

Can Two Wrongs Make a Right? Coin Tossing Games and Parrondo's Paradox

Ora Engelberg Percus,

Courant Institute of Mathematical Sciences, New York University.

ABSTRACT

A number of natural and man-made activities can be cast in the form of various one-person games, and many of these appear as sequences of transitions without memory, or Markov chains. It has been observed, initially with surprise, that losing "games" can often be combined by selection, or even randomly, to result in winning games. Here, I will present the analysis of such questions in concise mathematical form (exemplified by one nearly trivial case and one which has received a fair amount of prior study), showing that two wrongs can indeed make a right - but also that two rights can make a wrong!