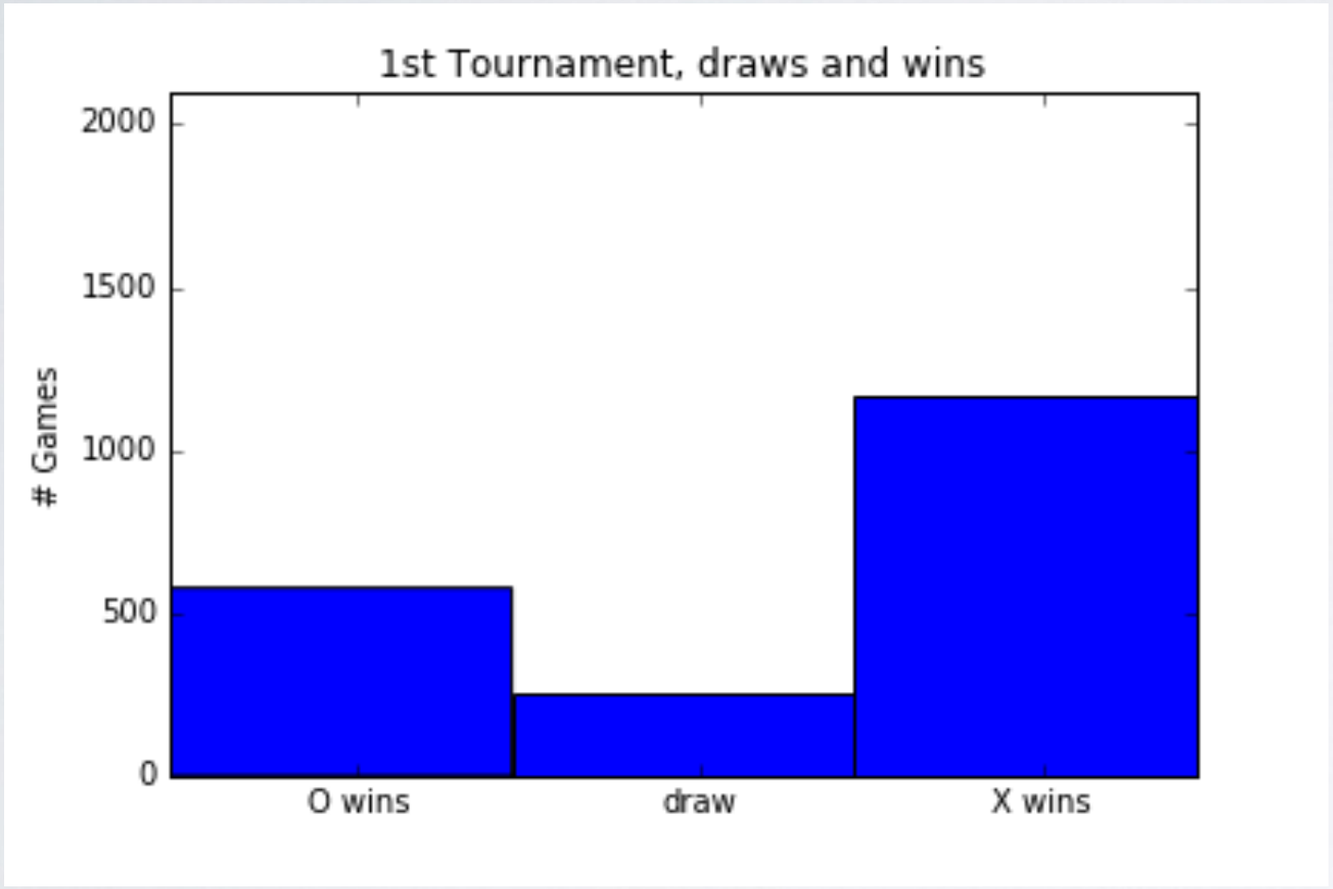
PROJECT I

E. Gerlitz, A. Popkes, P. Wenker, K. Patel, N. Lutz

TIC-TAC-TOE - PROBABILISTIC STRATEGY

TOURNAMENT I



0,11681114	0,09080574	0,12178485
0,09407418	0,15418502	0,09080574
0,12178485	0,09180048	0,11794799

