Summary: Programming backgammon

Assignment 3 COMP30230

Ersi Ni

15204230

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Backgammon is a game that involves luck and strategy with a complexity that is considered a good test for machine intelligence. In the paper "Programming backgammon using self-teaching neural nets", Gerald Tesauro, the author, focused on viewing the machine learning procedure **Reinforcement Learning** as a mean to achieve success with n-ply search for games.

TD-gammon is the name of the learning system that this paper focused on. It is a multi-layer perceptron neural network that learns the weight by self playing. The neural network was trained from initial board position to end position in sequences, noted by temporal subscript t. Learnings are back-propagated from rewards called z which is the outcome of the game.

In general, the paper claimed that TD-Gammon represents a radically different approach toward developing a program capable of sophisticated positional judgement. Rather than trying to imitate humans, TD-Gammon develops its own sense of positional judgement by learning from experience in playing against itself.