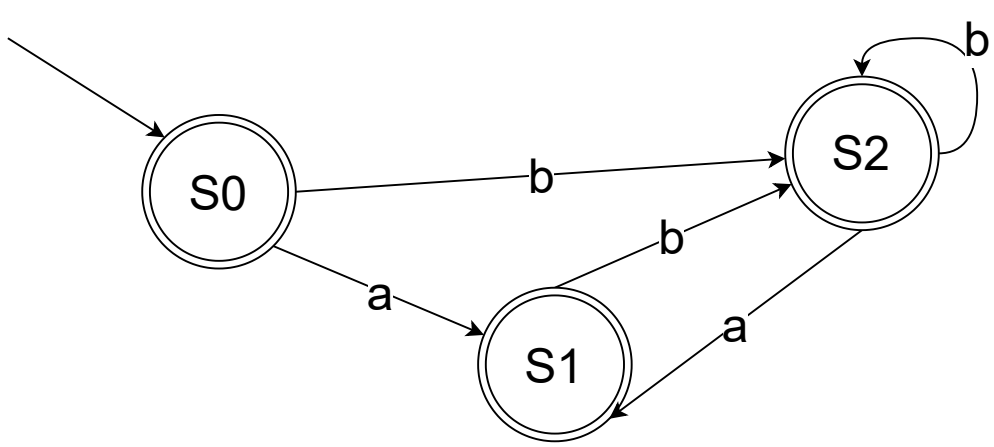
underlined = accepting state

| DFA | a | b | NFA |
|---|---|---|---|
| S0 | S1 (7,10) | S2 (1,5) | 0,1,2,3,4,6,<u>10</u> |
| S1 (7,10) | Ø | S3 (8) | 7, <u>10</u> |
| S2 (1,5) | S1 (7,10) | S4 (5) | 1,2,3,4,5,6,<u>10</u> |
| S3 (8) | S1 (7,10) | S4 (5) | 1,2,3,4,6,8,9,<u>10</u> |
| S4 (5) | S1 (7,10) | S4 (5) | 1,2,3,4,5,6,9,<u>10</u> |




# Optimized DFA

1st step




2nd step