

SELLING HEURISTICS

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INTRODUCTION

Simplicity is usually not considered a virtue in public policy decisions.¹ Choices societies make concerning tax policy, regulation of the workplace, regulation of financial institutions, and environmental regulation typically present issues of monstrous complexity.² Answering questions such as whether the minimum wage costs jobs or helps the poor,³ whether the health-care reforms adopted in 2009 will increase the number of insured Americans,⁴ or whether a cap-and-trade program or a carbon tax is a more sensible way of addressing climate change⁵ all require mastering piles of

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1. See Cynthia R. Farina, *The Consent of the Governed: Against Simple Rules for a Complex World*, 72 CHI.-KENT L. REV. 987, 988–89 (1997) (arguing that regulation is so complex that no single actor, institution, or process is well-suited to address all issues). *But see* RICHARD A. EPSTEIN, *SIMPLE RULES FOR A COMPLEX WORLD* 16 (1995) (treating complexity “as a rough sign that something has gone badly astray”).

2. See Charles E. Lindblom, *The Science of “Muddling Through,”* 19 PUB. ADMIN. REV. 79, 79–80 (1959) (asserting that regulation is so complex that even the regulators are forced to abandon efforts at finding the best policy and instead work to identify policies that make marginal improvements).

3. See generally DAVID CARD & ALAN B. KRUEGER, *MYTH AND MEASUREMENT: THE NEW ECONOMICS OF THE MINIMUM WAGE* (1995) (discussing evidence as to whether the minimum wage affects employment rates); Joseph E. Stiglitz, *Employment, Social Justice and Societal Well-Being*, 141 INT’L LABOUR REV. 9, 12 (2002) (same).

4. See U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-12-768, *PATIENT PROTECTION AND AFFORDABLE CARE ACT: ESTIMATES OF THE EFFECT OF PREVALENCE ON EMPLOYER-SPONSORED HEALTH COVERAGE* (2012) (estimating the potential effects of the 2009 health-care reforms).

5. The debate between these two mechanisms is summarized well in an exchange in *Yale Environment* 360. *Putting a Price on Carbon: An Emission Cap or a Tax?*, *YALE ENVIRONMENT* 360

evidence gathered from an array of disciplines, including economics, sociology, political science, the hard sciences, and, occasionally, even psychology. Efforts to make any general policy statements about difficult problems require marshaling mountains of statistics and understanding diverse concepts from these many different fields. And yet, ordinary citizens appear to have little difficulty forming clear opinions on these issues.⁶ How is it that social problems are so complicated, and yet ordinary citizens have so little difficulty forming opinions and defending them vigorously?

The answer is the same for social issues as it is for most decisions people make—they adopt simple ways of thinking about complex problems.⁷ One of the basic lessons of cognitive psychology over the last four decades has been that people use simple mental shortcuts, known as heuristics, to manage complexity and uncertainty.⁸ Given the limited time and attention that ordinary citizens can spend understanding complex public policy questions, it is essential that they rely on crude simplifications. For example, in assessing whether climate change is a serious problem or not, people might rely on their ability to recall vivid accounts of how the weather affects them and their lives.⁹ Exceptionally warm seasons, especially if accompanied by vivid, disastrous weather that includes hurricanes and tornadoes, can increase the public perception that

(May 7, 2009), http://e360.yale.edu/feature/putting_a_price_on_carbon_an_emissions_cap_or_a_tax/2148/.

6. Each issue described produces clear opinions. On the minimum wage, despite the complexity of the issue, only 3% of those surveyed in 2006 stated that they did not know whether they supported or opposed the minimum wage. Michael Dimock, *Maximum Support for Raising the Minimum*, PEW RES. CENTER (April 19, 2006), <http://pewresearch.org/pubs/18/maximum-support-for-raising-the-minimum>. On health care reform, a poll taken within a week after passage of the sprawling Patient Protection and Affordable Care Act showed that 97% of Americans had a clear opinion as to whether the new law was good or bad for America. Lydia Saad, *One Week Later, Americans Divided on Healthcare*, GALLOP (March 29, 2010), <http://www.gallup.com/poll/127025/One-Week-Later-Americans-Divided-Healthcare.aspx>. On climate change, in a survey addressing whether cap-and-trade or carbon taxes are a better approach to addressing carbon emissions, only 2% reported that they do not know. *Survey Results for "Energy And Climate Change Policy: A Survey Among American Voters,"* U.S. CLIMATE TASK FORCE, <http://www.climate-taskforce.org/2009/12/01/survey-results/> (last visited Oct. 12, 2012).

7. See DANIEL KAHNEMAN, *THINKING, FAST AND SLOW* 97 (2011) (“If a satisfactory answer to a hard question is not found quickly, [people] will find a related question that is easier and will answer it.”).

8. See Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 185 *SCI.* 1124, 1124 (1974).

9. See Sabine M. Marx et al., *Communication and Mental Processes: Experiential and Analytic Processing of Uncertain Climate Information*, 17 *GLOBAL ENVTL. CHANGE* 47, 56 (2007) (describing the role of the availability heuristic and asserting that “[i]deally, communication of climate forecasts should encourage the interactive engagement of both analytic and experiential processing systems in the course of making concrete decisions about climate”); Cass R. Sunstein, *The Availability Heuristic, Intuitive Cost-Benefit Analysis, and Climate Change*, 77 *CLIMATIC CHANGE* 195, 200–03 (2006) (discussing the role of the availability heuristic in thinking about climate change).

climate change is a real phenomenon.¹⁰ These simple, manageable cognitive processes facilitate the formation of opinions about public policy.

Widespread reliance on mental shortcuts among the general public arguably adversely affects public debate because mental shortcuts for resolving complex problems can be misleading.¹¹ Vivid, emotional problems will arguably get more attention from regulatory agencies than pallid issues.¹² If public support for legislation that would address climate policy ebbs and flows with the temperature, then public officials cannot adopt coherent policies. An understanding of how the public thinks also enables savvy interest groups to take advantage of people's simplistic ways of thinking to subvert the political agenda.¹³ By relying on mental shortcuts to assess social policies, the public's attention arguably fixes on the wrong issues.¹⁴ In a democratic society, this subversion, in turn, misdirects policy efforts.

This story of the public's role in environmental regulation is not new and usually carries a depressing, anti-democratic solution. Many scholars have attributed the inconsistencies between the way experts view public policy problems and the way lay persons view them to reliance on simplified assessments by lay persons.¹⁵ Many versions of this story exist in the legal scholarship, and the end is always the same—the public misunderstands social policy, thereby leading to a demand for inefficient solutions to social problems.¹⁶ This conclusion poses interesting and difficult problems for a democratic process in which laws are supposed to reflect the consent of the governed.

But this conventional account itself is overly simplistic. Mental shortcuts certainly lead to errors.¹⁷ But missing from this account is an

10. See Justin Gillis, *In Poll, Many Link Weather Extremes to Climate Change*, N.Y. TIMES, Apr. 18, 2012, at A14.

11. See Cass R. Sunstein, *What's Available? Social Influences and Behavioral Economics*, 97 NW. U. L. REV. 1295, 1302 (2003) (describing how misleading cognitive processes like availability can influence demand for law).

12. See Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 YALE L.J. 61, 63 (2002) (asserting that cognitive processes misdirect the attention of the public and agencies towards the wrong issues).

13. See Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683, 733–35 (1999) (discussing how to use the availability heuristic to affect public opinion).

14. See Paul Slovic, Baruch Fischhoff & Sarah Lichtenstein, *Facts Versus Fears: Understanding Perceived Risk*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 463, 466–68 (Daniel Kahneman, Paul Slovic & Amos Tversky eds., 1982) (describing the gap between perceived risks and actual risks).

15. See Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 NW. U. L. REV. 1165, 1202–06 (2003) (describing the scholarship relating cognitive errors and demand for regulation).

16. See *id.*

17. See, e.g., Gerd Gigerenzer, *Dread Risk, September 11, and Fatal Traffic Accidents*, 15 PSYCHOL. SCI. 286 (2004) (reporting a study indicating that more people lost their lives due to reduced

assessment as to why people adopt the mental shortcuts that they do. Why do some people adopt the heuristic that a flat tax is simple and therefore sensible as opposed to the heuristic that the rich should pay more because they have more? Both are simple enough mental shortcuts for evaluating tax policy. Why do some gain currency with some people and not others? Does it matter why people adopt heuristics, or is the use of mental shortcuts always an inappropriate way to assess a complex policy?

This Article addresses these questions, offering a more dynamic account of how people think about social policy. Part I presents this dynamic perspective on heuristics generally. People do not rely on a fixed cluster of mental shortcuts. Rather, people select from a range of ways of thinking about problems, which they actively develop and which are highly idiosyncratic. Part II describes the conventional account of the role of heuristics in public policy debates in more detail. Part III introduces a new, dynamic account that incorporates the role that interest groups play in the creation and maintenance of these heuristics. Politicians and interest groups help promote mental shortcuts—or “sell heuristics”—as a way of furthering public support for their positions and mobilizing public support. In the Conclusion, I suggest that the public’s reliance on mental shortcuts is inevitable and that efforts to facilitate more complex thinking are apt to be somewhat futile. Instead of concluding that the reliance on heuristics shows that public opinion should be discounted, policy makers must instead strive to identify the underlying origins and purposes that heuristics serve.

