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1

Law and Heuristics An Interdisciplinary Venture

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In 1908, the director of the Harvard psychology laboratory, Hugo Münsterberg, complained that the “lawyer and the judge and the juryman are sure that they do not need the experimental psychologist.... They go on thinking that their legal instinct and their common sense supplies them with all that is needed and somewhat more” (pp. 10–11). For much of history, laws were passed and cases decided with little more than intuitive knowledge about how the mind works. A judicial attitude of suspicion verging on hostility toward psychology—just as toward statistics—can still be found. Yet a territorial instinct to maintain disciplinary seclusion conflicts with the natural attraction of ideas. Three centuries ago, statistics and probability were shaped by legal questions and vice versa: early probabilists were more concerned about equity than about chances, and statistics in turn modified legal concepts such as negligence, liability, and intent (Daston 1988). Three decades ago, a dose of economics reformed American law. Legal scholars were introduced to a new way of thinking: people are rational maximizers of expected utility. Seller and buyer, saint and sinner, miser and spendthrift—they all hold and act on a consistent set of preferences, revise probabilities according to Bayes’s rule, and walk through their lives with a relentless forward-looking perspective. Among interdisciplinary marriages, the *law and economics* movement is one of the more happy ones on record. It covers areas where the law is explicitly engaged in regulating economic activity, such as taxation and antitrust, but has been also extended to include tort, contract, criminal, family, and antidiscrimination law, among others.

The present book explores a new union of ideas not unconnected to the previous two, this time between law and psychology. This engagement has a long past, but a short history. Psychological intuitions were present at the dawn of law, but the interdisciplinary venture is in its teens. Our focus is on heuristics, that is, simple strategies that professionals and laypeople use when making

decisions with limited time and information. Many lawyers would posit “heuristics and the law” to be a nonissue. Similarly, most psychologists would not think of the law when they think of heuristics. Upon closer inspection, however, one finds courts cutting through complex cases by relying on rules of thumb, administrators making decisions based on one good reason, and legislators responding to scandal. Should that be seen as irrational and irresponsible? Or can simplicity, transparency, limited search, aspiration levels, and the other tools of heuristic decision making actually help? After all, social scientists report that ordinary people can achieve “better than rational” results by using heuristics that build on reciprocal altruism, recognition, reputation, and trust (e.g., Gigerenzer et al. 1999; Ostrom 1998). Are these results, however, relevant for legal decisions? The purpose of this book is to elucidate the power and limits of fast and frugal heuristics in the creation and implementation of law.

WHY HEURISTICS?

What is a heuristic? Why would anyone rely on heuristics? The term *heuristic* is of Greek origin and means “serving to find out or discover.” In the title of his Nobel Prize–winning paper of 1905, Einstein used the term *heuristic* to indicate an idea that he considered incomplete, due to the limits of our knowledge, but useful. For the Stanford mathematician Polya (1954), heuristic thinking was as indispensable as analytical thinking for problems that cannot be solved by the calculus or probability theory—for instance, how to find a mathematical proof. The advent of computer programming gave heuristics a new prominence. It became clear that most problems of importance are computationally intractable; that is, we do not know the optimal (best) solution, nor do we know a method for how to find it.

The Gestalt psychology of the first half of the twentieth century used the term *heuristic* in the original Greek meaning to describe exploratory behavior, such as looking around and searching for information. Herbert A. Simon and Allen Newell conceptualized and partly formalized this approach in terms of search heuristics that find a reasonable solution in a huge search space, such as in chess. Heuristics were introduced in chess and artificial intelligence to make computers as smart as humans. In the analysis of experimental games, a simple heuristic called *Tit-for-Tat* won two computer tournaments against sophisticated competitors (Axelrod 1984). In the 1970s, however, the term *heuristic* became negatively tainted in other fields. Heuristics were introduced to explain why humans are not smart, and the term *heuristics and biases* came into use (Tversky and Kahneman 1974). Economists and lawyers were first exposed to the latter, rather than to the heuristics of artificial intelligence or of the adaptive decision maker (Payne et al. 1993).

