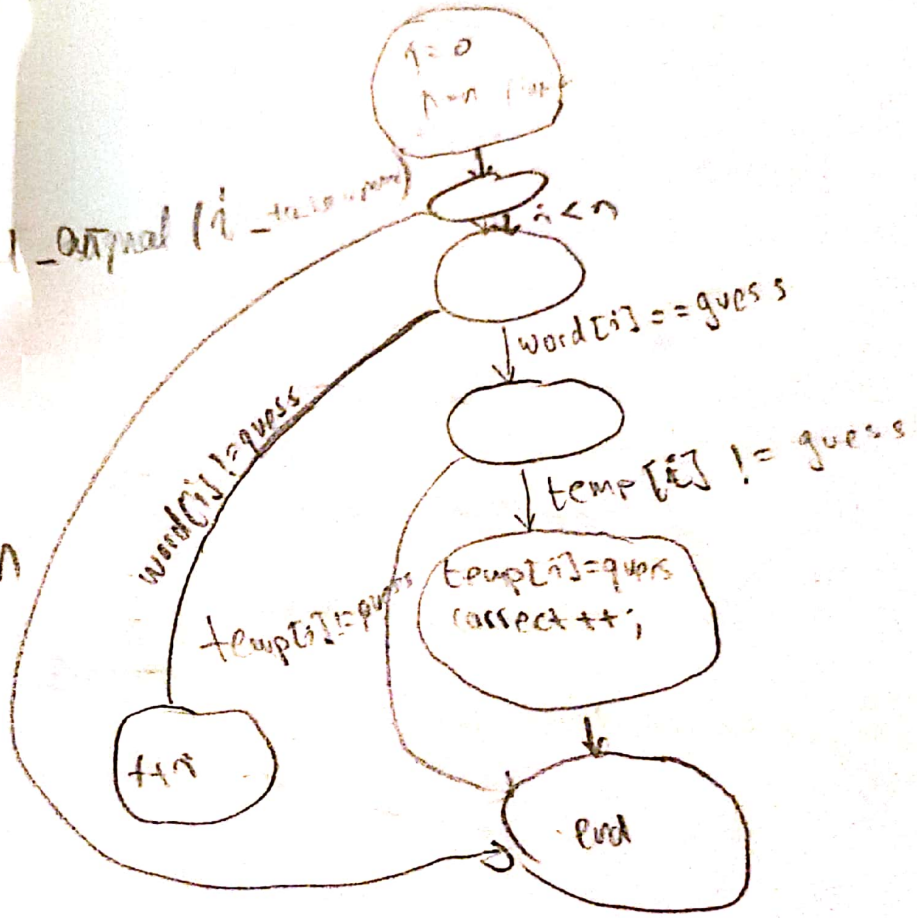
```
while(count<n){
    if (word[i] == guess)
        if(temp[i] != guess)
            temp[i]=guess
            (*correct)++;
            return;
        else return;
    count++;
}
(*wrongletter)++;
```