I. HOW HEURISTICS WORK

Psychologists Amos Tversky and Daniel Kahneman deserve the lion’s share of the credit for developing the theory that mental shortcuts guide decision making.¹⁸ Their widely cited 1974 article in *Science*, *Judgment Under Uncertainty: Heuristics and Biases*, identified several mental shortcuts that people use to make decisions.¹⁹ For example, people base their assessments of how common events are on the ease with which they can call to mind examples.²⁰ This heuristic, called availability, is useful and surprisingly accurate, but it can lead to errors.²¹ In particular, it leads

air travel and subsequent increased road traffic after the terrorist attack of September 11 than were killed in the four fatal flights).

18. See Philip E. Tetlock & Barbara A. Mellers, *The Great Rationality Debate*, 13 PSYCHOL. SCI. 94, 94 (2002) (describing the broad influence of Tversky and Kahneman’s research program).

19. Tversky & Kahneman, *supra* note 8.

20. *Id.* at 1127–28 (describing cognitive availability).

21. *Id.*

people to overstate the frequency of vivid events.²² Over the decades, Tversky and Kahneman and their students have identified numerous mental shortcuts that people use for common judgment tasks, including representatives, anchoring and adjustment, and the affect heuristic.²³

The “heuristics and biases” program that grew out of this research holds that people use useful mental shortcuts to manage complexity.²⁴ Tversky and Kahneman argued that the heuristics that they identified were useful ones in that they produced sound judgment in many instances.²⁵ But they also asserted that people rely on heuristics even in situations in which the heuristics are misleading.²⁶ Although the goal of the research program was largely to identify how people make decisions, rather than to identify sources of errors, the nature of the undertaking led to a focus on errors in judgment.²⁷

The focus on mistakes from the heuristics and biases approach naturally leads to the concern that individual judgment can be easily deceived.²⁸ For the heuristics and biases school of thought, heuristics make people vulnerable. Sophisticated parties can identify ways of presenting stimuli so as to take advantage of cognitive errors.²⁹ Scholars have worried that cigarette manufacturers use the affect heuristic to sell cigarettes,³⁰ that credit card companies use availability to encourage people to borrow excessively,³¹ and that politicians use availability to convince voters that they need to attend more to certain environmental risks. The logic of this

22. See Slovic et al., *supra* note 14, at 465–68 (attributing exaggerated assessment of risks to the availability heuristic).

23. See KAHNEMAN, *supra* note 7, at 4–10 (describing the development of research on heuristics and biases).

24. See Daniel Kahneman & Amos Tversky, *On the Reality of Cognitive Illusions*, 103 PSYCHOL. REV. 582, 582 (1996) (“Some time ago we introduced a program of research on judgment under uncertainty, which has come to be known as the *heuristics and biases approach* . . .”) (emphasis in original).

25. *Id.* (“These heuristics, we argued, are often useful . . .”).

26. *Id.* (“[B]ut they sometimes lead to characteristic errors . . .”).

27. See Claire A. Hill, *Beyond Mistakes: The Next Wave of Behavioural Law and Economics*, 29 QUEEN’S L.J. 563, 566–68 (2004) (describing the focus on mistakes).

28. See Rachlinski, *supra* note 15, at 1165 (“Recognition of the fallibility of human judgment and the research that identifies this fallibility commonly inspire calls for imposing constraints on individual choice.”).

29. *Id.* (“These heuristics serve people well in many circumstances, but they also create vulnerability to the predations of advertisers, political spin doctors, trial attorneys, and ordinary con artists.”); see also, Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: The Problem of Market Manipulation*, 74 N.Y.U. L. REV. 630, 733–43 (1999) (describing how marketers can use cognitive error to mislead consumers).

30. See Jon D. Hanson & Douglas A. Kysar, *Taking Behavioralism Seriously: Some Evidence of Market Manipulation*, 112 HARV. L. REV. 1420, 1467 (1999) (describing how cigarette manufacturers use cognitive errors to induce people to smoke).

31. See Oren Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373 (2004) (describing how credit card companies use cognitive error to induce consumers to spend).

line of reasoning is that if the use of heuristics can lead to error, and it is in someone's interest that people make certain errors, then that entity will try to structure messages for the public that facilitate the reliance on these kinds of heuristics.

This account of how heuristics function in a public setting incorporates the intuitive idea behind the heuristics and biases literature that the reliance on heuristics arises because people suffer from information overload.³² The complexity involved in most decisions overwhelms the cognitive processes of untrained lay people, and hence they must rely on simple heuristics. The account does not portray people as stupid so much as it portrays the environment as complicated and subject to manipulation. Those who can control some aspect of the decision-making environment, such as politicians and marketers, can use an array of research to understand how people make choices to exploit this inherent limitation.

But the heuristics and biases program is not the only approach to judgment and choice. The idea of mental shortcuts, in fact, predates the heuristics and biases school and can be traced back to Herbert Simon.³³ Simon, however, did not assert that the reliance on heuristics was the result of information overload; Simon argued that people work within their limitations while striving for rationality.³⁴ Simon's assertion that people actively select decision-making strategies in an effort to achieve results that are defensible and rational does not play an important role in the heuristics and biases school.

The concept that heuristics are rational adaptations has been taken up with the most vigor by Gerd Gigerenzer and his "Adaptive Behavior and Cognition" group.³⁵ According to Gigerenzer, heuristics are carefully targeted strategies that people adopt to become more effective decision makers.³⁶ Gigerenzer argues that heuristics are not a source of limitation and error but are what "makes us smart."³⁷ He contends that people wisely choose from among decision-making strategies and make highly intelligent

32. Robert A. Hillman, *The Limits of Behavioral Decision Theory in Legal Analysis: The Case of Liquidated Damages*, 85 CORNELL L. REV. 717, 720 (2000) (describing how people use mental shortcuts to manage complex information).

33. See KAHNEMAN, *supra* note 7, at 237 (noting that Herbert Simon is "perhaps the only scholar who is recognized and admired as a hero and founding figure by all the competing clans and tribes in the study of decision making").

34. See Herbert A. Simon, *A Behavioral Model of Rational Choice*, 69 Q.J. ECON. 99, 114 (1955) (arguing that many decisions are "'intendedly' rational").

35. See GERD GIGERENZER, PETER M. TODD, & THE ABC RES. GRP., *SIMPLE HEURISTICS THAT MAKE US SMART* (1999).

36. Gerd Gigerenzer & Peter M. Todd, *Fast and Frugal Heuristics: The Adaptive Toolbox*, in *SIMPLE HEURISTICS THAT MAKE US SMART* 3, 5 (1999) (discussing the advantages of relying on heuristics).

37. See *id.*

decisions.³⁸ Indeed, Gigerenzer asserts that reliance on “fast and frugal” mental shortcuts is, in all cases, the best decision-making strategy human beings can adopt.³⁹ Even if it leads to errors, he argues, it leads to fewer errors than any other decision-making strategy. The approach Gigerenzer and like-minded other researchers take is often termed “ecological rationality” because these researchers contend that people choose heuristics to match the environment in which they make choices.⁴⁰

The ecological rationality approach to decision making addresses two difficulties with the heuristics and biases school but also creates novel problems. One advantage of the ecological rationality approach is that it nicely changes the focus on errors. The heuristics and biases school arguably spent too much effort making humans look more foolish than they really are.⁴¹ The other advantage is that it raises the possibility that people actively select from possible ways of solving problems. The ecological rationality school views heuristics as a set of tools that human beings actively use to solve problems, rather than as a wooden, inadequate attempt to cope with complexity.⁴² The ecological rationality school thus portrays human beings as nimble, creative, and intelligent decision makers.

The ecological rationality approach, however, firmly embraces the concept that heuristics are the best way for human beings with too much fervor. In fact, the feature of the ecological rationality school that truly distinguishes it from the heuristics and biases approach is the principal that heuristics are never maladaptive. This commitment, at times, approaches absurdity. For example, in one paper, Gigerenzer proposes that investors would be able to outperform the stock market if they selected stocks on the basis of “the recognition heuristic.”⁴³ Neither does the ecological rationality approach address the ability of deceptive marketers or politicians to manipulate the environment to produce decisions that benefit them at the expense of consumers or citizens. Ecological rationality assumes people

38. See GERD GIGERENZER, ADAPTIVE THINKING: RATIONALITY IN THE REAL WORLD 59 (2000) (arguing that human reasoning is adaptive); see also Julian N. Marewski & Lael J. Schooler, *Cognitive Niches: An Ecological Model of Strategy Selection*, 118 PSYCHOL. REV. 393 (2011) (describing experiments in which people actively choose sensible mental shortcuts).