Why do people rely on heuristics instead of logic, maximization of utility, or some other optimization technique? Open a textbook and the answer is likely

that people have limited cognitive capacities, such as memory. This answer provides the red thread through many of the chapters in the *Behavioral Law and Economics* reader assembled by Sunstein (2000). Here, the case for heuristics is made by pointing to constraints located inside our minds. The account is consistent with the internalist bias of much of cognitive psychology, where explanations for behavior are sought exclusively inside the mind.

A different answer is provided by Simon (1956, 1990) and Gigerenzer and Selten (2001). Heuristics are needed in situations where the world does not permit optimization. For many real-world problems (as opposed to optimization-tuned textbook problems), optimal solutions are unknown because the problems are computationally intractable or poorly defined. Important issues such as what to do with the rest of your life, whom to trust, and whom to marry are typically ill-defined; that is, there is uncertainty about the goals, about what counts as an alternative and how many alternatives there are, and what the consequences might be and how to estimate their probabilities and utilities reliably. This uncertainty is not stressed by scholars who routinely take optimization or maximization as a feasible option, “edit” real-world problems into a form that allows for optimization, and conclude that people’s limited cognitive capacities prevent them from optimizing. Moreover, even well-defined problems may be computationally intractable, such as chess, the classic computer game Tetris, and the traveling salesman problem (Michalewicz and Fogel 2000). Such problems are characterized by combinatorial explosion. Yet when optimal solutions are out of reach, people are not paralyzed to inaction or doomed to failure. We act by habit, imitation of others, and trust in institutions, on reputation or a good name.

In this alternative view, heuristics are needed because of the complexity of the outside world, and rationality concerns the question whether a heuristic is adapted to the environmental structure. Rationality is ecological rather than logical, as in some versions of rational choice. Internal cognitive constraints, such as limited memory and forgetting, can actually enhance rather than constrain performance (Schooler and Hertwig 2005). The study of *ecological rationality* investigates in which environment (social or physical) a given heuristic works and in which it fails (Gigerenzer et al. 1999; see also Smith 2003). A heuristic is defined as a simple rule that exploits both evolved abilities to act fast and structures of the environment to act accurately and frugally. The complexity and uncertainty of an environment cannot be determined independently of the actor. What matters is the degree of complexity and uncertainty encountered by the decision maker.

This brief sketch indicates that there are different definitions and uses of the term *heuristics* in the social sciences, and these uses are intimately linked to differing notions of rationality. At a minimum, it is useful to distinguish between views of heuristics based on logical rationality and on ecological rationality. Logical rationality is defined by syntax alone—such as the laws of logic or

probability—whereas semantics (contents) and pragmatics (goals) are external to the norms. In this view, when judgment deviates from a logical structure, it is considered a bias or error—as in endowment effects, conjunction fallacies, and framing effects. As a consequence, a heuristic is by definition always second-best to logical thinking, at least when information is free. From an ecological (and evolutionary) point of view, this implication does not follow. The double grounding of a heuristic in the human brain and in the environment enables simple heuristics to be highly robust in an uncertain world, whereas complex strategies tend to *overfit*, that is, not generalize well to new and changing situations. Less can be more.

TWO DIMENSIONS OF THE HEURISTICS PROGRAM AND WHAT THEY MEAN FOR THE LAW

Traditionally, and for good reason, the law is not content with just seeing effects. It aims at what any scientist will consider futile from the outset: understanding all the relevant features of the problem at hand. This is, after all, what justice requires. Given this definition of the legal task, the concept of heuristics is particularly appropriate. It is tailored for decisions under circumstances of unmanageable complexity or uncertainty.

