MOORE & MEALY

FIRDAUS SOLIHIN

FA yg menghasilkan OUTPUT

- Mesin Moore
- Mesin Mealy

MOORE vs MEALY

- OUTPUT
  - Moore ➔ berada di dalam setiap state
  - Mealy ➔ berada di setiap jalur transisi
- Panjang Output
  - Moore = Panjang input +1
  - Mealy = Panjang input

MESIN MOORE

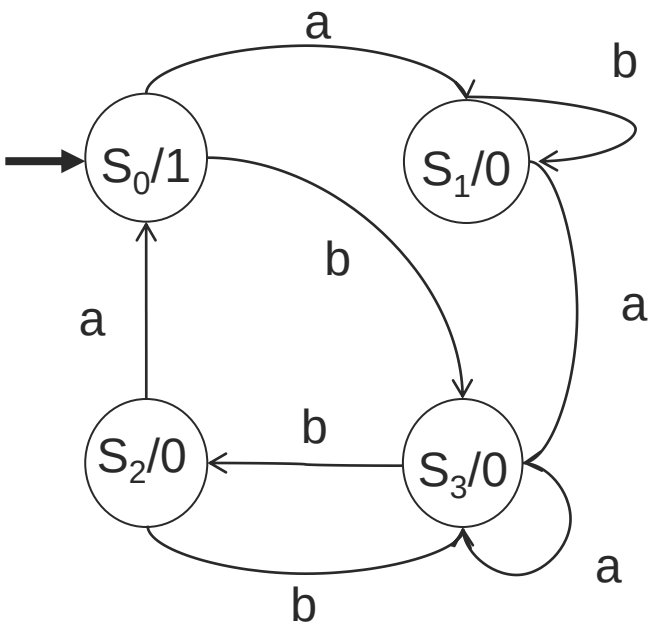
Komponen MESIN MOORE

- Himp State $\{S_0, S_1, S_2, \ldots.\}$
- Himp abjad input Notasi $\in$={a,b,c, ..}
- Himp abjad output τ ={x,y,z, ..}
- Tabel Transisi dan Output

Contoh1 MESIN MOORE

- Suatu Mesin Moore mempunyai data sbb:
  - State = {S_0, S_1, S_2, S_3} dan S_0 = state awal
  - $\in$={a,b}
  - τ ={0,1}
  - Tabel Transisi

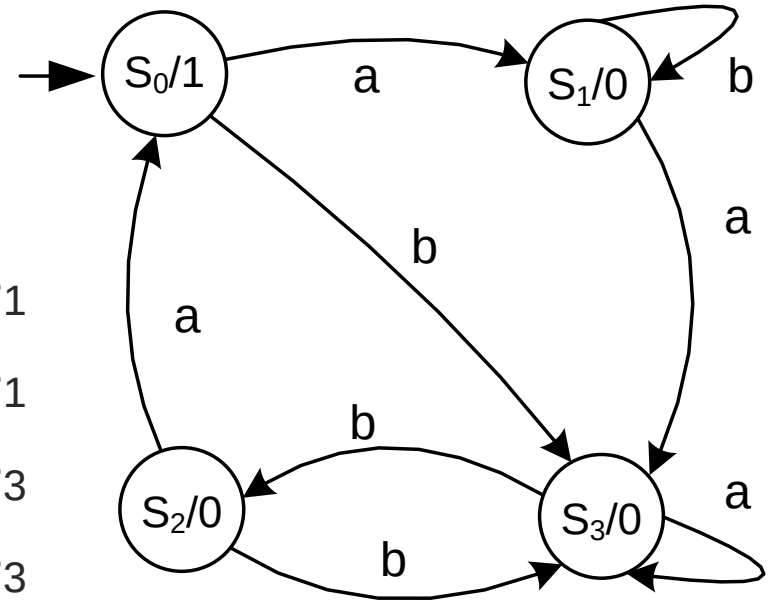
	a	b	Out
S_0	S_1	S_3	1
S_1	S_3	S_1	0
S_2	S_0	S_3	0
S_3	S_3	S_2	0



Contoh1 (Test Input abaab)

