

rock-paper-scissors

Consider the two-player zero-sum game of rock-paper-scissors, represented by the following payoff matrix:

	Rock	Paper	Scissors
Rock	0	-1	1
Paper	1	0	-1
Scissors	-1	1	0

- Write a linear program that finds a maximin strategy for the row player.
- Write a linear program that finds a minimax strategy for the column player.
- Write the dual of the linear program in part a. Using appropriate manipulations if necessary, show that the dual of the linear program in part a is the LP in part b.
- What is the minimum payoff for the row player when the row player plays each of the three alternatives with probability $1/3$?
- What is the maximum payoff for the row player when the column player plays each of the three alternatives with probability $1/3$?
- What can you conclude about the “play each alternative with probability $1/3$ ” strategy for the row and column players?