39. See Gigerenzer & Todd, *supra* note 36, at 3–34; see also *id.* at 20 (“Studying ecological rationality enables us to go beyond the widespread fiction that basing decision making on more information and computation will always lead to more accurate inferences.”).

40. *Id.* at 18.

41. See Hill, *supra* note 27, at 566. See also Daniel Kahneman & Amos Tversky, *On the Study of Statistical Intuitions*, 11 COGNITION 123, 124 (1982) (expressing concern that “[a]lthough errors of judgments are but a method by which some cognitive processes are studied, the method has become a significant part of the message”).

42. Gigerenzer & Todd, *supra* note 36, at 18–19. See GIGERENZER, *supra* note 38, at 22–24 (describing the concept of mental processes as adaptive tools).

43. Bernard Borges, Daniel G. Goldstein, Andreas Ortmann & Gerd Gigerenzer, *Can Ignorance Beat the Stock Market*, in SIMPLE HEURISTICS THAT MAKES US SMART 59, 72 (1999).

possess an uncanny ability to select exactly the right shortcut in exactly the right setting.

A middle ground seems more sensible. The idea that human beings rely upon a fixed set of heuristics that lead to error in many settings understates human cognitive abilities, and the idea that human beings use only appropriate heuristics in appropriate settings overstates human cognitive abilities. Accepting the concept that people will sometimes use heuristics in ways that lead to error is the critical lesson from the heuristics and biases school.⁴⁴ Incorporating some lessons from the ecological rationalists is useful. Notably, the idea of a nimble decision maker actively choosing among heuristics seems both more faithful to Herb Simon's original thinking and more accurate. People clearly adopt various approaches to decision-making problems. In the studies on judgment and choice, some people solve complex logical problems properly and some get them wrong.⁴⁵ Rather than a narrow set of fixed heuristics, such as representativeness, availability, and anchoring, people might adopt very narrow, tailored mental shortcuts.⁴⁶ These heuristics still might be misleading ways of thinking, but the system of human reasoning is more active and dynamic than the heuristics and biases school suggests.

In recent years, the heuristics and biases school has, in fact, added some nuance to its picture of human judgment. Daniel Kahneman, along with others, has developed the concept that people rely on two different types of decision-making processes, which he terms System 1 and System 2.⁴⁷ Kahneman describes System 1 as intuitive in nature, relying on emotional cues, associations, and simple, impressionistic reasoning processes.⁴⁸ System 2 consists of deliberative, rule-based, symbolic, rational deliberation. A wide set of researchers have independently developed the notion of dual-process theories of judgment, in which intuitive and deliberative reasoning work in connected but somewhat independent ways.⁴⁹

44. Kahneman & Tversky, *supra* note 24, at 582 (“These heuristics, we argued, are often useful but they sometimes lead to characteristic errors . . .”).

45. See Jeffrey J. Rachlinski, *Cognitive Errors, Individual Differences, and Paternalism*, 73 U. CHI. L. REV. 207, 216 (2006) (“People likely express enormous variation in their abilities to make accurate judgments . . .”).

46. See Jeffrey J. Rachlinski, *Heuristics, Biases, and Philosophy*, 43 TULSA L. REV. 865, 875–76 (2008) (describing how scholars, notably Cass Sunstein, are developing the idea that people use a diverse array of heuristics).

47. KAHNEMAN, *supra* note 7, at 19–39 (defining System 1 and System 2).

48. *Id.* at 20–22 (describing the features of System 1).

49. Seymour Epstein, *Integration of the Cognitive and the Psychodynamic Unconscious*, 49 AM. PSYCHOLOGIST 709, 712 (1994) (“Awareness of a distinction between an experiential and a rational mode of processing information has a long history, predating psychology as a formal discipline.”); Daniel T. Gilbert, *Inferential Correction*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT* 167, 167 (Thomas Gilovich, Dale Griffin & Daniel Kahneman eds., 2002) (“[O]ne of

The clearest demonstration of the dual process models of reasoning is the cognitive reflection test.⁵⁰ The CRT is a simple, three-item test developed by Shane Frederick to assess people's propensities to rely too heavily on intuition.⁵¹ The first item illustrates how the test works well: (1) A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost? _____¢. For most people, 10¢ springs quickly to mind as the right answer.⁵² Though intuitive, this answer is wrong, as a bit of reflection shows. If the ball costs 10¢ and the bat costs one dollar more, this means that the bat costs \$1.10. Adding those two figures together, the total cost of the bat and ball would be \$1.20, not \$1.10, as specified by the problem. The correct answer is thus 5¢. That is, the ball costs 5¢; the bat costs \$1.05; and together, they cost \$1.10. The other two items also produce quick, intuitive answers that are transparently wrong upon reflection.⁵³

The CRT illustrates the operation of two systems of reasoning in three respects.⁵⁴ First, people perform poorly on the CRT even though the questions are easy. The problems are not like those on a test of intelligence, which tax the deliberative system's abilities. Rather, they test the willingness to engage the deliberative system. Second, the intuitive answers (10¢ in the bat-and-ball problem) are the most common wrong answers provided. This shows that the source of the wrong answers lies with the reliance on the intuitive system. Third, people who select the intuitive answers believe that the problems are easier than those who answer correctly. In the bat-and-ball problem, for instance, subjects who provided the intuitive response (10¢) predicted that 92% of people would solve the problem correctly.⁵⁵ By contrast, subjects who responded correctly

psychology's fundamental insights is that judgments are generally the products of nonconscious systems that operate quickly, on the basis of scant evidence, and in a routine manner, and then pass their hurried approximations to consciousness, which slowly and deliberately adjusts them."); Steven A. Sloman, *Two Systems of Reasoning*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT* 379, 380 (Thomas Gilovich, Dale Griffin & Daniel Kahneman eds., 2002) (observing that the distinction between intuition and deliberation "has not been missed by philosophers or psychologists" and "can be traced back to Aristotle").

50. See Chris Guthrie, Jeffrey J. Rachlinski & Andrew J. Wistrich, *Blinking on the Bench: How Judges Decide Cases*, 93 *CORNELL L. REV.* 1, 10 (2007) ("The simplest and perhaps most powerful illustration of dual processing comes from Shane Frederick's 'Cognitive Reflection Test' . . .").

51. Shane Frederick, *Cognitive Reflection and Decision Making*, 19 *J. ECON. PERSP.* 25, 26–28 (2005).

52. See *id.* at 26–27.

53. The other two items in the CRT are as follows: "(2) If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? _____ minutes [Answer: 5 minutes] (3) In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake? _____ days [Answer: 47 days]." *Id.* at 27.

54. See Guthrie et al., *supra* note 50, at 12 (describing the three key findings of research on the CRT).

55. Frederick, *supra* note 51, at 27.

predicted that only 62% of people would do so.⁵⁶ The intuitive system produces highly confident judgments, and hence those who rely on intuitive judgment are more confident.

Reliance on heuristics thus has a paradoxical effect on judgment. Even though heuristics can lead to errors, people tend to be more confident when they rely on heuristics than when they rely on deliberation. Foolish consistency may be the hobgoblin of small minds,⁵⁷ but folly and simple consistency seem to produce confidence. Most people understand this tension, at least implicitly. As Kahneman noted, across a wide range of decision-making domains, people make bold forecasts but tend to temper this excess of confidence by hedging their reliance on these forecasts when they confront choices in which a misjudgment might prove costly.⁵⁸

This portrait of human judgment begins to shed light on the question of how ordinary citizens with limited time and limited knowledge adopt intensely confident assessments of social policies. They rely on simple mental shortcuts, which might be misleading, but might also reflect an inherent underlying wisdom. The simple shortcuts cut through the clutter of complexity and produce confident judgments about public policy. For most citizens, asserting an opinion about health care, taxes, or climate change has little cost. Even if the underlying policy would affect them greatly, a public expression of their views (or even the casting of a ballot) is unlikely to have enormous effect on public debate. Hence, in this context, bold forecasts turn into bold choices.

II. PUBLIC POLICY AND HEURISTICS: THE CONVENTIONAL ACCOUNT

The analysis presented in the previous section identifies the mechanism by which reliance on simple mental shortcuts can produce highly confident assessments of public policy. People use basic tools to form opinions on highly complicated social problems.⁵⁹ This simple, intuitive style facilitates confidence in one's judgment quickly and with little effort. The reliance on intuitive thinking ensures that members of the public have strong opinions on almost any social issue. In a democratic society, citizens will doubtless express their confident opinions to pollsters, to their elected

56. *Id.*

57. RALPH WALDO EMERSON, *Self-Reliance*, in *ESSAYS AND ENGLISH TRAITS* 63, 70 (1909).

58. Daniel Kahneman & Dan Lovallo, *Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking*, 39 *MGMT. SCI.* 17, 17 (1993) (arguing that "forecasts of future outcomes are . . . overly optimistic" and that "evaluations of single risky prospects . . . are . . . overly timid").

