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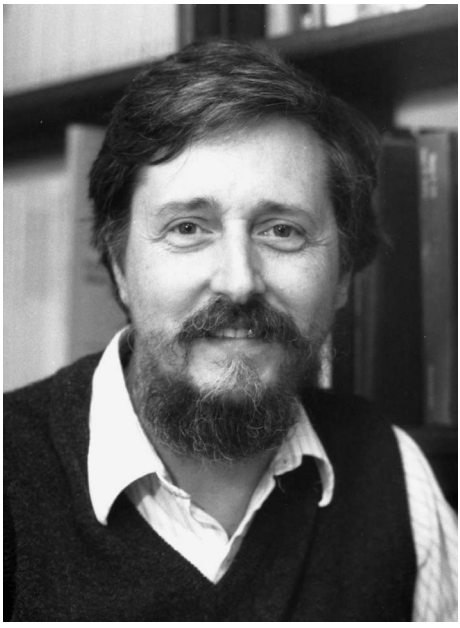
Introduction

Special issue of *Games and Economic Behavior* in honor of Richard D. McKelvey



Richard D. McKelvey died on April 22, 2002, at the age of 57, and the social sciences lost a great scholar. He will be especially missed by fellow game theorists and academics who use game theory in their scholarly studies of economic and political institutions and behavior. His students, colleagues, and friends will also miss a very humble and thoughtful human being who unselfishly contributed his time and intellectual energies throughout his career. He influenced the careers of many of us, and worked hard for many organizations and journals, this journal in particular.

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This special issue of *Games and Economic Behavior* is a small expression of our respect for and gratitude to McKelvey for his many lasting contributions. These contributions ranged over an intimidatingly large number of research areas, and the sample of papers included in this issue commemorate his research. Although his reputation was built on his pioneering work in political science on the mathematical properties of majority rule, he also made major contributions to game theory, information economics, and experimental economics. Indeed those contributions may well be the best known among this journal's readership. But the list of areas where he made lasting contributions is even longer. For example, probably few readers of this journal are aware of his influential applied econometrics papers on scaling techniques (Aldrich and McKelvey, 1977) and ordered probit (McKelvey and Zavonia, 1975). Although none of the papers included in this issue are on this subject, this facet of his approach to research can be glimpsed in the careful statistical analysis that was a signature feature of his experimental papers.

The articles in this special issue are all recent papers drawn from areas related to McKelvey's published work. There is a mix of game theory, economics, and political science, to reflect the three disciplines on which he made a lasting impression. The hope is to have something approximating a representative sample of work from (some of) the problems he studied.

The first two papers relate to theoretical work McKelvey published on the subject of computation of Nash equilibrium and refinements of Nash equilibrium. Turocy's paper on dynamic homotopy and quantal response equilibrium was motivated by McKelvey and Turocy's successful development of the GAMBIT program for computing Nash equilibria and quantal response equilibria in both normal form games and extensive form games. See McKelvey et al. (1995). Dynamic homotopy algorithms provide an efficient way to compute equilibrium correspondences, such as the Logit equilibrium correspondence. Turocy is able to use properties of this algorithm to prove interesting properties about selection of equilibria and how it is related to algorithms from evolutionary game theory.[1] The contribution by McLennan and Berg in this issue characterizes the expected number of Nash equilibria in strategic form games, extending results and techniques developed in McKelvey and McLennan (1997).

Next is a pair of papers on quantal response equilibrium. This equilibrium concept was originally formulated in general terms in an article McKelvey published in this journal's special issue on experimental game theory exactly ten years ago (McKelvey and Palfrey, 1995), and subsequently developed for extensive form games in McKelvey and Palfrey (1998). This notion of equilibrium has become a standard approach to the analysis of data from experimental games and is also used in applications with field data in economics and political science. The paper by Yi provides an evolutionary dynamics interpretation of the logit equilibrium correspondence in terms of stochastic best response dynamics. Friedman and Mezzetti propose a variation on quantal response equilibrium, where the source

[1] McKelvey's fascination with algorithms is evident in much of his work, beginning with his very first publication (McKelvey and Zavonia, 1971). For example, his proof of the famous Chaos Theorem has several figures illustrating an algorithm for the general construction of majority rule agenda paths (McKelvey, 1976; McKelvey, 1979, Fig. 4.2). He also published a less well known paper in an applied mathematics journal (McKelvey, 1983) describing these agenda algorithms.