

On combinatorial games and super tic-tac-toe

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An octal game is a variant of “Nim,” the rules for which are encoded as a sequence of digits $0.d_1d_2\dots$ where $0 \leq d_i < 8$. For impartial combinatorial games such as octal games, in *normal* play the last player to make a move wins; in *misère* play the last player to move loses. Whereas general techniques to analyze normal play games are known, much is still unknown about misère games. In this talk we will analyze the winning strategies for the all-X variant of “super tic-tac-toe” as an impartial combinatorial octal game in both normal and misère play.

Keywords: Nim, super tic-tac-toe, octal games, misère games.