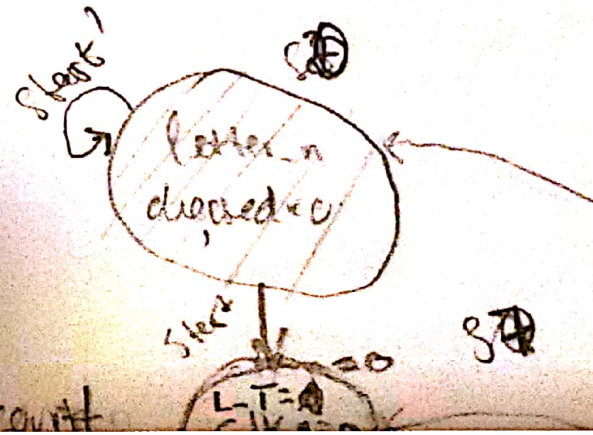


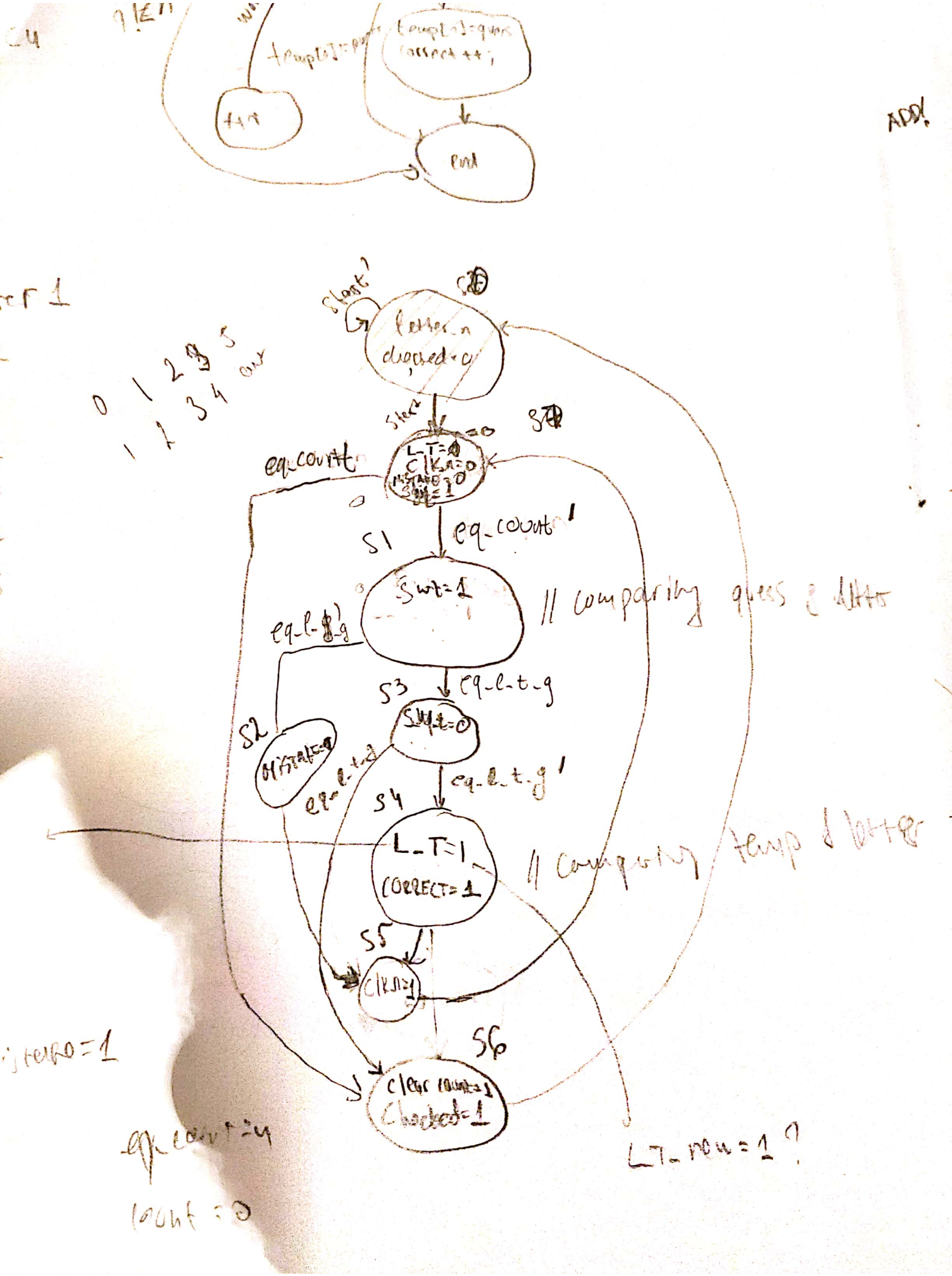
000 → letter 1

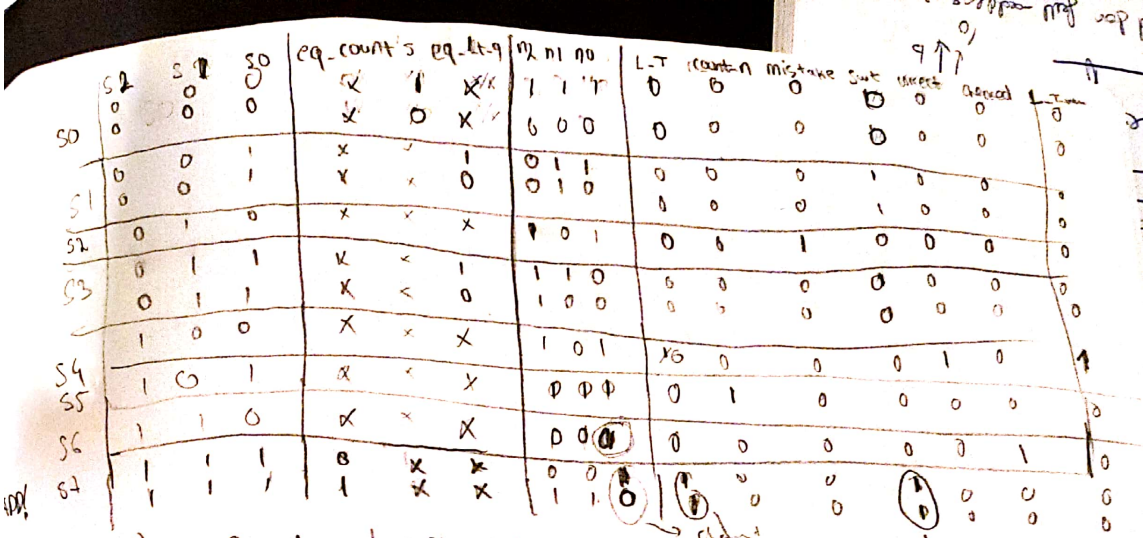
001 → L2

010 → L3

011 → L4







