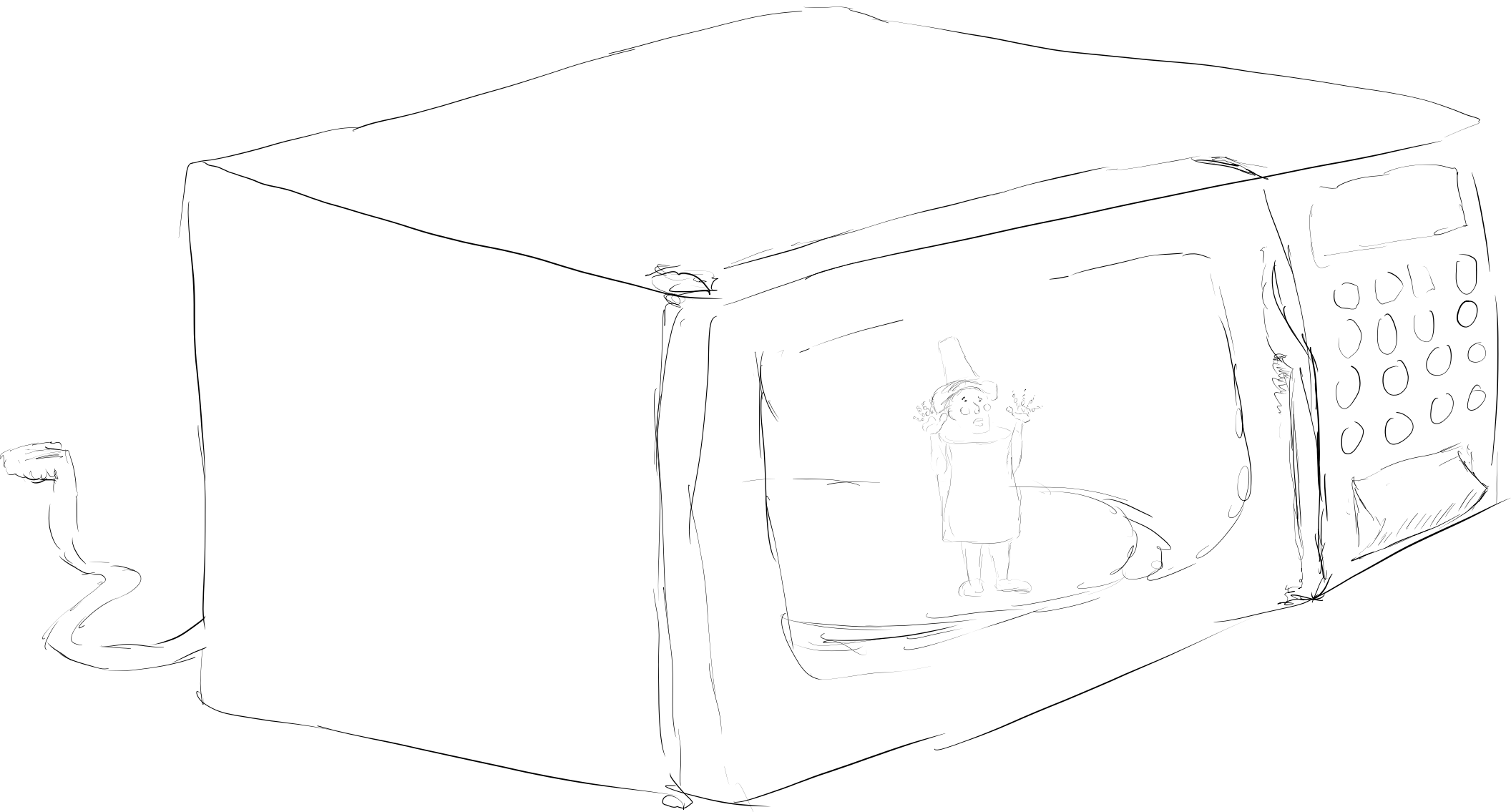
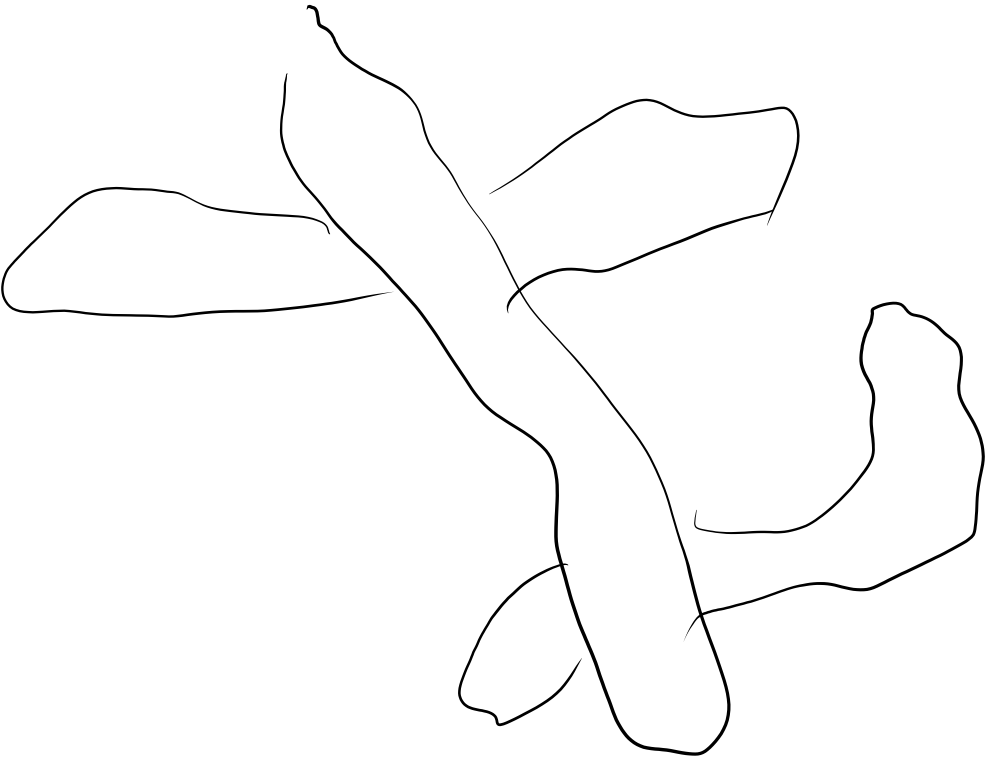
