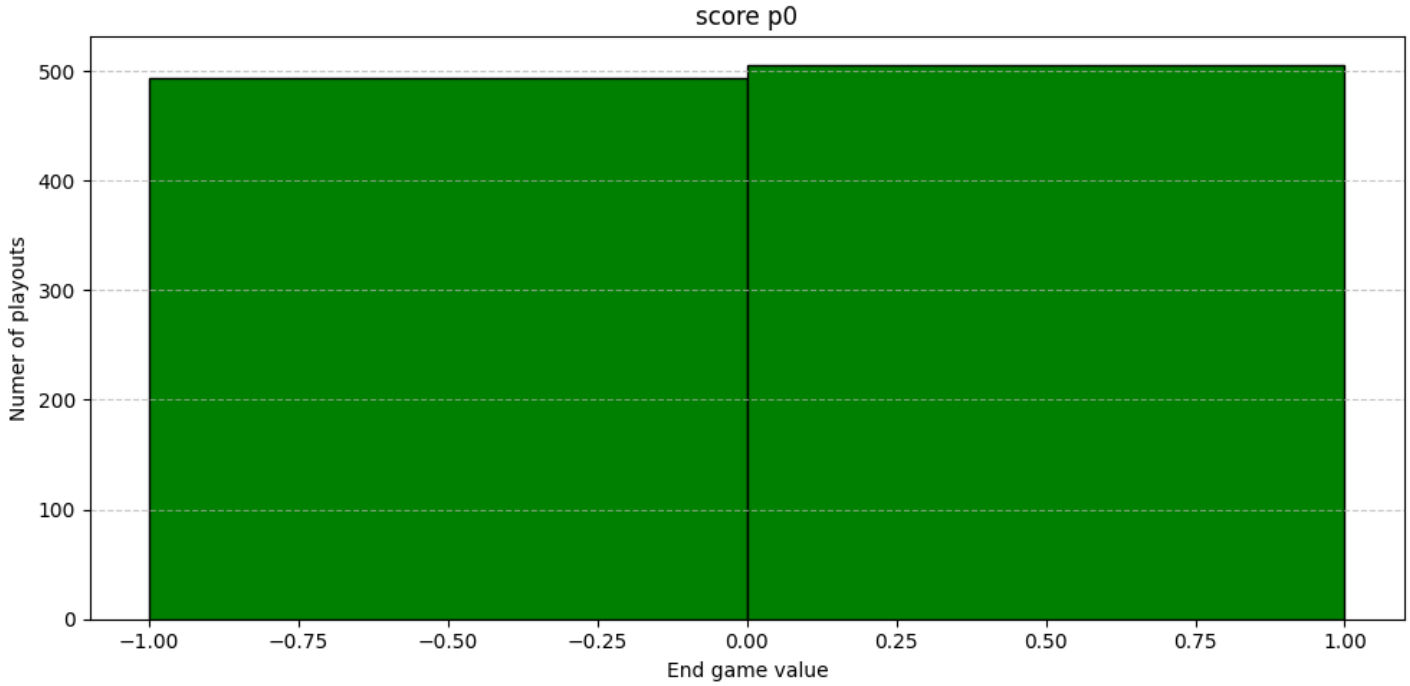
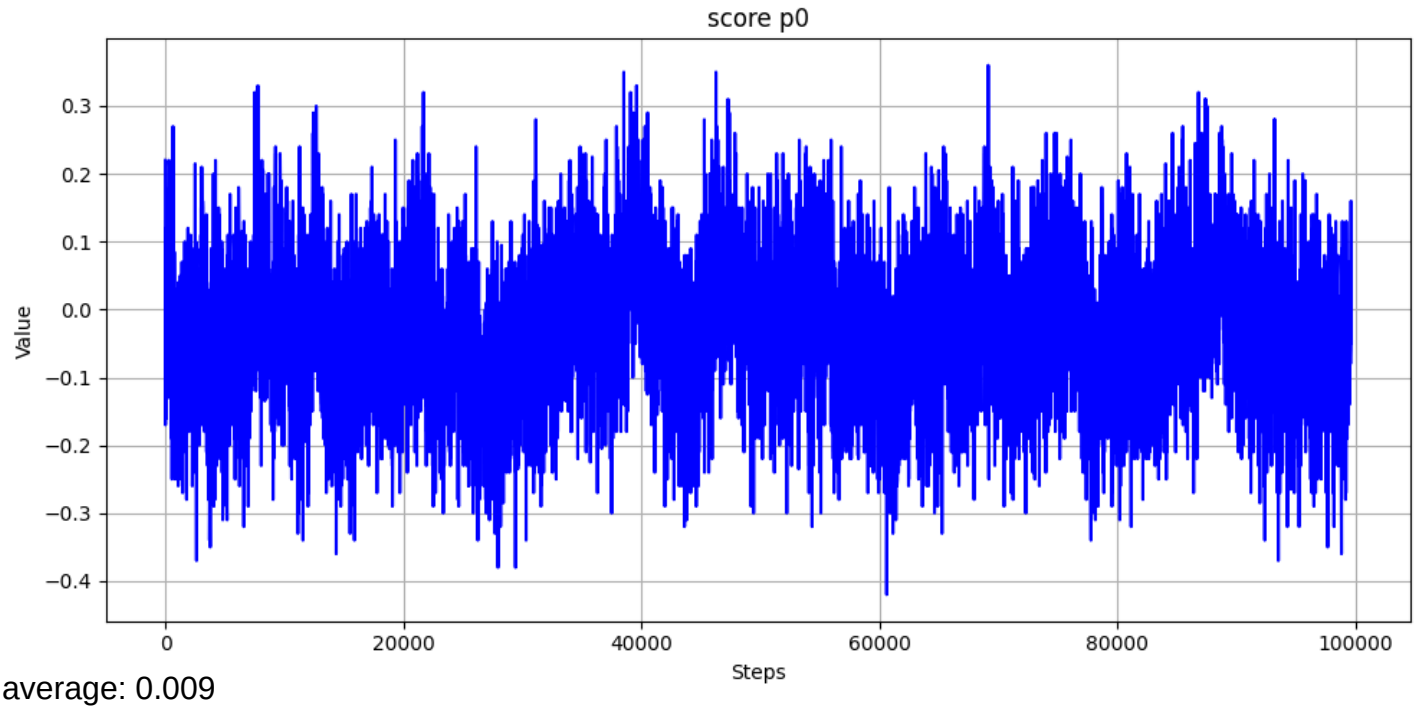
sky tower report

