diagram: m → missionary , c → cannibal. b → boat

show the relation of missionary, cannibal and if the boat is at this side in terms of

a 3-element tuple : (m, c, b) C (left side)

So the initial state is $(3.3.1)$ which means all six people is here

and the boat is at the side

C to R

$(3,3,1)$ mc to R

$(3.2,0)$ $\downarrow$ cc to R $(3,1,0)$ $(2,2,0)$

C to L   m to L

$(3,2,1) = \begin{array}{|c|c|} \hline \begin{array}{c} cc \\ 3m \\ B \end{array} & c \\ \hline \end{array}$

$\uparrow$ cc to R

$(3,0,0)$

$\uparrow$ C to L

$(3,1,1)$

$\uparrow$ m m to R

$(1,1,0) \xrightarrow{\text{mc to L}} (2,2,1) \xrightarrow{\text{m m to R}} (0,2,0)$

C to L

$(0,10) \xleftarrow{\text{cc to R}} (0,3,1)$

C to L   m to L

$(0,2,1)$ $(1,1,1)$

cc to R

mc to R

$(0,0,0)$
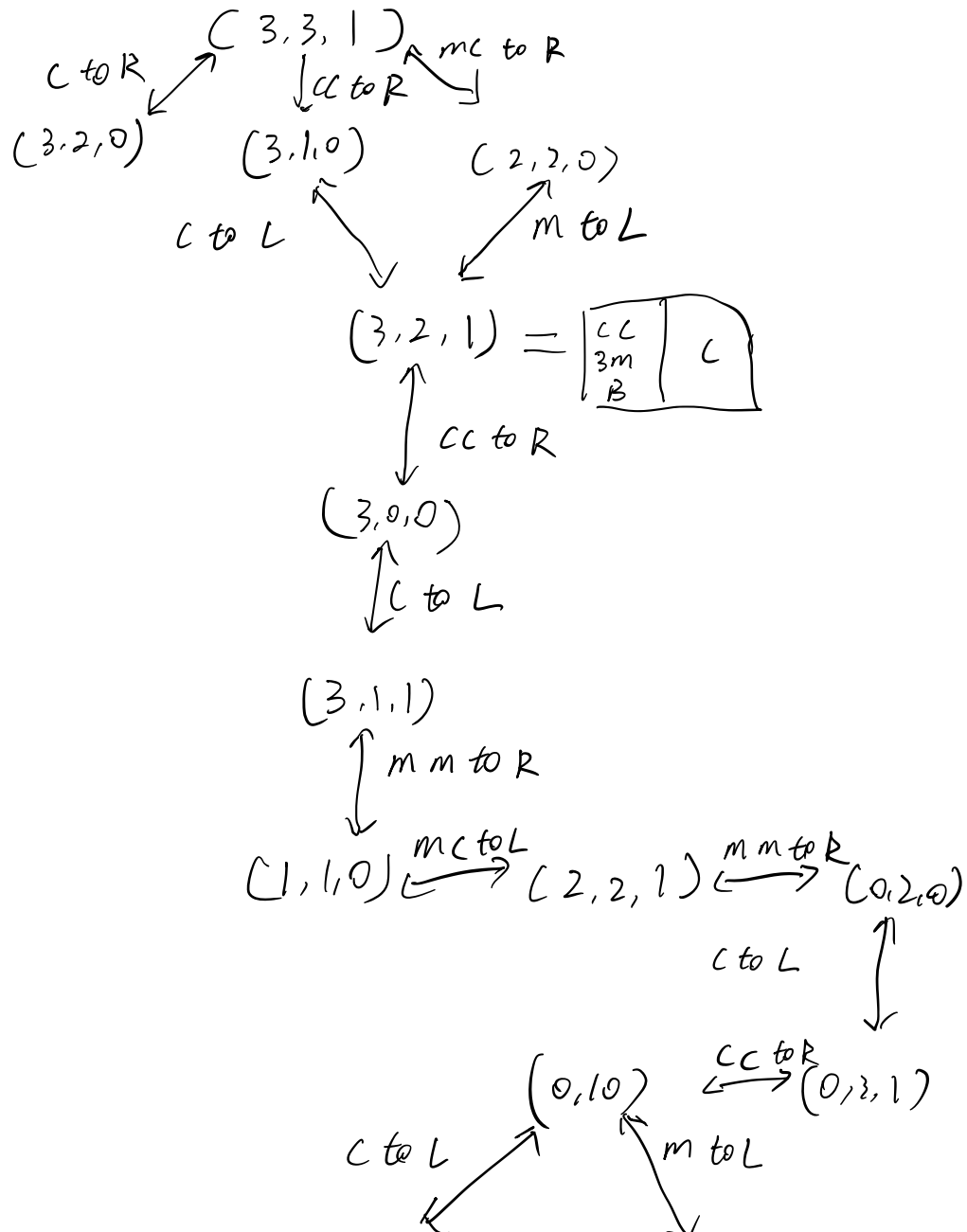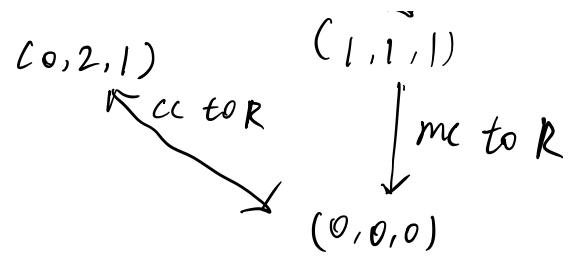
All people and boat are
at the right side of river