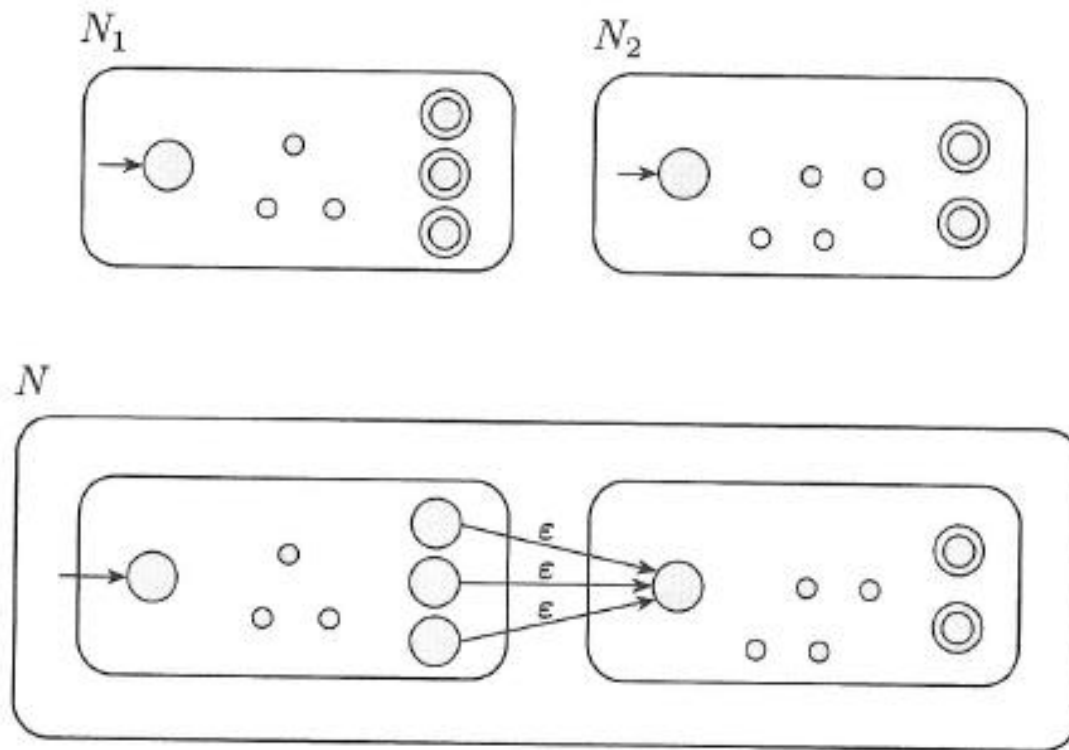
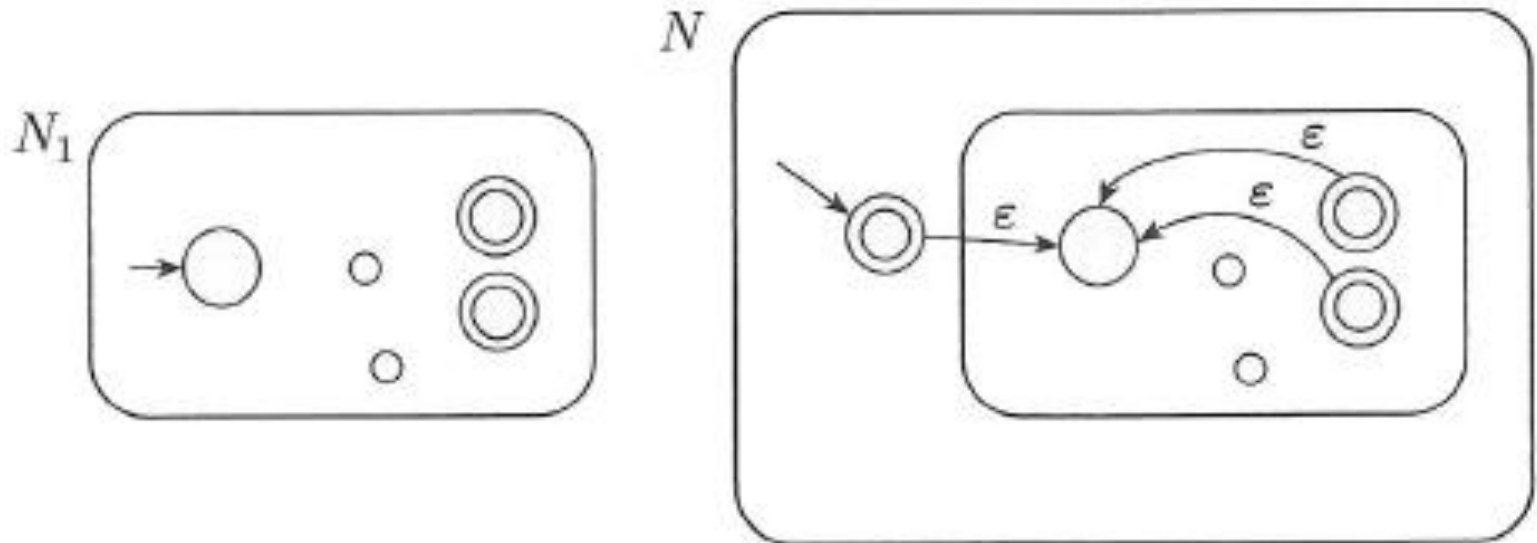


