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Deliberational Correlated Equilibria
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The Nash equilibrium concept in noncooperative game theory assumes that players' strategies are probabilistically independent. Recent theories of equilibrium selection in noncooperative games (Harsanyi, Selten 1988, Fudenberg, Kreps 1990, Skyrms 1990) also presuppose probabilistic independence among the players' strategies. In this paper, we argue that the probabilistic independence assumption is not well founded, and introduce a theory of equilibrium selection that permits correlation in the players' beliefs and strategies. This approach generalized the inductive deliberational dynamics presented in Skyrms (1991a) by relaxing the probabilistic independence assumption along lines Skyrms has suggested. The resulting inductive correlation-dynamics enables even players who begin at an initial state of probabilistic independence to converge to deliberational equilibria corresponding to two types of correlated equilibria in noncooperative games. Inductive deliberators can converge to an endogenous correlated equilibrium (Vanderschraaf 1992) simply by dropping the assumption that their opponents' strategies are probabilistically independent events. Relaxing the probabilistic independence assumption this way permits correlation in beliefs to emerge as a result of the deliberation itself. A second kind of correlation in strategies results from players tying their strategies to an event which is external to the game. By extending the model of inductive deliberation so that the deliberators incorporate their strategies with such an exogenous event so as to achieve an Aumann correlated equilibrium (Aumann 1974, 1987). We address the following questions: (1) Do correlated equilibria correspond to fixed points of the dynamics? (2) Can the dynamics "amplify" an initial weak correlation? (3) Can the dynamics create correlation from an initial uncorrelated state? Although we are very far from a complete treatment of these questions, we will be able to show how they may have different answers for different kinds of correlated equilibrium and different versions of the inductive dynamics.