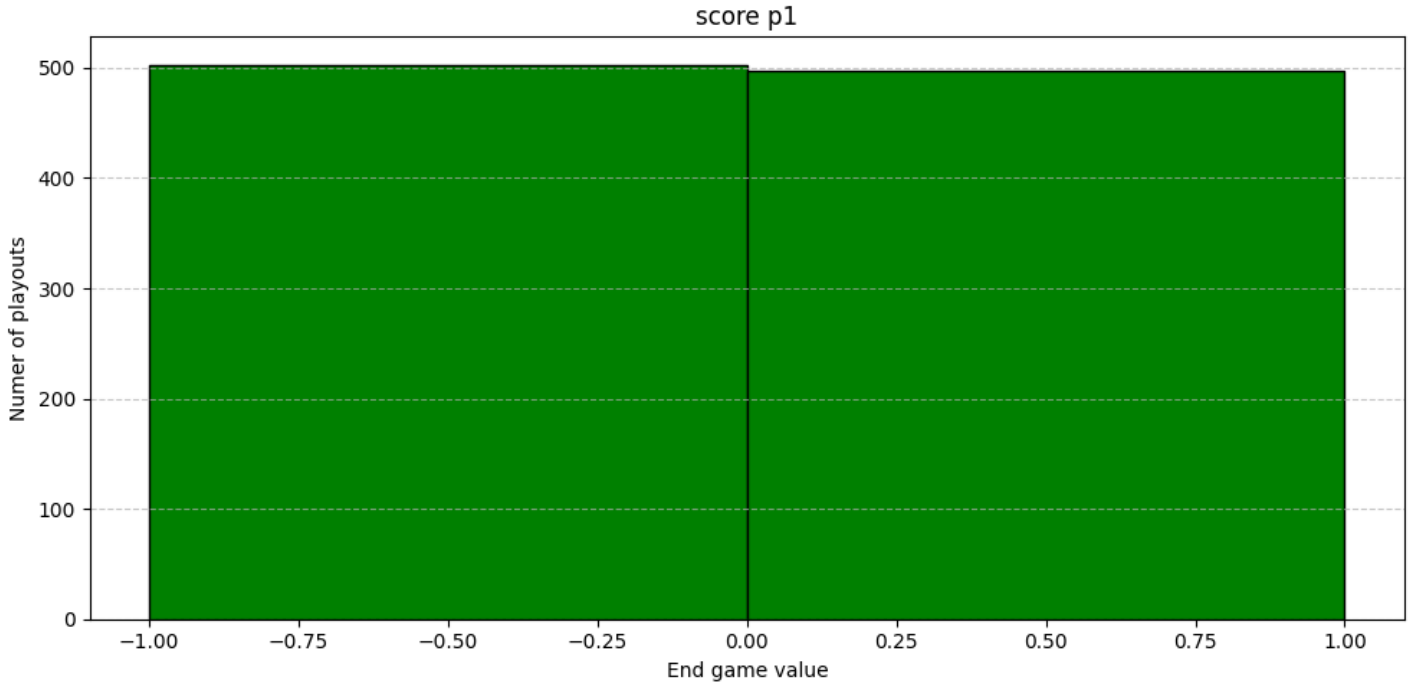
massimo.fioravanti@polimi.it

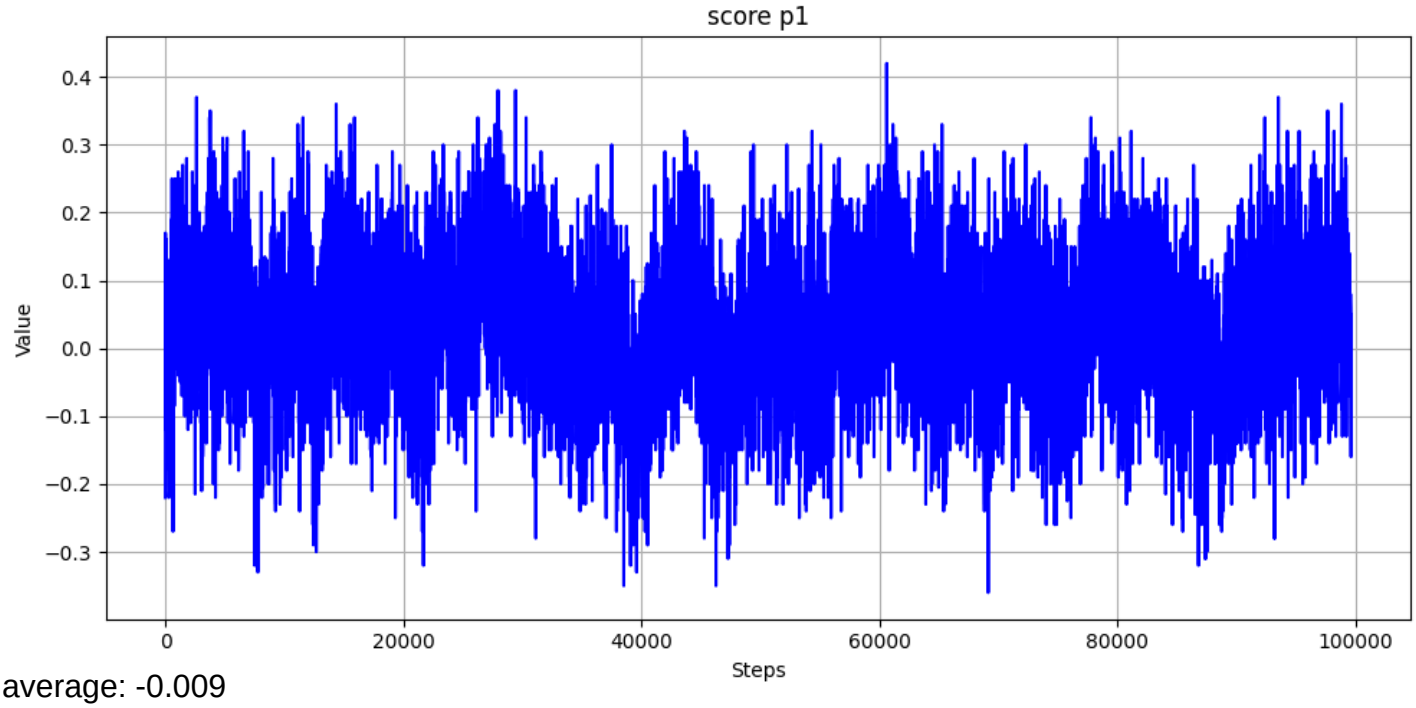




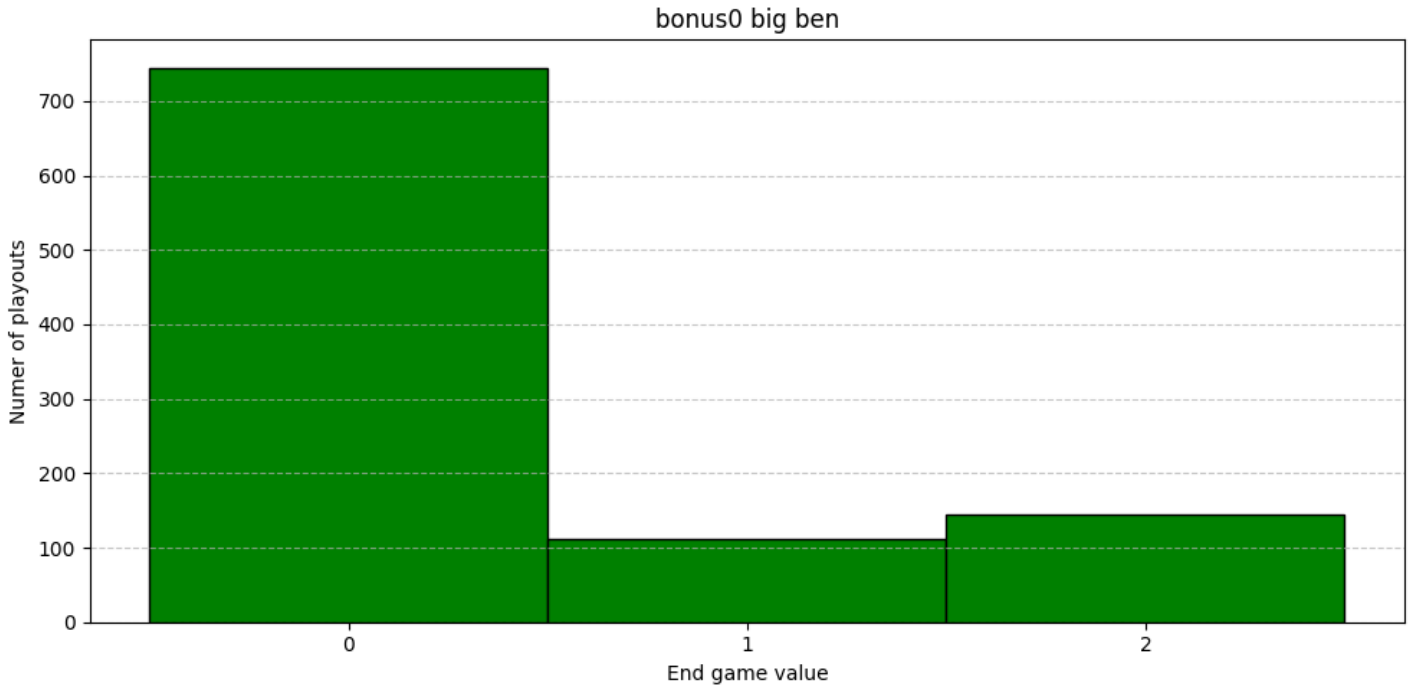
average: 0.009

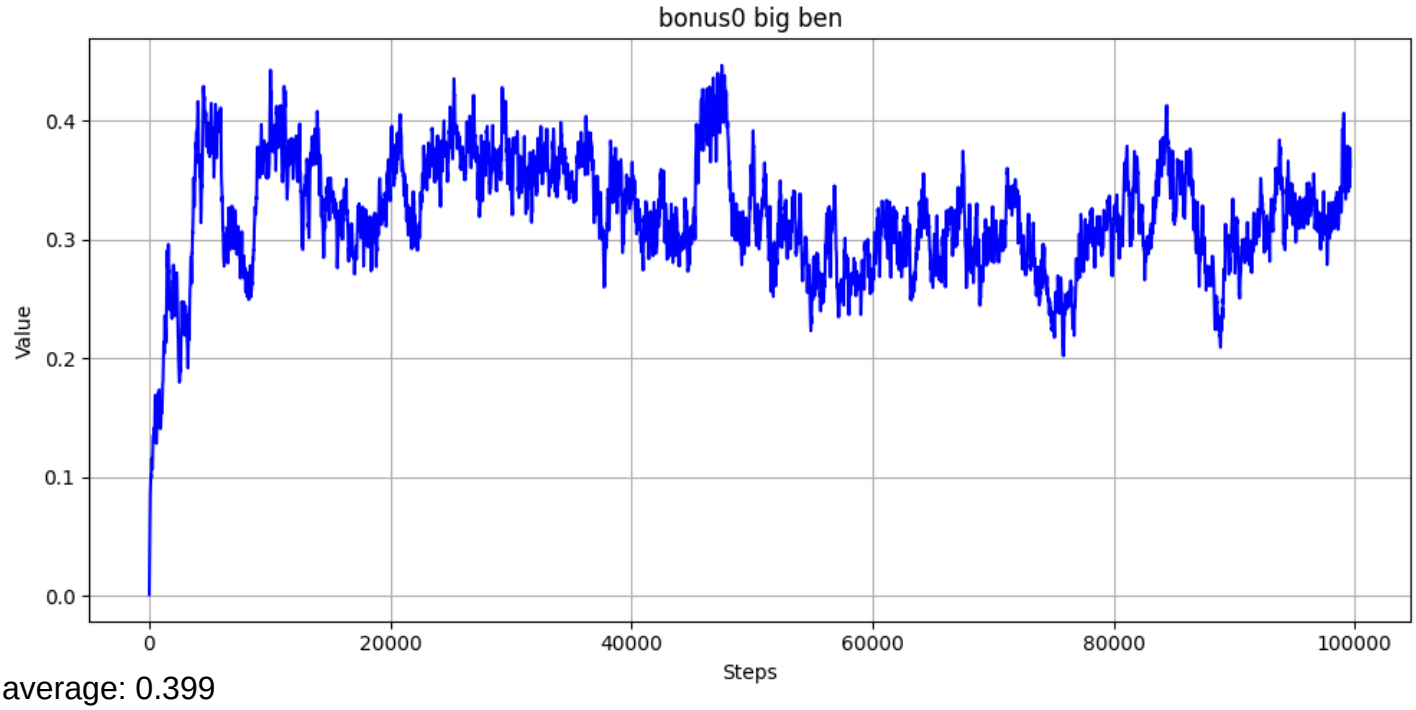
Number of games lost (first bar) and won (second bar). Very close to 50%. Working as designed.





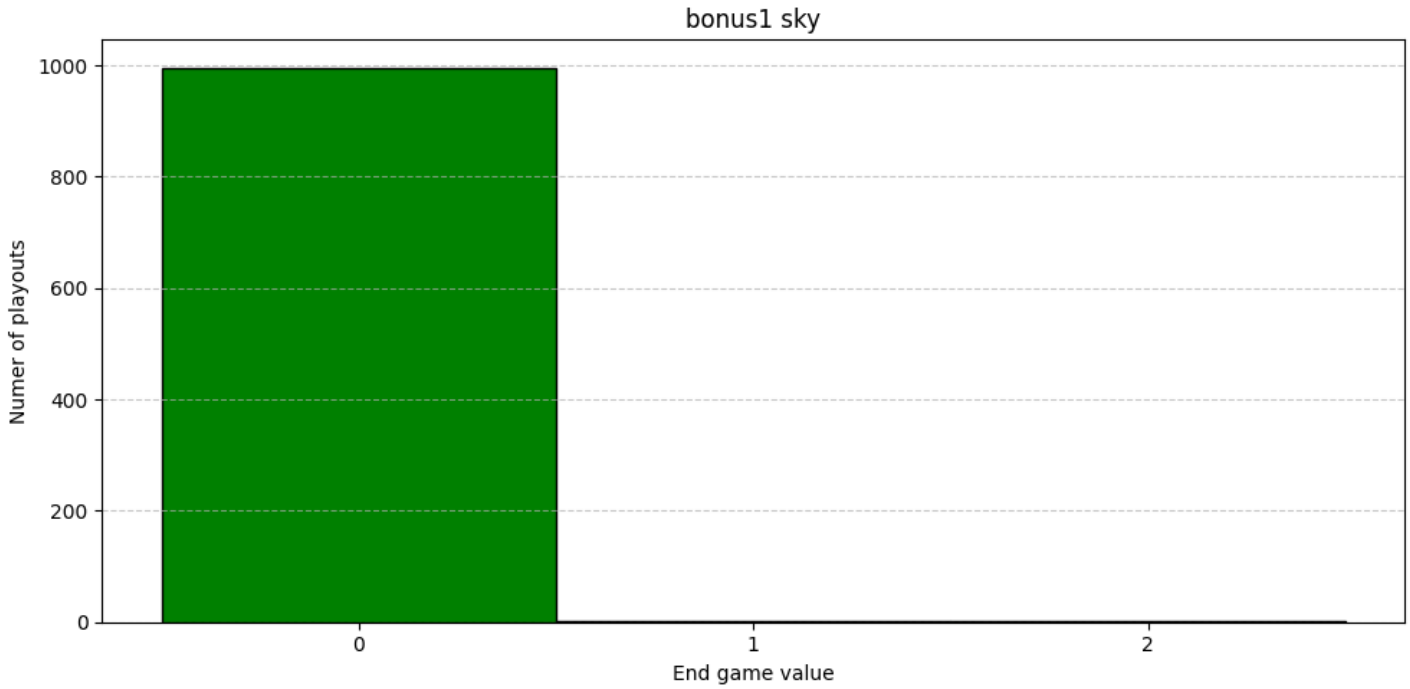
average: -0.009

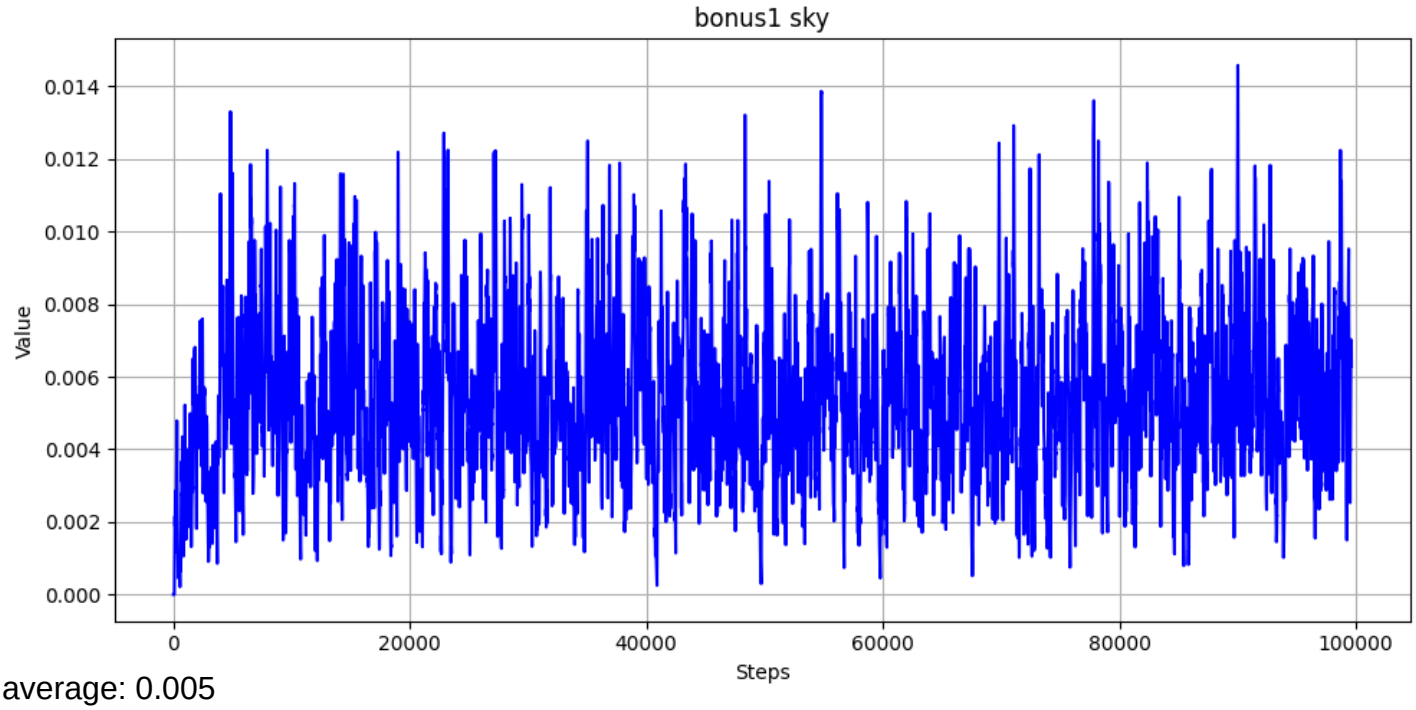




average: 0.399

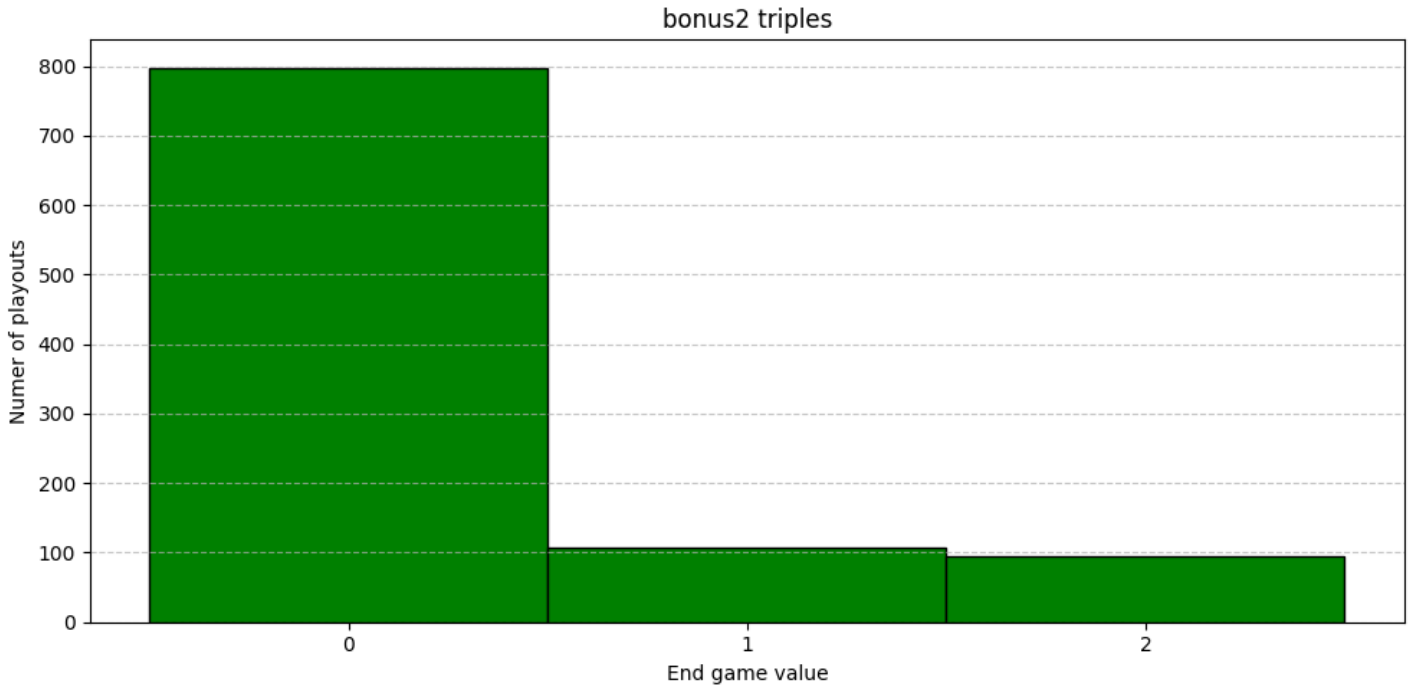
Bonus 0, BIG BEN. requires to have 3 towers with a 10 card. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. 2 that it was taken by player 2. BIG BEN has been used by the machine learning agent for the entire training, and its usage has been stable. Only 20-30% of games have SKY being claimed, but it is seems to be working as intended.