$NS_1 = S_0 S_1' + S_1 + S_6 + S_7 \cdot eq\_count$

$NS_0 = S_0 S_0' + S_1 eq\_lt\_q + S_5 + S_6 + S_7 eq\_count + S_5$

$L\_I = S_0 + S_4$

$count = S_5$

$mistake = S_2$

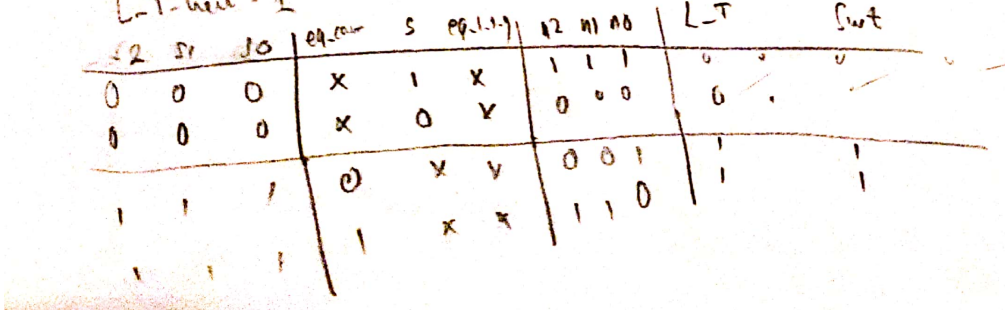
$out = S_1 + S_3$

$correct = S_4$

$checked = S_6$

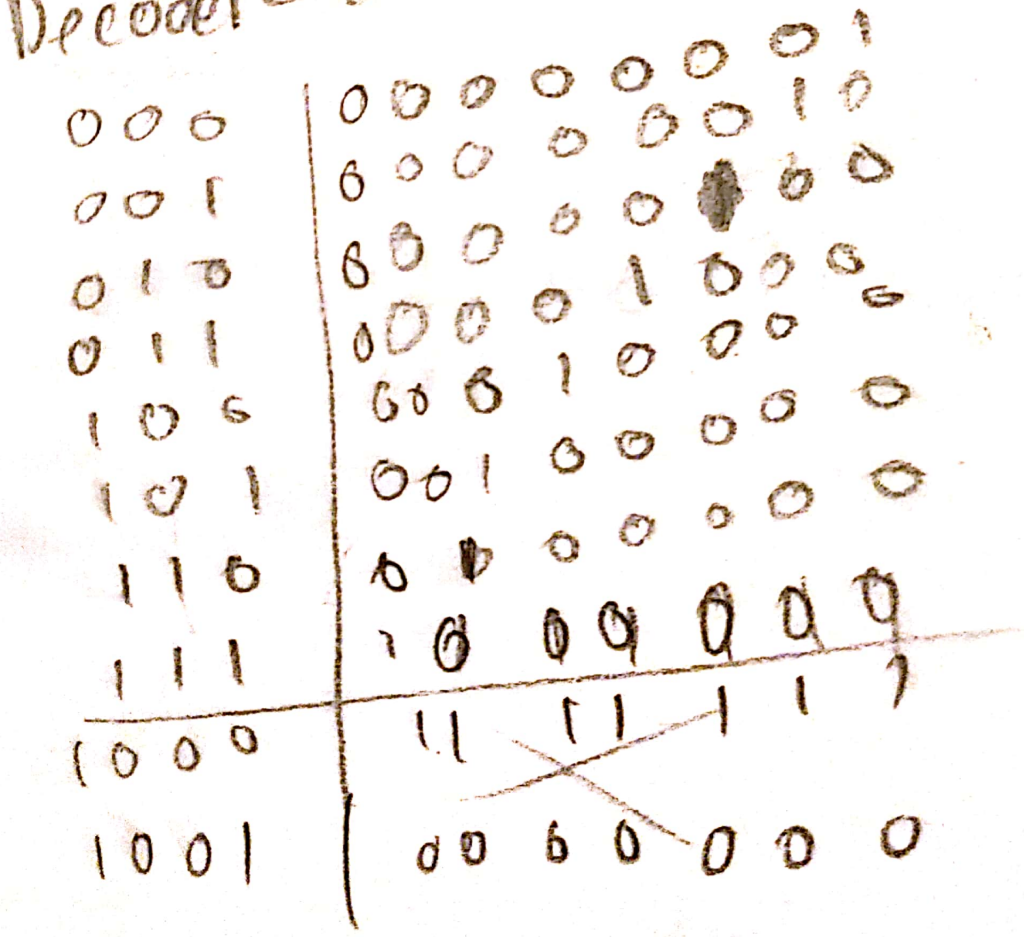
$L\_T\_new = 1$

