Do **two** of the **three** problems below!

1. (Tianruo) Consider the following game of Hackenbush:

   What is the value of this picture?

2. (Alice) There are many games that you can play at a casino: see

   http://en.wikipedia.org/wiki/Casino_game

   Can you use Parrondo's paradox at the casinos to create a situation in which you will make money over the long run?

3. (Jay) Take the following knot. Using only the Reidemeister moves, explain how turn this knot into the unknot.