59. See Paul Slovic, Howard Kunreuther & Gilbert F. White, *Decision Processes, Rationality, and Adjustment to Natural Hazards*, in *THE PERCEPTION OF RISK* 1, 19 (Paul Slovic ed., 2000) ("The research on information integration . . . suggests that simplified strategies for easing the strain of making decisions . . . may be used by experts and laymen alike.").

representatives, and in the voting booth. Representatives who ignore these strongly held opinions do so only at peril to their positions.⁶⁰ As discussed in this section, because of the simplistic ways these opinions are formed, they are apt to be misguided, and in turn, they can misdirect regulatory efforts.

For proponents of the heuristics and biases school, the reliance on heuristics produces undesirable consequences for public policy in a democracy.⁶¹ Heuristics, like availability, are not appropriate to answering difficult social problems.⁶² Because people do not bear the costs of expressing their opinions in public or in the voting booth, they likely do not temper their confidence in the way that they might for more personal reasons.⁶³ Widespread reliance on simple shortcuts can misdirect public opinion away from serious regulatory problems towards less pressing concerns.⁶⁴

Proponents of ecological rationality, for their part, argue that the reliance on heuristics to craft one's opinions about social issues is perfectly reasonable and, indeed, the most sensible way to understand social problems.⁶⁵ The proponents of ecological rationality rarely address the subject of public opinion, and most of their research addresses individual choices rather than public opinions. As such, this school of thought has not played much of a role in the conventional account of the role heuristics

60. See Cass R. Sunstein, *Cognition and Cost-Benefit Analysis*, 29 J. LEGAL STUD. 1059, 1063 (2000) (“[O]fficials are of course responsive not only to interest groups but also to general public pressures, and thus part of the answer must lie in the distinctive judgments of ordinary people, who do not assess risks through a well-informed cost-benefit lens.”). See generally BARRY GLASSNER, *THE CULTURE OF FEAR: WHY AMERICANS ARE AFRAID OF THE WRONG THINGS* (1999).

61. See Rachlinski, *supra* note 15, at 1206 (reviewing the scholarship suggesting that cognitive error distorts demand for regulation). Cass Sunstein has provided the most well-developed scholarship linking cognitive processes and regulation in a series of articles. See Richard H. Pildes & Cass R. Sunstein, *Reinventing the Regulatory State*, 62 U. CHI. L. REV. 1 (1995); Sunstein, *supra* note 60; Sunstein, *supra* note 12; Cass R. Sunstein, *The Laws of Fear*, 115 HARV. L. REV. 1119 (2002) (reviewing PAUL SLOVIC, *THE PERCEPTION OF RISK* (2000)); Cass R. Sunstein, *Hazardous Heuristics*, 70 U. CHI. L. REV. 751 (2003). Others have contributed to this work as well. See Anthony Bertelli, *Developing a Common Law of Cost Benefit Analysis: A Rational Choice Institutional Analysis*, 15 J.L. & POL. 717 (1999) (arguing that cognitive errors support greater reliance on cost-benefit analysis in regulation); Roger G. Noll & James E. Krier, *Some Implications of Cognitive Psychology for Risk Regulation*, 19 J. LEGAL STUD. 747, 772-77 (1990) (describing how cognitive processes in ordinary voters distort decisions about risk regulation by elected officials).

62. See Noll & Krier, *supra* note 61, at 749-60 (describing the influence of availability on risk perception); Sunstein, *supra* note 60, at 1065-66 (same).

63. See Elizabeth Garrett, *The Law and Economics of “Informed Voter” Ballot Notations*, 85 VA. L. REV. 1533 (1999).

64. See Sunstein, *supra* note 60, at 1063 (“The government currently allocates its limited resources poorly, and it does so partly because it is responsive to ordinary judgments about the magnitude of risks.”).

65. See GERD GIGERENZER, *CALCULATED RISKS: HOW TO KNOW WHEN NUMBERS DECEIVE YOU* 233-45 (2002) (arguing that misunderstanding of risk is attributable to misleading presentation of statistical information).

play in public policy. The conventional account is thus largely the heuristics and biases account.

The availability heuristic has played a prominent role in the application of heuristics and biases to social choice.⁶⁶ Availability refers to the reliance on the “ease of recall” as a measure of how common a specific occurrence is in nature.⁶⁷ This heuristic is enormously adaptive, and relying on it is sensible. For example, if one wanted to estimate the number of cloudy days per year in Seattle, attempting to recall the weather during a visit is a reasonable starting point. If one visits often enough, in fact, so long as one’s memory is not selectively pessimistic or optimistic, then reliance on availability will likely produce a reasonable estimate.

Excessive, uncritical reliance on availability, however, can lead to error. For example, many tourists are puzzled at the idea of Seattle as a rainy location even though it rains there 201 days per year.⁶⁸ The reason is that visitors who come during the summer are likely to encounter sun, as Seattle is fairly sunny during the summer months. Memory also, of course, can be selective. Rain in Seattle fits with prior beliefs and, in the extreme, tends to produce more salient memories than sunny weather. Many will think of London as an especially dreary place in the summer, even though it is not,⁶⁹ because the image of London is that of a cold, wet place and also because the 2012 Summer Olympics occurred during an especially cold fortnight.⁷⁰

Research documenting the unreliability of the availability heuristic is well-established. For example, most people assert that there are more words in the English language that begin with “k” than have “k” in the third position.⁷¹ The first letter provides an excellent cue to memory, as

66. See Kuran & Sunstein, *supra* note 13, at 711 (“[O]ne heuristic is more fundamental than the rest—at least in social contexts where people, lacking reliable information of their own, look to others for interpretations of events. In such contexts, information does not influence individual perceptions unless it becomes available in the public domain, so the availability heuristic necessarily interacts with all the other heuristics and biases.”); Sunstein, *supra* note 60, at 1065–66 (describing the effect of availability on lay assessment of risk).

67. See Tversky & Kahneman, *supra* note 8, at 1127 (“There are situations in which people assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind. . . . This judgmental heuristic is called availability.”).

68. See *Cloudiness - Mean Number of Days*, NAT’L CLIMACTIC DATA CENTER, <http://lwf.ncdc.noaa.gov/oa/climate/online/ccd/cldy.html> (last updated Aug. 20, 2008) (reporting that Seattle has seventy-one clear days a year, most of which occur during the summer).

69. London averages only sixteen days of rain (forty-six days of no rain) in July and August. See *Greenwich 1980–2010 Averages*, U.K. MET OFFICE, <http://www.metoffice.gov.uk/climate/uk/averages/19812010/sites/greenwich.html> (last visited Oct. 12, 2012).

70. See *London Prepares for Soggy Olympics*, THE WEATHER CHANNEL (July 10, 2012, 3:45 PM), <http://www.weather.com/news/london-prepares-for-soggy-olympics-20120710>.

71. See Tversky & Kahneman, *supra* note 8, at 1127 (“Because it is much easier to search for words by their first letter than by their third letter, most people judge words that begin with a given consonant to be more numerous than words in which the same consonant appears in the third position.”).

anyone who does crossword puzzles knows. But the English language, in fact, has far more words that have “k” in the third position.⁷² Availability of recall is simply not a good way to answer the question of which kinds of words are more common. The letter k problem reveals that people rely on ease of recall in estimating frequency (and there are many other examples that demonstrate the importance of cognitive availability in estimating frequency). When people rely on the availability heuristic to address problems such as the letter k problem, they make mistakes because availability is not well-suited to resolving these questions. At the same time, availability might be reasonably adequate for many other issues.⁷³

In general, people rely on heuristics because heuristics tend to work well, not because they are misleading.⁷⁴ But when well-learned heuristics are applied in novel settings or to novel problems, they might lead people astray. A mismatch between the characteristics of the heuristic and the characteristics of the problem causes inferential difficulties.⁷⁵ Such mismatches can occur when the examples are drawn from a biased sample (as is the case with travel to Seattle), when storage in memory is biased (as is particularly rainy weather during a salient period), or when retrieval does not correlate with true frequency (as in the letter k example).

In public policy problems involving environmental hazards and other accidents in particular, the availability heuristic is arguably a serious problem. Easy to recall, vivid instances of environmental or other social hazards do not necessarily represent the most pressing social concerns. Decades-old research by psychologist Paul Slovic and others on availability demonstrates that public perception of hazards correlates more closely with the rate of newspaper accounts of such injuries than with actual risks.⁷⁶

Airplane crashes illustrate the problem well. Airplane disasters are highly vivid events. The news media report them repeatedly, with graphic video and pictures to accompany them. As an example of how sensitive the news media is to air travel, a recent incident involving turbulence that

They do so even for consonants, such as r or k, that are more frequent in the third position than in the first.”) (footnote omitted).

72. See *id.*

73. See Ralph Hertwig, Thorsten Pachur & Stephanie Kurzenhäuser, *Judgment of Risk Frequencies: Tests of Possible Cognitive Mechanisms*, 31 J. EXPERIMENTAL PSYCHOL.: LEARNING, MEMORY, & COGNITION 621, 622–24 (2005) (arguing that people use more adaptive strategies for assessing risk than the research on the availability heuristic would suggest).