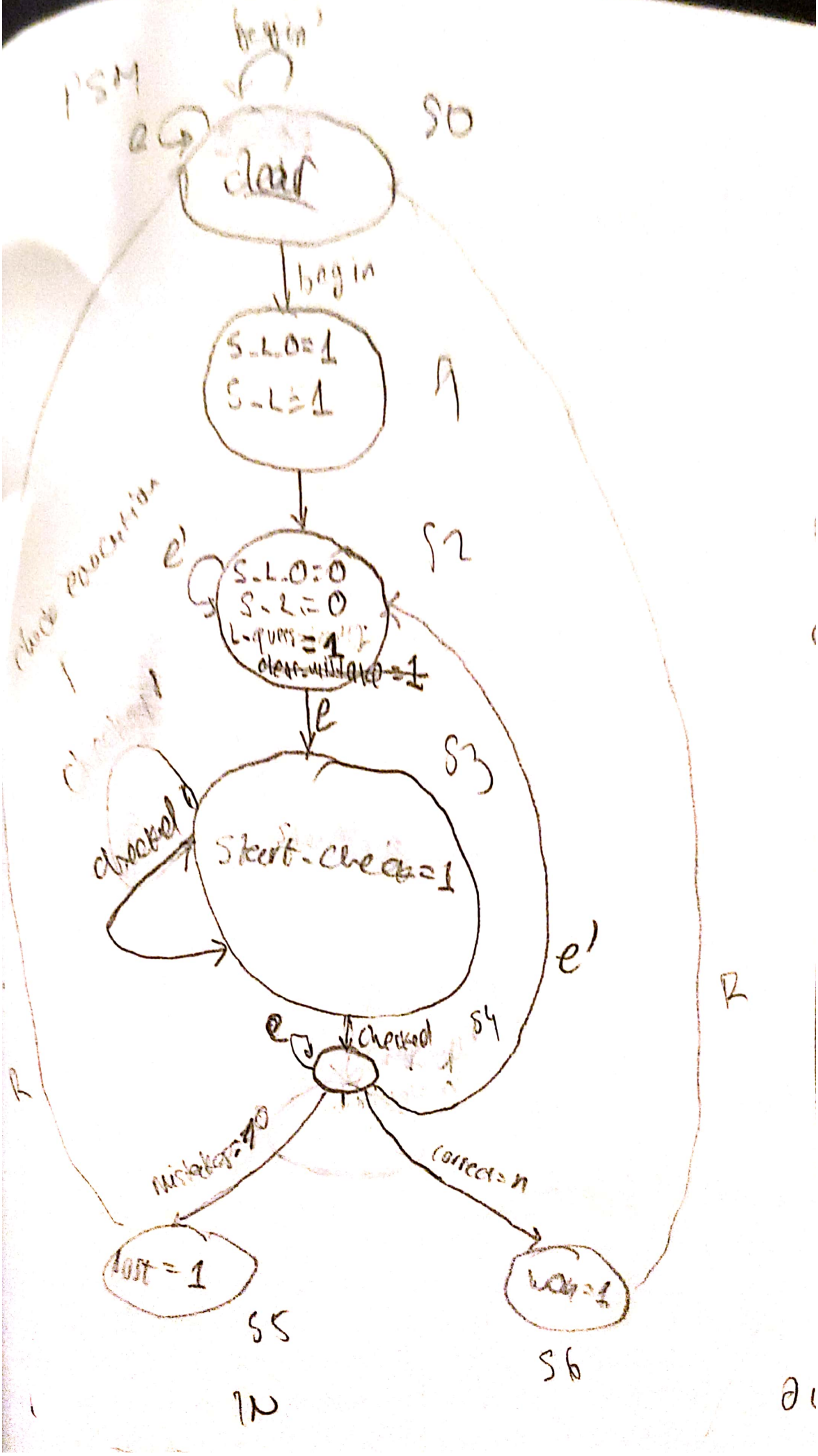
increments by either 2 or 1 each time



Scanned with CamScanner

Decoder - custom





DATAPATH

correct_incr ~ correct == 1 in check!