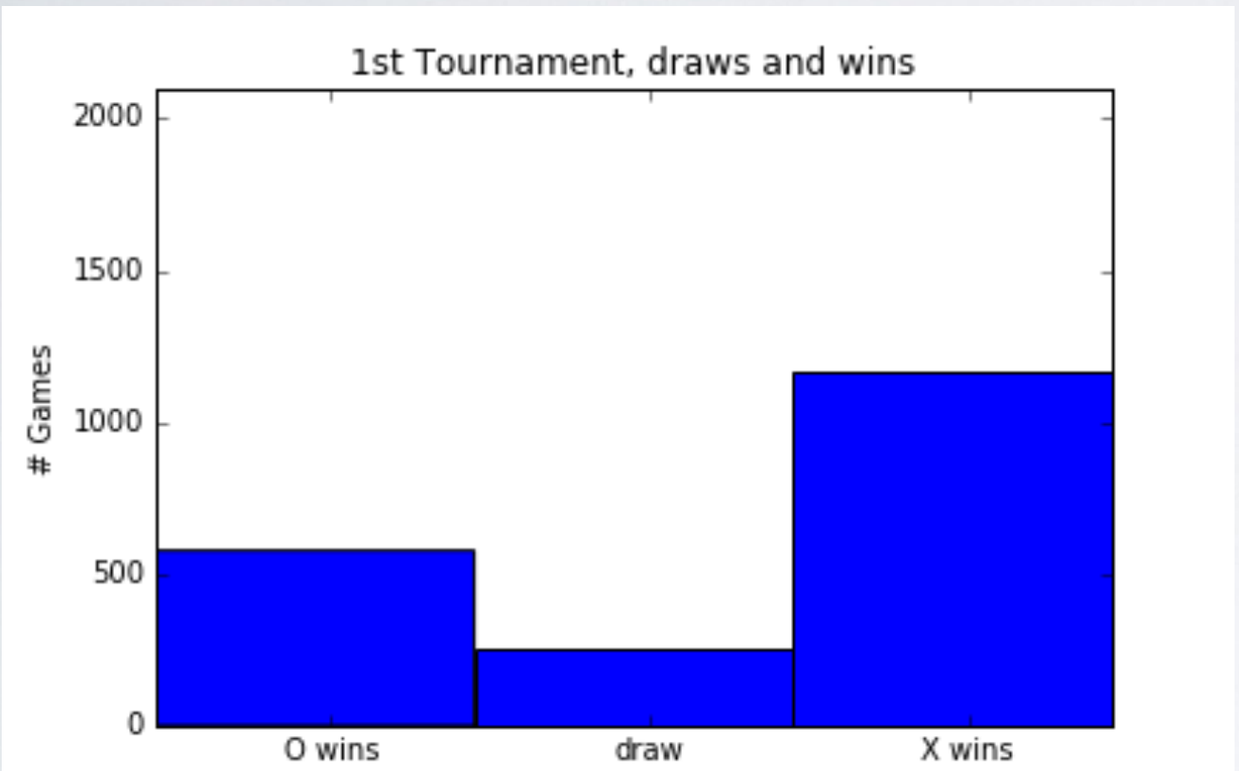
TIC-TAC-TOE
PROBABILISTIC STRATEGY

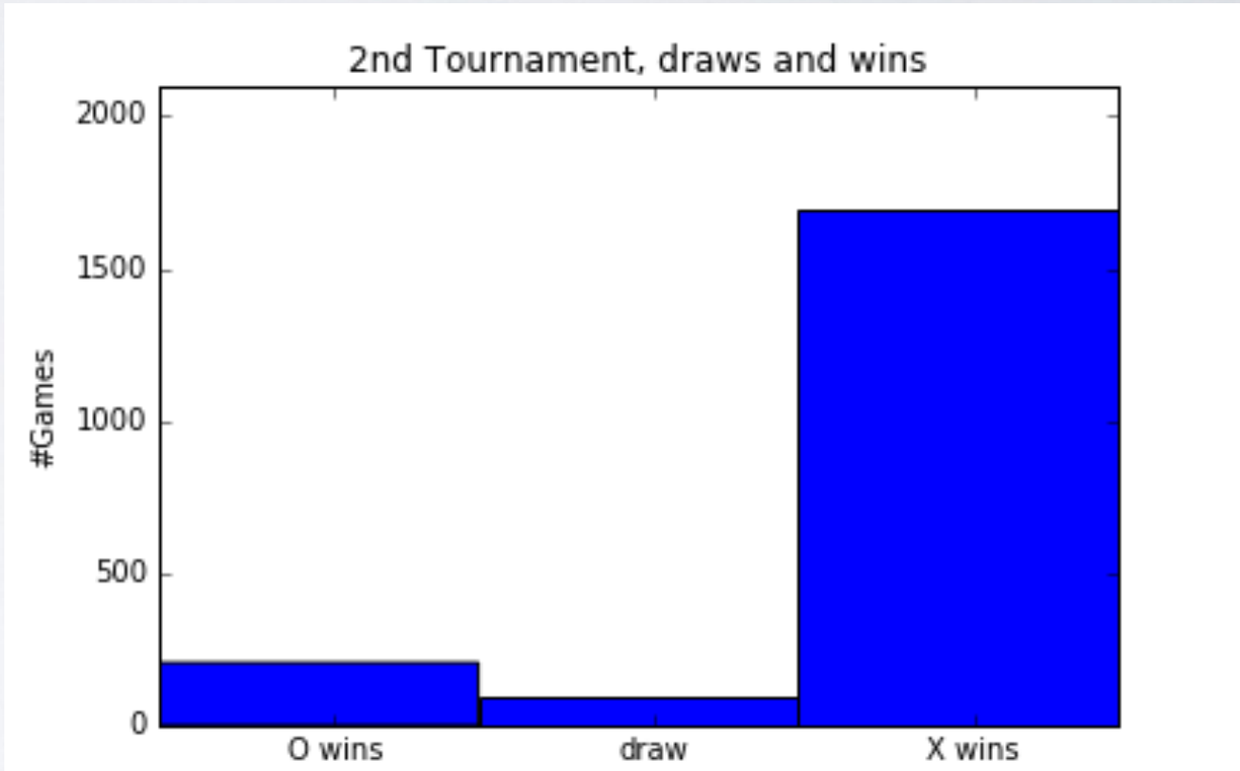
O moves at random → **X** moves probabilistic

