Minimizing the number of states of a DFA

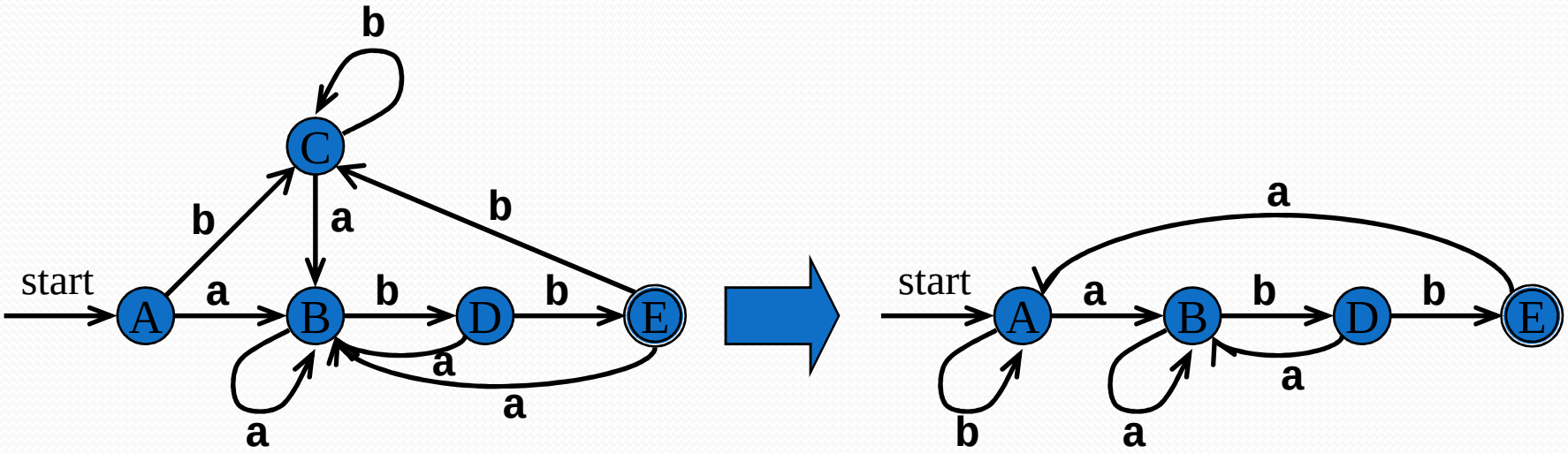
- Partition the set of states into two groups:
  - G_1 : set of accepting states
  - G_2 : set of non-accepting states

- For each new group G
  - partition G into subgroups such that states s_1 and s_2 are in the same group iff

    for all input symbols a, states s_1 and s_2 have transitions to states in the same group.

- Start state of the minimized DFA is the group containing the start state of the original DFA.
- Accepting states of the minimized DFA are the groups containing the accepting states of the original DFA.

Minimizing the Number of States of a DFA



Transition table of DFA

States	Input symbol	
	a	b
→A	B	C
B	B	D
C	B	C
D	B	E
*E	B	C

(ABCD) and (E)
(ABC), (D) and (E)
(AC),(B),(D) and (E)
Replacing C by A

Minimized DFA

States	Input symbol	
	a	b
→A	B	A
B	B	D
D	B	E
*E	B	A