A Combinatorial Characterization of Minimax in 0/1 Games

Abstract:

We will discuss a generalization of the celebrated Minimax Theorem (von Neumann, 1928) for binary zero-sum games. A simple game which fails to satisfy Minimax is Ephraim Kishon’s “Jewish Poker” (see [1,2] below). In this game, each player picks a number and the larger number wins. The payoff matrix in this game is *infinite triangular*. We show this is the only obstruction: if a game does not contain triangular submatrices of unbounded sizes then the Minimax Theorem holds. This generalizes von Neumann’s Minimax Theorem by removing requirements of finiteness or compactness. [1] http://www.ephraimkishon.de/en/my_favoritestories.htm (english) [2] https://gesherfilmfund.org.il/documents/\&x158;\&x145;\&x153;\&x149;\&x153;\&x144;\&x153;\&x157;\&x128; (hebrew, third story)