0,11681114	0,09080574	0,12178485
0,09407418	X	0,09080574
O	0,09180048	0,11794799

0,11681114	0,09080574	X
0,09407418	X	0,09080574
O	0,09180048	0,11794799

TIC-TAC-TOE - PROBABILISTIC STRATEGY
TOURNAMENT II



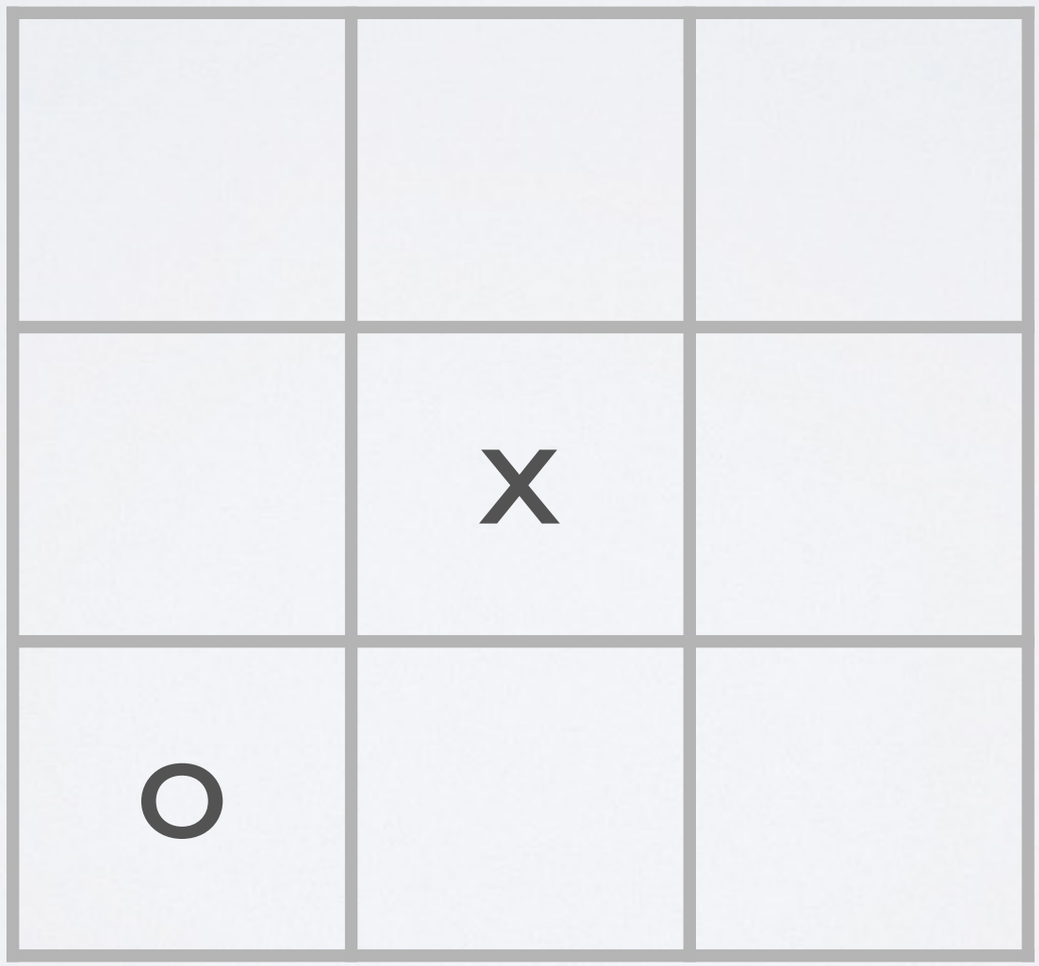


- Better results but still room for improvement

TIC-TAC-TOE- HEURISTIC STRATEGY

