# Actividad 3.1

Fernando Daniel Monroy Sánchez

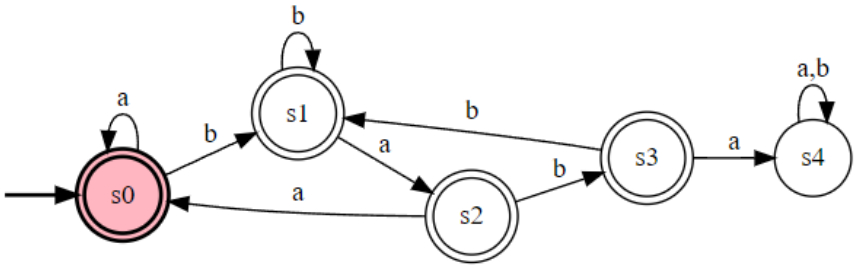
A01750536

TC2037.601

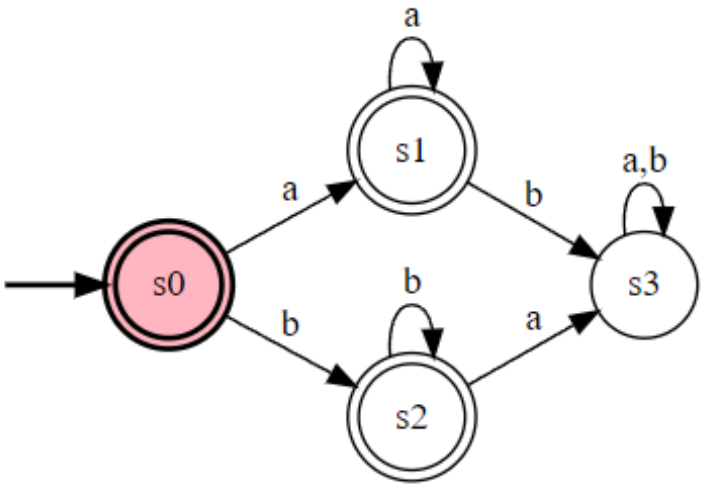
Marzo 15, 2024

## Autómatas finitos deterministas

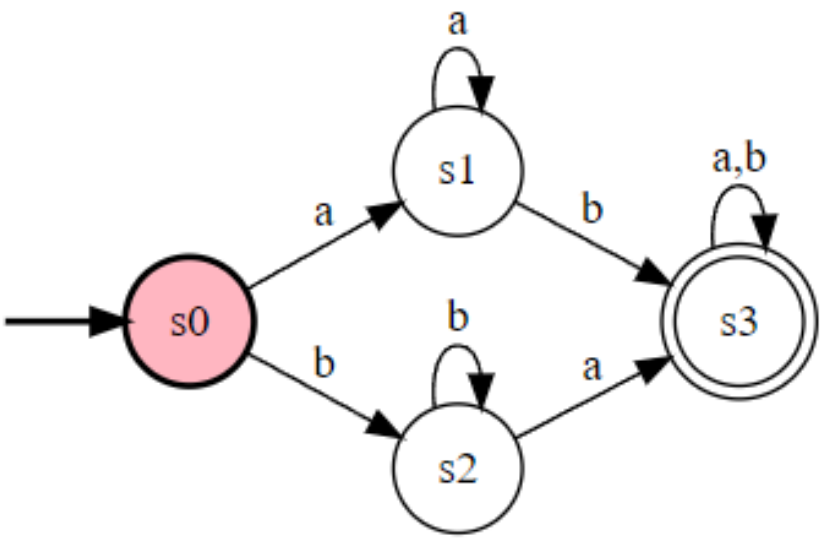
1. $L_1$



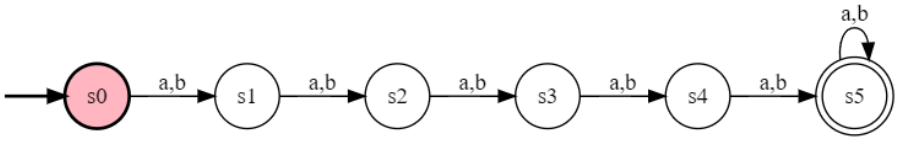

2. $L_2$



3. $L_3$

