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The Traffic Lights

Something fishy about the state machine

In the code of the traffic lights, there is a concept of state machines. Let's talk about its abstraction. This state machine is actually very primitive, lacking some further developments and flexibility.

We can let S be the state number, and I be the input number, O will also be the output numbers.

If I use the standard representation for this state machine, than $o(s, i) = n(s, i)$, $n(s, i) = (1, \text{orange})$ (if $s = 0, i = 0$), $(2, \text{red})$ (if $s = i = 1$), $(0, \text{green})$ (if $s = i = 2$). $S_0 = 0$

time	0	1	2	3	...
input	0	1	2	0	...
state	0	1	2	0	...
output	(1, orange)	(2, red)	(0, green)	(1, orange)	...