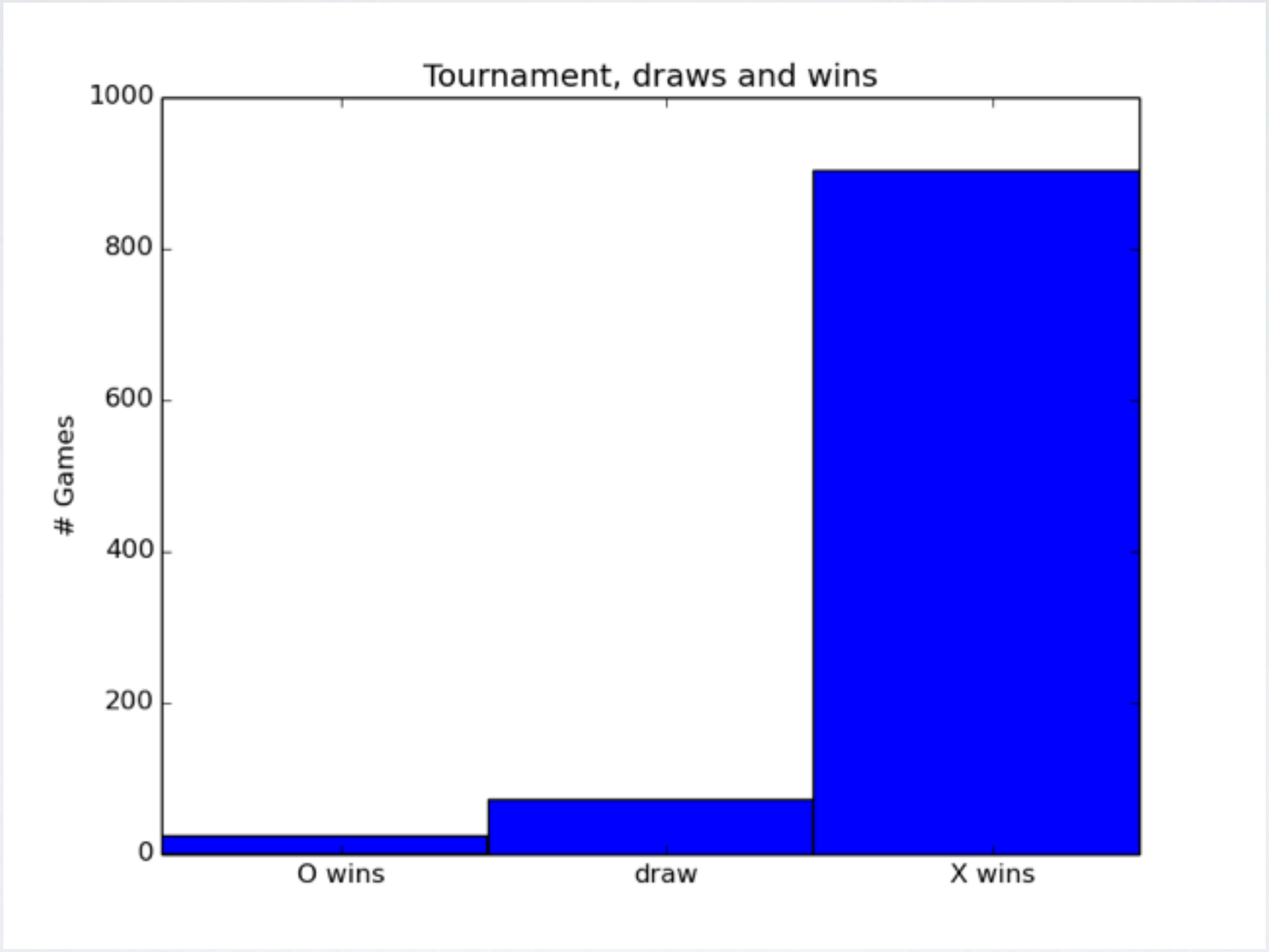
TASK

Evaluate all free positions and select best one



TIC-TAC-TOE- HEURISTIC STRATEGY

FIRST TRY



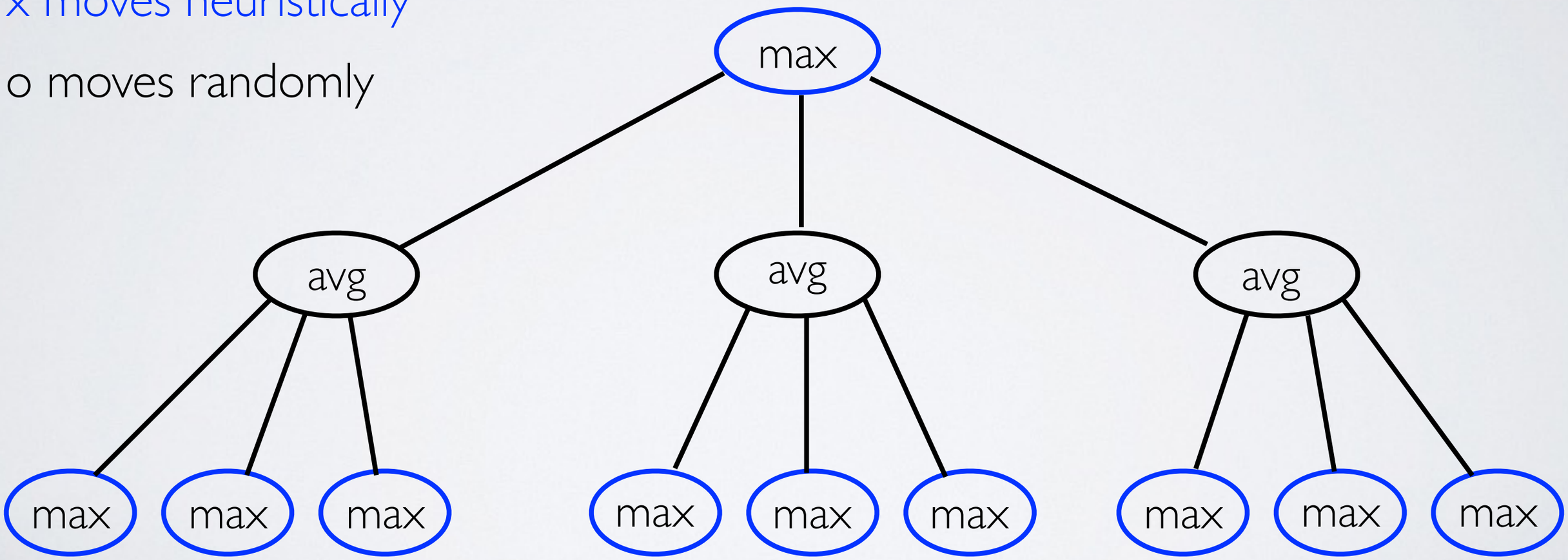
TIC-TAC-TOE- HEURISTIC STRATEGY

SECOND TRY - BASIC IDEA

- Adapt idea of minmax algorithm to fit our setting