74. See JOHN W. PAYNE, JAMES R. BETTMAN & ERIC J. JOHNSON, *THE ADAPTIVE DECISION MAKER 2* (1993) (“[A]n individual’s use of multiple decision strategies in different situations . . . is an adaptive response of a limited-capacity information processor to the demands of complex decision tasks.”).

75. See Callia Piperides et al., *Group Report: What is the Role of Heuristics in Litigation?*, in *HEURISTICS AND THE LAW* 343, 347–49 (Gerd Gigerenzer & Christoph Engel eds., 2004) (describing how the mismatch between a heuristic and a task can produce error).

76. Slovic et al., *supra* note 14, at 467–68.

injured seven people produced a national news story.⁷⁷ And, of course, the role airlines played in the 9/11 attacks makes the dangers of air travel an unforgettable part of American culture and regulation.⁷⁸ It is perhaps no accident that air travel is so heavily regulated that it pushes many people into a less safe form of transportation—driving—likely costing, rather than saving, lives.⁷⁹

Heavy regulation makes air travel safe, of course, but also expensive. In turn, this produces substitution to less safe forms of travel. After the 9/11 attacks, in fact, the American travelling public perceived air travel as far more dangerous than was originally thought and heavily shifted its preference away from air travel toward driving, thereby increasing fatalities associated with long-distance travel.⁸⁰ The perceived danger of terrorist attacks produced an enormous demand for regulation at the airports that affects us to this day.⁸¹

The same story is repeated for numerous hazards, particularly in environmental law. Dramatic coverage of nuclear accidents at Three Mile Island and Chernobyl had dramatic effects on the regulation of nuclear power plants.⁸² The United States entered into a thirty-year moratorium on nuclear power licensing after Three Mile Island.⁸³ In response to the recent Fukushima accident, Germany announced it would begin to phase-out the use of nuclear power,⁸⁴ and Japan has shut down all of its nuclear power plants, at least for the moment.⁸⁵ All of this occurs in contrast to the lighter (relatively speaking) regulation of coal-fired power plants, which

77. Ben Mutzabaugh, 'Severe' Turbulence Injures 7 on Qantas A380, USA TODAY (Jan. 9, 2012, 6:18 PM), <http://travel.usatoday.com/flights/post/2012/01/extreme-turbulence-injures-7-on-qantas-a380/599379/1>.

78. See Cass R. Sunstein, *Terrorism and Probability Neglect*, 26 J. RISK & UNCERTAINTY 121, 129–33 (2003) (describing how terrorist attacks produce dramatic demand for regulation).

79. See Robert W. Hahn, *The Economics of Airline Safety and Security: An Analysis of the White House Commission's Recommendations*, 20 HARV. J.L. & PUB. POL'Y 791, 793 (1997).

80. See Gigerenzer, *supra* note 17.

81. See Cass R. Sunstein, *On the Divergent American Reactions to Terrorism and Climate Change*, 107 COLUM. L. REV. 503, 507 (2007) ("With respect to terrorism, the attacks of 9/11 are highly salient, in a way that is likely to lead people to perceive a strong likelihood of a future attack or perhaps to neglect the question of probability altogether, focusing instead on the worst that might happen.").

82. Cass R. Sunstein, *Beyond the Precautionary Principle*, 151 U. PA. L. REV. 1003, 1043–44 (2003) ("[T]he Three Mile Island incident provoked intense concerns about nuclear power plants in the United States and helped promote the widespread idea that a precautionary approach was sensible in order to discourage reliance on nuclear power.") (footnote omitted).

83. See Bentley Mitchell, Note, *Diffusing the Problem: How Adopting a Policy to Safely Store America's Nuclear Waste May Help Combat Climate Change*, 28 J. LAND RESOURCES & ENVTL L. 375, 378 (2008) ("[T]he Three Mile Island Incident is a main reason why Americans decided to cease development of nuclear energy.").

84. See Judy Dempsey & Jack Ewing, *Germany, in Reversal, Will Close Nuclear Plants by 2022*, N.Y. TIMES (May 30, 2011), <http://www.nytimes.com/2011/05/31/world/europe/31germany.html>.

85. See Martin Fackler, *In Japan, First Reactor is Restarted Since Quake*, N.Y. TIMES (July 1, 2012), <http://www.nytimes.com/2012/07/02/world/asia/japan-restarts-a-nuclear-reactor.html>.

themselves release less dramatic pollutants that likely kill or injure far more people every year than each of these three events combined.⁸⁶ Although almost everyone can name the three major nuclear accidents, coal-fired power plants do not produce salient accidents,⁸⁷ and the victims of sulfur dioxide and mercury exposure are largely invisible statistical deaths.

The regulation of land-based disposal of hazardous waste in the United States also provides a clear illustration of the power of availability to direct regulation.⁸⁸ Throughout the 1970s, as the United States began to regulate one environmental medium after another, regulation of land-based disposal of hazardous waste remained unaddressed.⁸⁹ The United States passed the Resource Conservation and Recovery Act in 1976,⁹⁰ but this statute failed to address the estimated thirty thousand sites that contained hazardous substances that had been deposited and abandoned.⁹¹ Legislation meant to remedy this problem languished in Congress until a major national news story drew attention to the problem.⁹² At the Love Canal site in Niagara Falls, New York, a large chemical company had dumped some 200,000 barrels of waste at a site that was later converted into single-family homes and an elementary school.⁹³ As barrels began to surface and waste began to leak into homeowners' basements, President Carter declared the area an emergency zone.⁹⁴ The events created a salient image in the public's mind, and shortly thereafter, Congress passed the Comprehensive Environmental Response Compensation and Liability Act ("CERCLA").⁹⁵

The connection between Love Canal and CERCLA has the availability heuristic's fingerprints all over it.⁹⁶ Before Love Canal became a national story, little demand to regulate abandoned hazardous waste disposal

86. See FRED BOSSELMAN ET AL., *ENERGY, ECONOMICS AND THE ENVIRONMENT* 221–36 (3d ed. 2010) (identifying the dangers associated with coal emissions and describing regulatory efforts to address them); Mitchell, *supra* note 83, at 379–80 (noting the dangers of other energy sources).

87. Mining accidents are an exception, but they endanger only miners not the general public.

88. See Kuran & Sunstein, *supra* note 13, at 691–98 (describing the connection between Love Canal and regulation of hazardous waste disposal).

89. See ROBERT PERCIVAL ET AL., *ENVIRONMENTAL REGULATION: LAW, SCIENCE, AND POLICY* 334–38 (6th ed. 2009) (describing the development of regulation of land-based disposal of hazardous waste).

90. *Id.* at 344.

91. *Id.* at 393–95 (describing the development of law addressing abandoned hazardous-waste disposal facilities).

92. *Id.* at 393 (“Love Canal became a national media event that crystallized a festering problem . . .”).

93. See Kuran & Sunstein, *supra* note 13, at 691–96 (describing the events at Love Canal); see also LOIS MARIE GIBBS, *LOVE CANAL: MY STORY* (1982) (describing the events at Love Canal from the perspective of a resident).

94. See Kuran & Sunstein, *supra* note 13, at 694.

95. See PERCIVAL ET AL., *supra* note 89, at 393 (attributing the passage of CERCLA to the events at Love Canal).

96. See Kuran & Sunstein, *supra* note 13, at 696.

facilities existed.⁹⁷ For years afterwards, surveys indicated that the public ranked the danger posed by abandoned hazardous waste disposal facilities as a leading environmental threat.⁹⁸ By most accounts, abandoned waste disposal facilities are a problem but not the most serious environmental problem that the United States has faced.⁹⁹ But the public's emphasis on the issue after Love Canal produced an aggressive response by Congress that diverted billions of dollars to address the issue.¹⁰⁰ Some have argued that the availability heuristic overcame legislative inertia and opposition by organized industrial sectors, such as the chemical industry, to produce a positive social outcome.¹⁰¹ The dilemma, however, is that the response might have been overkill. In effect, the public overestimated the problem as a result of reliance on the availability heuristic, thereby producing a regulatory overreaction.¹⁰²

At the same time that availability directs public attention to vivid hazards, less vivid hazards can remain neglected. For example, many more people are at risk from radon gas leaks in their basements than from exposure to chemicals migrating from abandoned hazardous waste disposal facilities, but the latter are far more heavily regulated.¹⁰³ Numerous commentators, in environmental law in particular, decry the tendency to address the "chemical of the month" rather than adopt a comprehensive risk-benefit approach to environmental hazards.¹⁰⁴ Efforts to address climate change, in particular, seem to ebb and flow with the weather.¹⁰⁵ Warm summers and catastrophic weather heighten concern with climate change while cold snowy winters produce the opposite (even though, paradoxically, most climatologists note that climate change increases the

97. See *id.* (documenting a shift in the public's attitudes towards hazardous waste).

98. See *id.*

99. See *id.* at 697 (asserting that abandoned hazardous waste disposal facilities are not a serious public health problem).

