

Behavioral Diversity in Voluntarily Separable Repeated Prisoner's Dilemma*

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Still preliminary. Comments welcome.

Abstract: In the literature of voluntarily repeated Prisoner's Dilemma type games with no information flow, the focus is on how long-term cooperation is established. In this paper we investigate how non-cooperative and cooperative players co-exist. In many incomplete information versions of a similar model, inherently non-cooperative players are assumed to exist in the society, but their long-run fitness has not been analyzed. In reality and in experiments, we also observe that some people are cooperative, while others never cooperate. We show that, although defect-and-run type strategies are vulnerable to invasion of trust-building strategies (which defect initially but cooperate later among themselves), distributions of both types of strategies can be evolutionarily stable under equilibrium entrants. Moreover, the bimorphic equilibrium of the most cooperative strategy and the most myopic strategy exists under any payoff parameter combination, while bimorphic equilibria consisting only of cooperative (trust-building) strategies may not exist. In terms of payoffs, the bimorphic equilibrium of contrary strategies is equivalent to the equilibrium of infinitely many trust-building strategies. Both equilibria confirm the persistent presence of defectors.

Key words: Behavioral diversity, evolutionary stability, equilibrium entrants, voluntary separation, repeated Prisoner's Dilemma.

JEL classification: C 73.

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