x moves heuristically

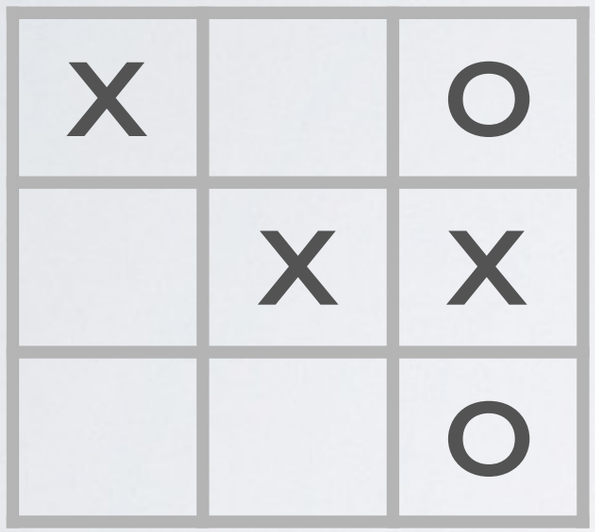
o moves randomly



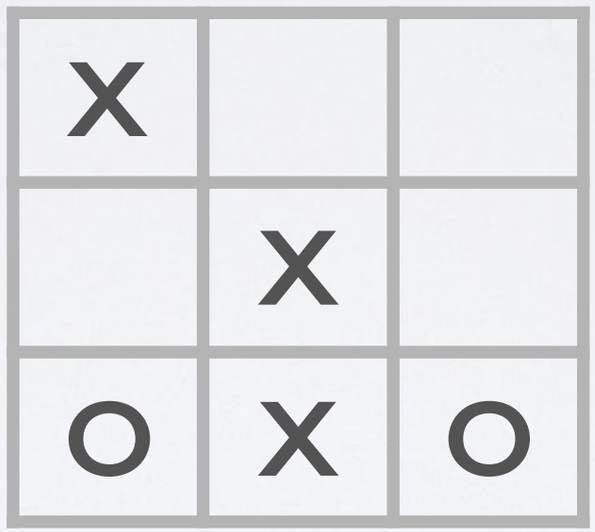
TIC-TAC-TOE- HEURISTIC STRATEGY

TRANSFORMATIONS

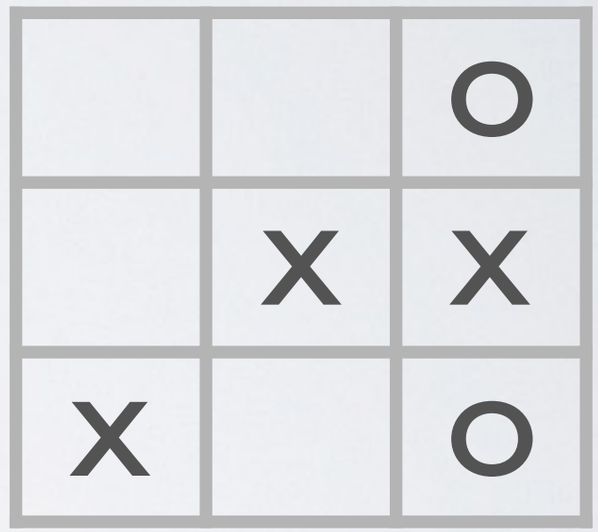
mirrored along main diagonal

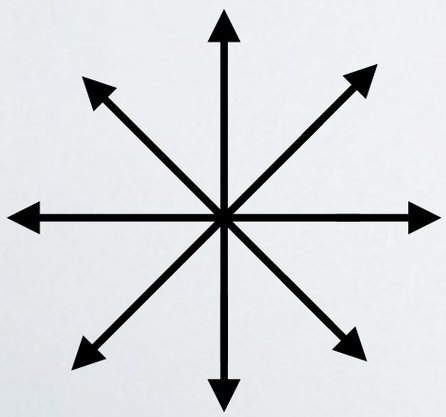


base

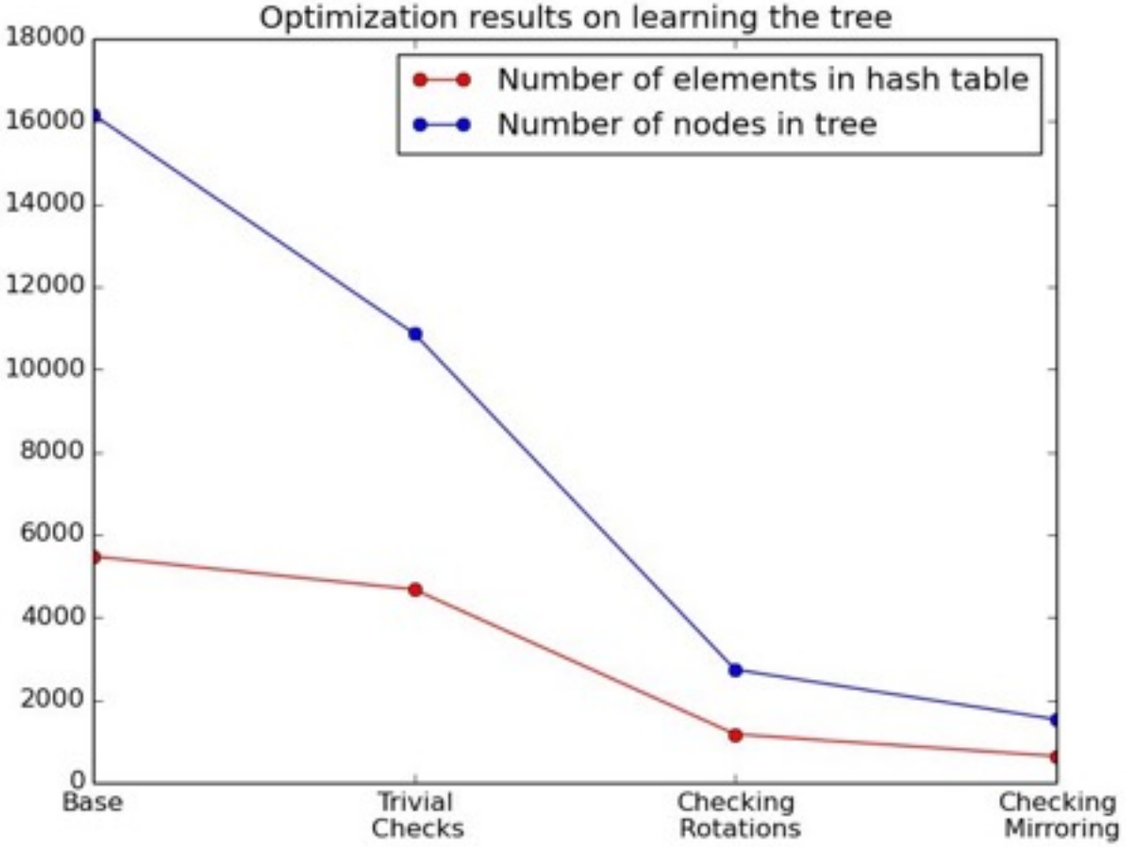