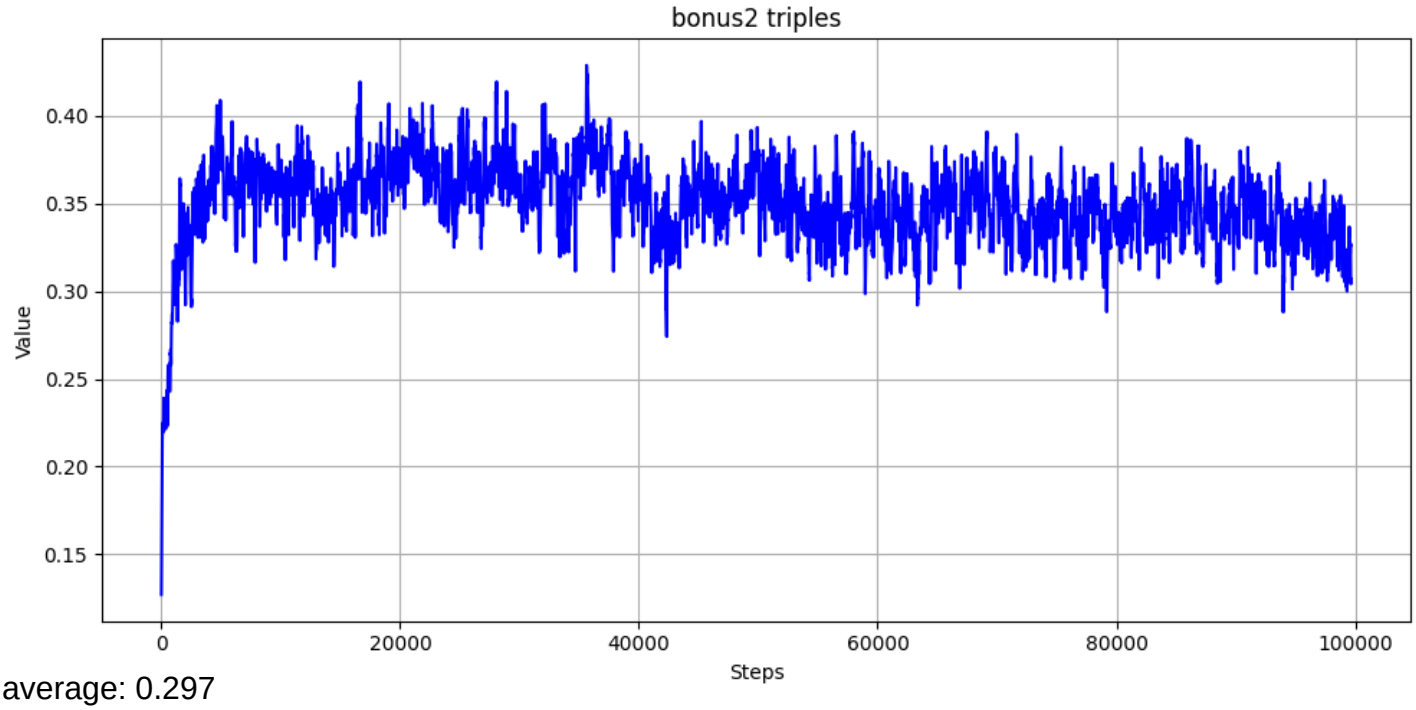




average: 0.005

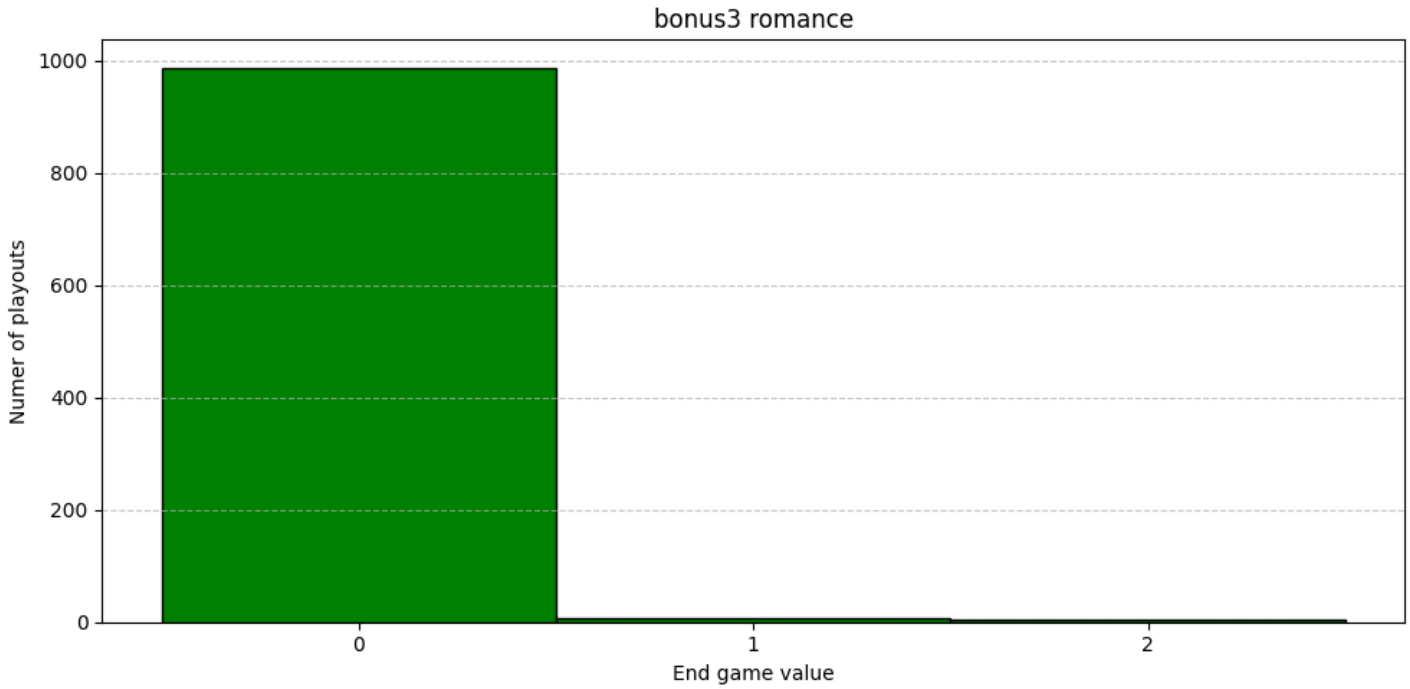
Bonus 1, SKY. requires to only have 1s 2s or 3s in the tower. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. 2 that it was taken by player 2. Sky has been extreamly rarelly used for the entire training process. It is very likelly that the network does not value it at all, preferring instead to use the cards on more advanced towers.

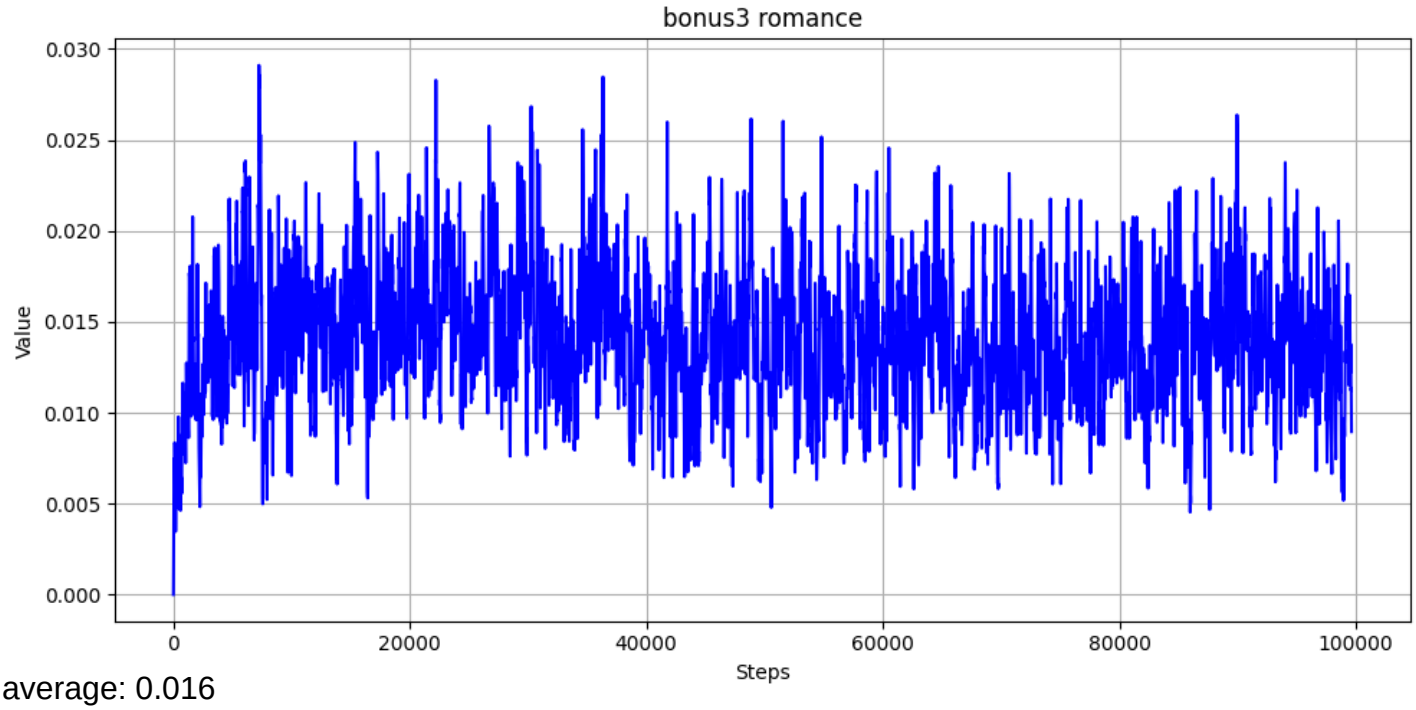




average: 0.297

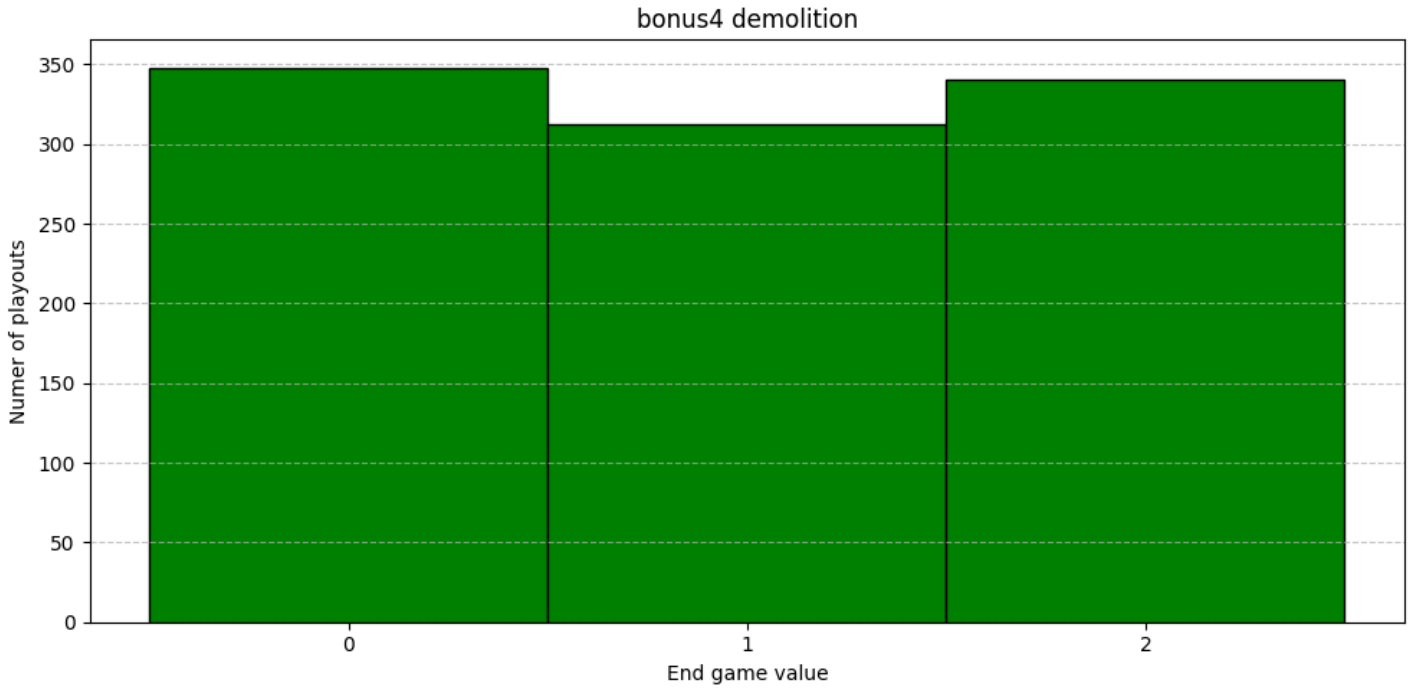
Bonus 2, TRIPLES. requires two sents of three cards. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. The training has been mostly stable. The initial surge shows that the network understand what the bonus is. When it can occasionaly get it, it will do so, but does not activelly seek out this strategy..