The heuristics program in psychology asks two distinct questions: Why and under which conditions does ignoring information work? When do people actually rely on simple heuristics for decision making? In the interaction between psychology and law, this generates two overlapping topics: heuristics as law, and heuristics as facts to be taken into account of by the law. Can the law as it stands, or the practice of generating and applying law, be interpreted in terms of heuristics? Would the law be better off if it (further) opened itself up to the idea of heuristics? These are the questions to be asked under the heading of heuristics as law.

Heuristics as facts matter for the law in multiple respects. Heuristics impact on the behavior of two classes of actors: those who make and apply the law as well as the general public to whom the law applies. Rule generation and rule application can react to heuristics used by the public, and both can themselves be the result of heuristics at work. Understanding these heuristics is relevant for the law in two respects. First, the law must properly reconstruct the governance problem to which it responds. If people rely on heuristics rather than on optimization, this may diminish or increase the social problem. Second, designing a good rule is not enough. The legislator must also ensure that the rule has the intended effect. The law must therefore anticipate how people are likely to react to its intervention. Again, this assessment will vary, subject to the heuristics upon which people rely.

Heuristics may be of help in making new laws. In civil law countries, the ordinary mechanism for this is legislation. Consequently, understanding the

design of new law is best done by understanding political process. A standard model from political science, the policy cycle, helps do that. It structures an often messy chain of events into five steps: agenda setting, problem definition, policy choice, implementation, and evaluation (May and Wildavsky 1978). Each step is heavily influenced by the heuristics of those contributing to legislation. Finally, the process of rule application can capitalize on heuristics. Yet the heuristics of judges and administrators can also be seen as a problem by the legislator, or by the scientific observers of the legal order.

ILLUSTRATIONS

1. At the Medical Center of the University of California, San Diego, when a heart attack patient was admitted, 19 medical symptoms were measured to decide whether he or she should be treated as low or high risk. By contrast, Breiman et al. (1984) designed a simple heuristic that asked three yes–no questions at most. Is the minimum systolic blood pressure below a critical level? If so, the patient is immediately treated as high risk. All other symptoms are ignored. If not, is the patient’s age less than or equal to 62.5 years? If so, the person is classified as low risk. No further information is sought. If not, a third question is asked that finally determines the treatment. Common sense asserts that this diagnosis, with at most three variables, must be less accurate than one with 19 variables (which included the three). Yet the simple heuristic made more accurate classifications than did decisions based on intricate combinations of all symptoms. Ignoring information can save lives.
2. National governments seek autonomous measures to combat climate change, facing an uncertain success of the Kyoto Protocol. A majority of climatologists contend that climate change is to be expected, with anthropogenic CO₂ emissions as a major source of the problem. Most of them originate from three kinds of activities: industry with high-energy consumption, heating, and fuel combustion in cars. As long as other countries do not follow suit, targeting the first is difficult. Industry would likely threaten government with relocation. Heating systems would be a likelier target, but are only replaced in very long cycles. Cars, by contrast, are replaced much more quickly, and inducing individuals to drive less would be instrumental. Most importantly, only a very small number of private households is likely to ever leave the country just because of driving restrictions, which makes globalization almost irrelevant for this regulatory option. However, the price elasticity of household demand for mobility is low; that is, even considerable increases in gas prices do not substantially reduce the amount of driving. One explanation for this fact is behavior. In their decisions about the amount of mobility and the means of transportation, households usually do not

carefully weigh pros and cons. Instead, they follow habits and simple routines. If the law wants to change driving behavior, it must therefore directly target routines. Put differently, it must impose the unlearning of previous routines, and the learning of new, socially more beneficial ones (Engel 2004).

