A Mathematical Analysis of Tilt

Barry Tesman*, David Richeson, Elly Do, Dickinson College

The logic game Tilt has 40 challenge cards labeled beginner, intermediate, advanced, and expert. In this talk, we use graph theory to analyze the game and use various techniques to measure its difficulty. We create a digraph for each game's possible configurations and use the associated condensation digraph's properties to determine its difficulty. We also imagine random gameplay and use the theory of absorbing Markov chains to analyze the difficulty of the game.

Keywords: condensation digraph, absorbing Markov chain