Determinacy Of Infinite Games
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A two player game is called determined if one of the players has a winning strategy. All infinite two player games satisfying certain basic conditions can be represented as games played on the set of natural numbers. A winning set for an infinite game is a subset A of $\mathbb{N}^{\mathbb{N}}$ such that the first player wins if and only if the sequence corresponding to the play ends up being in A. I will define a topology on $\mathbb{N}^{\mathbb{N}}$ and talk about The Gale-Stewart Theorem that says all infinite games with open winning sets are determined. Then I will talk about *Borel* subsets of $\mathbb{N}^{\mathbb{N}}$ and mention Martin's theorem of determinacy of all *Borel* games.

The talk will be elementary and will be accessible to anyone with a basic background on point set topology and some set theory.