Misal diberi input

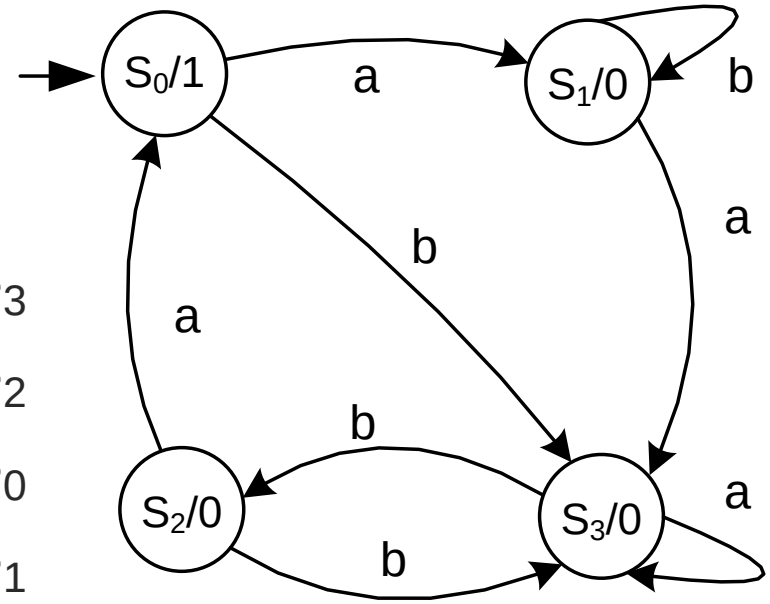
- abaab
  - S_0 output 1 diinput a ke S_1
  - S_1 output 0 diinput b ke S_1
  - S_1 output 0 diinput a ke S_3
  - S_3 output 0 diinput a ke S_3
  - S_3 output 0 diinput b ke S_2
  - S_2 output 0
- Jadi Output = **100000**



Contoh1 (Test Input bbaaba)

Misal diberi input

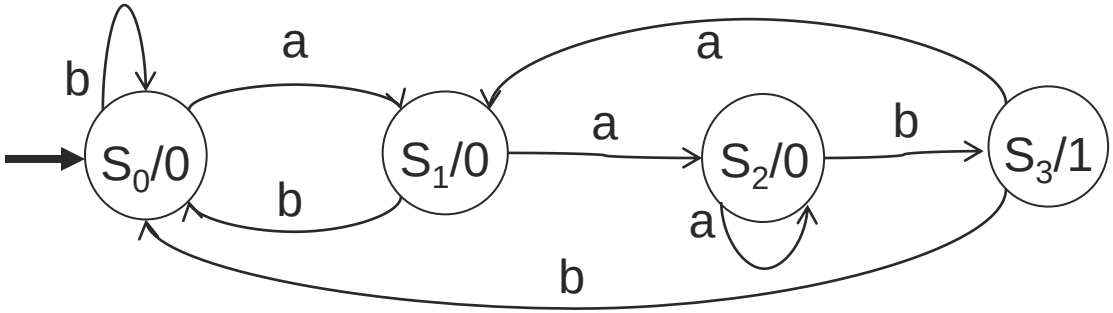
- bbaaba
  - S_0 output 1 diinput b ke S_3
  - S_3 output 0 diinput b ke S_2
  - S_2 output 0 diinput a ke S_0
  - S_0 output 1 diinput a ke S_1
  - S_1 output 0 diinput b ke S_1
  - S_1 output 0 diinput a ke S_3
  - S_3 output 0
- Jadi Output **1001000**



