Conway-Gurvich Classification for Berlekamp's Impartial Chess

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Berlekamp proposed the study of Impartial Chess, i.e., the impartial combinatorial games in which players alternate moving a chess piece (pawn, knight, bishop, rook, queen, or king) from the upper left corner of a rectangular grid down and to the right. We study the normal form of these and related games where the rectangular grid is replaced by more general Young diagrams. We determine their Conway-Gurvich classifications as well as the classifications of these games when played on certain restricted classes of Young diagrams.

Keywords: Combinatorial game theory, chess, impartial game, integer partition, Young diagram