

Partner and rival strategies for iterated games

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The iterated Prisoner's Dilemma game is the work horse of the theory of cooperation. It has recently experienced a new burst of interest, due to a class of zero-determinant strategies (introduced by Freeman Dyson and William Press) which unilaterally enforce a linear relation between the pay-offs of the two players. This allows to characterize partner strategies and rival strategies. Partner strategies are designed to fairly share the social optimum. A co-player preferring an unfair solution will be penalized by a reduced payoff. A rival strategy never obtains less than the co-player. Social learning modelled by evolutionary game theory can lead from rival to partner strategies.