

Turing Machine Variants

Show that variant V has
an equiv. TM M.

Every "stay put" TM S has
an equiv. TM M.

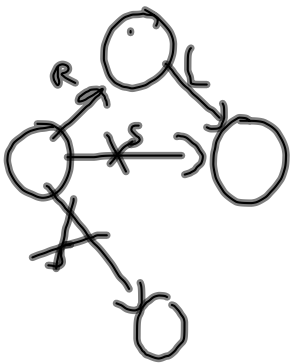
for transitions in S

$$\delta_S(q_1, a) = (q_2, b, S)$$

$$\delta_M(q_1, a) = (q'_1, b, R)$$

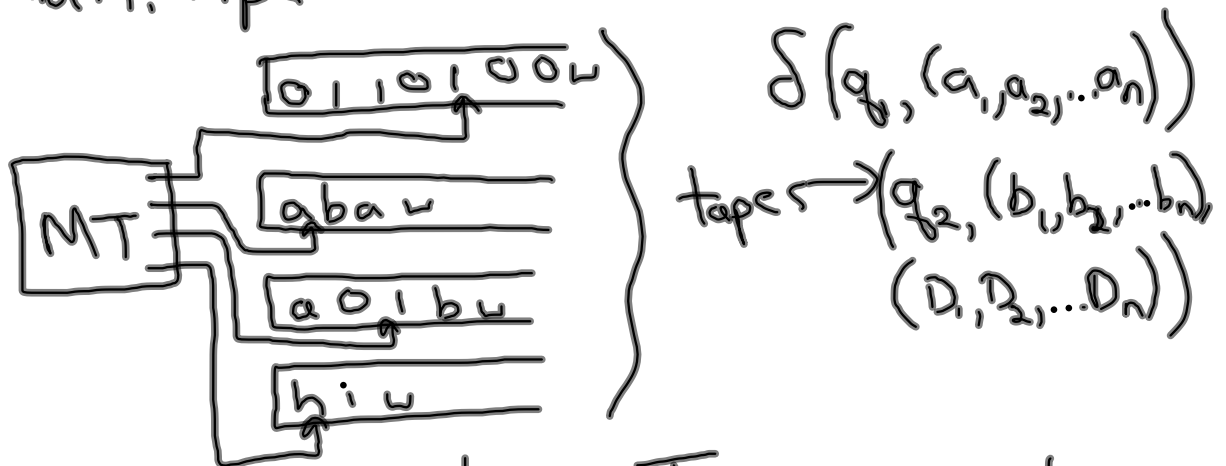
$$\delta_M(q'_1, x) = (q_2, x, L)$$

$$\forall x \in \Gamma$$

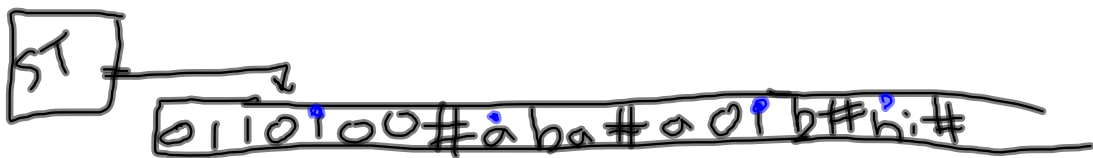


A language is Turing recognizable
iff a "stay put" TM recognizes it.

Multitape TM



Every multitape Turing machine has an equivalent single tape TM.



- make MT's changes to each part of ST's input
- to go right past the end of a section we will make room by shifting everything right by 1 cell.
- $\forall a \in \Gamma_{MT}$ include $a, \bar{a} \in \Gamma_{ST}$