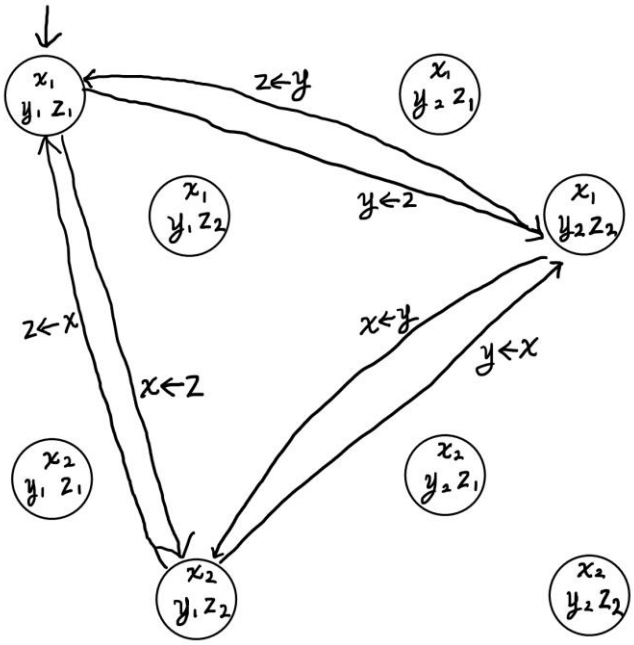
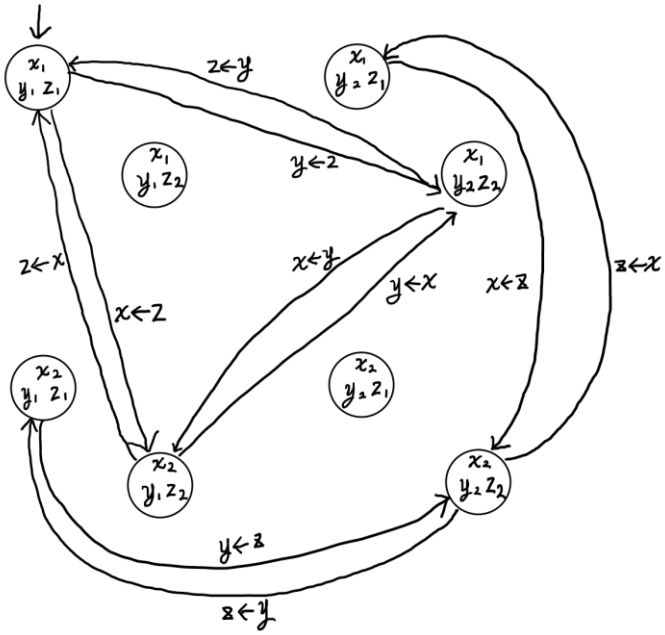
Homework 5

Closed product



Possible states in execution



All transitions

Prove for mutual exclusion

Yes, because from the diagram, x_2 and y_2 don't exist together in the three possible states.

Does this algorithm satisfy eventual entry? Briefly motivate

No, because it is possible that only x and z keep communicate indefinitely. Because of mutual exclusion, y would never enter y_2.

Does this algorithm still work if we flip all inputs to outputs, and vice versa? Brifely motivate.

It still works, because the matching pairs keep unchanged.

The algorithm behaves oddly if we make ch asynchronous.

The process z loops forever and x,y don't have a chance to receive from ch.