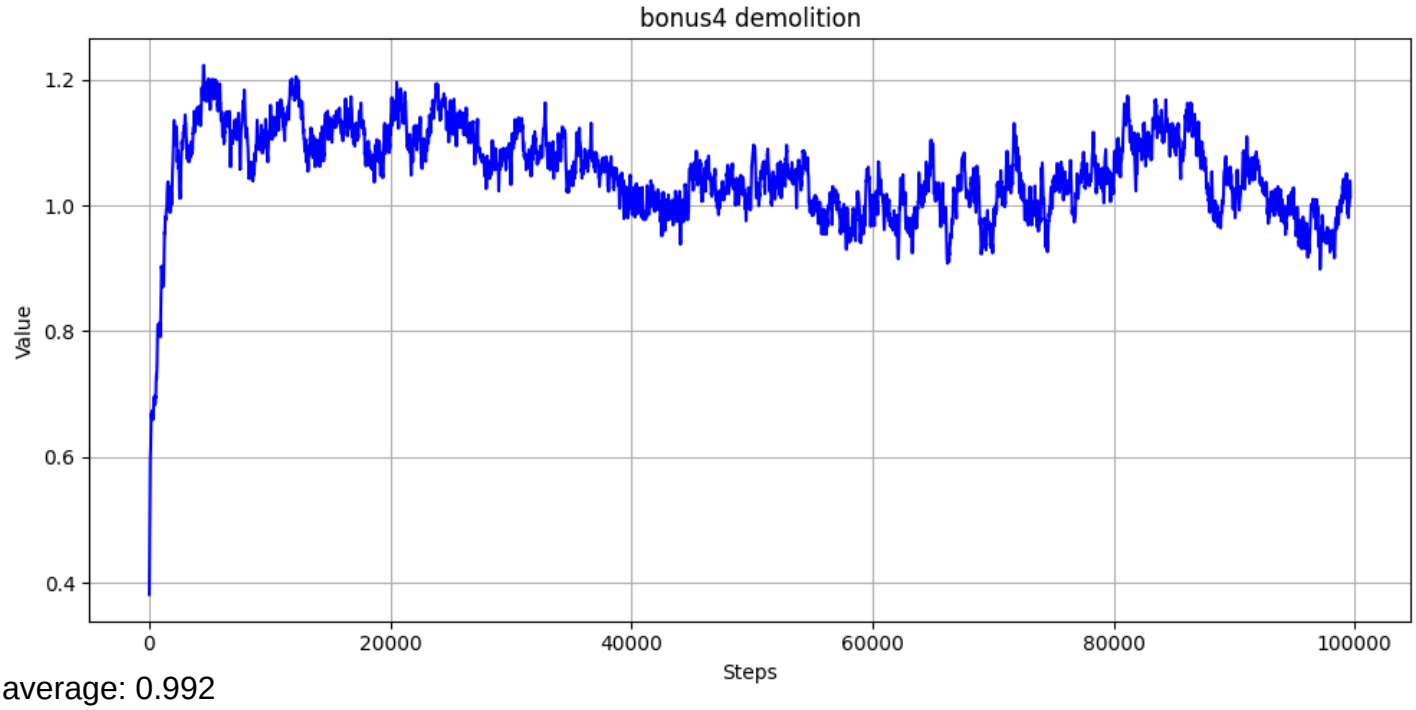




average: 0.016

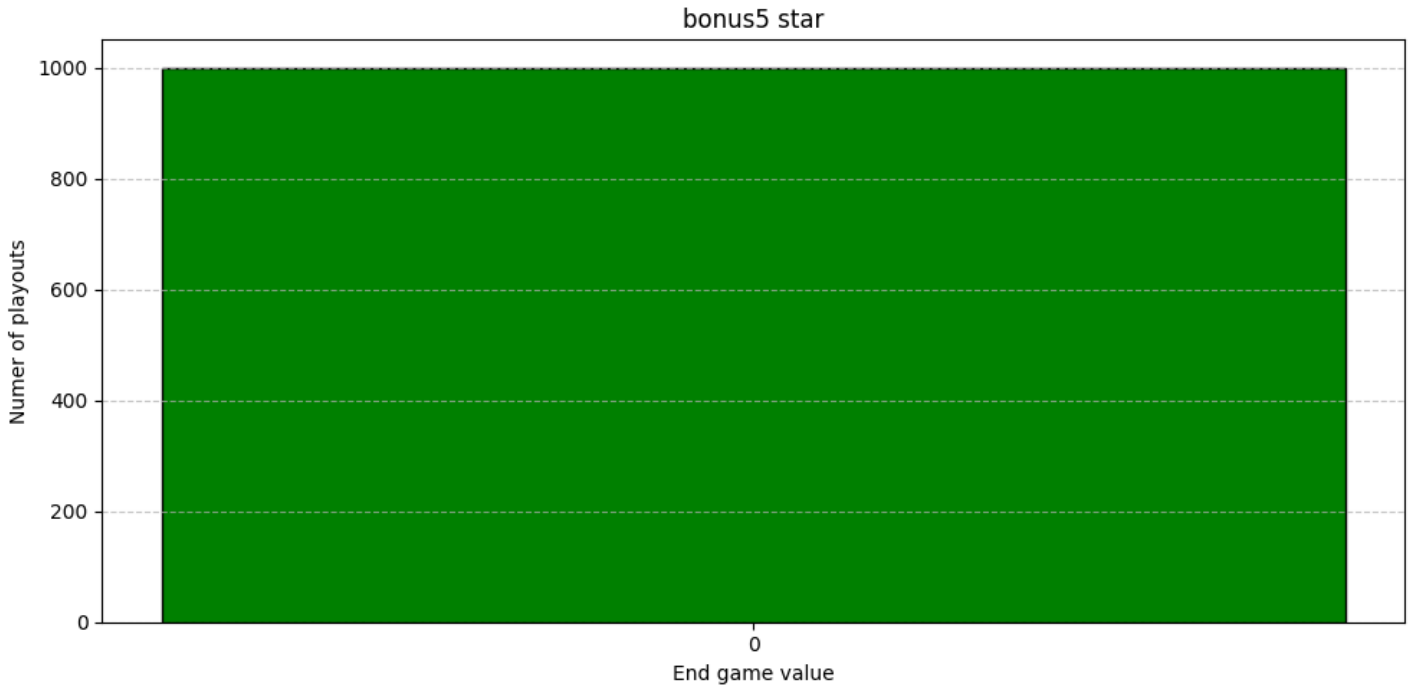
Bonus 3, ROMANCE. requires four 5 value cards, or four 4 value cards. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. The training has been stable. The initial surge shows that the network understand what the bonus is, but does not seems to value it at all. It seems that the network really does not wish to invest 4 identical cards in the same tower, or that the opponent can easily counter the strategy when it notices the opponent doing so.

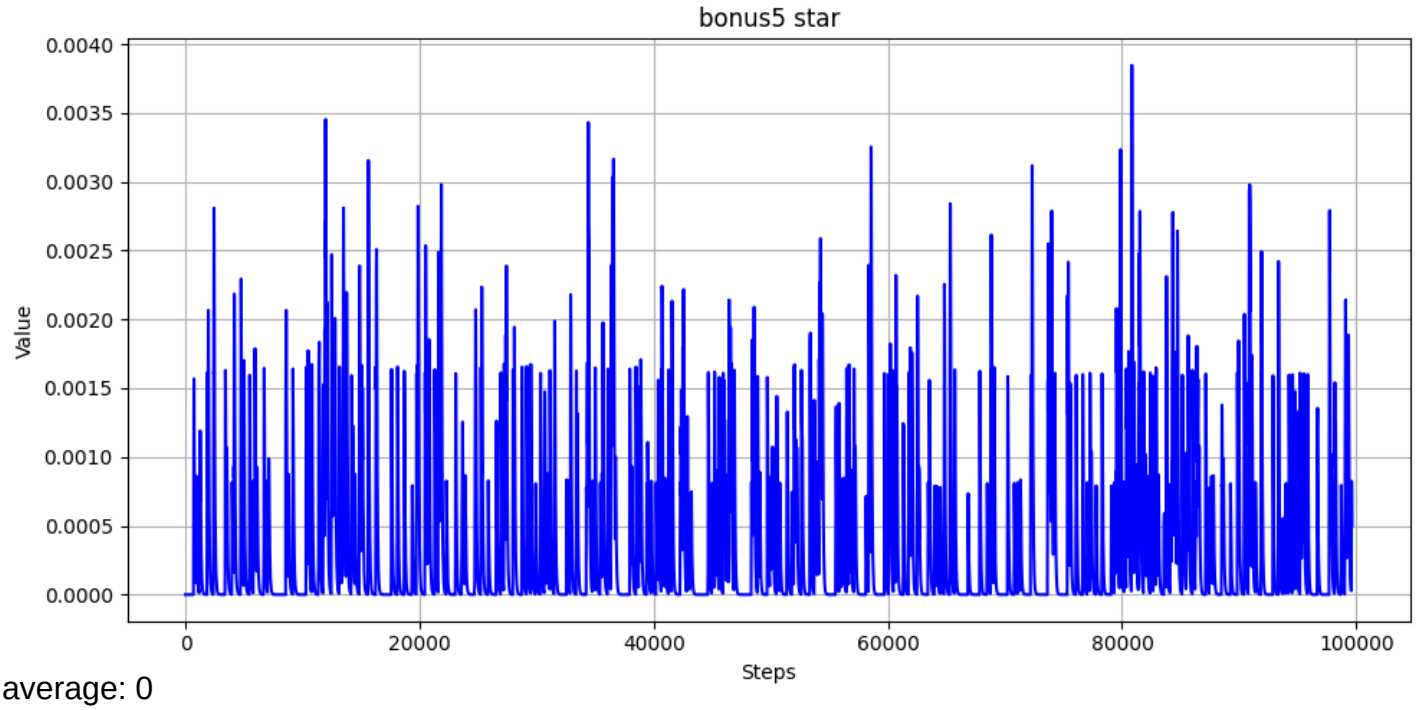




average: 0.992

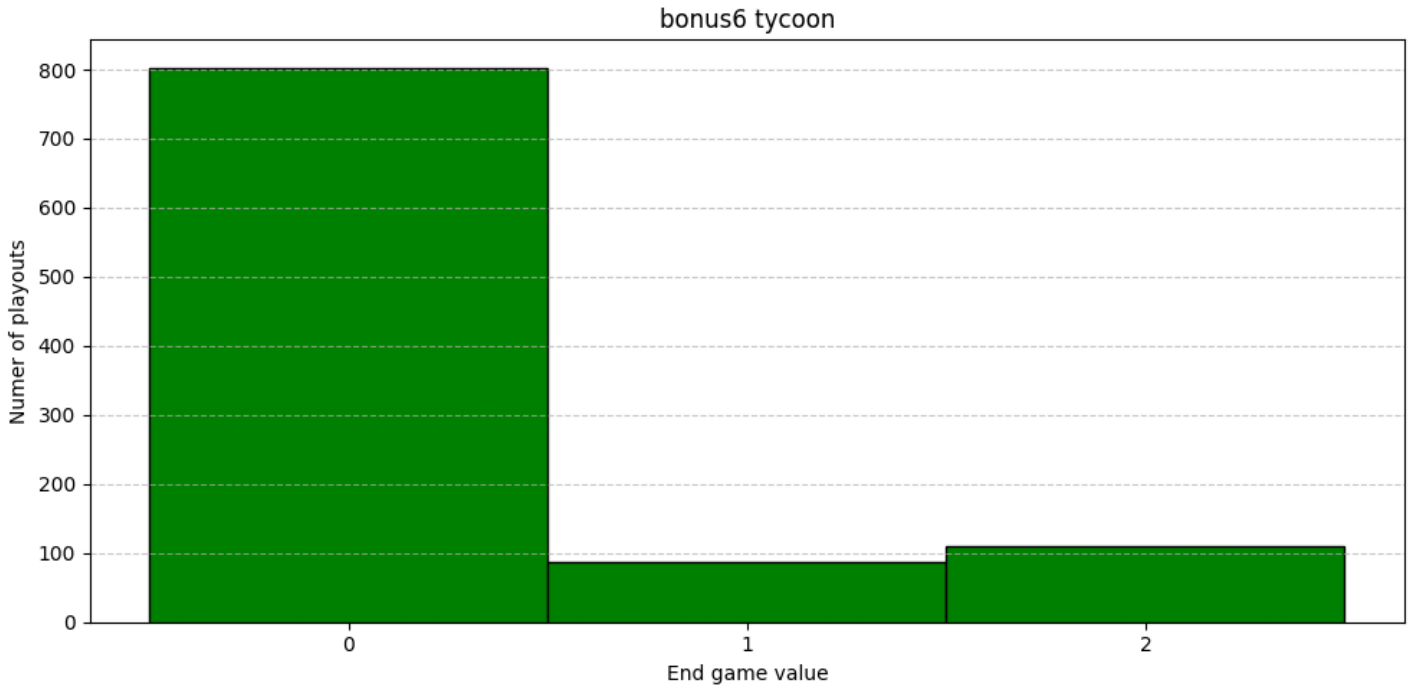
Bonus 4, DEMOLITION. demolish a tower with 5 or more cards. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. The training has been mostly stable. The initial surge shows that the network understand what the bonus is, and uses it in 60% of games. Seems to be working as designed.