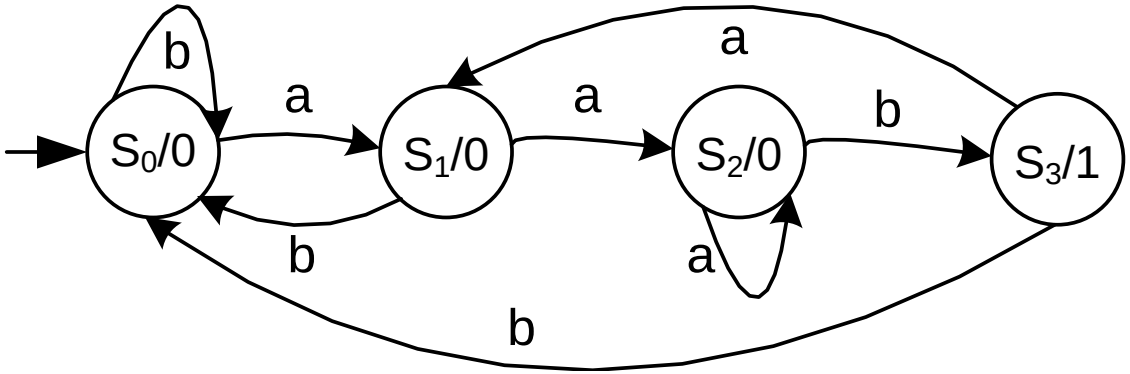
Contoh2 MESIN MOORE

- Suatu Mesin Moore mempunyai data sbb:
  - State = {S_0, S_1, S_2, S_3} dan S_0 = state awal
  - $\in$={a,b}
  - τ ={0,1}
  - Tabel Transisi

	a	b	Out
S_0	S_1	S_0	0
S_1	S_2	S_0	0
S_2	S_2	S_3	0
S_3	S_1	S_0	1



Contoh2 (test input = abaabbaaabaab)



1. S_0 output 0 diinput a ke S_1
2. S_1 output 0 diinput b ke S_0
3. S_0 output 0 diinput a ke S_1
4. S_1 output 0 diinput a ke S_2
5. S_2 output 0 diinput b ke S_3
6. S_3 output 1 diinput b ke S_0
7. S_0 output 0 diinput a ke S_1
8. S_1 output 0 diinput a ke S_2
9. S_2 output 0 diinput a ke S_2
10. S_2 output 0 diinput b ke S_3
11. S_3 output 1 diinput a ke S_1
12. S_1 output 0 diinput a ke S_2
13. S_2 output 0 diinput b ke S_3
14. S_3 output 1

Jadi Output = 00000100001001

MESIN MEALY

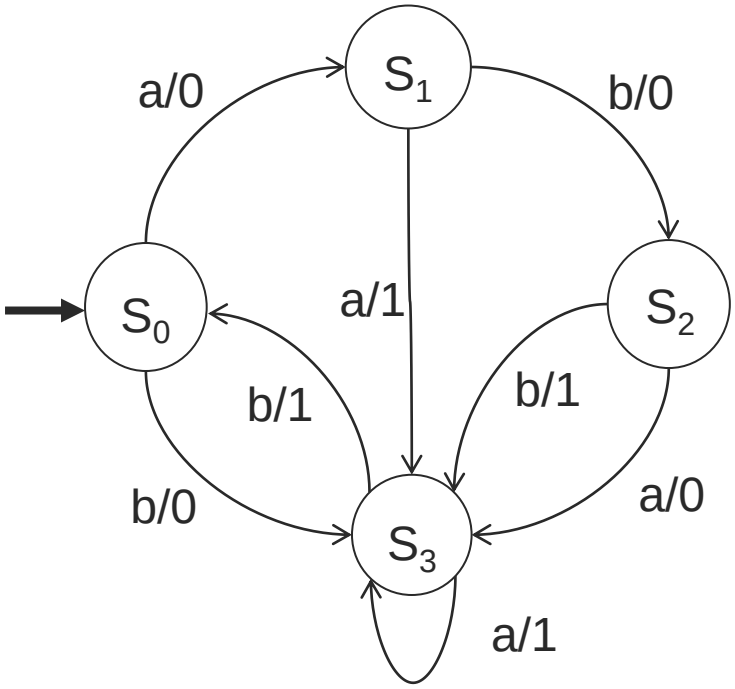
Komponen MESIN MEALY

- Himp State $\{S_0, S_1, S_2, \ldots.\}$
- Himp abjad input Notasi $\in$={a,b,c, ..}
- Himp abjad output τ ={x,y,z, ..}
- Tabel Transisi dan Output

Contoh1 MESIN MEALY

- Suatu Mesin Mealy mempunyai data sbb:
  - State = {S_0, S_1, S_2, S_3} dan S_0 = state awal
  - $\in$={a,b}
  - τ ={0,1}
  - Tabel Transisi