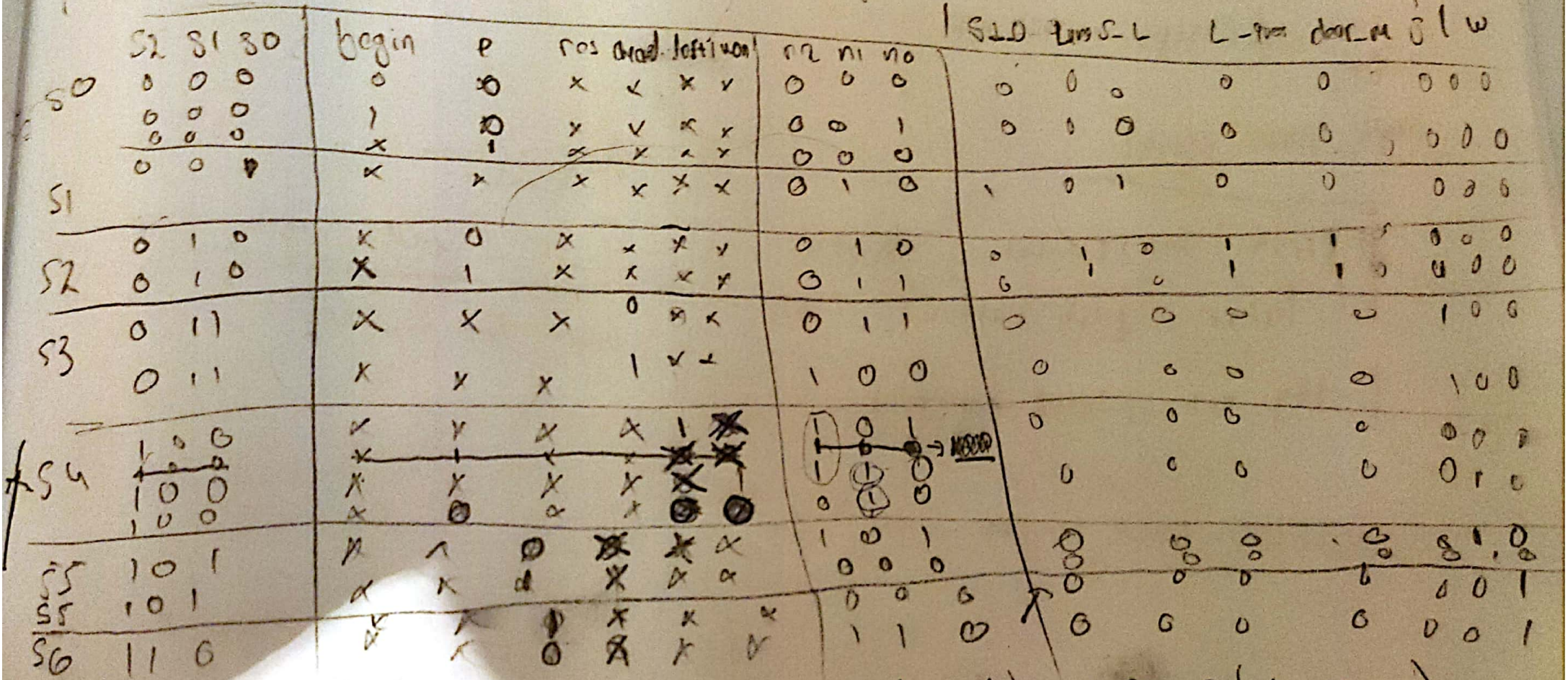
MISTake_incr ~ Mistak == 1 in Check!

S_L_1 = 1 ~ correct == 1 in check!

Count = 0 ~ current count in check!

L_T_undat = 1 ~ correct == 1

Ch: shut check!



$$n2 = \cancel{S6} + S3\,checked + S5\,res' + S6\,res' + \cancel{S4\,e_{lost\,won}} + S4(lost \oplus won)$$