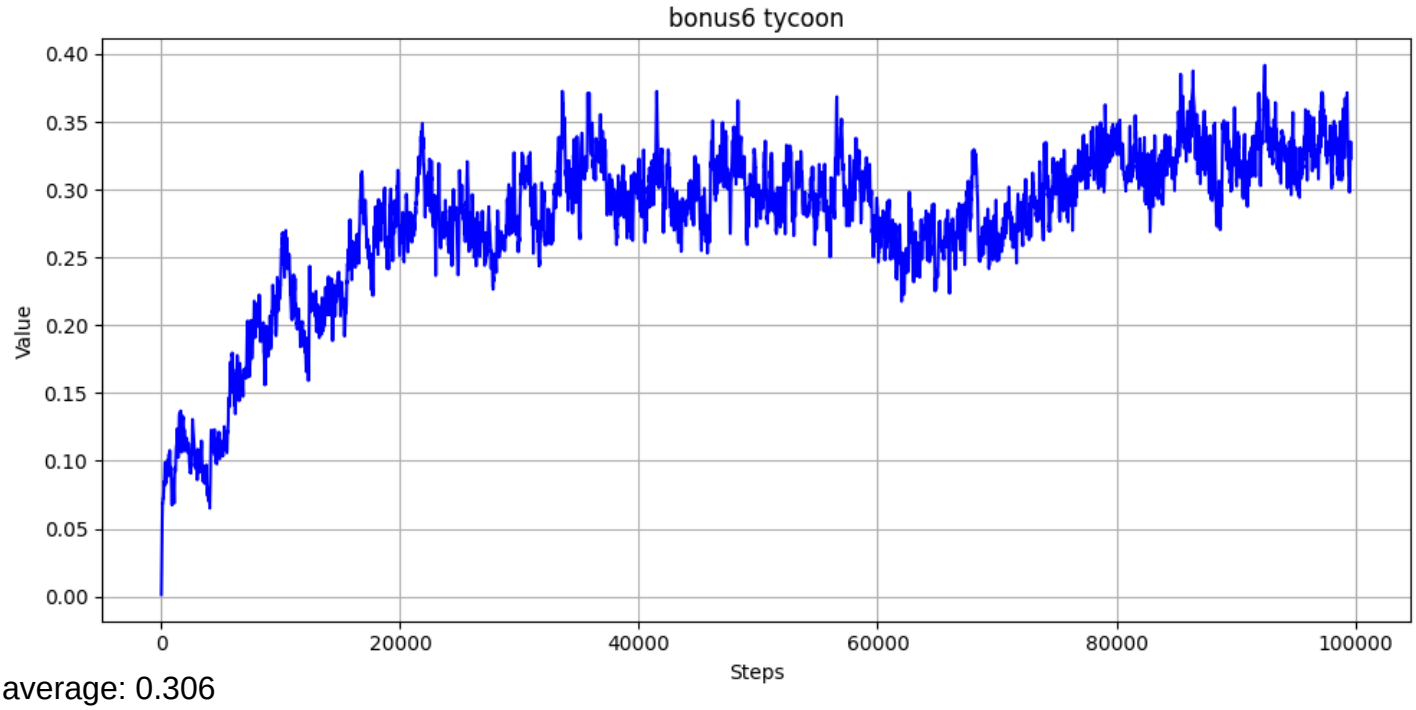




average: 0

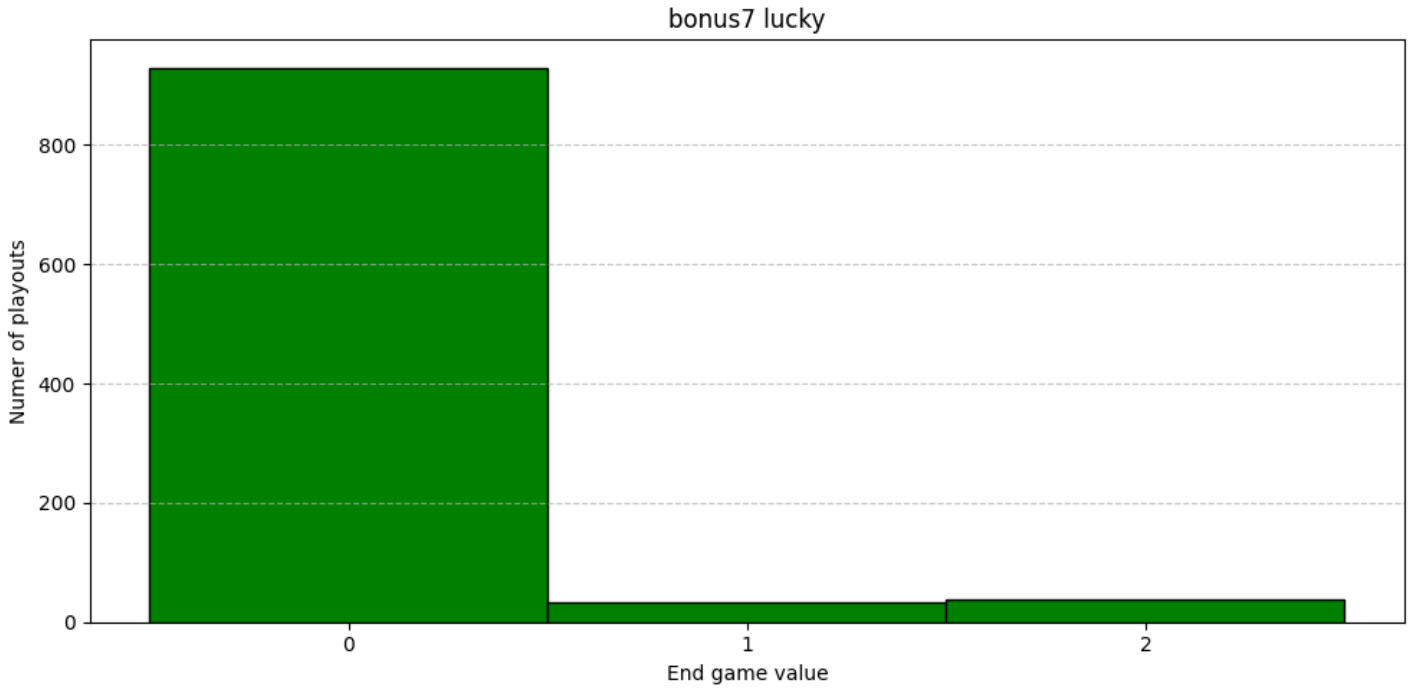
Bonus 5, STAR. requires a tower in descending order from 6 to 1. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. The time graph never moves consistently away from 0. The training has compleatly failed. The network never managed to learn what to do with it in the training time allocated to it. The graphs should be ignored and no insight can be gained from them. Further experiments should be conducted to understand if the network does not value the strategy, or does not understand it.

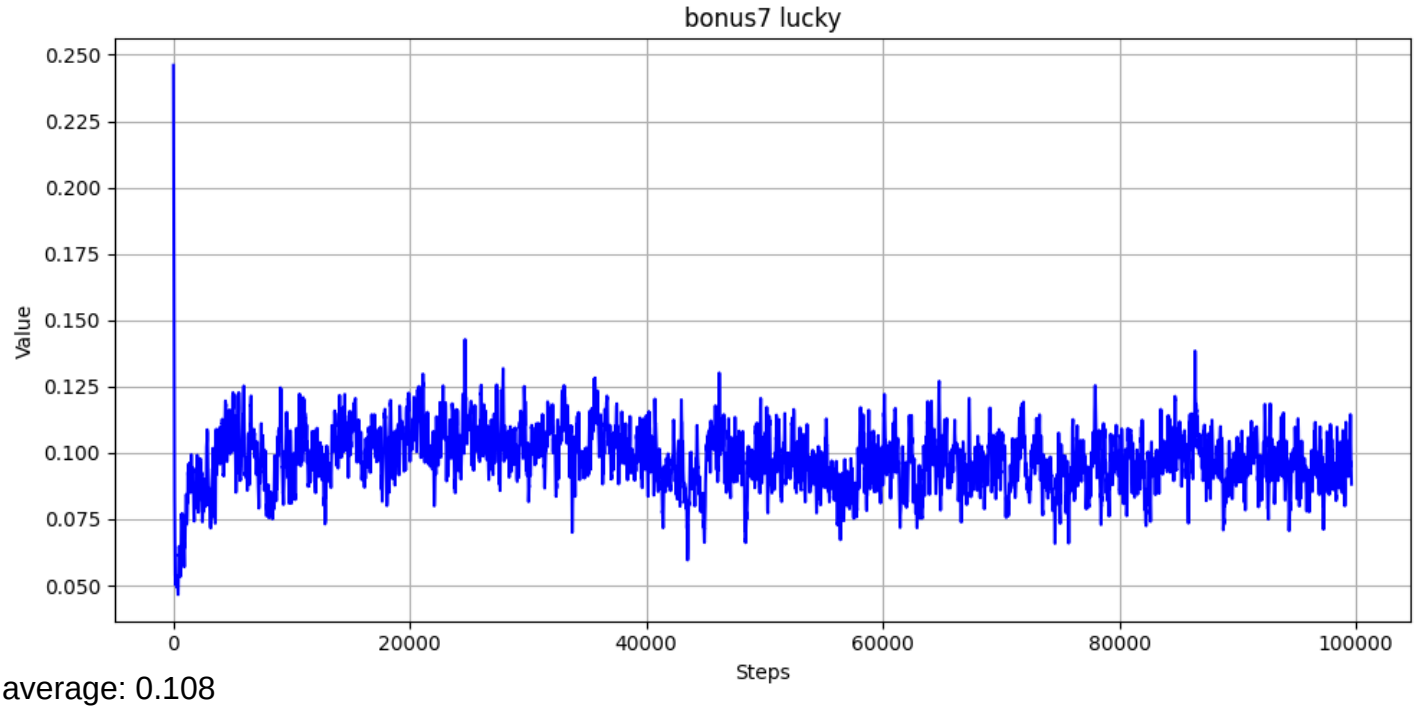




average: 0.306

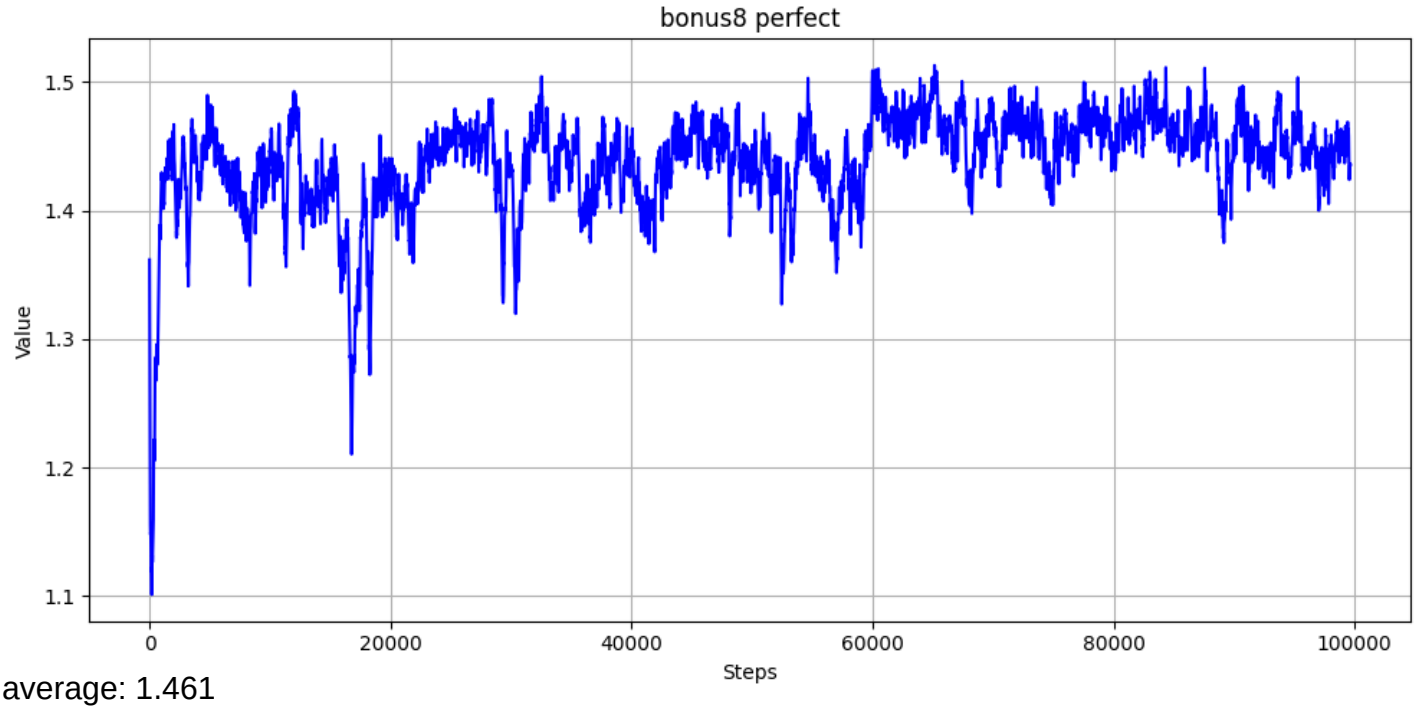
Bonus 6, TYCOON. requires to build two towers in one turn. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. The graph seems trending upward for the whole training. At end of the training only 20% of game have used this bonus, but if the more time was allowed to train, more games would have done so.





