

**function** ND-RECOGNIZE(*tape, machine*) **returns** accept or reject

*agenda*  $\leftarrow$  {(Initial state of machine, beginning of tape)}

*current-search-state*  $\leftarrow$  NEXT(*agenda*)

**loop**

**if** ACCEPT-STATE?(*current-search-state*) **returns** true **then**

**return** accept

**else**

*agenda*  $\leftarrow$  *agenda*  $\cup$  GENERATE-NEW-STATES(*current-search-state*)

**if** *agenda* is empty **then**

**return** reject

**else**

*current-search-state*  $\leftarrow$  NEXT(*agenda*)

**end**

**function** GENERATE-NEW-STATES(*current-state*) **returns** a set of search-states

*current-node*  $\leftarrow$  the node the current search-state is in

*index*  $\leftarrow$  the point on the tape the current search-state is looking at

**return** a list of search states from transition table as follows:

(*transition-table*[*current-node*, $\epsilon$ ], *index*)

$\cup$

(*transition-table*[*current-node*, *tape*[*index*]], *index* + 1)

**function** ACCEPT-STATE?(*search-state*) **returns** true or false

*current-node*  $\leftarrow$  the node search-state is in

*index*  $\leftarrow$  the point on the tape search-state is looking at

**if** *index* is at the end of the tape **and** *current-node* is an accept state of machine

**then**

**return** true

**else**

**return** false