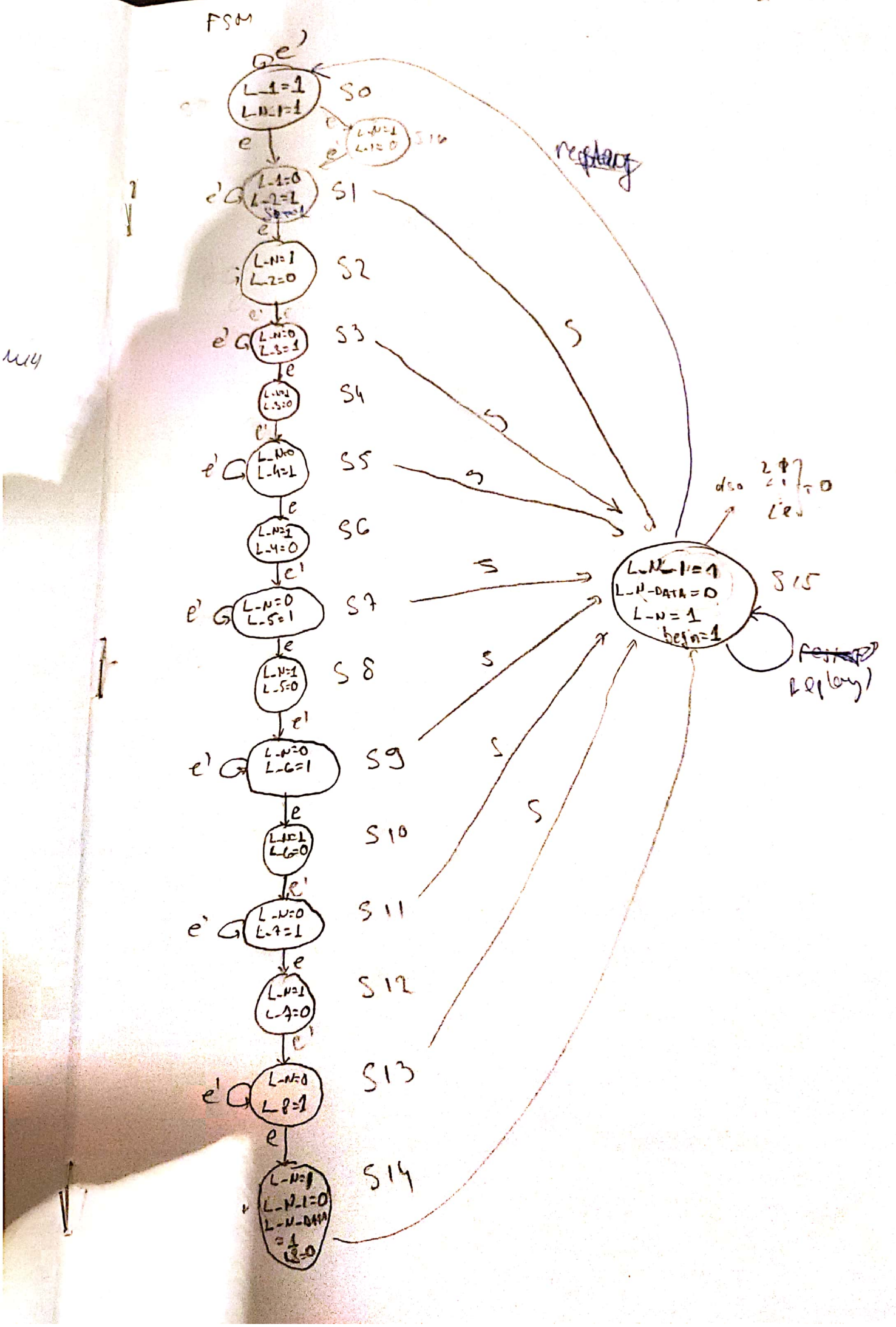
ADDED

$$n1 = S1 + S2 + S3\,checked' + S4\,e + S4\,lost\,won' + S6\,res'$$

$e_{lost\,won}$

$$n0 = S0\,begin\,e' + S2e + S3\,checked' + S4\,lost\,won' + S5\,res'$$

Added


FSM
S0
S1
S2
S3
S4
S5
S6
S7
S8
S9
S10
S11
S12
S13
S14
S15
S16
e
e'
L_1=1
L_N_1=1
L_1=0
L_2=1
L_N=1
L_2=0
L_N=0
L_3=1
L_3=0
L_4=1
L_N=1
L_4=0
L_N=0
L_5=1
L_N=1
L_5=0
L_N=0
L_6=1
L_N=1
L_6=0
L_N=0
L_7=1
L_N=1
L_7=0
L_N=0
L_8=1
L_N=1
L_N_1=0
L_N_DATA=1
L_8=0
L_N_1=1
L_N_DATA=0
L_N=1
begin=1
S
dso
Scanned with CamScanner