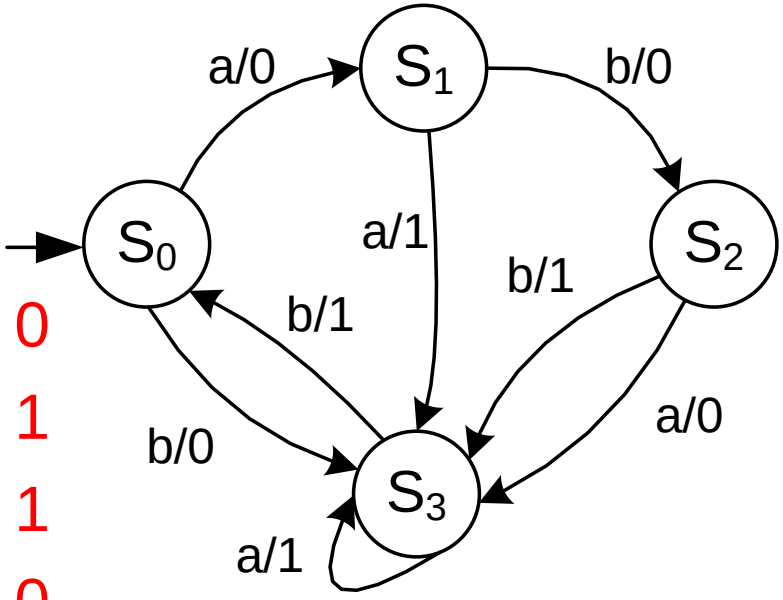
	a	Out	b	Out
S_0	S_1	0	S_3	0
S_1	S_3	1	S_2	0
S_2	S_3	0	S_3	1
S_3	S_3	1	S_0	1



Contoh1 (input aabaa)

Misal diberi input

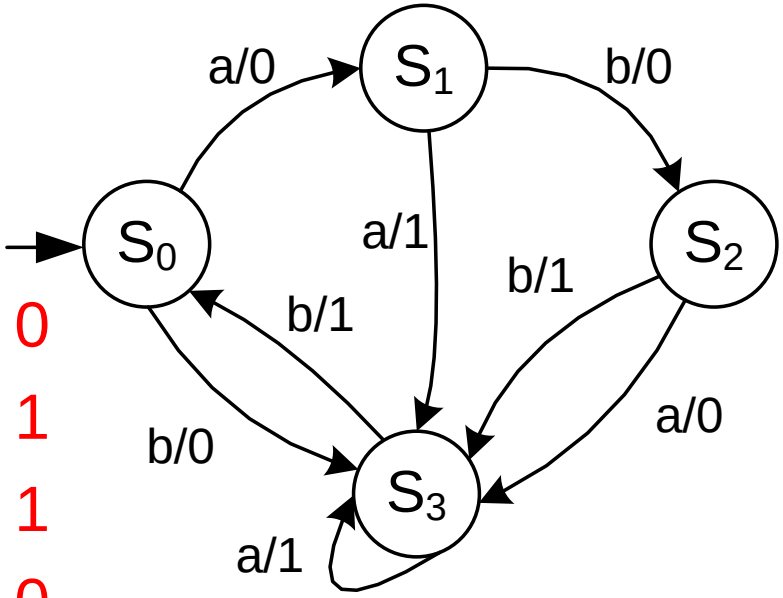
- aabaa
  - S_0 diinput a ke S_1 output 0
  - S_1 diinput a ke S_3 output 1
  - S_3 diinput b ke S_0 output 1
  - S_0 diinput a ke S_1 output 0
  - S_1 diinput a ke S_3 output 1
- Jadi Output = **01101**



Contoh2 (input bababb)

Misal diberi input

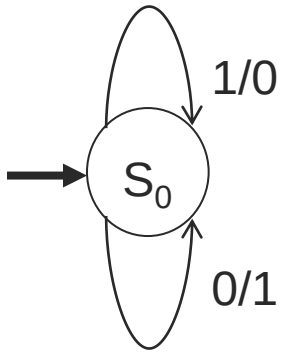
- bababb
  - S_0 diinput b ke S_3 output 0
  - S_3 diinput a ke S_3 output 1
  - S_3 diinput b ke S_0 output 1
  - S_0 diinput a ke S_1 output 0
  - S_1 diinput b ke S_2 output 0
  - S_2 diinput b ke S_3 output 1
- Jadi Output = **011001**



