A Theory of Case-Based Decisions

Gilboa and Schmeidler provide a new paradigm for modeling decision making under uncertainity. Unlike the classical theory of expected utility maximization, case-based decision theory does not assume that decision makers know the possible 'states of the world' or the outcomes, let alone the decision matrix attaching outcomes to act-state pairs. Case-based decision theory suggests that people make decisions by analogies to past cases: they tend to choose acts that performed well in the past in similar situations, and to avoid acts that performed poorly. It is an alternative to expected utility theory when both states of the world and probabilities are neither given in the problem nor can be easily constructed. The authors describe the general theory and its relationship to planning, repeated choice problems, inductive inference, and learning; they highlight its mathematical and philosophical foundations and compare it to expected utility theory as well as to rule-based systems.

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CAMBRIDGE
UNIVERSITY PRESS

PUBLISHED BY THE PRESS SYNDICATE OF
THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge
United Kingdom

CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge CB2 2RU, UK
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, VIC 3166, Australia
Ruiz de Alarcón 13, 28014 Madrid, Spain
Dock House, The Waterfront, Cape Town 8001, South Africa

http://www.cambridge.org

First published 2001

Typeface 9.75/12pt Trump Medieval *System* LaTeX 2ε [kw]

*A catalogue record for this book is available from
the British Library*

ISBN 0 521 80234 2 hardback
ISBN 0 521 00311 3 paperback

Transferred to digital printing 2002

To our families

"In reality, all arguments from experience are founded on the similarity which we discover among natural objects, and by which we are induced to expect effects similar to those which we have found to follow from such objects. And though none but a fool or madman will ever pretend to dispute the authority of experience, or to reject that great guide of human life, it may surely be allowed a philosopher to have so much curiosity at least as to examine the principle of human nature, which gives this mighty authority to experience, and makes us draw advantage from that similarity which nature has placed among different objects. From causes which appear *similar* we expect similar effects. This is the sum of all our experimental conclusions." (Hume 1748, Section IV)

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ACKNOWLEDGMENTS

We thank many people for conversations, comments, and references that have influenced our thinking and shaped this work. In particular, we have been stimulated by conversations with Eva Gilboa-Schechtman, Ehud Kalai, and Akihiko Matsui. We have greatly benefited from many comments by them, as well as by Enriqueta Aragones, Yoav Binyamini, Steven Brams, Didier Dubois, Ilan Eshel, Edi Karni, Simon Kasif, Kimberly Katz, Daniel Lehmann, Sujoy Mukerji, Roger Myerson, Ariel Rubinstein, Jo North, Benjamin Polak, Andrew Postlewaite, Dov Samet, Peter Wakker, Bernard Walliser, and Peyton Young.