3. Campaigns to change public attitudes toward organ donation are widespread. Why are only 12% of Germans but a striking 99.9% of French citizens donors? One might speculate about different national characters, German egoism and perfectionism versus French altruism and generosity. Still, why are 17% of the British and 28% of Americans donors, compared to 99.9% of Austrians and Hungarians? That fact alone may prevent us from speculating with stereotypes. According to a classical rational choice view, people have stable preferences, and the Germans and British might simply find too little value in donation. Yet if people act by heuristics rather than preferences, the national differences can be understood. In explicit-consent countries such as Germany, Great Britain, and the U.S., the law states that nobody can be a donor without prior registration. In presumed-consent countries such as France, Austria, and Hungary, everyone is a donor unless they stipulate otherwise. Thus, in the latter group of countries the default is to be a donor, whereas in the first group, the default is not to be a donor. Most people's heuristic seems to be "don't change the status quo," reflecting the belief that the existing laws generally make sense, or might even be recommendations by the policy maker. From a rational choice perspective, legal defaults should have little effect because people will override a default if it is not consistent with their preference. However, the empirical evidence suggests that heuristics matter more. The far majority of citizens in all countries seem to employ the same heuristic, rather than having strikingly divergent preferences. A legal system that understands the heuristics that drive the majority of citizens can make the desired option the default and therewith find simple solutions for what looks like a complex problem (Johnson and Goldstein 2003; Sunstein and Thaler 2003).

ISSUES

How do heuristics relate to law and economics? In a narrow reading of rational choice theory, heuristics play virtually no role. People either maximize their expected utilities, or they behave *as if* they did so. In the first of these two readings of rational choice theory, the process of decision making is consciously or unconsciously assumed to be optimization. In the second, *as-if* version, no statement is made about the process, only about the resulting behavior. In neither version do heuristics play a part. Law and economic scholars such as Posner (2002) represent a broader conception of rational choice, which has abandoned a

hyperrational, emotionless, unsocial, and utterly selfish model of man and woman. Here, psychology enters the law, although psychologists might respond that it does so mainly intuitively or ad hoc. Posner tries to assimilate notions such as the *availability heuristic* as consistent with rational choice once the efforts or costs of deliberative thinking are factored in: “For example, the argument for allowing the prosecution in a capital case to place ‘victim impact’ statements before the jury is that without them jurors would have to exert extra effort to imagine the victim’s suffering in order to counterbalance the impact of the immediate perception of the suffering defendant, pleading for his life” (Posner 2002, p. 3).

What would psychologists say to this? Psychologists might have two criticisms, not about Posner’s attempt at assimilation but rather its object: the notion of *availability*. First, the term is a commonsense label, neither clearly defined nor formalized as psychological theories usually are. Second, as a consequence of this ambiguity, one cannot deduce in what situations this heuristic will be irrational, as proponents of the heuristics-and-biases program emphasize, or rational, as Posner wants to argue (Posner 2002, Chap. 2). The danger is that legal scholars “explain” every irrationality and human disaster by proclaiming their “availability.” What the emerging science of heuristics needs first of all is theoretical precision, that is, models of the heuristic process and the environments or institutions in which they work and fail. Precise and testable models of heuristics exist in psychology. This research agenda is still little known in the law, even though it is exemplified by the work of two Nobel laureates, Herbert Simon (1986, 1990) and Reinhard Selten (2001) on satisficing; Tversky’s (1972) elimination-by-aspect; the heuristics for preferential choice studied by Payne et al. (1993); and the study of the adaptive toolbox by Gigerenzer et al. (1999) and Gigerenzer and Selten (2001).

THEORY

A theory can fail on two counts: It can be empirically wrong or indeterminate. Rational choice theory has been criticized as being indeterminate because it provides no theoretical basis for specifying the content and shape of the utility function. As an illustration, consider Becker’s (1981, Chaps. 6 and 7) analysis of the opportunities of children, which he uses to question whether public compensatory education programs will achieve their goal in that parents will simply reallocate resources they would have otherwise invested in these children. As Arthur Goldberger argued, this conclusion follows from specific assumptions about the utility functions, such as that the child’s income is an additive function of parent’s investment and child’s luck (see Simon 1986). If the latter function is multiplicative instead of additive, however, Becker’s conclusion does not follow. No empirical support is provided for the auxiliary assumption that makes

all the difference. This case illustrates the general critique that rational choice theory is indeterminate without additional assumptions about the utility functions that are external to the theory. Yet critics of rational choice theory and proponents of heuristics need to be aware of the same problem. Unless the heuristics in “heuristics and the law” are clearly specified, including their ecological rationality, the critics will fall prey to repeating the flaw they criticize: to be able to account, *post hoc*, for everything.

