

# Homework 0 (ungraded)

**Problem 1** Consider the following non-local game between Alice and Bob (provers) and Eve (verifier) (Fig 1). Alice and Bob each have a 3x3 grid. In each round Eve asks Alice to put 0 or 1's on a specific row such that the number of 1's is odd. Similarly, she asks Bob to put 0 or 1's on a column with the condition that number of ones must be even. Alice and Bob wins if the symbols they put in the cell intersecting the row and the column matches. Example, in the top figure both Alice and Bob put a 0 in their common cell. On the other hand in the bottom figure the symbols do not match. Find a classical strategy for Alice and Bob (based on some joint distribution) calculate the probability of winning.

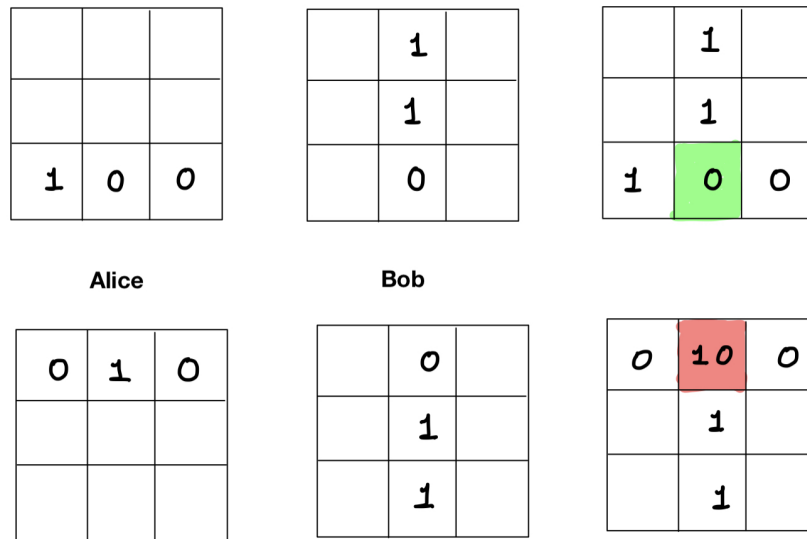


Fig. 1: The non-local game of problem 1.

**Problem 2.** Download and install Qiskit on your computer. Run the circuit given in section 1.3 (Exploring Qubits with Qiski).