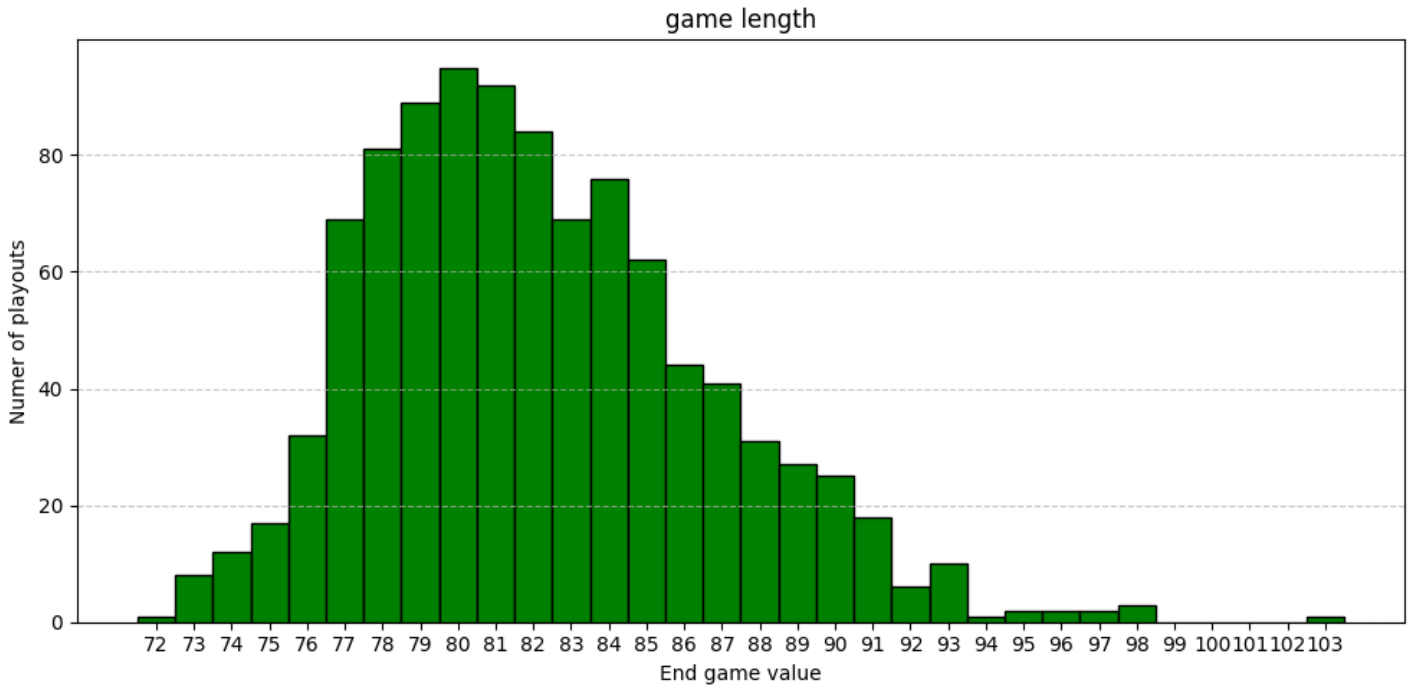
average: 0.108

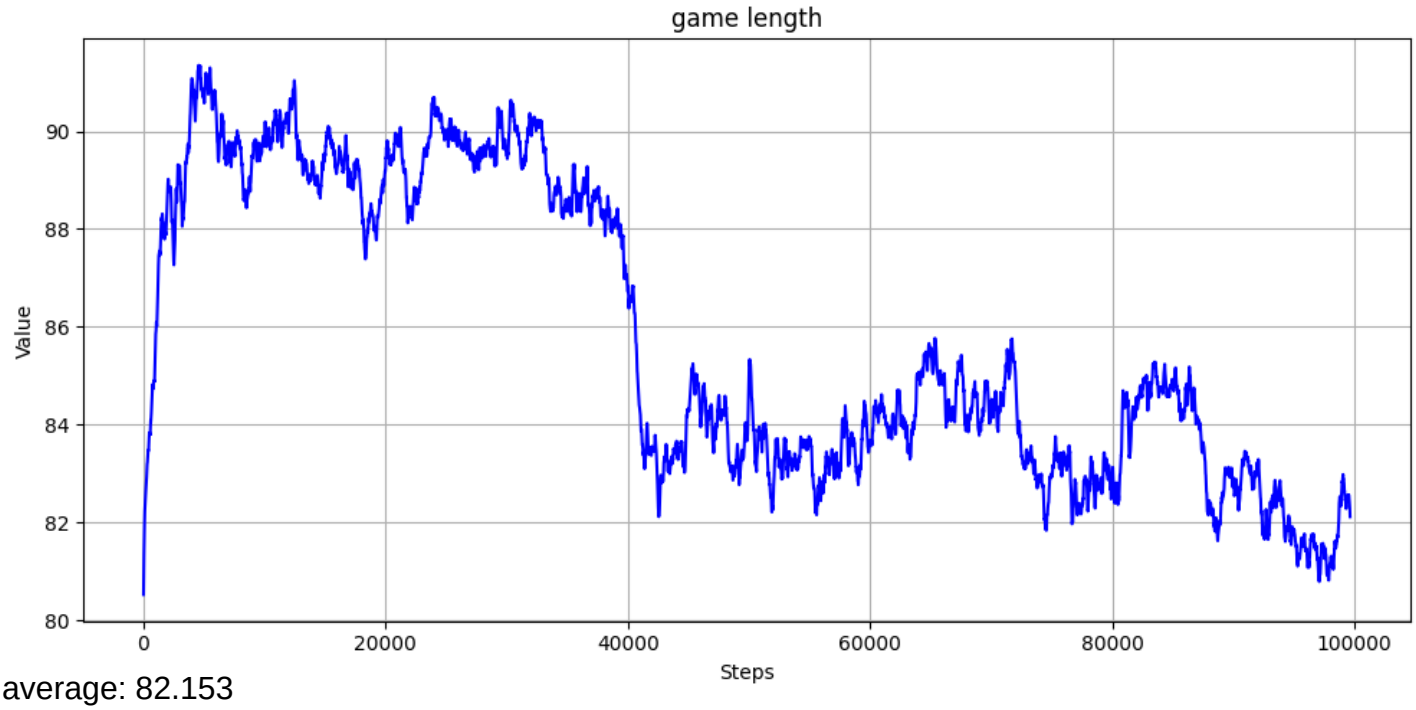
Bonus 7, LUCKY. requires to have a tower with 3 sevens. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. The training graph has been stable. At end of the training only 15% of game have used this bonus. It seems the network does not value the commitment of using 3 high value cards in the same tower.



average: 1.461

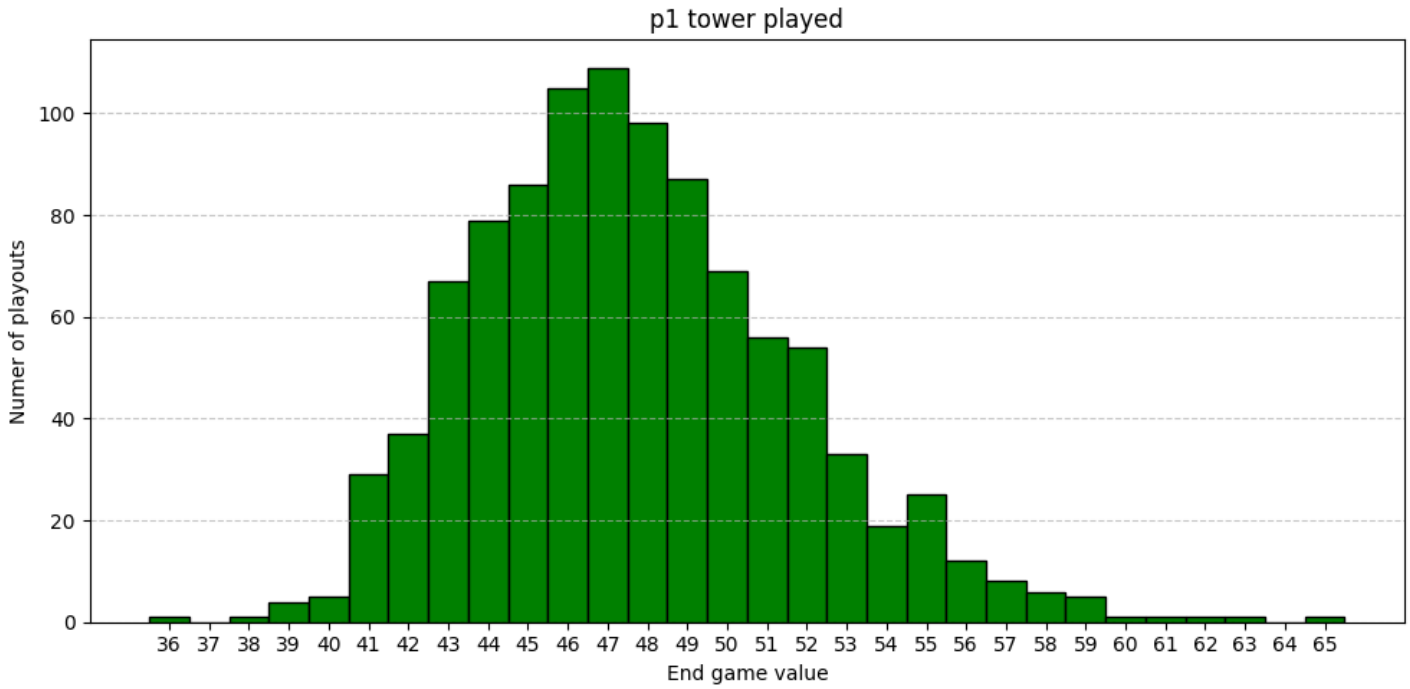
Bonus 8, PERFECT. 0 means that the bonus was not taken at the end of the game. 1 that it was taken by player 1. requires to have 0 cards in hand. Stable training with high play rate.