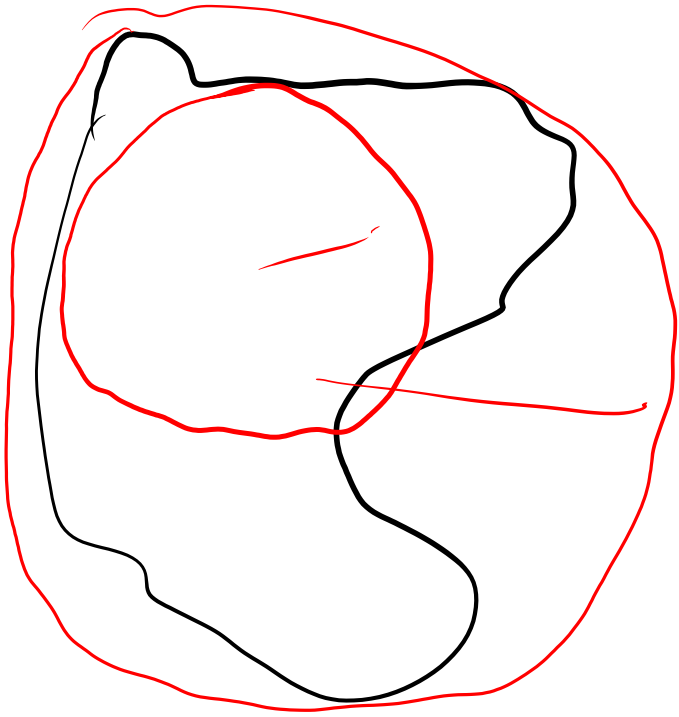