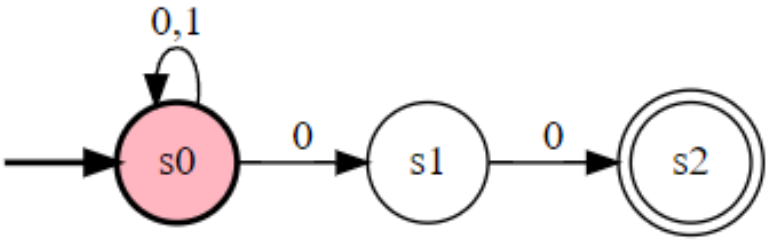



4. $L_4$

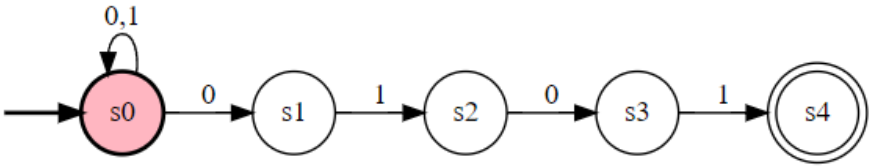


## Autómatas finitos no deterministas

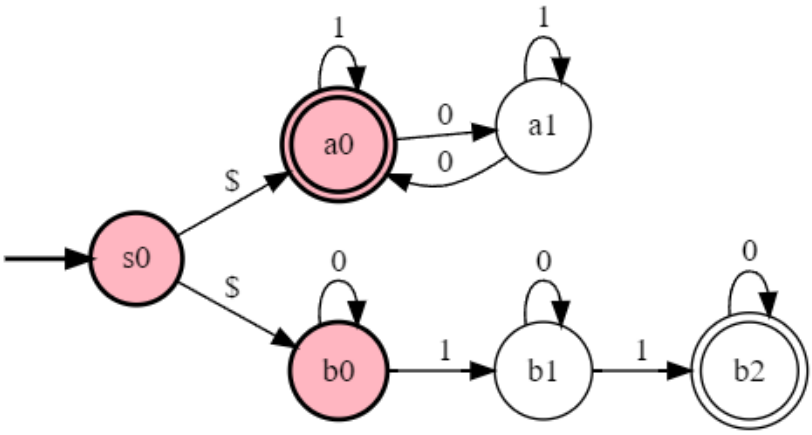
1. $L_5$



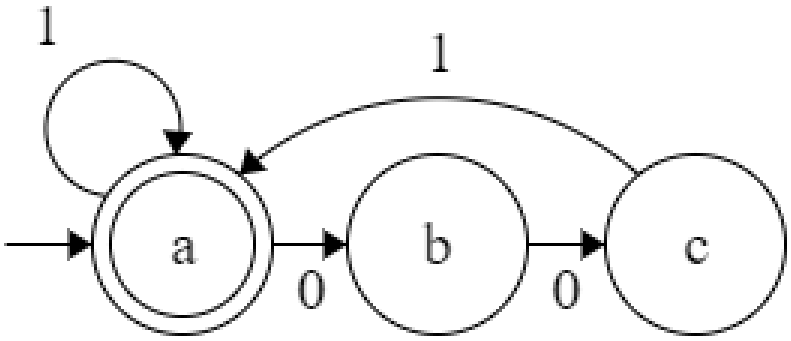

2. $L_6$



3. $L_7$

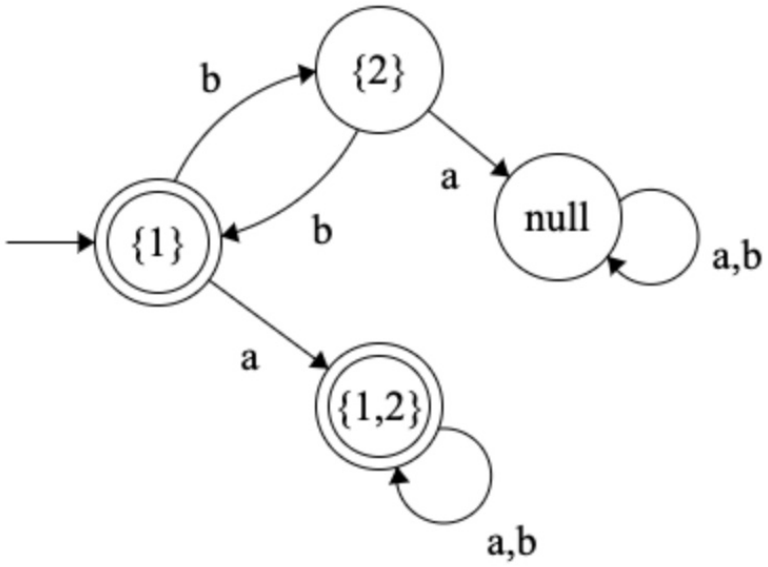



4. $L_8$



## Conversión de NFAs a DFAs

1.