Lack of theory is a major critique of the emerging field of law and psychology: Experimental phenomena are presented en masse, but left unexplained. Psychologists would respond that economists and legal scholars have so far encountered a biased sample of psychology, one that indeed favors collecting effects (biases) above developing theory. They would also point out that for several of those effects, formal explanations exist in other parts of psychology. For instance, prospect theory proposes a nonlinear probability weighting function, consistent with existing data, but without providing an independent rationale for its shape. Critics argue that the weighting function is only a redescription of the empirical data and is obtained by tinkering with the curves of expected utility theory. Kahneman and Tversky (1979) actually said something similar, although in a more positive way. Yet the precise form of the curves can be deduced from Parducci’s (1965, 1995) range-frequency theory, an independently motivated theory of psychophysical judgments. Moreover, this formal theory predicts the degree of over/underweighting of high and low probabilities, depending on the properties of the probability distributions (Stewart et al. 2006). For example, people often base decisions on name recognition alone, such as when they choose a supermarket brand they have heard of over one they have not, predict that the tennis player whom they are not familiar with will lose the match, or believe that colleges whose names they recognize are better. Moreover, they may ignore other cues. This phenomenon might be labeled as another case of “availability.” Yet there exist precise models of heuristics, such as the recognition heuristic and the fluency heuristic (Schooler and Hertwig 2005), that allow deduction of strong and counterintuitive predictions, which labeling cannot. Research on the recognition heuristic specifies the situations in which people with *less* knowledge make *more* correct judgments (Goldstein and Gigerenzer 2002) or when a jury does best by following its least knowledgeable member (Reimer and Katsikopoulos 2004). Formal models enable predictions of when people behave in apparently strange ways, and also why they do so; that is, they distinguish between situations in which a behavior is beneficial or disadvantageous.

NORMS

A common strategy for attacking rational choice theory is to inundate it with cognitive biases. For instance, according to Conlisk (1996, pp. 669–670):

People display intransitivity; misunderstand statistical independence; mistake random data for patterned data and vice versa; fail to appreciate law of large number effects; fail to recognize statistical dominance; make errors in updating probabilities on the basis of new information; understate the significance of given sample sizes; fail to understand covariation for even the simplest 2×2 contingency tables; make false inferences about causality; ignore relevant information; use irrelevant information (as in sunk cost fallacies); exaggerate the importance of vivid over pallid evidence; exaggerate the importance of fallible predictors; exaggerate the *ex ante* probability of a random event which has already occurred; display overconfidence in judgment relative to evidence; exaggerate confirming over disconfirming evidence relative to initial beliefs; give answers that are highly sensitive to logically irrelevant changes in questions; do redundant and ambiguous tests to confirm an hypothesis at the expense of decisive tests to disconfirm; make frequent errors in deductive reasoning tasks such as syllogisms; place higher value on an opportunity if an experimenter rigs it to be the “status quo” opportunity; fail to discount the future consistently; fail to adjust repeated choices to accommodate intertemporal connections; and more.

What should legal scholars make of this litany of apparent sins against reason? Ask for more paternalism in legislation? Demand more government regulation to protect people from using their minds? Or start teaching law students statistics and experimental methods? The latter would not hurt, but statistical literacy is a different point (see Hertwig, this volume). Let us take a close look at the notion of rationality implicit in this list of sins. Note that almost all of the behaviors are evaluated from the perspective of logical rationality or probability theory. In other words, the norms are syntactical, unconditional to the semantics (the content) and the pragmatics (the intentions). By definition, logical rationality is content and purpose blind. In this view people are rational when disregarding everything that matters except logic or probability; otherwise their judgments rank in the above list.

