

$$S_t \circ c(h)(a_s)_{ti} c(s) + \mathfrak{S}_e m^i n(a_r)$$

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## Limit theorems for Parrondo's paradox

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Parrondo's paradox, due to Spanish physicist Juan Parrondo (1996), states that a player may alternate regularly or randomly between two negative-expectation games to achieve a positive-expectation game. There are a variety of games that exhibit the Parrondo paradox, including capital-dependent games, history-dependent games, multi-player games, and cooperative games. We will describe these games and establish strong laws of large numbers and central limit theorems for the Parrondo player's profit, based on the CLT for strongly mixing sequences.