

30 Cent Coke State Machine

You're designing a controller for a Coke machine where each drink costs 30 cents. The machine accepts nickels, dimes, and quarters, and does not give change. The output of the coin unit (shown below) indicates which coin is received. Slugs are not detected, but a coin that places the total over 30 cents is rejected.

input	C_1	C_0
no coin	0	0
nickel	0	1
dime	1	0
quarter	1	1

Assume the states are numbered 000 for zero cents, 001 for five cents, 010 for ten cents, 011 for 15 cents, 100 for 20 cents, and 101 for 25 cents. Further assume that when a coin is deposited that will bring the total to *exactly* 30 cents, the coke is immediately dispensed (i.e., there is no 30 cent state). Complete the partial state table below. Note that all states are **not** present in the table below.

S_2	S_1	S_0	C_1	C_0	NS_2	NS_1	NS_0	Coke	Reject
0	0	0	0	0					
0	0	0	0	1					
0	0	0	1	0					
0	0	0	1	1					
0	1	1	0	0					
0	1	1	0	1					
0	1	1	1	0					
0	1	1	1	1					
1	0	0	0	0					
1	0	0	0	1					
1	0	0	1	0					
1	0	0	1	1					