Chicago-style economists defend human rationality against lists of cognitive illusions by arguing that these might be the product of artificial experimental settings or of the lack of sufficient monetary incentives, or that the biases might be real but the market will eliminate individual cognitive quirks eventually, or that all of this holds. Such arguments dispute the phenomenon. Psychologists, interestingly, tend to dispute the logical norms against which the phenomenon is evaluated as a fallacy (e.g., Gigerenzer 1996, 2000; Hertwig and Todd 2003; Lopes 1991). Note that clarifying norms does not assume that people never err; at issue is what erring means in the first place. Almost every item in Conlisk’s list has been challenged, and—more fruitfully—in some cases, situations have been distinguished where the reported behavior is beneficial or detrimental. Consider the first three items in the list.

First, Sen (2002) has argued that purely syntactical definitions of consistency are meaningless for deciding between rational and irrational behavior; one must take a person’s motives or objectives into account. Since consistency is

necessary for transitivity, the same holds for transitivity. Moreover, heuristics that occasionally lead to intransitive judgments can be faster and more accurate than “rational” strategies that never “sin” (Gigerenzer and Goldstein 1996). Second, heuristics that ignore the statistical dependence between cues tend to be more robust and accurate than complex strategies that do not (Czerlinski et al. 1999). This is true in environments that are moderately or highly unpredictable, such as judging the guilt of defendants. Finally, is mistaking randomness for patterns and vice versa an error? Again it depends on people’s objectives and motives. If a miss is more dangerous than a false alarm, signal detection theory advises one to increase the chance of mistaking random data for patterned data, that is, of false alarms, in order to decrease the chance of misses. If the false alarm is more costly, the opposite recommendation follows (Green and Swets 1966). For example, if a legal system takes a conservative view emphasizing societal security over individual rights, then the probability of a miss (not convicting the culprit) should be decreased at the cost of an increase in false alarms (convicting an innocent). In this world, a good judge is one who tends to see patterns (guilt) where there are none. If a legal system, by contrast, takes a libertarian view emphasizing the reduction of false alarms at the cost of increasing misses, then the judge should make the opposite error more often of not convicting the culprit so that fewer innocents will end up convicted, which corresponds to increasing the error of not seeing a pattern of guilt when there actually is one. The general point is again that there is no way to decide whether a behavior is an error unless the semantics and pragmatics of the situation are factored in. This point is not new; it was discussed in the eighteenth-century encounter of statistics and the law, among others by Laplace, who took a conservative view, and Condorcet, who endorsed liberal reforms (Daston 1981).

The alternative to logical rationality is ecological rationality. Simon (1956, 1990) promoted this view when he emphasized that rationality is about the adaptation of cognition to its environment (not to the laws of logic), as illustrated by his analogy of a pair of scissors, with the mind and the environment as the two blades. A similar view is expressed when Posner (2002) critiques the puzzling refusal of behavioral law and economics to seek theoretical grounding in evolutionary biology. An evolutionary perspective emphasizes that heuristics are anchored in the evolved abilities of the brain (e.g., the ability for pattern recognition and reciprocal altruism) and in the structure of the environment, and exploits both to obtain good results. Rational choice theory, in its narrow form, does not have these evolved tools. This evolutionary perspective can help us understand how heuristics can be “better than rational,” such as when decisions based on only one reason result in higher predictive accuracy than those based on regression models of many reasons (Czerlinski et al. 1999) or sophisticated statistical models designed to promote the robustness of prediction (Chater et al. 2003; Martignon and Laskey 1999). Epstein (this volume) makes a related point for the benefit of simple rules in legislation.

