A behavioral learning process in games
(en collaboration avec J.F. Laslier et R. Topol)

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Summary:

The paper studies the cumulative proportional reinforcement (CPR) rule, according to which an agent plays, at each period, an action with a probability proportional to the cumulative utility that the agent has obtained with that action. The asymptotic properties of this learning process are examined for a decision-maker under risk, where it converges almost surely toward the expected utility maximizing action(s). The process is further considered in a two-player game; it converges with positive probability toward any strict pure Nash equilibrium and converges with zero probability toward some mixed equilibria (which are characterized). The CPR rule is compared in its principles with other reinforcement rules and with replicator dynamics.