Example of encoding a turing machine
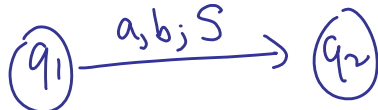
final state(s)

δ

initial tape contents & initial state

```
2:L#1#0;Rb0a0;Ra0b0;S#2#1;Sb2a1;La1b1:#0aba#
```

single transition:

$q_1 \xrightarrow{a,b;S} q_2$

initial state

tape contents

- only 10 states allowed (0-9)
- alphabet restricted to $\{a,b\}$

$q_0 \xrightarrow{\sqcup,\sqcup,L} q_1 \xrightarrow{\substack{a,b,S \\ \sqcup,\sqcup,S}} q_2$

q_0 : a,b,R b,a,R

q_1 : b,a,L

with initial tape

$\dots \sqcup \sqcup \sqcup aba \sqcup \sqcup \sqcup \dots$