100. See *id.* at 696.

101. Molly J. Walker Wilson & Megan P. Fuchs, *Publicity, Pressure, and Environmental Legislation: The Untold Story of Availability Campaigns*, 30 *CARDOZO L. REV.* 2147, 2147 (2009).

102. See Kuran & Sunstein, *supra* note 13, at 697.

103. See Leslie Roberts, *Counting on Science at EPA*, 249 *SCI.* 616, 618 (1990) (describing unappreciated dangers of radon gas).

104. See Lamont C. Hempel, *EPA in the Year 2000: Perspectives and Priorities*, 21 *ENVTL. L.* 1493, 1500 (1991) ("After repeated and frustrating experience with 'chemical of the month' campaigns, in the mid-1980s EPA administrators began to give increased emphasis to comparative risk analysis in hopes that science would prevail over politics in the development of the Agency's research and regulatory priorities. This shift in emphasis, in part, stemmed from a growing gap between public perceptions of environmental risks and the risk assessments of the scientific community."); Sunstein, *supra* note 60, at 1060 (arguing for cost-benefit as a means of "putting 'on screen'" important social facts that might otherwise escape private and public attention).

105. See Mark Drajem, *Record Heat Wave Pushes U.S. Belief in Climate Change to 70%*, *BLOOMBERG BUSINESSWEEK* (July 18, 2012), <http://www.businessweek.com/news/2012-07-18/record-heat-wave-pushes-u-dot-s-dot-belief-in-climate-change-to-70-percent>.

chances of erratic weather, such as snowstorms).¹⁰⁶ Widespread reliance on this heuristic produces erratic, misdirected demand for regulation.

Perhaps the most pernicious aspect of availability is its potential for exploitation.¹⁰⁷ To the extent that the public makes widespread use of availability, experienced political actors can spin issues so as to exploit these heuristics to drive the public to embrace particular attitudes or beliefs.¹⁰⁸ Kuran and Sunstein have argued that “availability entrepreneurs” can work to make examples salient so as to move public opinion in a particular direction.¹⁰⁹ Certain politicians or the news media benefit when the public attends to issues that they have used to brand themselves. For example, Al Gore was a relatively unknown champion of CERCLA who benefitted enormously from the attention directed to Love Canal.¹¹⁰ Then-Senator Gore did not create the Love Canal story, nor did he need to do much to direct the media spotlight on the story, but the availability heuristic creates the potential for politicians to work to get vivid examples of their pet issues into the news.

As a recent example of such an effort, Occupy Fort Lauderdale recently staged a large protest of a bank’s foreclosure of a home owned by an 83-year-old woman who was in a wheelchair while recovering from surgery.¹¹¹ The bank backed off, which was doubtless something that Occupy wanted, but Occupy also obviously chose the event to make their concerns with foreclosures salient to the news media and public at large. This is not to say that Occupy’s goals are inappropriate or misguided, of course. But their efforts will tend to induce the belief that outrageous foreclosure activity is a widespread social problem. This effort will tend to obscure or redirect concern with other problems related to home loan financing. For example, if their efforts make foreclosure more difficult, then financing homes might become harder. The underlying problem of creating an appropriate home loan financing system is a complicated social issue. Occupy’s efforts are

106. See Will Oremus, *Weather May Be Changing Public Opinion on Global Warming*, PHILA. INQUIRER (July 15, 2012), http://articles.philly.com/2012-07-15/news/32675533_1_global-warming-extreme-weather-climate-change.

107. See Rachlinski, *supra* note 15, at 1165 (“[H]euristics serve people well in many circumstances, but they also create vulnerability to the predations of advertisers, political spin doctors, trial attorneys, and ordinary con artists.”) (footnotes omitted).

108. See Kuran & Sunstein, *supra* note 13, at 713 (“Skillful availability entrepreneurs have insights into the sorts of events to which relevant segments of society are receptive.”).

109. *Id.*

110. See Peter Manus, *Our Environmental Rebels: An Average American Law Professor’s Perspective on Environmental Advocacy and the Law*, 40 NEW ENG. L. REV. 499, 524 (2006) (“Gore was instrumental in bringing the much-maligned CERCLA statute into the law.”).

111. See Nick Carey, *In Foreclosures, Occupy Groups See a Unifying Cause*, CHI. TRIB. (April 9, 2012), http://articles.chicagotribune.com/2012-04-09/news/sns-rt-us-usa-occupy-foreclosuresbre8380no-20120409_1_foreclosures-national-group-eviction.

directed at simplifying the issue, but they carry the price of focusing attention on only one aspect of the underlying problem.

In sum, the widespread use of identifiable shortcuts, such as availability, arguably creates a vulnerability to misdirection. Many citizens use these heuristics, which they perhaps developed to facilitate quick decisions in costless settings, in the wrong circumstances. Availability is not an accurate way to assess the kinds of social hazards that can be addressed with regulation. Furthermore, even if, as proponents of ecological rationality argue, availability is the best strategy a busy citizen can adopt, it is subject to manipulation by what Kuran and Sunstein call “availability entrepreneurs” who manipulate the social landscape for their own ends.¹¹²

III. A NEW ACCOUNT OF THE ROLE OF HEURISTICS IN PUBLIC POLICY

The standard account of the role of heuristics in public policy debates has several important weaknesses. It wrongly assumes that many citizens use the same kinds of generic heuristics, such as availability, to assess social risks. It thus fails to take account of variations in how individuals think about risk. As I argue below, the account thus fails to account for several aspects of how public opinion seems to ebb and flow. A full description of the role that heuristics play in the demand for regulation has to be more dynamic and nuanced. This section provides a short critique of the conventional account and develops a more complex model.

A. Weaknesses in the Conventional Account of Heuristics in Public Opinion

The conventional account of the role of heuristics in public opinion has glaring deficiencies. It fails to account for certain widespread shifts in the demand for some areas of regulations and erroneously predicts widespread shifts that never occur. The account characterizes the public as slaves of simple ways of thinking that seem almost hard wired. It also fails to account for vast differences between how people think about the same problem.

Demand for climate change legislation represents a prime example of the failure of the conventional account. Cognitive availability could have been successfully used by environmental groups to convince many Americans of the need for such legislation just as Love Canal pushed hazardous waste disposal regulation into the limelight. In 2005, Mother Nature handed the environmental groups a vivid example of the risks that can arise from climate change. The country learned what the inundation of

112. Kuran & Sunstein, *supra* note 13, at 687.

a major American city looks like. Although support for efforts to address climate change picked up slightly after Hurricane Katrina, the effect was short lived and small.¹¹³ What happened to the availability heuristic?

Indeed, it is instructive to compare the effect of Three Mile Island on demand for regulation of nuclear power to the effect of Hurricane Katrina on demand for legislation to address climate change. Of course, Hurricane Katrina is far from a perfect illustration of the effect because climate is not the same as weather.¹¹⁴ No one can say with any measure of accuracy whether the size and scope of Katrina's destruction had anything directly to do with climate change. But most availability stories are imperfect. The accident at Three Mile Island arguably demonstrated the resilience of nuclear power plant design, as very little radiation was released even though the reactor core experienced a partial meltdown.¹¹⁵ Even Love Canal, in fact, is a weak exemplar, as the evidence of long-term damage from exposure to the chemicals at the site is the subject of some dispute.¹¹⁶ Part of the concern with availability, in fact, is the mistaken memory of the underlying salient exemplar. By any fair account, Katrina should have pushed public opinion in the way that Three Mile Island and Love Canal did.

Other trends seem to occur without a reliance on widely documented mental shortcuts like availability. For example, it is difficult for a heuristic account to explain that a large decline in smoking occurred in the 1990s in the United States along with a surge in the demand for regulations against second-hand smoke.¹¹⁷ Cognitive availability cannot really explain this trend. Anti-tobacco campaigns have consistently tried, and continue to try, to use vivid imagery to discourage smoking.¹¹⁸ The perceived risks associated with smoking did not change in the 1990s, but the image of smoking itself did.¹¹⁹ As Dan Kahan has put it:

113. See Sunstein, *supra* note 81, at 539–40 (discussing the link between Katrina, the availability heuristic, and beliefs about climate change).

114. *Id.* at 540.

115. See Hope M. Babcock, *A Risky Business: Generation of Nuclear Power and Deepwater Drilling for Offshore Oil and Gas*, 37 COLUM. J. ENVTL. L. 63, 83–84 (2012) (“Each incident, including TMI-2, was contained with minimal environmental and human exposure.”) (footnotes omitted).

116. See Kuran & Sunstein, *supra* note 13, at 697 (reviewing evidence on the actual health effects of Love Canal).

117. See Anthony J. Sebok, *Pretext, Transparency, and Motive in Mass Restitution Litigation*, 57 VAND. L. REV. 2177, 2178–79 (2004) (documenting the decline in smoking).