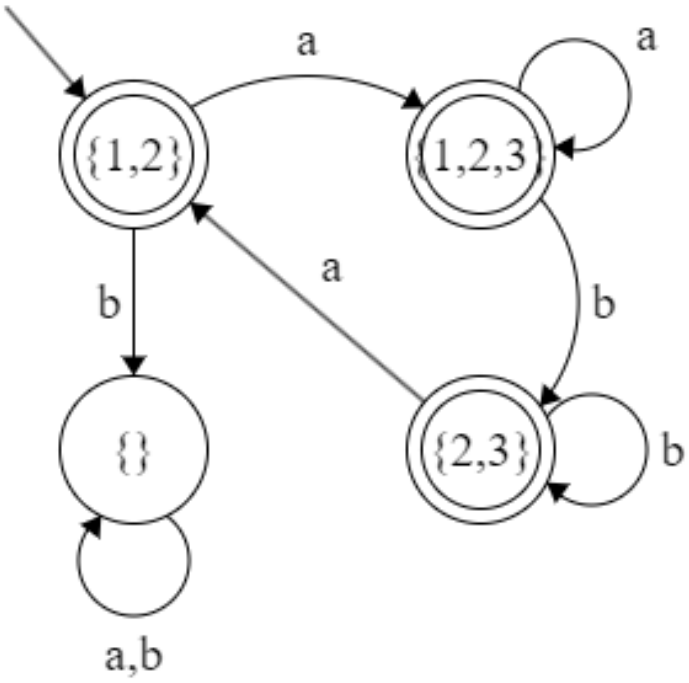



$Q' = \{\{\emptyset\}, \{1\}, \{2\}, \{1,2\}\}$ $E = \{a, b\}$ $q_0' = \{1\}$ $F' = \{\{1\}, \{1,2\}\}$

$\delta =$

| | a | b |
|---|---|---|
| Ø | Ø | Ø |
| 1 | 1,2 | 2 |
| 2 | Ø | 1 |
| 1,2 | 1,2 | 1,2 |

2.




$Q' = \{\{\emptyset\}, \{1,2\}, \{2,3\}, \{1,2,3\}\}$ $E = \{a, b\}$ $q_0' = \{1,2\}$ $F' = \{\{1,2\}, \{2,3\}, \{1,2,3\}\}$

$\delta =$

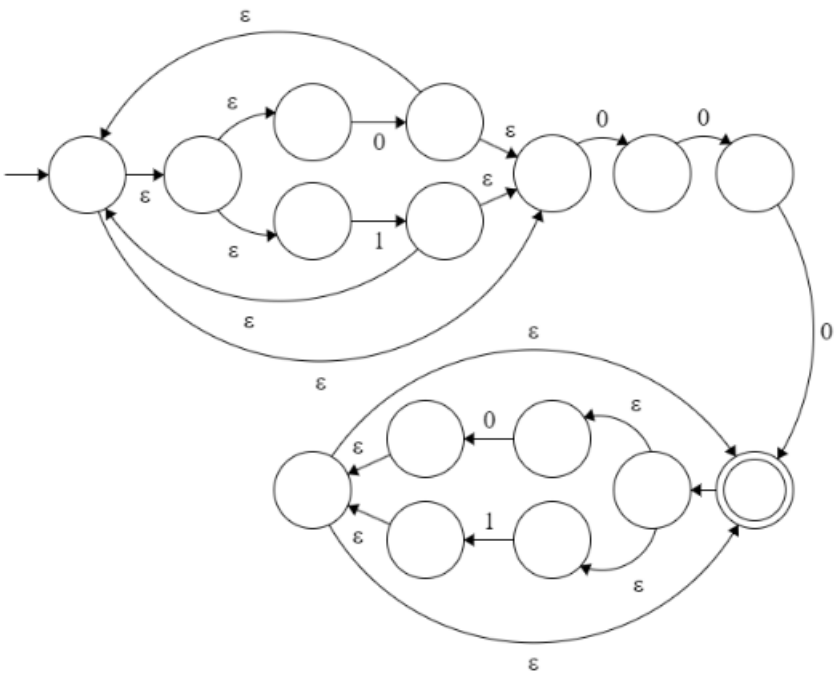
| | **a** | **b** |
|---|---|---|
| Ø | Ø | Ø |
| 1,2 | 1,2,3 | Ø |
| 2,3 | 1,2 | 2,3 |
| 1,2,3 | 1,2,3 | 2,3 |

## Construcción de expresiones regulares

1. $A_1 = 1\Sigma^*0$
2. $A_2 = \Sigma^*1\Sigma^*1\Sigma^*1\Sigma^*$
3. $A_3 = \Sigma^*0101\Sigma^*$
4. $A_4 = \Sigma^20\Sigma^*$

## Expresiones regulares y NFAs

1. $R_1$



2. $R_2$