

## The Turing Machine (8.2)

- Background & the Church-Turing Thesis

- Definition of a Turing Machine

TM: Set of states, input alphabet, set of tape symbols, transition function, start state, blank symbol, set of final (accepting) states.

Usual notation:  $M = (Q, \Sigma, \Gamma, \delta, q_0, B, F)$ .

Transition function: state, tape symbol (read)  $\longrightarrow$  state, tape symbol (write), direction.

- The Language of a Turing Machine

- Transition Diagrams & Examples