Contoh2 MESIN MEALY

- Suatu Mesin Mealy mempunyai data sbb:
  - State = $\{S_0\}$ dan S_0 = state awal
  - $\in$={0,1}
  - τ ={0,1}
  - Tabel Transisi

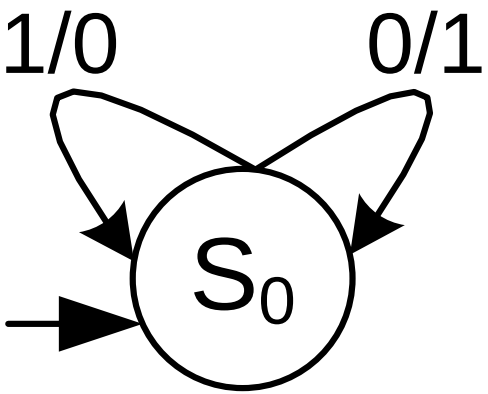
	0	Out	1	Out
S_0	S_0	1	S_0	0



Contoh2 (input 0001110)

Misal diberi input

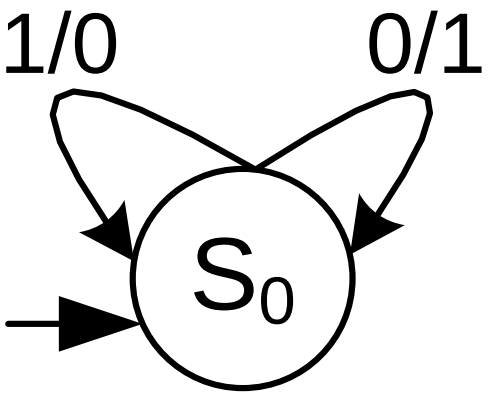
- 0001110
  - S_0 diinput 0 ke S_0 output 1
  - S_0 diinput 0 ke S_3 output 1
  - S_0 diinput 0 ke S_3 output 1
  - S_0 diinput 1 ke S_3 output 0
  - S_0 diinput 1 ke S_3 output 0
  - S_0 diinput 1 ke S_3 output 0
  - S_0 diinput 0 ke S_3 output 1
- Jadi Output = **1110001**



Contoh2 (input 101010)

Misal diberi input

- 101010
  - S_0 diinput 1 ke S_0 output 0
  - S_0 diinput 0 ke S_3 output 1
  - S_0 diinput 1 ke S_3 output 0
  - S_0 diinput 0 ke S_3 output 1
  - S_0 diinput 1 ke S_3 output 0
  - S_0 diinput 0 ke S_3 output 1
- Jadi Output = **010101**



