Transition System

State space: (a, i) where

$a \Rightarrow$ array of integers

$i \Rightarrow$ natural number

Initial state: (a^0, n) where

$a^0 \Rightarrow$ array of integers to be sorted.

$n \Rightarrow$ length of the array

Action: The only action defined is next

Final state: $(a^*, 0)$ where

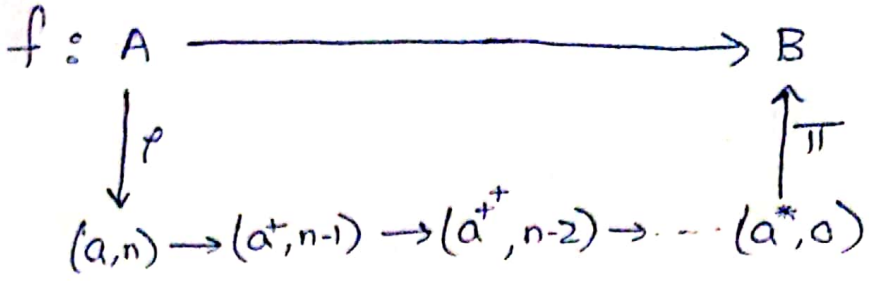
$a^* \Rightarrow$ sorted array

Transition function:

$$(a, i) \xrightarrow{next} (a^+, i-1)$$

For each transition, we move the integer at position $(n-i)$ to the left until we find an integer less than this number.

Suppose the insertion sort function is given as:



- Here A, B belong to a set of arrays of integers.
- The function ρ( ) is used to map A to its appropriate initial state.
- The function π( ) is used to map the final state to B.