Optimizing Fitness Function for the Game of Go-Moku

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Abstract
Game playing has been the area of research in Artificial intelligence. Particularly, board game playing programs are often described as being a combination of search and knowledge. Board Games, due to its very nature, provide dynamic environments that make them ideal area of computational intelligence theories, architectures, and algorithms. In board games, it has always been the challenging task to build a quality evaluation function. The goodness or badness of the evaluation function is determined by its accuracy, relevance, cost and outcome. All of these parameters must be addressed and the weighed results are added to an evaluation
function experimentally. Evolutionary algorithms such as Genetic algorithm are applied to the
game playing because of the very large state space of the problem. While following the natural
 evolution, the fitness of an individual is defined with respect to its competitors and collaborators,
as well as to the environment. Evolutionary algorithms follow the same path to evolve game
 playing programs. Among all computer board games, Go-moku, which is a variant of a Game of
GO. This paper mainly highlights how genetic algorithm can be applied to game of Go-Moku.

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