

This thesis introduces the basic concepts of the game theory. Necessary models and solution concepts are described. Follows the summary of the computational complexity of these concepts and corresponding algorithms. Poker is formalized as one of the game theory game models. State of the art algorithms for the extensive form games are explained with the application to the Poker. The thesis also introduces the Annual Computer Poker Competition and participating programs. Finally, new result about the extensive form games with many actions is presented.

Keywords: Game theory, Poker, Nash equilibrium, Extensive form games