# Theorem Text, page 61



**FIGURE 1.48**  
Construction of  $N$  to recognize  $A_1 \circ A_2$

# Theorem Text, page 62



**FIGURE 1.50**  
Construction of  $N$  to recognize  $A^*$

# DFAs and NFAs

## Non-deterministic Finite Automaton , NFA

- For each state there may be many or no transition leaving it. Also  $\epsilon$ -transitions are allowed (transitions that can be taken without consuming a symbol)

## Deterministic Finite Automaton, DFA

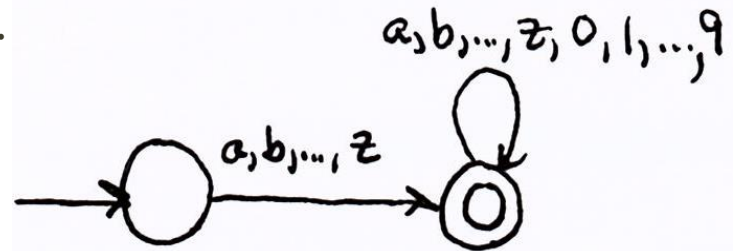
- For each state there is exactly one transition leaving it for each symbol in the alphabet

# Example

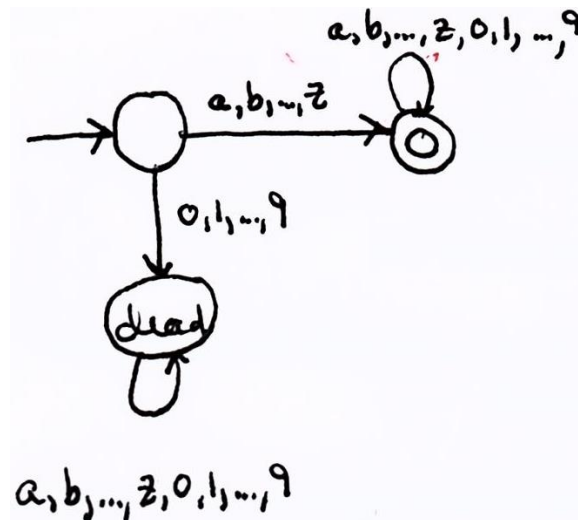
Variable names which can start with a lower case letter, followed by zero or more lower case letters or digits.

$(a \cup b \cup c \cup \dots \cup z)^0 (a \cup b \cup c \cup \dots$

Non-deterministic  
Finite Automaton, NFA



Deterministic  
Finite Automaton, DFA



# Regular Expression $\rightarrow$ NFA