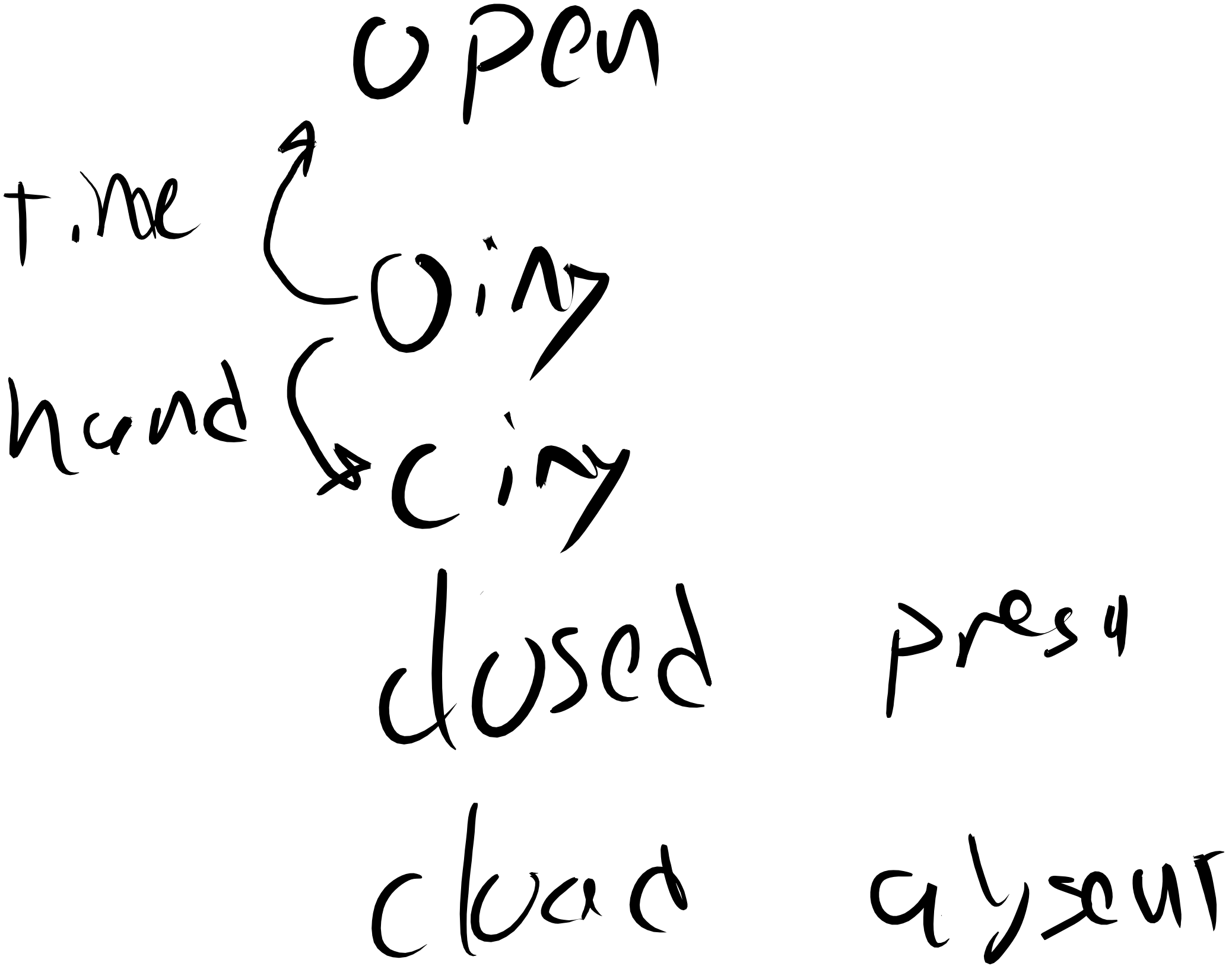


Automata

State machines

Set of states

Set of transitions


open
time
coin
hand
coin
closed
press
cloud
qysour

invariant

x

y

State (x, y) has transitions to:

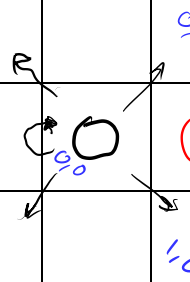
$(x \pm 1, y \pm 1)$

$(x+1, y+1)$

$(x-1, y+1)$

$(x+1, y-1)$

$(x-1, y-1)$



Parity (x, y)

integral (x) $\equiv$ Parity $(2x)$ is even

GCD

$(a, b) \to (b \% a, a)$

loop invariants

```
while a ≠ 0:
    tmp = a
    a = b % a
    b = tmp
return b
```

a	42	14	0
b	14	42	14
tmp	42	14	
	42	35	7
	35	42	35
			7

invariant

$\forall x.$ (x divides a $\wedge$ x divides b)

$f : S \to \{T, \bot\}$

$$z = (x) + (y)$$

$$w =$$

Sending email