

Random rewards enrich classic game-theory contests

Games may be life with all the hard bits removed, but they provide a way to study why people make the choices they make. Traditional games are usually played against a static background: the rewards per outcome are constant. That limits their relevance to behavior because, in real life, the rewards and consequences of strategic choices are ever changing. Now, researchers have used a mathematical model to study a series of games that include evolving strategies and randomly varying returns.

A bit of history

Perhaps the most famous game-theory contest is the prisoner's dilemma. In the prisoner's dilemma, a pair of thieves have been captured and are being separately interrogated by the police. If both clam up, they will be punished for a lesser crime. If one prisoner makes a deal (defects) then that prisoner gets to go free and the other gets a heavier sentence. If both make a deal, they both get an in-between punishment.

The person running the game can start it with different rewards for cooperating and defecting to explore how the optimum strategy varies with reward and risk, which the players can figure out by varying the strategies across multiple rounds. Depending on the balance between the reward for staying silent (cooperating) and betrayal, the game stabilizes with everyone betraying everyone. In this simple situation, everyone loses.

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