ONE OR MANY

The term *health* is in the singular, but *diseases* come in the plural. The question of one or many, and its association with good and bad, provides an instructive analogy for understanding rational behavior. Rational choice theorists tend to treat rationality in the singular, and behavior, too—at least as long as people follow the theory. This double singular is consistent with the health/disease analogy, since there is only one state of health (although no chronic mental disease) in the model. The heuristics-and-biases outlook follows the health/disease pattern more directly. Cognitive processes (or judgments) are in the plural, as are many forms of biases, but rationality is still in the singular: Rational choice is challenged only descriptively, not as a norm. The adaptive toolbox paradigm, by contrast, overthrows the health/disease analogy. It treats both norms and cognitive processes in the plural. Normative statements involve the adaptation of a given heuristic to a given environment, of which there are several methods, and similarly, there are many heuristics in the adaptive toolbox.

This discussion makes one point obvious: The various positions on heuristics and the law are developing and incomplete, each can learn from the other, and there are signs of convergence. It is with this perspective in mind that we asked proponents of all positions, those in-between, and impartial minds to come together for five days to discuss the issues. Our goal was to utilize the present healthy tension between various approaches to help promote the emerging field of law and psychology. We have centered the discussion on four broad questions.

Are Heuristics a Problem or a Solution?

Heuristics have been presented both as the cause of problems and the means for their solutions. After an overemphasis on the dark side of heuristics in the early behavioral law and economics movement, few scholars would claim today that heuristics are always bad or always good. Once one moves beyond the formula “heuristics = good; optimization = always better,” some interesting questions emerge: Can the use of heuristics be normative? As a consequence, can ignoring information be normative, and if so, in what situations? Can the attempt to optimize be detrimental? What is the role of simplicity and transparency in the law?

What Is the Role of Heuristics in Making Law?

The German parliament passed a law, effective in 2005, that women between 50 and 69 have access to free screening mammograms. The members of parliament were apparently unaware of the medical research. Randomized clinical trials with some 280,000 women provided no evidence that women who participate in screening will live longer but only that two less women out of 1,000 will die of

breast cancer (Nyström et al. 1996), although even this benefit has since been disputed (Olsen and Gotzsche 2001). The annual costs, including follow-up treatments of false positives, amount to hundreds of millions of euros every year. How did such a law get passed in a time of government cuts to health care provisions? The case illustrates that laws do not always reflect scientific evidence or reason, but can arise from an emotional climate fueled by public anxiety, lobbying, and misinformation. What turns an issue into a public issue, and then into a law? What is the role of heuristics in the process of agenda setting and political decision making?

What Is the Role of Heuristics in the Court?

In high-energy physics, experimenters decide when a fact is a fact, and when to end an experiment, by a process of collective discussion in group meetings (Galison 1987). In experimental psychology, this decision is made individually by computing an effect size or simply looking at the level of significance. How do judges, jurors, and other legal fact finders decide whether a witness is trustworthy or a defendant is guilty? What uncertain cues does a judge attend to, which are most important, and which are ignored? What is the process of searching for information, stopping search, and decision making? Many legal orders have explicitly prescribed the circumstances under which a court may hold a particular fact to have been proven. Some of these rules of thumb appear ghastly to modern minds: If a woman survives cruel treatment, she is a witch; otherwise she is not. Other rules of thumb may have a grain of wisdom in them: You may not convict a person for a serious crime based on the testimony of a single witness, as common law holds. But what if, as in some Arab countries, you need four eyewitnesses to convict a man of rape? More is not always better.

How Do Heuristics Mediate the Impact of Law on Behavior?

