

$0 \rightarrow \text{Left}$ $1 \rightarrow \text{Right}$

1. $(3, 3, 0) \rightarrow (3, 1, 1)$

Moving 2 cannibals to the right

2. $(3, 1, 1) \rightarrow (3, 2, 0)$

Moving 1 cannibal back to the left

3. $(3, 2, 0) \rightarrow (3, 0, 1)$

Moving 2 cannibals to the right

4. $(3, 0, 1) \rightarrow (3, 1, 0)$

Move 1 cannibal to the left

5. $(3, 1, 0) \rightarrow (1, 1, 1)$

Move 2 missionaries to the right

6. $(1, 1, 1) \rightarrow (2, 2, 0)$

Move 1 missionary and 1 cannibal back to the left

7. $(2, 2, 0) \rightarrow (0, 2, 1)$

Move 2 missionaries to the right.

8. $(0, 2, 1) \rightarrow (0, 3, 0)$

Move 1 cannibal back to the left.

9. $(0, 3, 0) \rightarrow (0, 1, 1)$

Move 2 cannibals to the right

10. $(0, 1, 1) \rightarrow (1, 1, 0)$

missionary

Move 1 ~~cannibal~~ back to left

11. $(1, 1, 0) \rightarrow (0, 0, 1)$

Move ~~1 missionary~~ 1 missionary and 1 cannibal to the right.

$(0, 0, 1)$ is the required state.