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UNIVERSITY OF CALIFORNIA (BERKELEY) AND
THE INSTITUTE OF PUBLIC POLICY STUDIES,
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# Structure of Decision

## The Cognitive Maps of Political Elites

*Edited by Robert Axelrod*

PRINCETON UNIVERSITY PRESS
PRINCETON, NEW JERSEY

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им. В. И. Ленина

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*To My Students*

In a modern society many of the most important decisions affecting the quality of our lives and perhaps even our very survival are made by others. With this in mind, a desire to improve the quality of the decision-making process has been a major research interest of mine for more than a decade. By 1970 I had done work on game theory, the origin of alternatives, bargaining in bureaucracies, the learning of political lessons, and the interrelationships of policy attitudes. In early 1970 I began to turn to psychological approaches, and especially cognitive psychology as a potentially fruitful way of understanding decision making. At that time, Professors Matthew Bonham and Michael Shapiro were at Berkeley with me, and the three of us began thinking about how the beliefs of elite policy makers could be studied in the context of more rigorous systems than were currently available.

My initial work in this direction was the development of a new approach to decision making based on the idea of a cognitive map of a person's stated values and causal beliefs. The framework for this approach was presented as a paper at the Conference on Mathematical Theories of Collective Decisions at the University of Pennsylvania in December 1970, and was later published as a monograph (Axelrod, 1972a). I then sought to apply this analytic framework to a specific empirical study to see what properties the hypothetical cognitive maps would have if they could be derived from the assertions of elite policy makers. I located a high-level policy formation group (the British Eastern Committee) that kept verbatim transcripts of its deliberations, records that were kept secret for almost fifty years and had only recently been released. With these records I derived the cognitive maps of the members of the committee according to coding rules I developed for the purpose, and the resulting analysis was presented to the Peace Research Society (International) at their London conference in August 1971 (Axelrod, 1972b). It appears here in revised form as Chapter 4. A later version of the coding rules drafted with Margaret Wrightson is given in Appendix 1.

Meanwhile, Professor Bonham had left for American University, and Professor Shapiro returned to the University of Hawaii.

Their continued collaboration resulted in a preliminary report of their work (Shapiro and Bonham, 1973), and later in the computer simulation which appears here as Chapter 6.

By this time the project seemed to have a life of its own, as different people found entirely new uses for cognitive maps. Jeffrey Hart, who was then a student at Berkeley, and is now a professor at Princeton, found the cognitive mapping approach useful for one part of his Ph.D. dissertation on the structural aspects of international relations. His empirical study appears as Chapter 8. A second student at Berkeley, Stuart Ross, has also done empirical work extending cognitive mapping techniques into new areas, and his contribution is Chapter 5.

The remaining two contributors initially had no direct contact with the Berkeley group, but their work fits very neatly into this volume on cognitive mapping. Professor Ole Holsti of Duke University wrote a critical review of all the cognitive approaches to foreign policy formation, which is based in part on the organizing principle of my framework paper. This review appears here as Chapter 2.

Professor Fred Roberts of Rutgers University, working completely independently of the rest of us, did research on mathematical and methodological problems in applied graph theory that was strikingly close to my own conception of cognitive maps. His study of transportation policy (Roberts, 1973) provided the basis of an empirical chapter (Chapter 7) and a methodological section (Appendix 2) on the use of a panel of experts to derive a cognitive map.

This book can serve as a primary or supplementary text for a variety of undergraduate and graduate courses in political science, public policy, and psychology. For most purposes, the introductory chapter on the use of cognitive maps (Chapters 1 and 3), the chapter on the British Eastern Committee (Chapter 4) and the conclusion (Chapter 9) are sufficient to teach the basics of the cognitive mapping approach. For political science or public policy courses dealing with a particular policy area, the appropriate empirical chapters can be added: Chapter 5 on the presidency, Chapter 6 on the Middle East, Chapter 7 on commuter transportation and the energy crisis, and Chapter 8 on international control of the oceans. For courses on research methods in the social sciences, the epilogue on limitations (Chapter 10) and projects (Chapter 11) will be especially helpful. In all cases a reading of the conclusion (Chapter 9) will add greater perspective on the significance of the cognitive mapping approach for the improvement of decision making.





With great pleasure I acknowledge the personal and institutional support I received throughout this endeavor. While each chapter includes its own acknowledgements, this is the place to thank those who helped shape the entire volume. First, there are two of my research assistants who treated this project as their own: Margaret Wrightson and Stan Bernstein. Then there are my colleagues whose criticisms always came with the sustaining insistence that the result would be worth the effort: Hayward Alker, Karl Jackson, and Paul Sniderman. Next there are those who helped prepare the manuscript: Phyllis Dexter, Margaret Fletcher, Bojana Ristich, and Claudia Zawacki. And finally there are the contributing authors, who went through draft after draft in responding to my suggestions, and were always ready to do yet one more revision when called upon.

For the financial support of this project I would like to thank the Institute of International Studies of the University of California, Berkeley, its former director, Professor Ernst Haas, and its present director, Professor Carl Rosberg; the Institute of Public Policy Studies of the University of Michigan and its director, Professor Jack Walker; and the National Science Foundation. To all of these people and institutions I say, "Thanks."

ROBERT AXELROD

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PART ONE

# Introduction