118. This trend continues as the Food and Drug Administration's efforts to put graphic imagery on tobacco cartons is the subject of a recent D.C. Circuit Court opinion. *R.J. Reynolds Tobacco Co. v. Food & Drug Admin.*, Nos. 11-5332, 12-5063, 2012 WL 3632003 (D.C. Cir. Aug. 24, 2012).

119. See Lawrence O. Gostin et al., *The Law and the Public's Health: A Study of Infectious Disease Law in the United States*, 99 COLUM. L. REV. 59, 93–94 (1999) (documenting a transition of the meaning of smoking).

The social meaning of smoking has undergone immense transformation in the last three decades. The broad appeal of smoking for . . . much of the twentieth century was underwritten by a *mélange* of symbolic connotations—“the independent Marlboro Man” and “liberated Virginia Slim,” “‘continental’ sophistication” and “outright rebelliousness”—that made cigarettes congenial to a diverse array of cultural styles. Today, however, cigarettes bear a more univocal, individualistic connotation. That meaning continues to resonate for a cultural style that prizes the “authenticity of impulse and risk.” But for others, the individualistic aura of the cigarette denotes a constellation of negative values, such as weakness, crudeness, and irrationality, along with a culpable heedlessness of social obligation.¹²⁰

Although numerous reasons for the shift doubtless exist, the change in meaning likely played a greater role than risk perception.

These examples also illustrate the importance of individual differences in thinking on how heuristics affect social issues. For some people, Katrina is a salient, cognitively available example of the threat posed by climate change; and for others, it is just bad weather.¹²¹ Individual differences, moreover, follow a predictable pattern along political-cultural dimensions.¹²² People who generally believe that individual achievement is critical to societal flourishing and who also hold that governments cannot and should not disturb existing social and political hierarchies, so-called “individualist-hierarchs,” assess environmental risks like climate change radically differently from those who believe that governments exist principally to take care of the poor and disenfranchised, so-called “communitarian-egalitarians.”¹²³ These groups differ markedly as to what constitutes important societal risks.¹²⁴ In effect, they do not merely incorporate some additional factors in assessing the degree of risk that various activities pose; they disagree fundamentally as to whether such risks even exist. Because these beliefs are so tightly bound up in cultural

120. Dan M. Kahan, *The Cognitively Illiberal State*, 60 STAN. L. REV. 115, 137 (2007) (footnotes omitted).

121. See Cass R. Sunstein, *supra* note 11, at 1299 (“[P]eople have different predispositions. These predispositions play a large role in determining which of the numerous possibilities is salient.”).

122. See Dan Kahan, *Why We Are Poles Apart on Climate Change*, 488 NATURE 255, 255 (2012) (“[P]eople with different cultural values . . . disagree sharply about how serious a threat climate change is.”).

123. See Kahan, *supra* note 120, at 123–26 (defining the characteristics of these groups).

124. See *id.* at 134–49 (describing the different reactions of people with different cultural worldviews to various types of hazards).

and political commitments, they resist scientific insights and economic calculations.¹²⁵

The individualist-hierarchs derive self-esteem from taking care of themselves in traditional social roles.¹²⁶ For them, expansive governmental programs that supplant individual achievement or disrupt existing status arrangements are not only misguided, they are threatening.¹²⁷ This outlook is fundamentally inconsistent with the view that a massive, global externality is emerging that requires a major international initiative to address. They believe in individual effort, not group achievements, and hence cannot accept the concept of global climate change as a serious threat. Doing so would undermine their very place in society, and hence they reject every aspect of any scientific or economic study of the problem.¹²⁸

The communitarian-egalitarians harbor the mirror image set of concerns.¹²⁹ They derive self-esteem from the belief that they live in a just society that can work together to solve problems that threaten their community and take care of those that are less well off.¹³⁰ Many environmental externalities resonate well with this group, as addressing pollution that comes from many sources requires collective action. They easily, even uncritically, accept climate change as a serious social problem because for them it is emblematic of all that is wrong with an individualistic, capitalist form of societal governance.¹³¹ For them, climate change is the product of promoting the mindset that all members of a society will be better off if they engage in self-serving pursuits. Communitarian-egalitarians see climate change as only symptomatic of a society that does not do enough to care for its weak and fails to embrace a collective mindset.¹³² This mindset helps to explain why many environmental groups reject nuclear power as a response to climate change.¹³³ Even though nuclear power has a vastly smaller carbon footprint than fossil fuels, it is still the product of large, hierarchically run business organizations that work for primarily private goals.¹³⁴ For this group,

125. See Kahan, *supra* note 122, at 255.

126. See Kahan, *supra* note 120, at 122–23.

127. See *id.* at 128–30.

128. See *id.* at 141–42 (describing individualist-hierarchs' reactions to efforts to control climate change).

129. See *id.* at 127 (describing communitarian-egalitarian attitudes).

130. See *id.* at 122.

131. See *id.* at 141–42.

132. See *id.*

133. See *id.* at 123.

134. See *id.* at 140.

esteem arises from working together to establish social norms of caring and trust, rather than from allowing unfettered individualism to reign.¹³⁵

The research on cultural cognition shows important limitations of the heuristics and biases approach to understanding how people think about social hazards. Even if availability is an important mental shortcut, vivid, memorable events mean different things to different people. But the issue here is not just “what’s available.”¹³⁶ Cultural differences also reveal that people probably use different ways of thinking entirely.

B. A Dynamic Account

As the proponents of ecological rationality observe, people do not slavishly apply the same heuristics in all settings. They pick and choose different ways of reaching judgments.¹³⁷ For the proponents of ecological rationality, in fact, they select ways of reasoning about problems that lead them to solutions that are sensible for them. In a world where politicians, interest groups, and advertisers try to influence the landscape in which people make choices, it is difficult to imagine that people are so nimble as to out-manuever these well-funded, carefully crafted efforts. But a more nuanced lesson from ecological rationality seems likely; that is, people deliberately adopt a variety of mental shortcuts that are suited to their political and cultural commitments.¹³⁸

This account of citizens as actively selecting among ways of thinking about problems identifies the real opportunity for the media, interest groups, and politicians to influence public perception. Influence makers are not trying to change the availability landscape; they are probably trying to convince their targets to think in particular ways about social problems. These ways of thinking are still heuristics in that they are still mental shortcuts. They still cut through complex choices and focus attention on one aspect of a problem. They still likely induce confidence. But they are carefully tailored heuristics (see below), not broad based mental rules used in a wide variety of settings.

Some of the clearest examples of the dynamic, carefully tailored heuristics that interest groups can convince their targets to use to address social issues come from environmental law and policy. Many important policy prescriptions that environmental interest groups advocate consist of simple heuristics. For example, consider Aldo Leopold’s often-quoted

135. *See id.*

136. *See* Sunstein, *supra* note 11.

137. *See supra* Part II.

138. *See* Kahan, *supra* note 120, at 120 (“The theory of cultural cognition posits that the heuristic processing of risk information interacts decisively with individuals’ defining group commitments.”).

maxim that “[a] thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise.”¹³⁹ This assertion has the look and feel of a mental shortcut for evaluating environmental quality in a complex ecosystem. Like most heuristics, it is generally sensible but occasionally erroneous. Given the modern ecological views that many ecosystems are in a state of dynamic flux, rather than stability, Leopold’s assertions almost certainly can be said to be inaccurate in many contexts.¹⁴⁰ Nevertheless, environmentalists commonly cite Leopold’s maxim as a sensible mental shortcut.¹⁴¹

Environmental law and policy is filled with such shortcuts. Consider the “polluter-pays principle.”¹⁴² Like Leopold’s statement, it makes sense as a mental shortcut, even though it might impose liability in some cases in which liability makes little sense. The “precautionary principle” likewise can be best thought of as a mental shortcut that advocates caution in the face of both uncertainty and irreversible environmental harm.¹⁴³ Again, it might be an unwise policy choice in cases in which the harm of not acting exceeds the harm of acting, but it might operate as a sensible mental shortcut in most circumstances. “Sustainable development” itself might be best thought of as a contemporary articulation of Leopold’s maxim.¹⁴⁴ That is, when faced with resource management questions, management programs that will preserve the resource ought to be favored relative to management efforts that will exhaust a resource.

To be sure, the meaning of terms like polluter-pays principle, precautionary principle, and sustainable development are unclear. Some

139. ALDO LEOPOLD, *A SAND COUNTY ALMANAC* 189 (2001).

140. See JOHN KRICHER, *THE BALANCE OF NATURE: ECOLOGY’S ENDURING MYTH* 5 (2009) (“[T]here really is no such thing as a ‘balance of nature.’”).

141. See, e.g., Holly Doremus, *Constitutive Law and Environmental Policy*, 22 *STAN. ENVTL. L.J.* 295, 330 (2003) (citing Leopold’s quote as a basis for environmental decision making that is different from economic principles); James R. Karr, *Beyond Definitions: Maintaining Biological Integrity, Diversity, and Environmental Health in National Wildlife Refuges*, 44 *NAT. RESOURCES J.* 1067, 1068–70 (2004) (proposing the use of Leopold’s statement as a basis for assessing National Wildlife refuges); Trevor R. Updegraff, Note, *Morals on Stilts: Assessing the Value of Intergenerational Environmental Ethics*, 20 *COLO. J. INT’L ENVTL. L. & POL’Y* 367, 383–85 (2009) (describing Leopold’s quote as a basis of environmental decision making).

