

Cognitive Hierarchies in the Minimizer Game

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Experimental tests of game theoretic strategy choice predictions in one-shot games have time and again shown only little support for Nash equilibrium except in rather specific games. Poisson Cognitive Hierarchy (PCH) is a behavioral model of the thinking-steps variety which assumes that individuals differ in their level of iterated reasoning. A level- k player thinks that all other players do less steps of reasoning than he himself, but he is aware of the presence of all levels of reasoning from 0 to $k-1$ in the population. The number of levels of iterated reasoning is assumed to follow a Poisson distribution. Camerer et al. (2004) claim that a Poisson parameter of about 1.5 is able to explain experimental data considerably better than Nash equilibrium across a variety of experimental games. While the PCH-model has been shown to predict reasonably well in a variety of games, it fails in several others. We discuss possible reasons for these failures and construct a new multi-player game specifically designed to test the PCH-model experimentally. A series of Internet experiments was conducted at the WU Vienna. Our data strongly reject Nash-play but are well in line with the PCH prediction both qualitatively and quantitatively.