According to some traditional teaching, the law has an impact on behavior through its moral, spiritual, or religious authority. In a rational choice perspective, the law has an impact on behavior because it changes the opportunity structure. Still, how can the law change behavior when many citizens have only faint ideas about the text of the law? Hardly anyone consults a statute or a casebook before taking actions. Economists adhering to the Austrian school stress rule following as a key element in their evolutionary picture of the world. Rule following, in turn, seems to imply that there are not too many rules, and moral and legal systems may increase the impact of the law on citizens if the law is simple. The Ten Commandments embody a simplicity that respects the limits of human memory. The U.S. and the German tax system do not. They create complexity, loopholes, and a feeling of helplessness, whereas simplicity can create trust and increase compliance.

CONTROVERSIES

This Dahlem Workshop was not without passionate controversies, in some groups more than in others, and the individual chapters and group reports reflect these issues. The chapters definitely do not speak with one voice. What did not take place, however, was a conflict between legal scholars trained in the heuristics-and-biases view and psychologists studying how fast and frugal heuristics are adapted to institutions and other form of environments. This does not mean that all differences of opinions simply evaporated. A constant source of debate was the issue whether and under what conditions heuristics can be normative. Considerable argument emerged from diverging standards for evidence in the law and in the social sciences. Some legal scholars asked for a degree of certainty and consistency of empirical evidence that the social sciences cannot deliver, specifically when social scientists analyzed the heuristics upon which the legal professionals based their decisions. What are exceptionally clear results by social standards did not always meet the standards of legal scholars with little hands-on experience in research.

Controversy transcended group boundaries. One central issue came up in all groups: Heuristics ignore information. Is this acceptable for the law? Specifically, is it sufficient to demonstrate the good performance of a heuristic, or of decision making by heuristics generally? A similar question has a long tradition in the discussion about clinical judgment and evidence-based medicine. On average, clinical decisions improve if doctors rely on statistical evidence, rather than on mere intuition (Meehl 1954; Meadow and Sunstein 2001). Yet implicitly, statistics also ignore information, for they only consider what has been observed in sampling. The best statistic may have ignored what is irrelevant on average, but highly relevant for this specific patient. In the jargon of this literature, the problem is referred to as the “broken-leg cue” (Astebro and Chen 2004; Dawes et al. 1989). If a patient with a problem in his throat sees a doctor, no statistical expert system will notice if the patient had a broken leg that day. However, a doctor should take account of this fact when deciding on treatment. Yet not every contextual factor is as important as a broken leg. The theoretical possibility of an unusual feature is no excuse for lightly setting statistical evidence aside. In a way, an often-heard criticism of lawyers against the use of heuristics makes the same point: The law must be open to factors ignored by a given heuristic procedure. However, the theoretical possibility that there might be such factors is not sufficient to disparage heuristics from the outset. The controversial insight seems to be that good decision making under uncertainty must always ignore part of the information available. The art is to find a good strategy that captures the right part and ignores the rest.

Uncertainty demands normative choices that certainty does not. The users of evidence-based medicine must choose between two kinds of errors. Which looms larger: false positives or false negatives? Since overlooking cases that

would have called for intervention is legally and socially more problematic in medicine, expert systems typically generate many false positives. Doctors aware of this problem can carefully check other evidence before taking action. Once they use an expert system, however, they systematically seem to underestimate the opposite risk of false negatives, compared to doctors relying on mere intuition (Alberdi et al. 2004). There is no similar evidence for the performance of lawyers relying on heuristics in court as yet, but it is likely that there would be a similar phenomenon. Given that uncertainty cannot be totally eliminated, each institutional policy for reducing false negatives, such as the number of culprits who are mistakenly not convicted, will automatically increase the rate of false positives, such as the number of convictions of innocents, and vice versa. Understanding heuristics can thus help the law make better choices—but they will remain choices, and hence open to argument.

PROSPECTS

What psychology can learn from the law is the relevance of institutions for understanding adaptive behavior. The role of institutions still constitutes a blind spot in cognitive psychology. Heuristics do not exist solely because of the mind's limited capacities. Heuristics develop and adapt to their changing environments, past and present, including institutional structures. What legal scholars can learn from psychology is the relevance of the mind for understanding the design and impact of institutions.

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