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 significant 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 analogous to the Ripple Carry Adder.