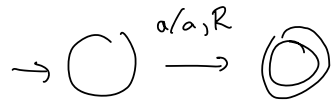
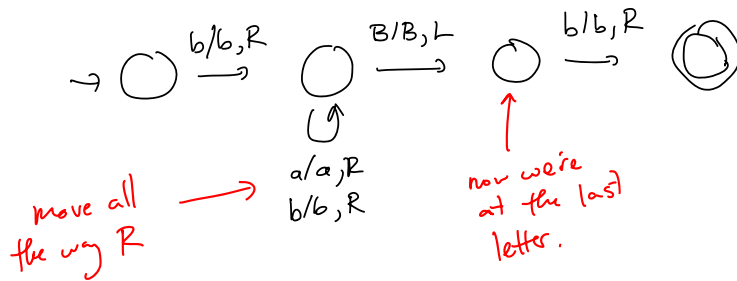


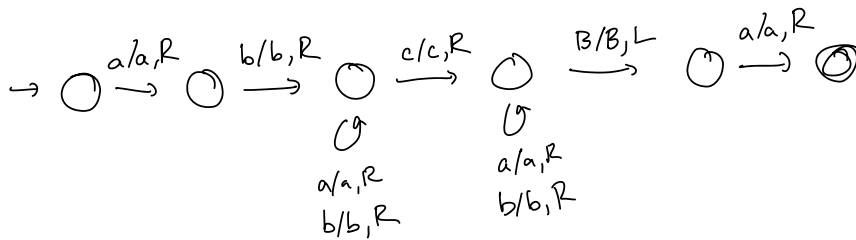
A TM for $\{ax \mid x \in \{a,b\}^+\}$
 accepts any string starting with a.



Ex1 $\{bxb \mid x \in \{a,b\}^+\}$



Try $\{abxcya \mid x, y \in \{a,b\}^+\}$



$$L = \{ a^n b^n \}$$

Use a "marking" TM

read an "a" & "mark it" change it to $\bar{a}$

~~aaa~~~~bbb~~

The tape in steps will look like

aaa bbb

$\bar{a}$ aa bbb

$\bar{a}$ a $\bar{a}$ bb

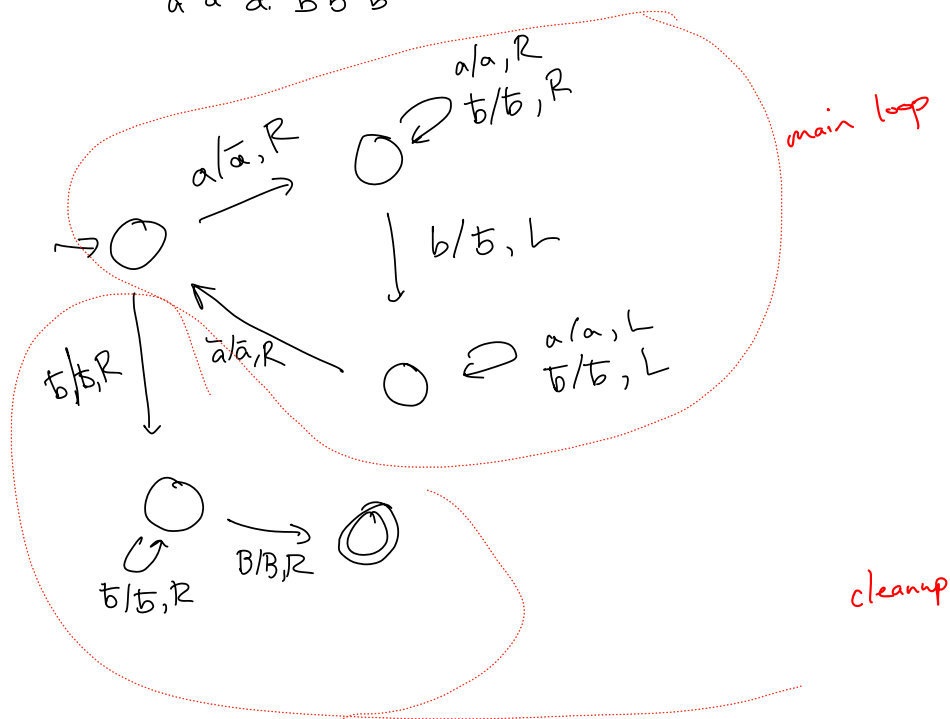
$\bar{a}$ $\bar{a}$ a $\bar{b}$ bb

$\bar{a}$ $\bar{a}$ a $\bar{b}$ $\bar{b}$

$\bar{a}$ $\bar{a}$ $\bar{a}$ $\bar{b}$ $\bar{b}$

$\bar{a}$ $\bar{a}$ $\bar{a}$ $\bar{b}$ $\bar{b}$

mark 1st a, then move R
mark 1st b, then move L
repeat



$$(ac)^n b^{3n}$$

mark a b c at beginning & 3 b's at end