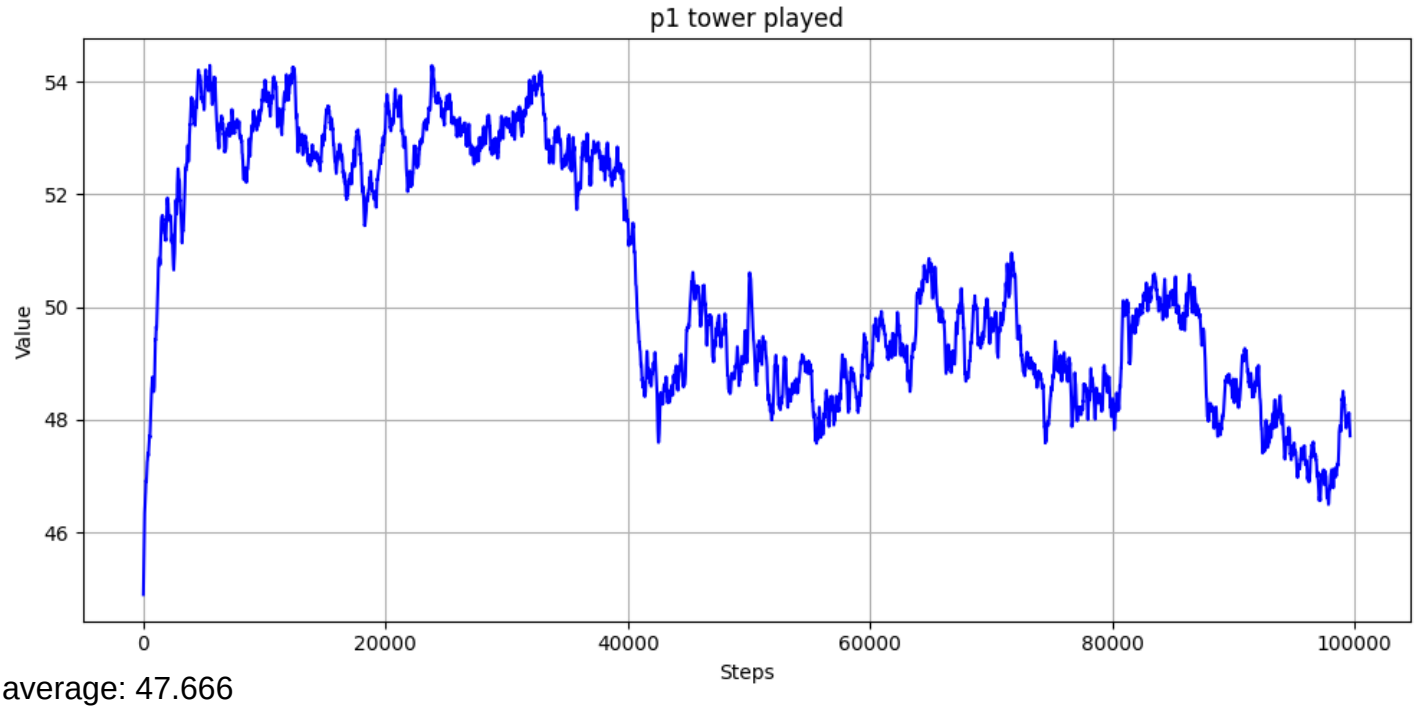




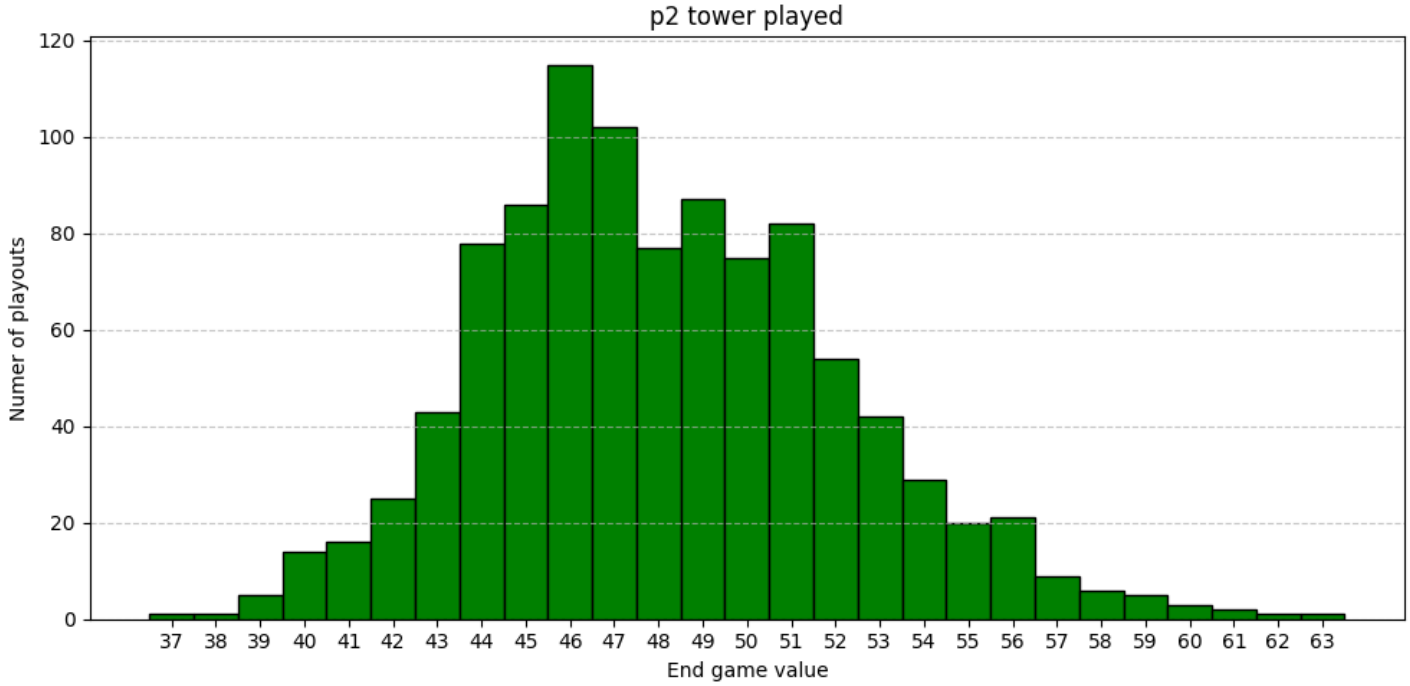
average: 82.153

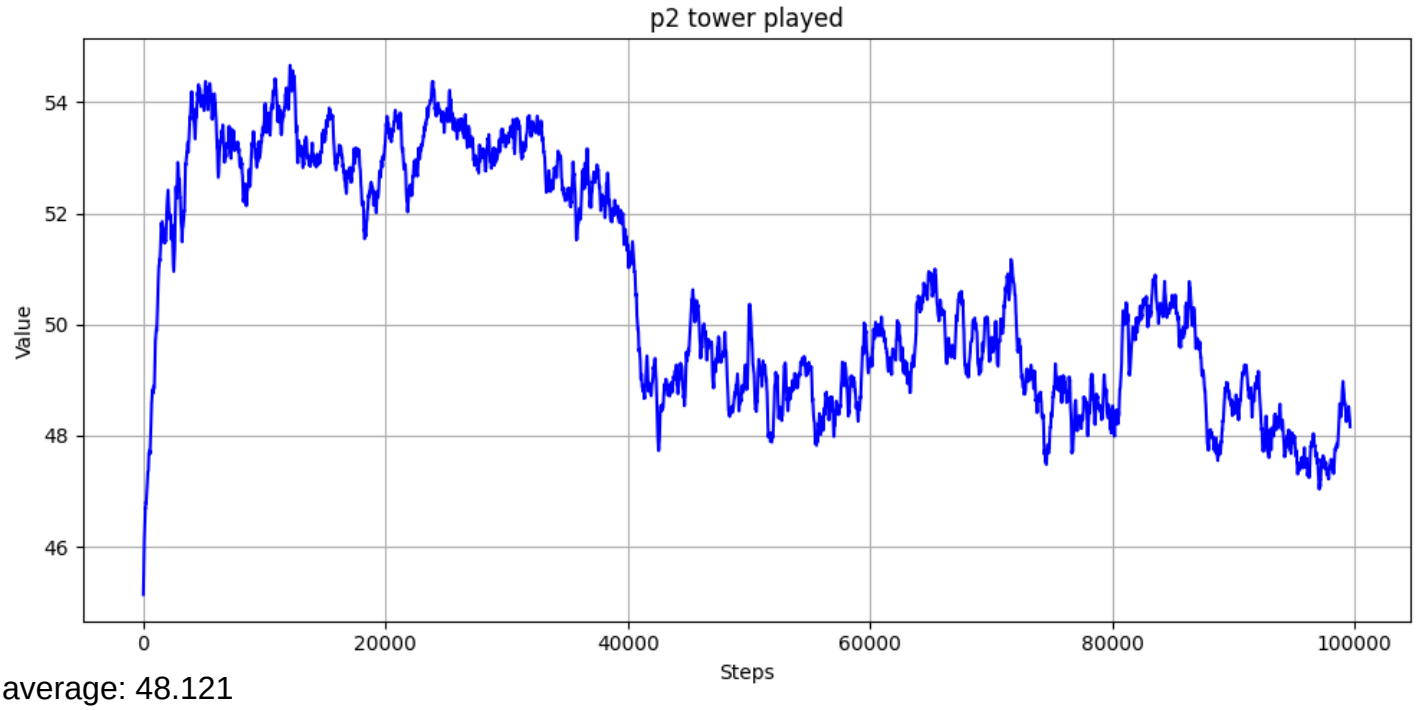
The number of times the turn passed to the other player.



