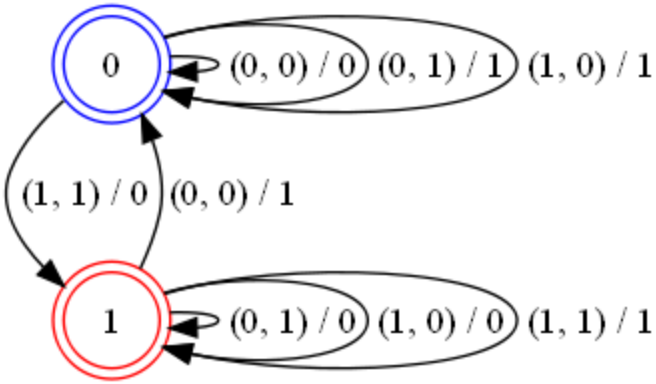
Mealy Machines part 2

Adder as a Mealy machine

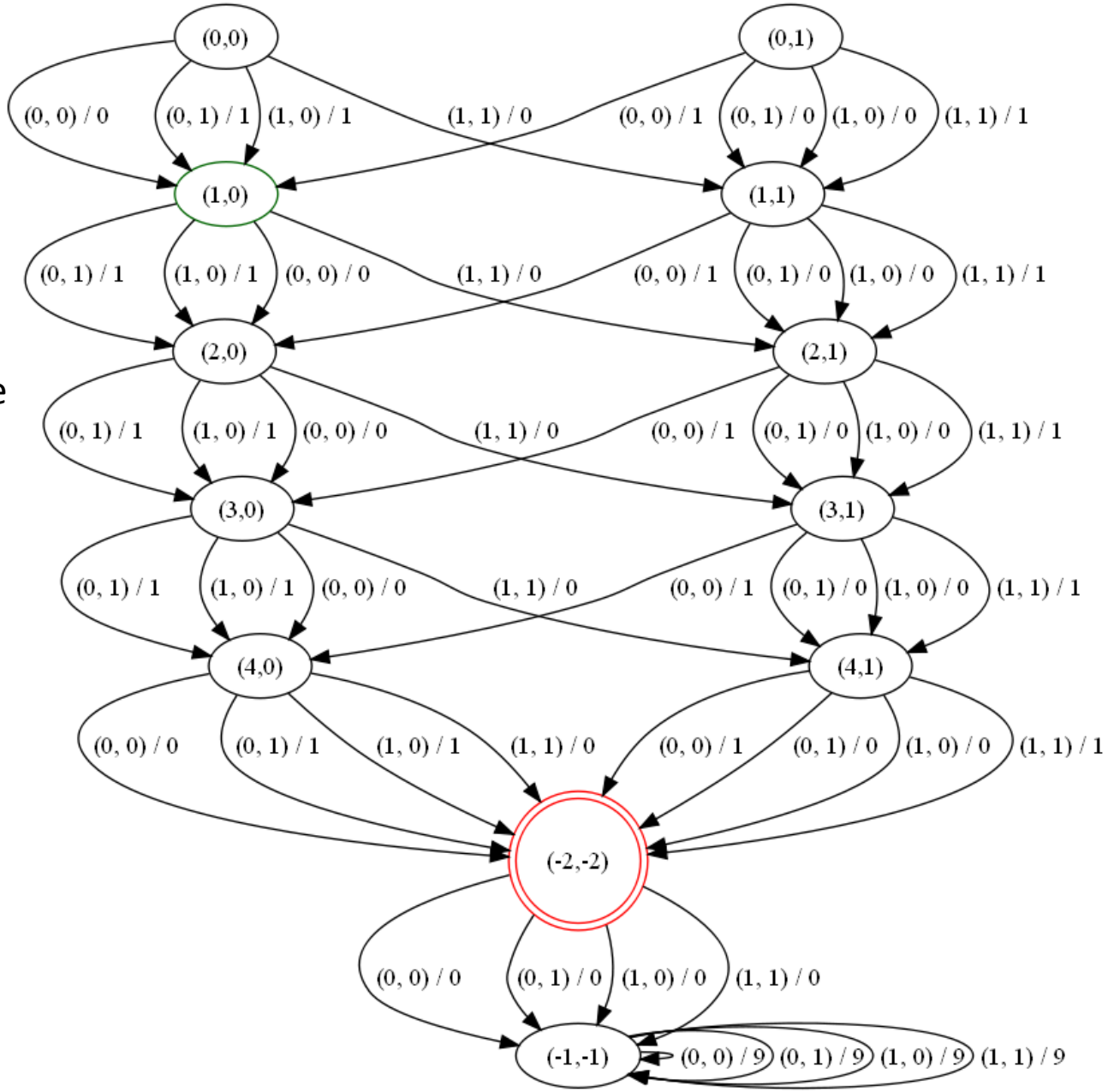


- Two states
- Alphabet is set of pairs
- Every transition emits an output character
- Emits the sum of the two numbers formed where each bit is paired together (least signifcant bits first)
- 001 + 111 uses input (1,1)(0,1),(0,1)

- For a fixed number of bits (here we use 4) we can unfold the machine.

- The length of a path to the accepting state is a function of the number of bits (4+1)

- Can we do better?
  - trade shorter path length for more states?



This is exactly analagous to the Ripple Carry Adder