Merubah MOORE←→MEALY

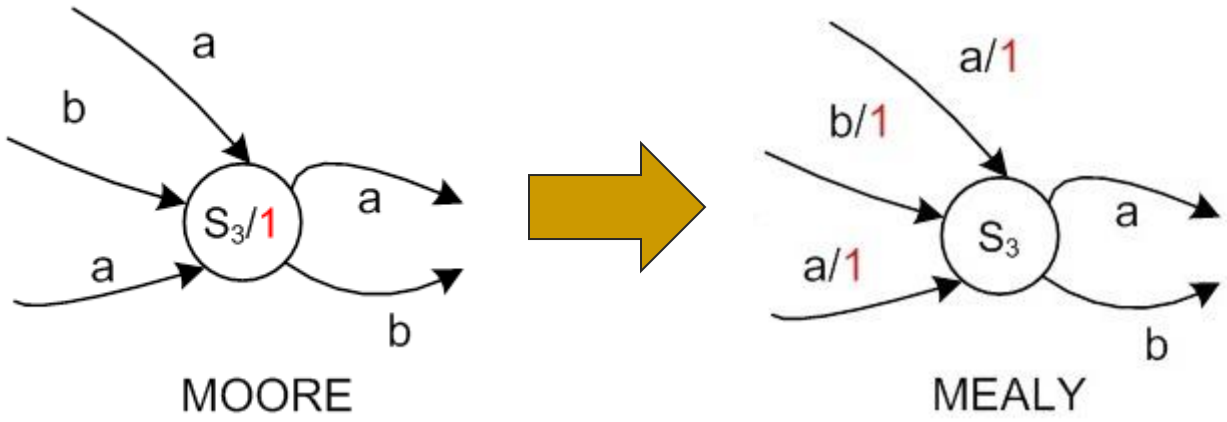
MOORE ➔ MEALY

- TEOREMA I

  Setiap mesin moore dapat diubah menjadi mesin mealy yang menghasilkan output yang sama (kecuali bit paling kiri dihilangkan)

Cara merubah MOORE ➔ MEALY

- Setiap panah yang menuju suatu state pada mesin moore akan menjadi panah dengan output sama dengan output state pada mesin mealy



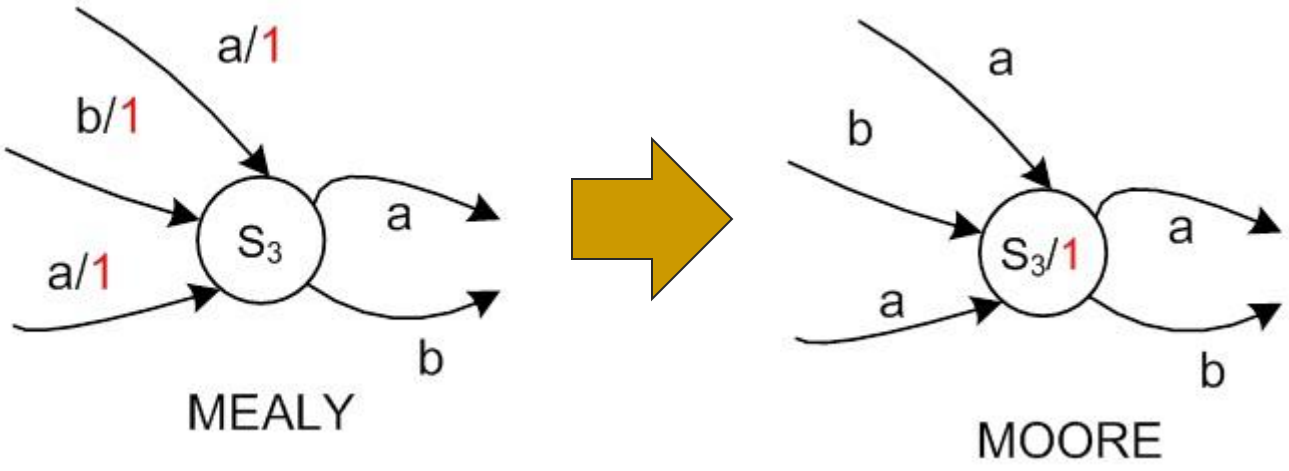
MEALY → MOORE

- TEOREMA II

  Setiap mesin mealy dapat diubah menjadi mesin moore yang akan menghasilkan output yang sama