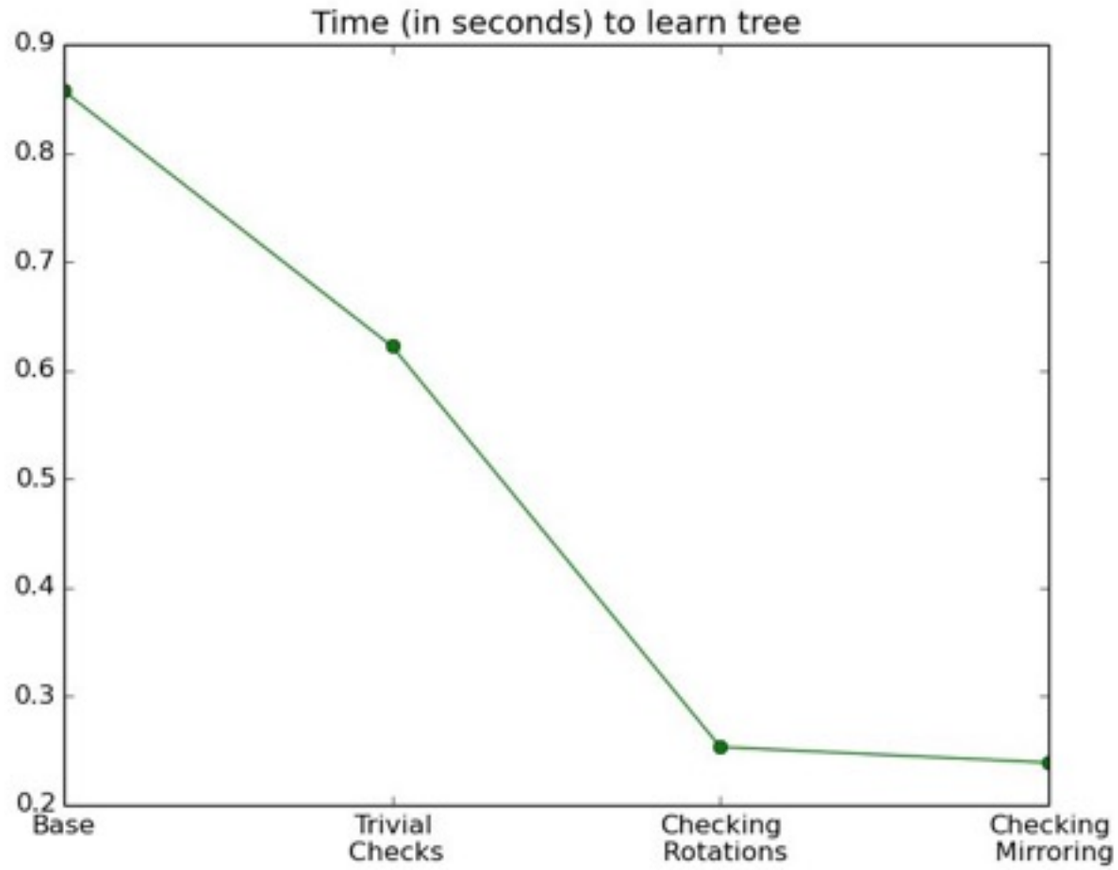
rotated by 90 degrees



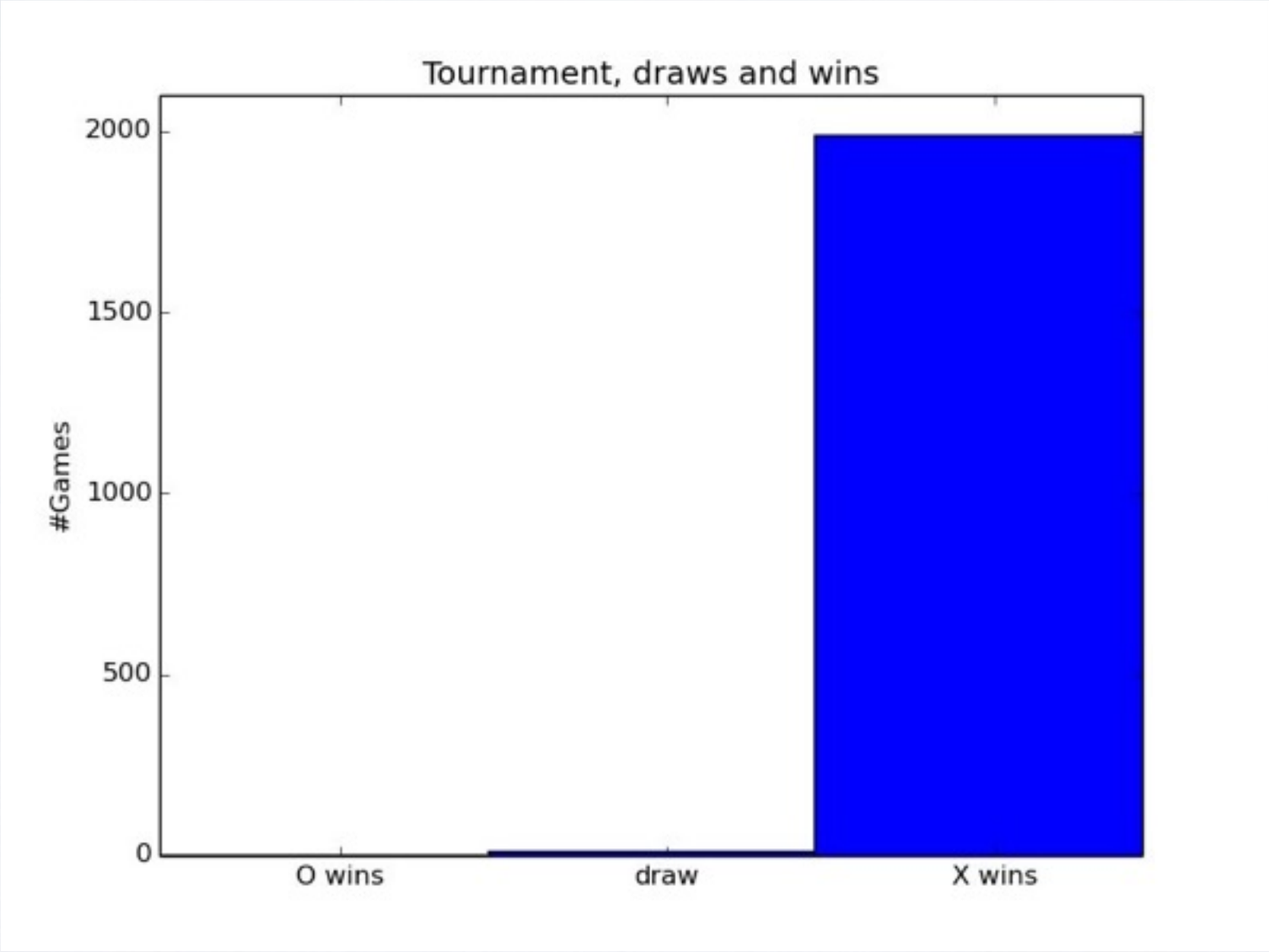


TIC-TAC-TOE
HEURISTIC STRATEGY



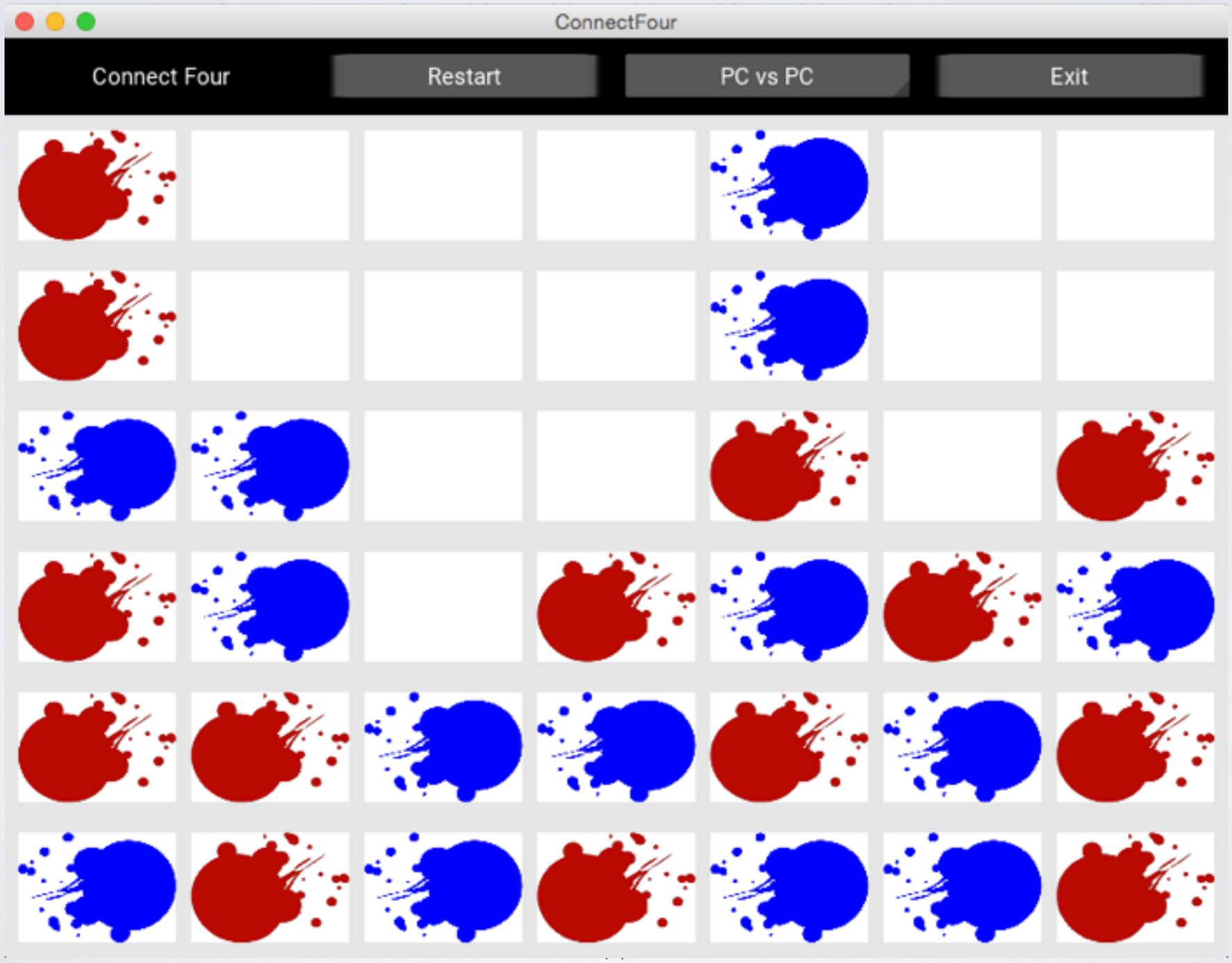


TIC-TAC-TOE TOURNAMENT



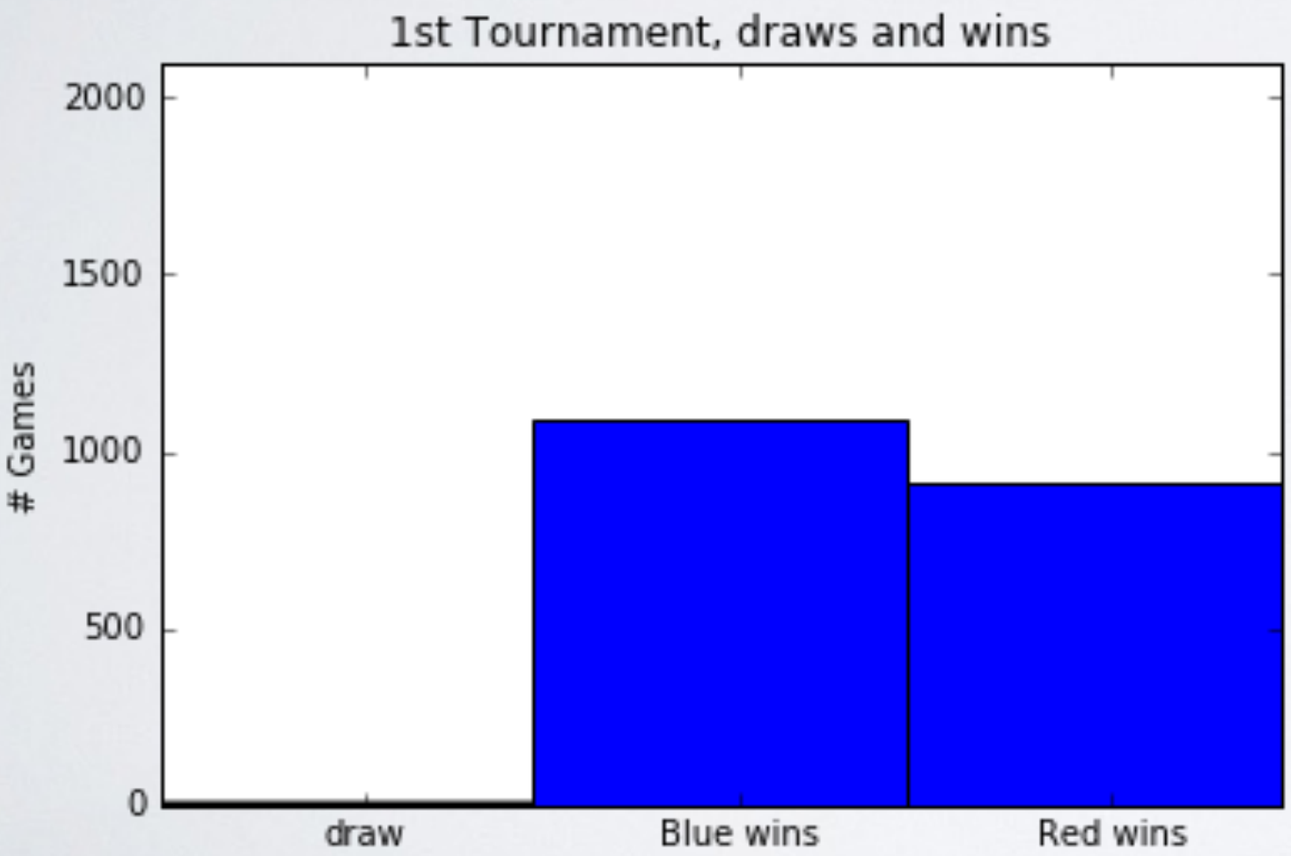
X always wins against a random player most of the times