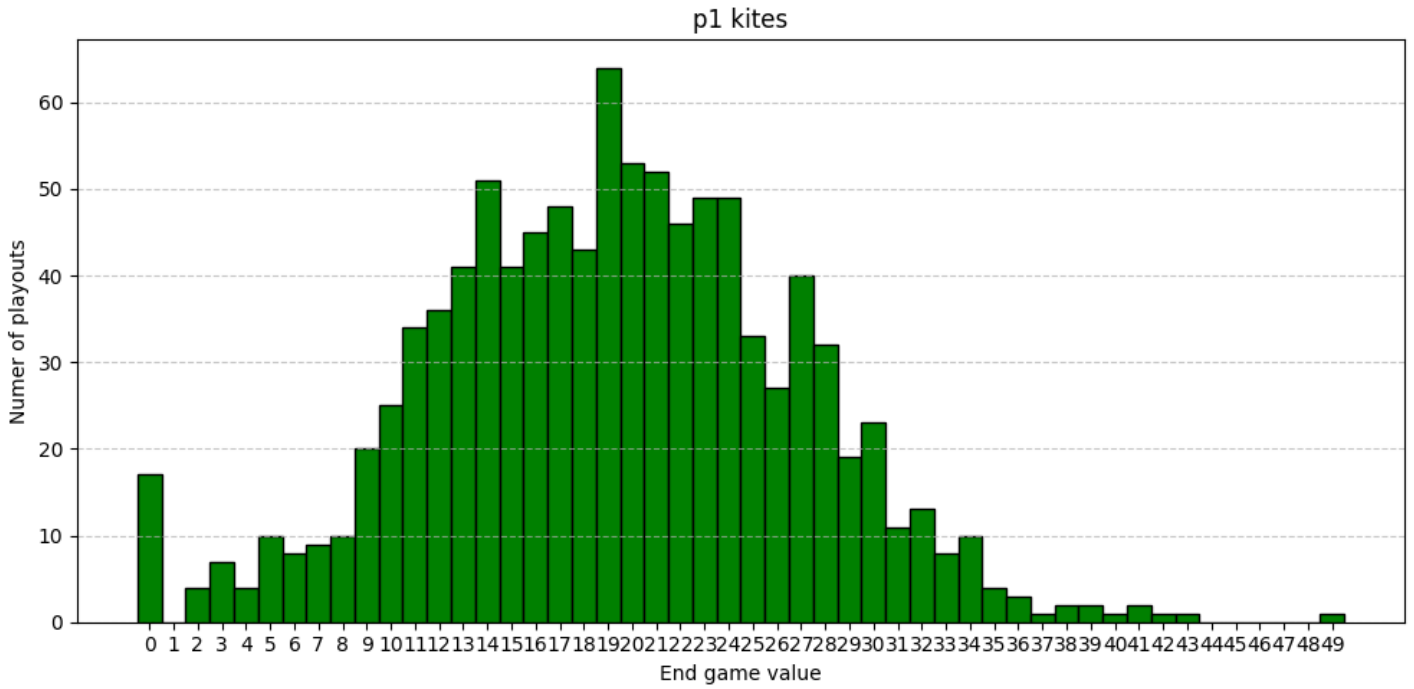


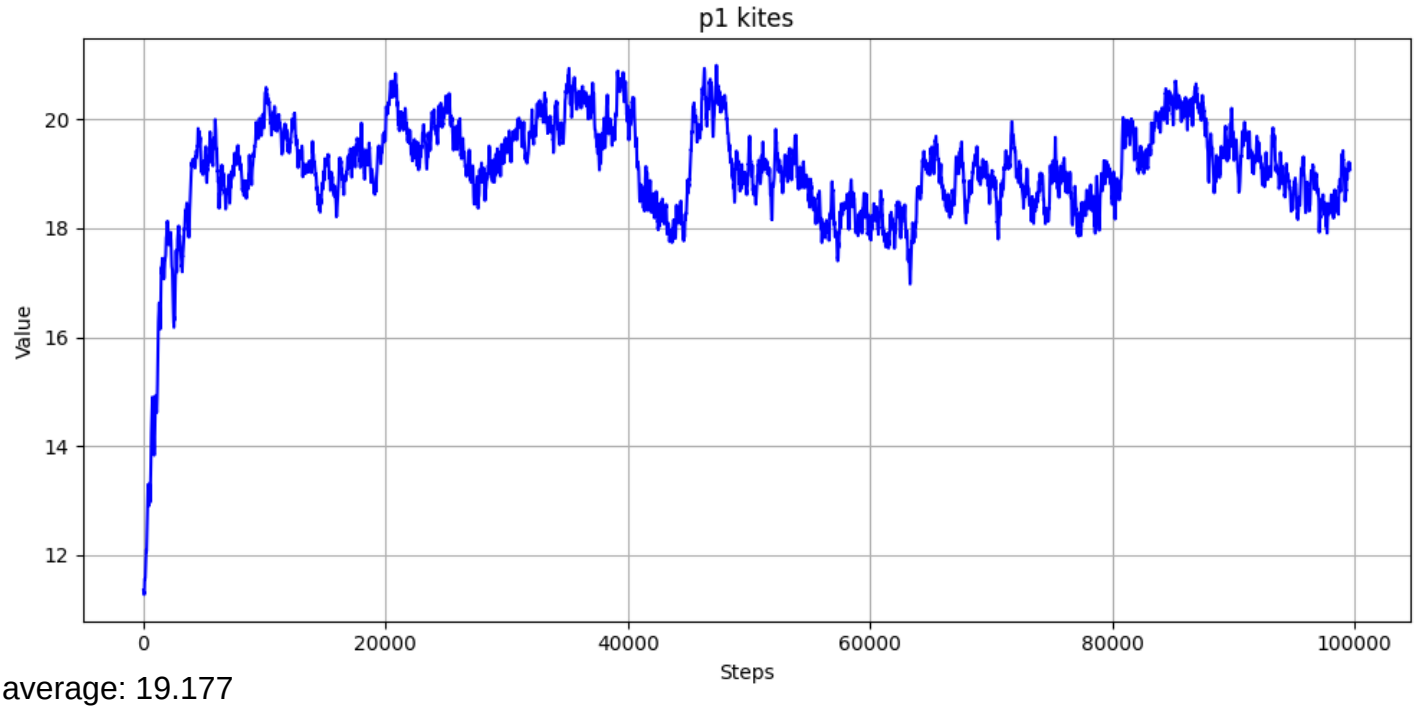
average: 47.666





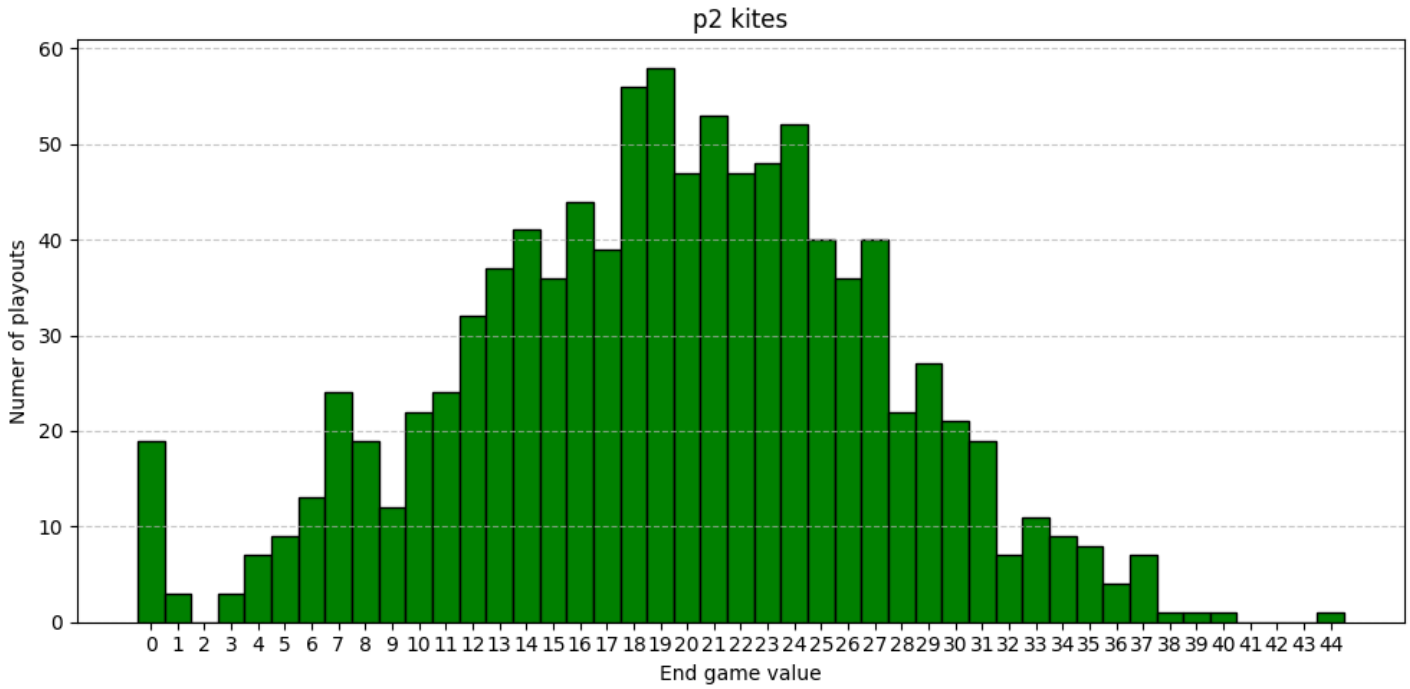
average: 48.121

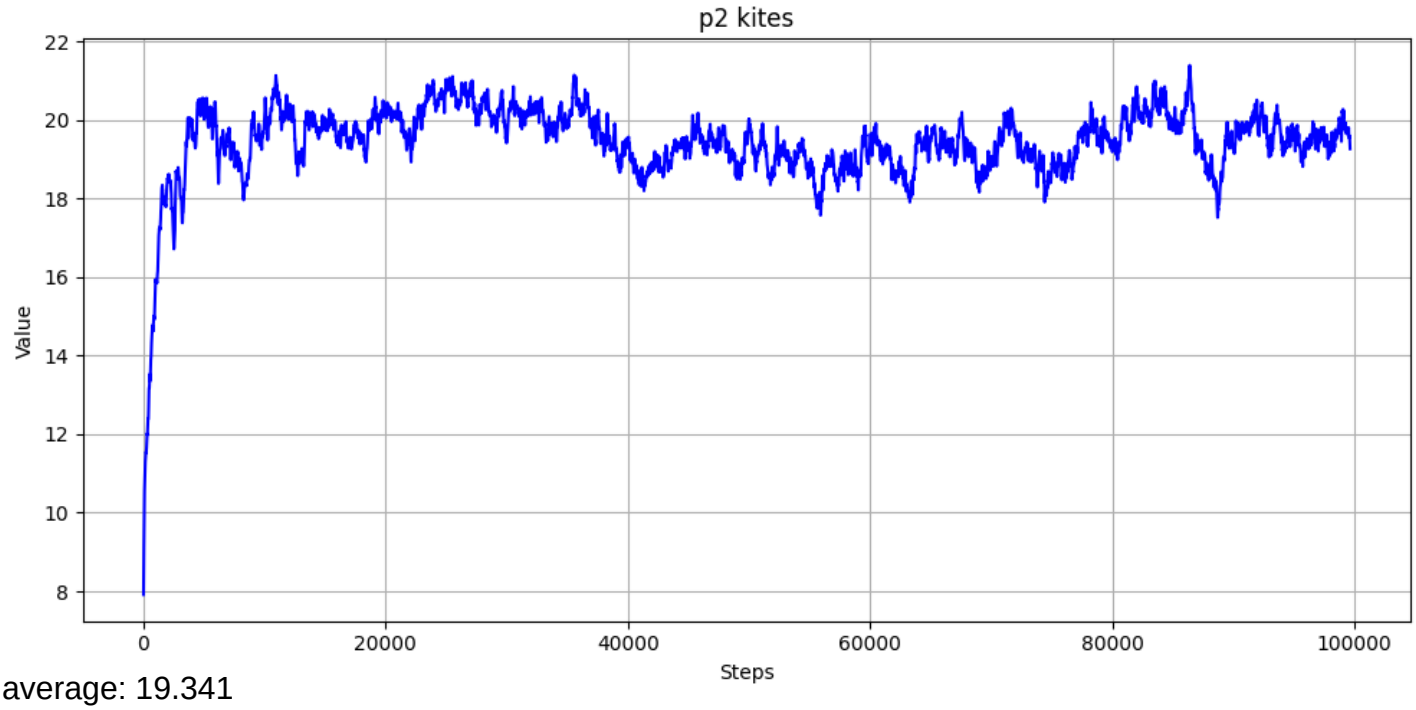




average: 19.177

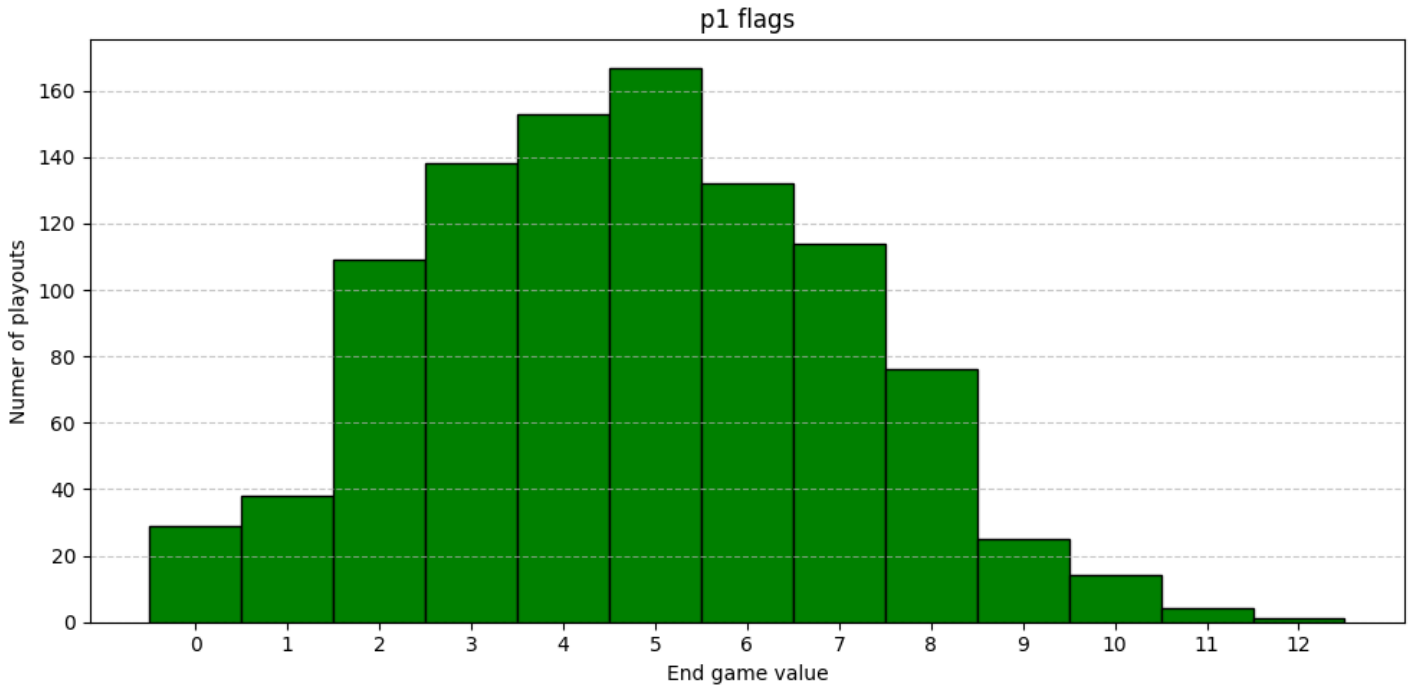
Quantity of kites accumulated by player 1 at the end of the game. The stability of the training graph through time should not be interpreted as the network not learning, because while it learns to get more points for one player, it learns to take away points from the opponent too, keeping the graph stable. The more likelly interpretation is instead that due to the mechanics of the game, on average the game tends to end with a number of kites in the 18-28 range for each player, and while player are similarly skilled, that does change much.

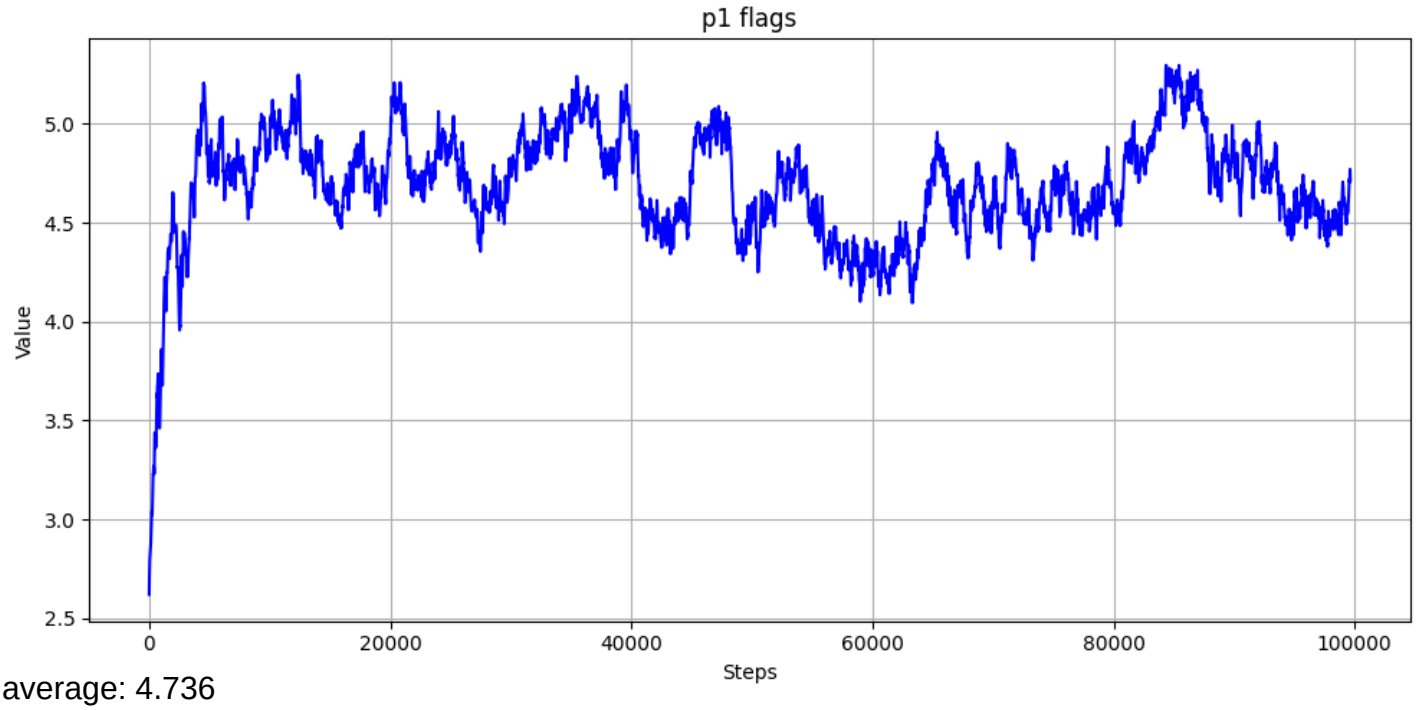




average: 19.341

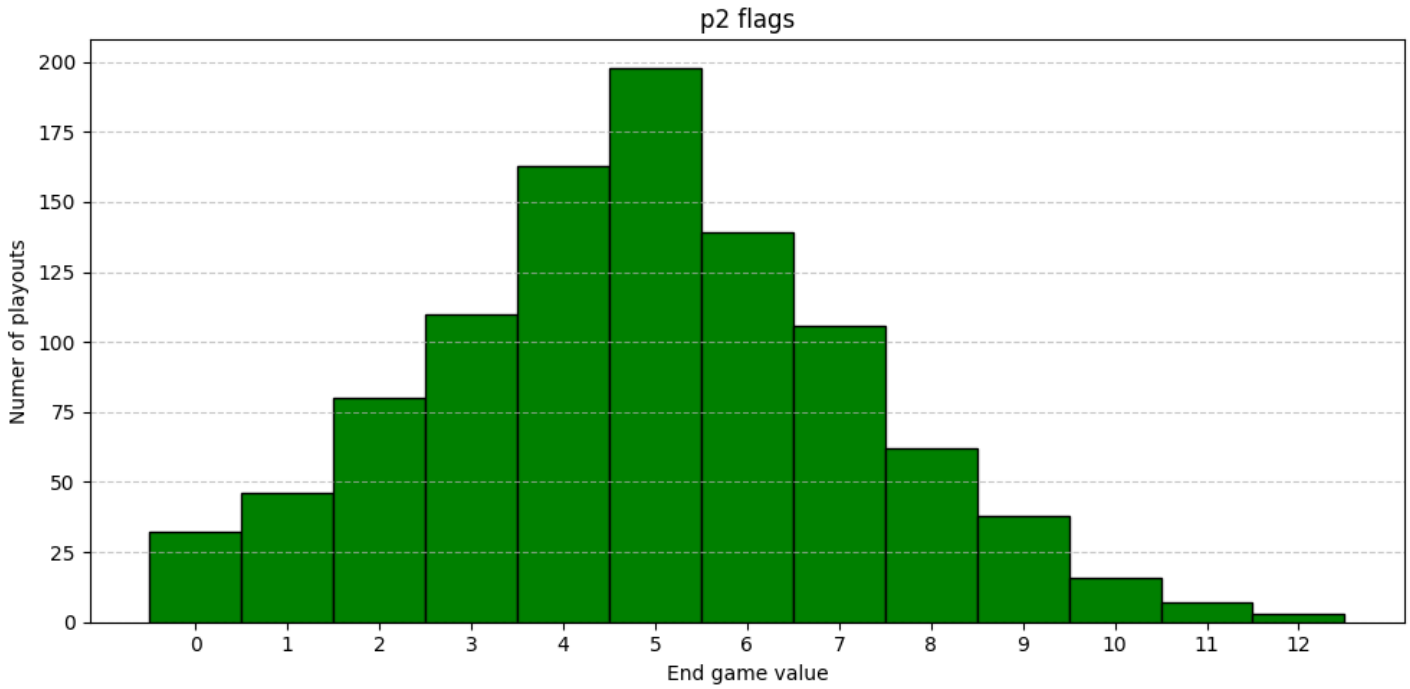
quantity of kites accumulated by player 2 at the end of the game

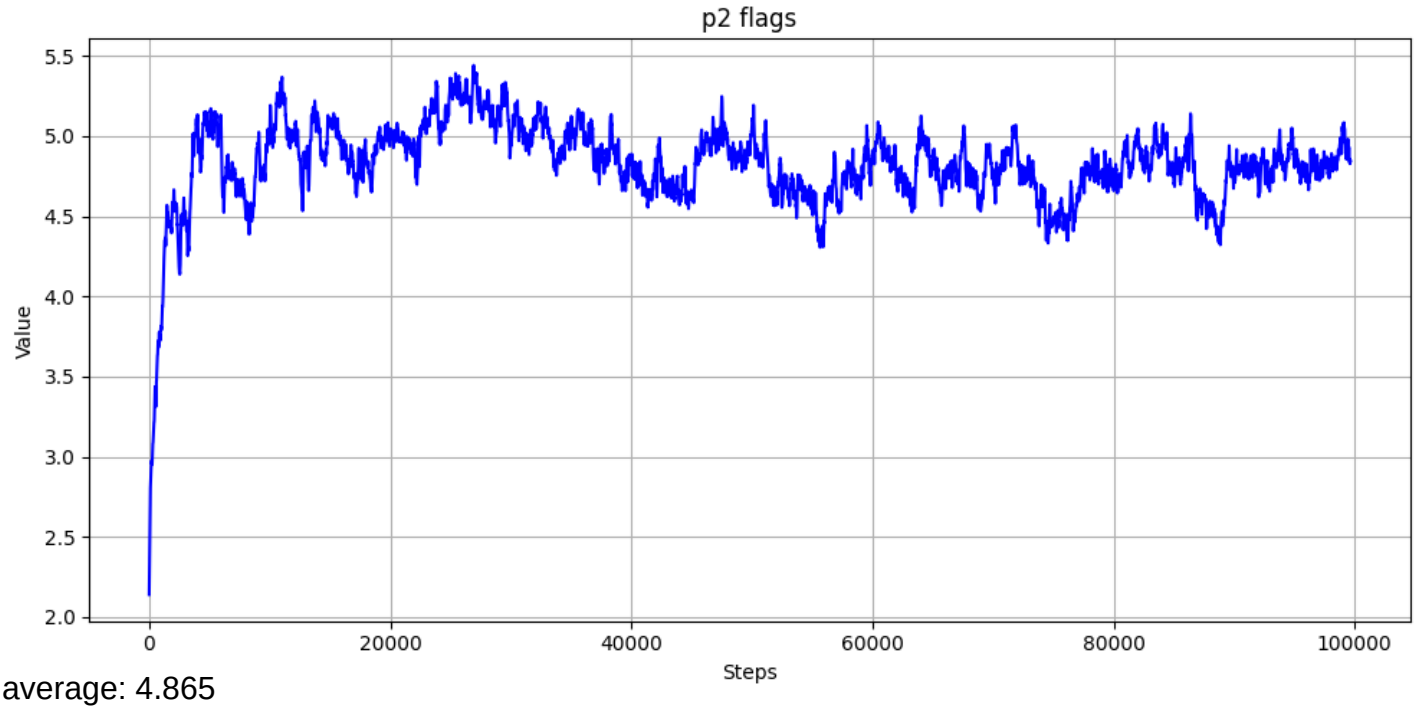




average: 4.736

quantity of flags accumulated by player 1 at the end of the game





average: 4.865

quantity of flags accumulated by player 2 at the end of the game