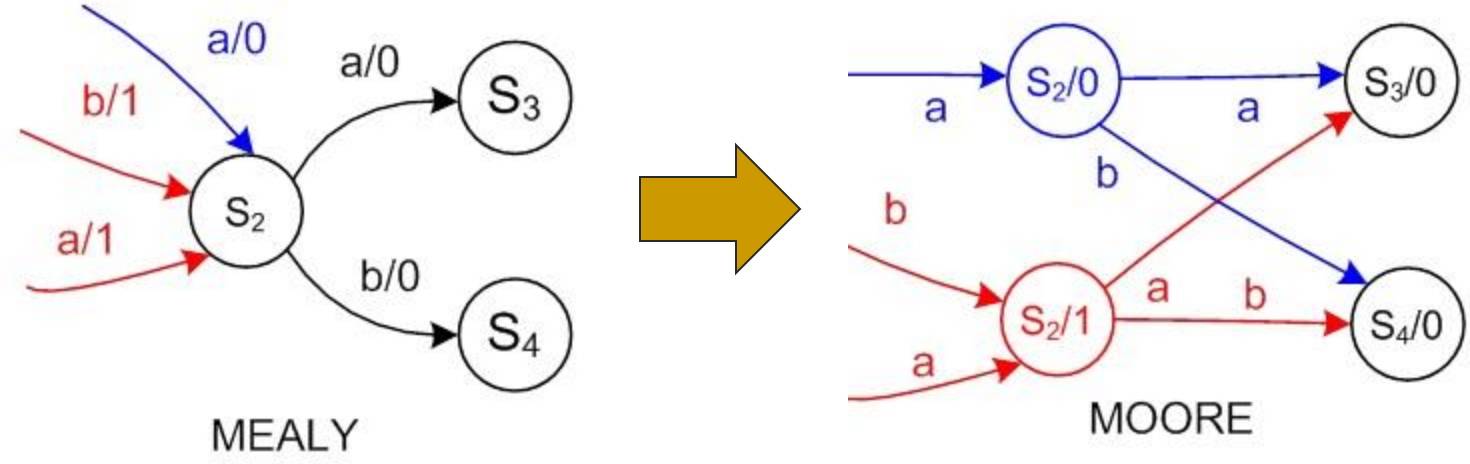
Cara merubah MEALY ➔ MOORE

1. Jika panah yang masuk sebuah state memiliki input yang sama (pada mesin moore)



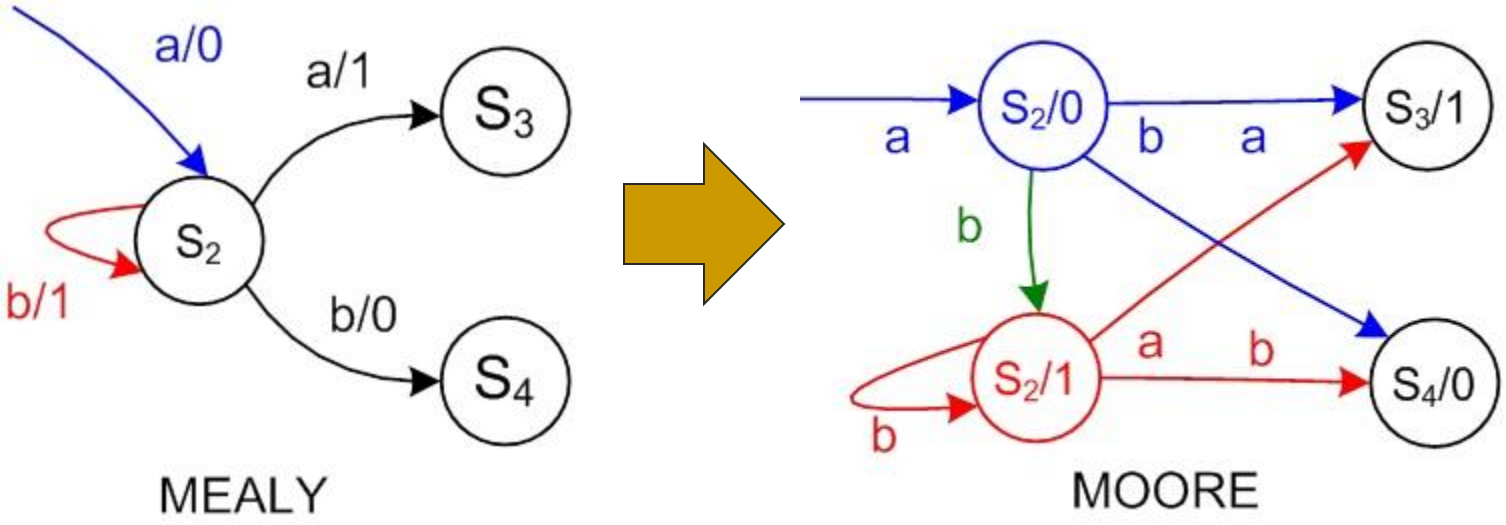
Cara merubah MEALY ➔ MOORE

2. Jika panah yang masuk sebuah state memiliki input yang berbeda (pada mesin moore)



Cara merubah MEALY ➔ MOORE

3. Jika panah yang masuk sebuah state memiliki input yang berbeda dan salah satunya adalah panah looping (pada mesin moore)



Tugas