CONNECT FOUR VISUALISATION

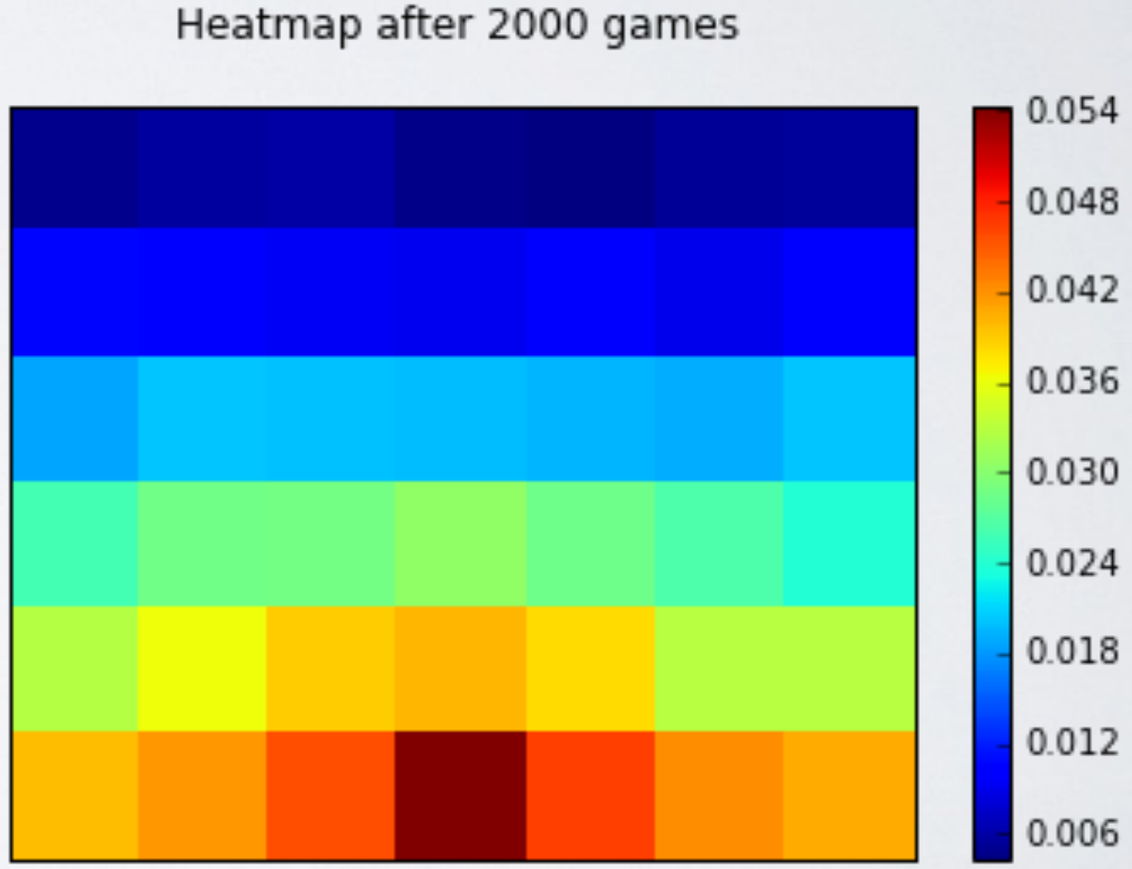


CONNECT FOUR STATISTICS

Before - **Blue** and **Red** move at random

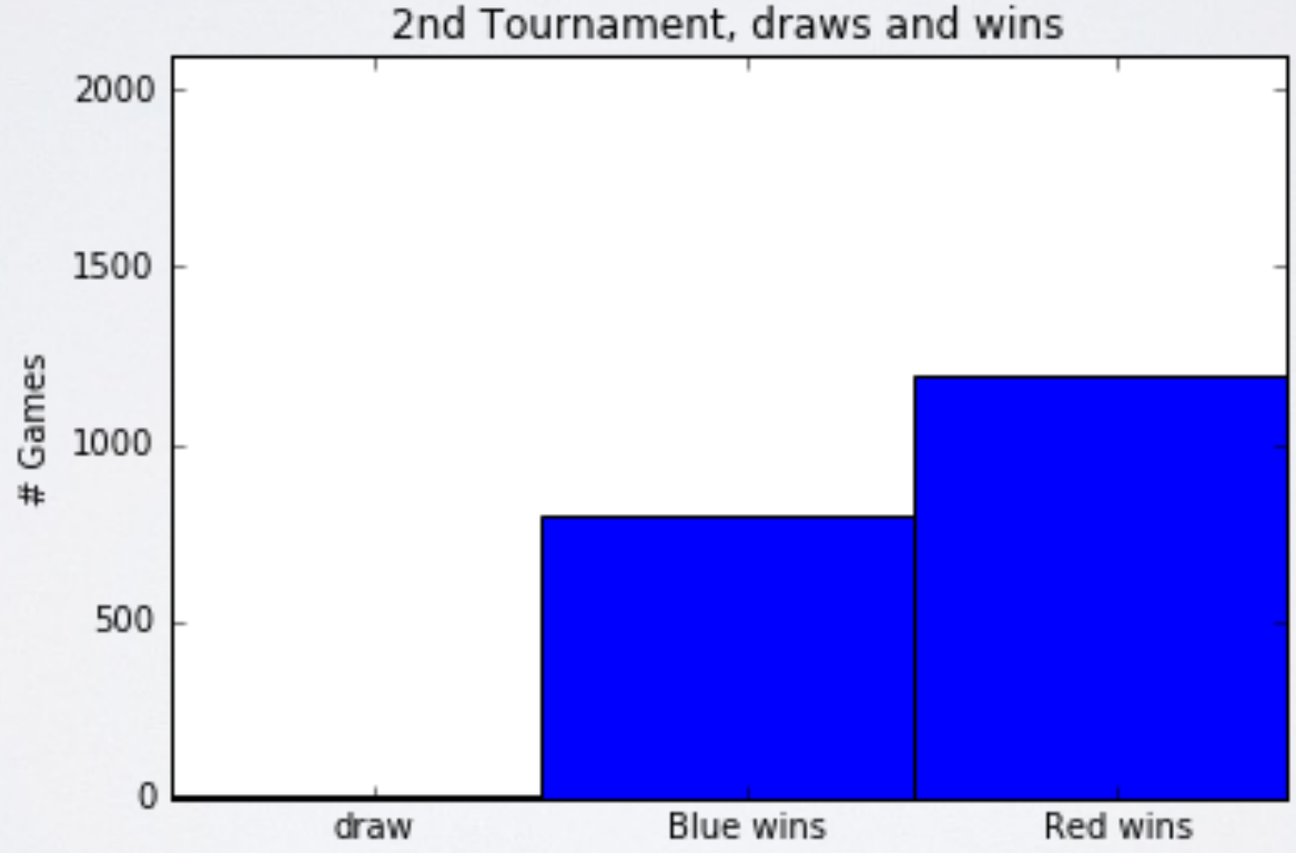


Frequencies



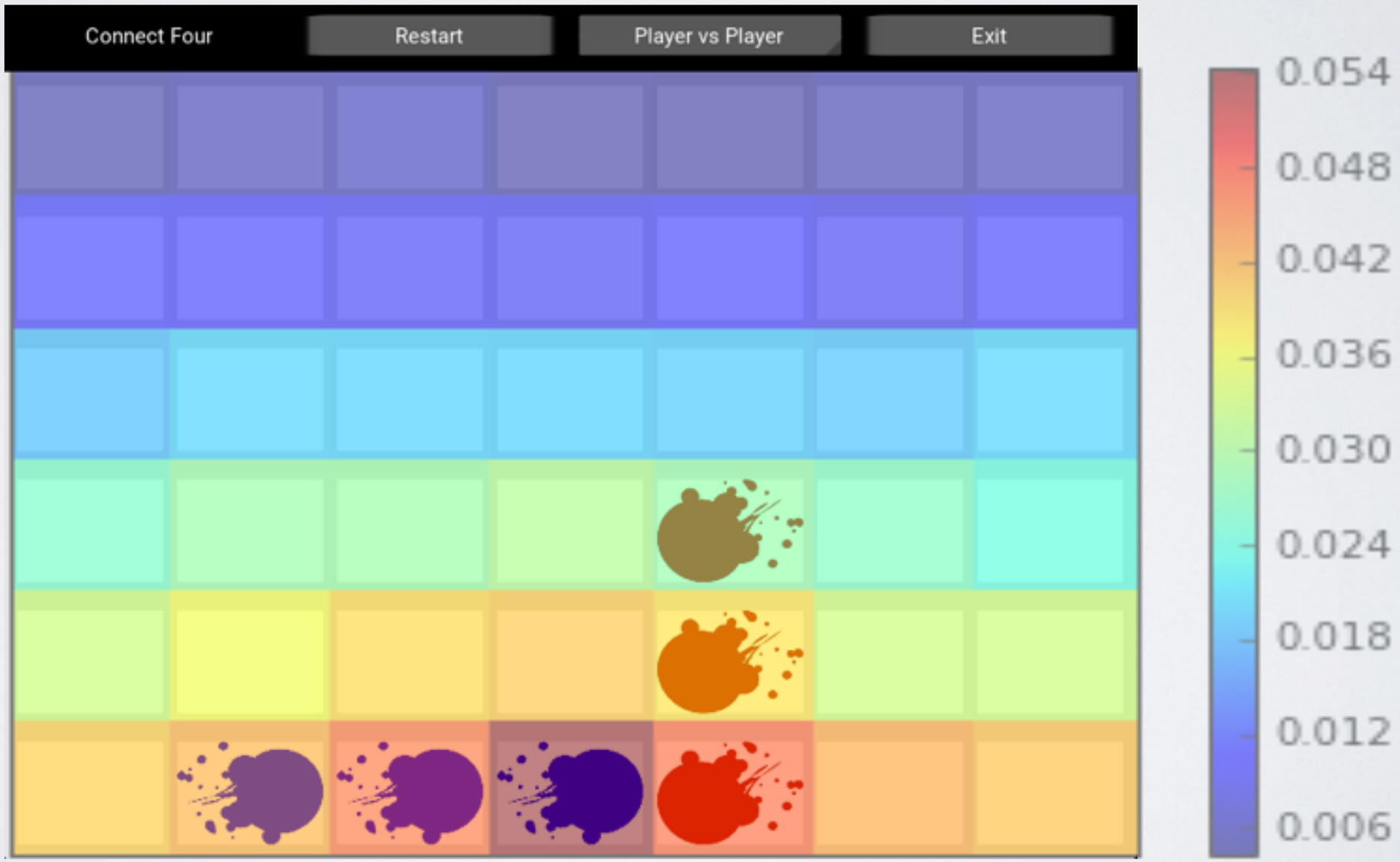
CONNECT FOUR STATISTICS

