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A Theory of Case-Based Decisions

Gilboa and Schmeidler provide a new paradigm for modeling decision making under uncertainty. 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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To our families

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“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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