

# SA scientists find a winning way from loser's games.

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413 words

5 January 2000

11:40

Australian Associated Press

AAP

English

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**ADELAIDE** , Jan 5, AAP - Need a bit of luck in the new millennium?

A couple of scientists might just have found the key.

They've taken two coin games, which each guarantee a string of losses when played individually, and discovered a way to play them alternately to generate a surefire winning streak.

The work by **Derek Abbott** and Greg Harmer from the University of **Adelaide** 's electrical and electronic engineering department builds on something called Parrondo's paradox.

Put simply, that is a theory recently developed by a Spanish physicist to explain how "bad" strategies can be mixed to deliver a "good" outcome.

In an article in the latest Nature journal, Dr Abbott and Mr Harmer illustrated the paradox with the two loser's games played by tossing biased coins.

Instead of their losses mounting as they alternated the two games, they found their winnings steadily increased - particularly if the games were switched frequently.

They described it as a ratchet-like effect.

"Switching the game traps the winnings there before subsequent repetitions of the same game can introduce the otherwise inevitable decline," the researchers said.

However, there's bad news - the games are not your garden variety ones and therefore the discovery is not so useful in the casino.

But the good news is that the researchers are now working on ways to apply their mathematical theory to the economy.

"It could help to answer financial questions such as finding the best strategy for combining high risk shares and cash reserves in managing an investment portfolio," Dr Abbott said.

The theory could also be used to help understand genetic development, by analysing the "good" and "bad" genes in a pool of genes in an animal population.

"Considering probabilities that certain genes may become expressed, in each generation, is rather like a gambling game," he said.

"Some bad genes may become beneficial if there is a change in the environment."

Dr Abbott said a Parrondian viewpoint could even be applied to the dynamics of voting - for instance, does a touch of notoriety and scandal increase a politician's popularity?

"One of the messages of Parrondo's paradox is that a little bit of badness is good," he said.

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Document aap0000020020307dw1503tii