

- concat. all inputs w/ # in between.
- $\forall a \in \Gamma_M$ include a and \bar{a} in Γ_S
- make M 's changes to each portion of the tape of S
- if any r/w head needs to go R off of the input symbols make room by shifting all symbols after that 1 cell to the right.

Det. TM

$$\delta: Q \times \Gamma \rightarrow Q \times \Gamma \times \{L, R\}$$

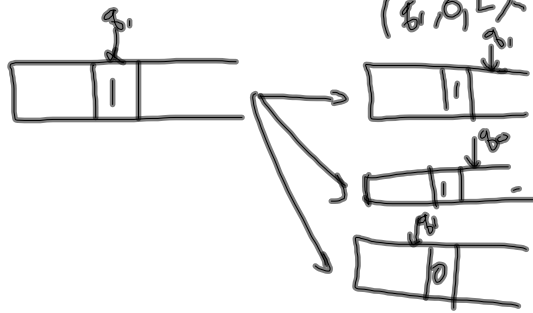
Non-deterministic TM

$$\delta: Q \times \Gamma \rightarrow \mathcal{P}(Q \times \Gamma \times \{L, R\})$$

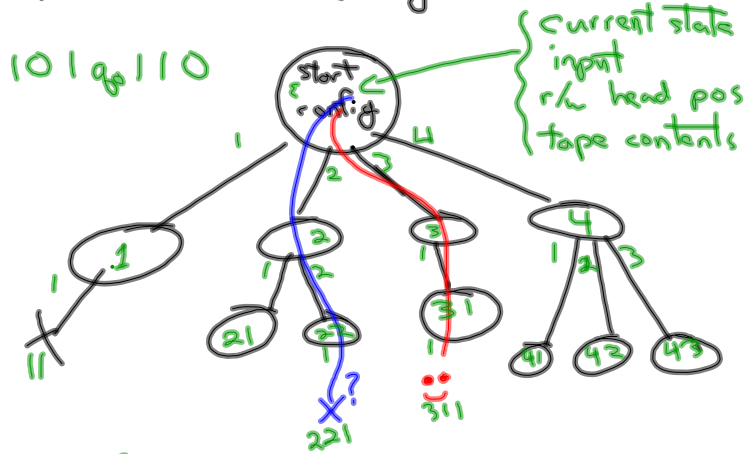
$$Q = \{q_0, q_1\}$$

$$\Gamma = \{0, 1\}$$

$$\{(q_0, 0, L), (q_0, 0, R), (q_0, 1, L), (q_0, 1, R), (q_1, 0, L), \dots\}$$



Non-Det TM configurations



← lexicographical order

- first by length
- then by symbol

11
21
22
31
41
42
43
...