$n_3 = S_3' S_2' S_1' S_0' (e + e') + S_3' S_2' S_1' S_0 \, start' (e + e') + S_3' S_2' S_1 S_0' + S_3' S_2' S_1 S_0 \, start' (e + e') + S_3' S_2 S_1' S_0' + S_3' S_2 S_1' S_0 \, start' + S_3' S_2 S_1 S_0' + S_3' S_2 S_1 S_0 \, e' start'$

$= S_3' S_2' S_1' S_0' + S_3' S_2' S_1' S_0 \, start' + S_2 + S_3' S_2' S_1 S_0 \, start'$

$S_0 + S_1 \, start' + S_2 + S_3 \, start' + S_4 + S_5 \, start' + S_6 + S_7 \, e' start' + S_{16} + S_{15}$ (ADDED)

$n_2 = S_0$ (from later...) $+ S_1 \, start' + S_2 + S_3 \, e' start' + S_7 \, e' start' + S_8 + S_9 \, start' + S_{10} + S_{11} \, e' start' + S_{16} + S_{15}$ (ADDED)

$n_1 = S_0 + S_1 \, e' start' + S_3 \, e \, start' + S_4 + S_5 \, e' start' + S_7 \, e \, start' + S_8 + S_9 \, e' start' + S_{11} \, e \, start' + S_{12} + S_{13} \, e' start' + S_{16} + S_{15}$ (ADDED)

$n_0 = S_0 e'$ (updated) $+ S_1 \, e \, start' + S_3 \, e \, start' + S_5 \, e \, start' + S_7 \, e \, start' + S_9 \, e \, start' + S_{11} \, e \, start' + S_{13} \, e \, start'$

$= S_0 e' + e \, start' (S_1 + S_3 + S_5 + S_7 + S_9 + S_{11} + S_{13}) + e (S_2 + S_4 + S_6 + S_8 + S_{10} + S_{12} + S_{14} + S_{16})$

$n_4 = S_{16} \cdot e + S_0 e = e (S_{16} + S_0)$

... taking 0s since there is less 0s (and then use an inverter!)

$S_3 S_2 S_1 S_0$	L1	L2	L3	L4	L5	L6	L7	L8	L-N	increment	L-8
S0	1	0	0	0	0	0	0	0	0	1	0
S1	0	1	0	0	0	0	0	0	0	1	0
S2	0	0	0	0	0	0	0	0	1	1	0
S3	0	0	1	0	0	0	0	0	0	1	0
S4	0	0	0	0	0	0	0	0	1	1	0
S5	0	0	0	1	0	0	0	0	0	1	0
S6	0	0	0	0	0	0	0	0	1	1	0
S7	0	0	0	0	1	0	0	0	0	1	0
S8	0	0	0	0	0	0	0	0	1	1	0
S9	0	0	0	0	0	1	0	0	0	1	0
S10	0	0	0	0	0	0	0	0	1	1	0
S11	0	0	0	0	0	0	1	0	0	1	0
S12	0	0	0	0	0	0	0	0	1	1	0
S13	0	0	0	0	0	0	0	1	0	1	0
S14	0	0	0	0	0	0	0	0	0	0	1
S15	0	0	0	0	0	0	0	0	1	1	0

L1 = S0
L2 = S1
L3 = S3
L4 = S5
L5 = S7
L6 = S9
L7 = S11
L8 = S13
L-N = S2 + S4 + S6 + S8 + S10 + S12
increment' = S14 ⇒ increment = S14'
L-8 = S14