



Rational Ritual: Culture, Coordination, and Common Knowledge

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and exception is taken to certain earlier modes of analysis and resulting conclusions (such as in the penetrating discussion of Frank's work on status and luxuries), the book seems somewhat ungrounded, and progress made in earlier work is not used as the foundation for further advances in the field.

Despite these problems, the book remains intriguing and provocative, and it develops the economic theory of social interactions in a productive way. One can hope that it will inspire further attempts to push economic analysis into new areas, and to bring markets and prices into the theoretical analysis of social interactions.

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Rational Ritual: Culture, Coordination, and Common Knowledge. By Michael Suk-Young Chwe. Princeton, NJ: Princeton University Press, 2001. Pp. xi, 130. \$27.95. ISBN 0-691-00949-X.

It has now been nearly three centuries since Alexander Pope issued what can be read as a stirring call to arms for the social sciences: "The proper study of mankind is man" (*An Essay on Man*, 1733-34). Pope would presumably have been pleased by the subsequent growth of research on human behavior, but bewildered by its fragmentation. For modern social science spans several separate cultures, each with idiosyncratic beliefs about which phenomena are worthy of study and appropriate methods of analysis. Even when scholars in different fields ask the same questions, cultural differences often stymie scientific argument.

Economics is particularly isolated, and its central analysis of competitive markets has no close counterparts, despite imperfect analogies with notions of competition in political science, sociology, anthropology, and biology. Much of the excitement with which economists greeted the publication of John von Neumann and Oskar Morgenstern's *Theory of Games and Economic Behavior* (1944) was sparked by its promise of a unified science of human behavior that can elucidate non-market as well as market interactions. Game theory has now fulfilled much of this promise

in economics, but has yet to realize its full potential in other social sciences.

Michael Chwe's *Rational Ritual: Culture, Coordination, and Common Knowledge* is a welcome addition to a small but growing literature that uses game theory to study questions traditionally in the realm of anthropology, sociology, political science, or psychology. Chwe (pronounced like "chess" without the "ss") studies how social networks influence non-market interactions in settings in which good outcomes require coordination of independent decisions. His use of a core notion from sociology, whose importance is beginning to be recognized in economics and political science, to address a question that is central to several social science disciplines is an important step toward unification.

In Chwe's analysis, networks and other institutions influence coordination by mediating information flows. Their influence can be subtle, because coordination is often influenced not only by what people know about each other, but by what they know about what the others know, and so on. In game-theoretic language, coordination may require common knowledge of factors that influence people's intended decisions, not just mutual knowledge. (Common knowledge requires that something be known, that everyone knows that everyone knows it, and so on ad infinitum.) Suppose a group of people make simultaneous, independent decisions with network externalities, so that one decision—say, switching to a new PC operating system—is better for everyone if everyone switches, but each prefers to switch only if he expects enough of the others to. Then everyone may switch if it is common knowledge that the new system is better if all switch, but not if it is only mutual knowledge, or if common knowledge fails in some more subtle way.

After making this simple observation (in a more entertaining way), Chwe analyzes how social interactions have been structured to bring about the common knowledge that fosters desired outcomes. His illustrations are chosen to mesh with parallel literatures in sociology, anthropology, and psychology: the role of public rituals in establishing authority; the effects of inward-facing circles in kivas,

meeting halls, and Jeremy Bentham's "panopticon" prison design; and advertising. In each case his analysis goes beyond the conventional wisdom to reveal hidden layers of game-theoretic meaning. He is refreshingly eclectic about evidence, and his argument about inward-facing circles rests partly on stills from the film *On the Waterfront* that document the common-knowledge generation required for the longshoremens to coordinate their revolt against corrupt union officials. Chwe can draw compelling conclusions from such anecdotal evidence because common knowledge is a stringent condition, frequently fulfilled only by institutions whose design is special enough to have no other plausible rationale. Thus, a royal progress was an effective generator of common knowledge because it made clear that all the king's subjects had recently seen, or would soon see, him acknowledged as king—uniquely effective in medieval society, because such overlapping generations were the only way to circumvent the impossibility of a mass ceremony. Modern television advertising makes such mass ceremonies feasible, conveying meta-knowledge as well as knowledge and persuasion. But without compulsory viewing, common knowledge can only be generated in conjunction with events that focus almost everyone's attention; and goods with network

externalities are especially likely to be advertised with such events. Certain rituals, like those that involve synchronized dance steps or repetitive chants, make it transparent that all participants must be getting the message, and so are more effective common knowledge generators. The distinction between strong and weak links in networks can elucidate the empirical puzzle that weak links tend to be better for speed of communication, but strong links better foster change that requires coordinated action.

These samples convey the flavor of Chwe's analysis without its richness: it must be read to be fully appreciated. *Rational Ritual* will expand game theorists', economists', and political scientists' views of the possibilities for applying the theory. Other social scientists will be surprised by game theory's power, in Chwe's hands, to provide simple, rational explanations of salient features of non-market interactions. The book is self-contained, and can be understood and enjoyed by almost anyone interested in human interactions. It should also be valuable supplementary reading for advanced undergraduate and graduate courses in game theory and microeconomics, and for analytically oriented courses in the other fields its subject matter touches.

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