THE VALUE OF A DRAW IN QUASI-BINARY MATCHES

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Resumo/Abstract:
A match is a recursive zero-sum game with three possible outcomes: player 1 wins, player 2 wins or there is a draw. Play proceeds by steps from state to state. In each state players play a "point game" and move to the next state according to transition probabilities jointly determined by their actions. We focus on quasi-binary matches which are those whose point games also have three possible outcomes: player 1 scores the point, player 2 scores the point, or the point is drawn in which case the point game is repeated. We show that when the probability of drawing a point is uniformly less than 1, a quasi-binary match has an equilibrium. Additionally, we can assign to each state a value of a draw so that quasi-binary matches always have a stationary equilibrium in which players' strategies can be described as minimax behavior in the associated point games.