142. See generally Sanford E. Gaines, *The Polluter-Pays Principle: From Economic Equity to Environmental Ethos*, 26 *TEX. INT’L L.J.* 463 (1991).

143. See David A. Dana, *A Behavioral Economic Defense of the Precautionary Principle*, 97 *NW. U. L. REV.* 1315, 1315–17 (2003) (describing the precautionary principle).

144. See JAMES SALZMAN & BARTON H. THOMPSON, JR., *ENVIRONMENTAL LAW AND POLICY* 32–34 (3d ed. 2010) (defining sustainable development). *But see* J.B. Ruhl, *Sustainable Development: A Five Dimensional Algorithm for Environmental Law*, 18 *STAN. ENVTL. L.J.* 31, 63 (1999) (“Sustainable development will never produce [a] . . . detailed, relatively static framework, because the multi-parameter, multi-dimensional nature of sustainable development knots the concept together in a constantly evolving system . . .”).

contend that these terms have no clear meaning.¹⁴⁵ Others assert that they endorse specific policies and would therefore resist the thesis that these are just vague mental shortcuts.¹⁴⁶ Although the meaning and purpose of these terms can be much debated, this essay will make the case that, whatever the origin of these terms, they represent mental shortcuts to guide ordinary citizens' evaluations of environmental policy.

Viewed in this light, mental shortcuts to evaluate environmental policy are not necessarily destructive or inefficient. Cass Sunstein has argued that at least one of these heuristics, "the precautionary principle," is the product of cognitive biases.¹⁴⁷ Indeed, he contends that the precautionary principle, as a heuristic, creates many errors in judgment.¹⁴⁸ In contrast, David Dana has argued that the precautionary principle counteracts other heuristics that produce misleading assessments of environmental policy.¹⁴⁹ The difference between these two perspectives can best be described as a difference between a static and a dynamic view of heuristics. Under Sunstein's static view, heuristics are habits of mind that remain constant, thereby leaving people vulnerable to predations by seasoned political actors who can spin environmental policy choices so as to induce the public to adopt whatever perspective suits their own interests. Under Dana's dynamic view, heuristics can change to suit particular circumstances. Heuristics can lead people astray, but they can also change how people think about environmental problems. For Dana, the precautionary principle is a habit of mind people have deliberately adopted in response to a particular perception about environmental regulation. People's ability to adopt new habits of mind means that they are less vulnerable to simplistic efforts to be fooled than a static model suggests. Indeed, the dynamic model suggests that mental shortcuts are adaptive and useful.

The dynamic perspective on heuristics suggests that heuristics are by no means a destructive force in environmental regulation in a democratic society. The public might not be so easily duped by "availability entrepreneurs" who deliberately create misleading beliefs in the general public. Rather, those who would move public perceptions must work to get the public to adopt new ways of thinking about environmental problems. Developing novel mental shortcuts for assessing environmental problems

145. See Cass R. Sunstein, *Beyond the Precautionary Principle*, 151 U. PA. L. REV. 1003, 1004 (2003) ("I aim to challenge the precautionary principle here, not because it leads in bad directions, but because, read for all that it is worth, it leads in no direction at all.")

146. See Douglas A. Kysar, *It Might Have Been: Risk, Precaution and Opportunity Costs*, 22 J. LAND USE & ENVTL. L. 1, 4–5 (2006) (describing the precautionary principle); Noah M. Sachs, *Rescuing the Strong Precautionary Principle from Its Critics*, 2011 U. ILL. L. REV. 1285, 1285 (2011).

147. Sunstein, *supra* note 145, at 1004.

148. *Id.*

149. Dana, *supra* note 143, at 1316–17.

represents an important method for changing public attitudes about environmental protection. The widespread reliance on heuristics might, in fact, galvanize public support for positions that serve the public interest, overcoming common dilemmas and public choice problems in environmental policy.¹⁵⁰

Environmental issues are not the only ones that induce interest groups to craft mental shortcuts, of course. Grover Norquist's efforts to get politicians to sign a "no new taxes" pledge is exactly a mental shortcut of the sort I am describing.¹⁵¹ Norquist's organization, Americans for Tax Reform, has drafted a pledge that members of Congress can sign to satisfy the "no new taxes" heuristic.¹⁵² Although he appears to direct this at politicians, it clearly also instructs voters to support politicians who sign his pledge. Public finance is a complex subject, and simple heuristics are unlikely to balance the competing issues well. But for those committed to smaller government, it is an appealing mental shortcut that cuts through the complexity, just as the environmental heuristics are for environmentalists.

Heuristics of this sort seem to have been developed to provide a way of assessing public policy. They are context-specific, easy-to-apply, adaptive methods of assessing policy—at least for those who identify with the groups that advance the heuristics. Heuristics are not really intended to keep people from engaging in critical reflection but are perhaps intended to provide supportive mental shortcuts. Reliance on simple mental shortcuts keeps people from getting duped by complex policies that primarily benefit private interests. It also counteracts collective action problems common to environmental issues and facilitates the mobilization of public opinion.

CONCLUSION

Successful politicians are experts at directing how the public thinks. They identify heuristics for evaluating the world in ways that favor them and convince large numbers of citizens to use that heuristic. Ronald Reagan was as much a master as any. His 1980 campaign is the source of a common mental shortcut that every President running for re-election has faced ever since:

Next Tuesday is Election Day. Next Tuesday all of you will go to the polls, will stand there in the polling place and make a decision. I think when you make that decision, it might be well if you would

150. See Wilson & Fuchs, *supra* note 101.

151. See *Who is Grover Norquist?*, AMERICANS FOR TAX REFORM, <http://www.atr.org/about-grover> (last visited Oct. 14, 2012) (describing Grover Norquist and his efforts).

152. See Americans for Tax Reform, *Taxpayer Protection Pledge*, available at [http://www.atr.org/userfiles/Congressional_pledge\(1\).pdf](http://www.atr.org/userfiles/Congressional_pledge(1).pdf) (retrieved Dec. 11, 2011).

ask yourself, are you better off than you were four years ago? Is it easier for you to go and buy things in the stores than it was four years ago? Is there more or less unemployment in the country than there was four years ago? Is America as respected throughout the world as it was? Do you feel that our security is as safe, that we're as strong as we were four years ago? And if you answer all of those questions yes, why then, I think your choice is very obvious as to whom you will vote for. If you don't agree, if you don't think that this course that we've been on for the last four years is what you would like to see us follow for the next four, then I could suggest another choice that you have.¹⁵³

Ronald Reagan was doing well enough in the polls that he likely would have won without selling this way of thinking to America, but the statement was impressively persuasive. The question later dogged George H.W. Bush, benefitted Bill Clinton, and befuddled both the supporters and opponents of George W. Bush, neither of whom could ascertain how to assess the role that September 11 should play in the response to the question. In 2012, Barack Obama's campaign tried to change the timeframe to three years,¹⁵⁴ so as to convince Americans that he inherited an economic crisis, rather than perpetuated one.

This well-known political heuristic can be maligned as misguided, simplistic thinking, just as all heuristics can be maligned. The President lacks the kind of control over the economy that would ensure that the heuristic marks a meaningful report card. The better test would be whether the economy is better or worse than it would have been without the policies that he, as President, implemented over his first term. Simplistic though it may be, President Reagan's voting heuristic is nonetheless incredibly useful. A complete, accurate evaluation of the nation's well-being is fraught with complexities and ultimately unknowable. Knowing that the voters will apply this heuristic doubtless means that any new President neglects economic issues at his peril. The simple heuristic of assessing one's own economic position (or America's position in the world, as President Reagan suggested) is more than adequate to focus the White House on doing whatever it can to maintain a strong economy. The simple heuristic thus serves democratic goals.

Heuristics can be troublesome, of course. Availability is no way to evaluate many social policies. But lambasting the widespread use of these

153. *October 28, 1980 Debate Transcript*, COMMISSION ON PRESIDENTIAL DEBATES, <http://www.debates.org/index.php?page=october-28-1980-debate-transcript> (last visited Oct. 16, 2012).

154. See Ezra Klein, *Are You Better Off Without Dumb Campaign Questions?*, BLOOMBERG (Sept. 4, 2012, 4:35 PM), <http://www.bloomberg.com/news/2012-09-04/are-you-better-off-without-dumb-campaign-questions-.html>.

heuristics to assess social policy neglects the sources of these heuristics. Many heuristics were purposefully sold by interest groups to their constituents and purposefully adopted by these same constituents. Heuristics thus may shroud broader, important social purposes in a disguise that appears foolish. In any event, reliance on heuristics is inevitable. Heuristics serve the interest groups and the public that adopts them well and will doubtless remain a central part of public life in a democracy.