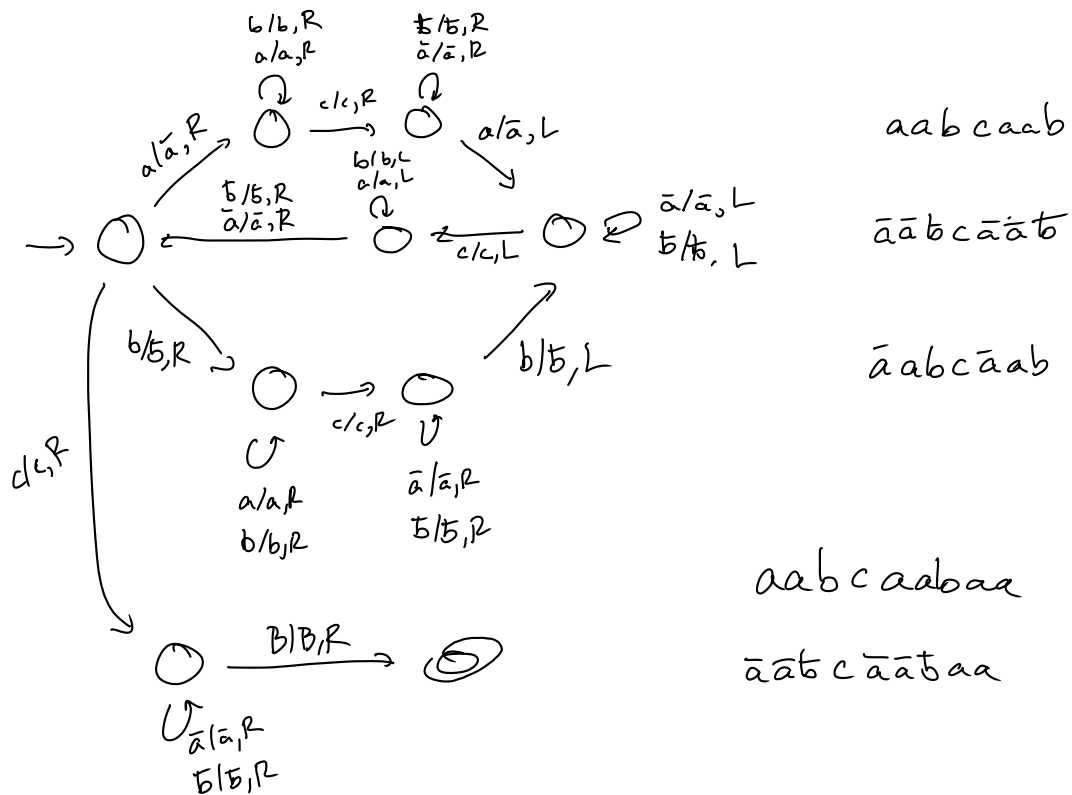


TM's!

A TM for $\{ xcx \mid x \in \{a,b\}^* \}$



A TM for $\{ x \in \{a,b\}^* \mid x \text{ has same \# of } a\text{'s \& } b\text{'s} \}$

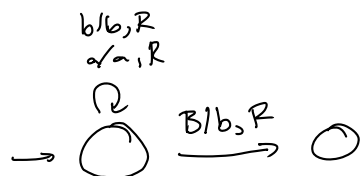


if we start with bba ,
it will end with: $abba$

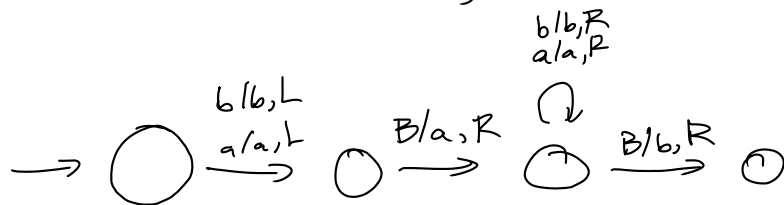
we say: M computes the function $f(x) = ax$

Which functions can be computed by TM?

can we make a TM for $f(x) = xb$



Make a TM for $f(x) = axb$



Def If $f: S \rightarrow \Sigma^*$ is some function
 for some domain $S \subseteq \Sigma^*$, we say
 f is Turing computable when there is
 some TM M s.t. when we start M
 with x on the tape, it halts with $f(x)$ on
 the tape.

$$f(b^n a b^n) = b^n a^2 b^n$$

(here, the domain is $S = \{b^n a b^n\}$)

$b^n a b^n$
 ↗ change 1st b here to a ,
 add b on the end.