After - **Red** moves probabilistic, **Blue** moves randomly

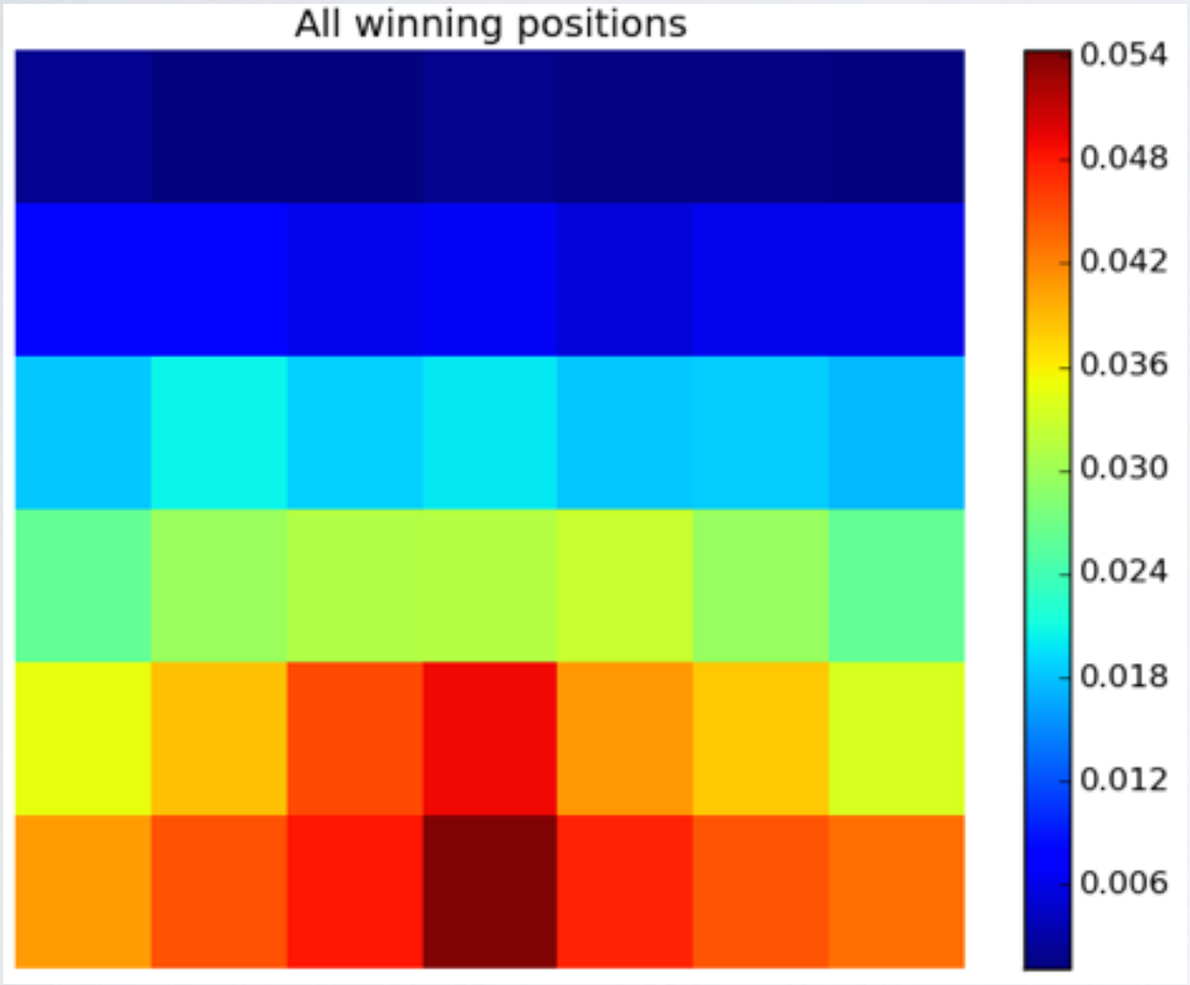


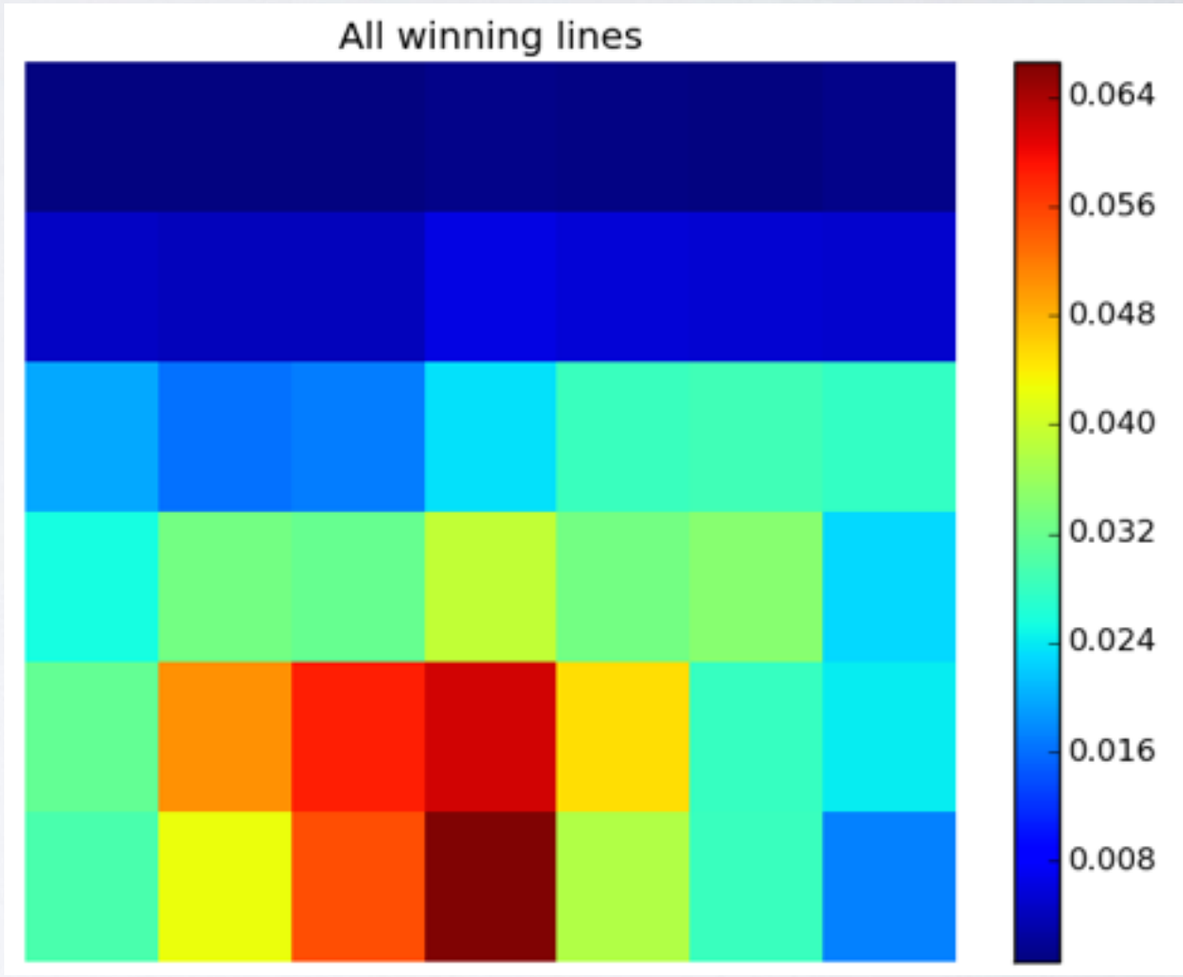
CONNECT FOUR STATISTICS

Problems:



CONNECT FOUR ADVANCED STATISTICS





CONNECT FOUR LINE PROBABILITIES