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Heuristics, Biases, and Philosophy

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HEURISTICS, BIASES, AND PHILOSOPHY

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Commenting on Professor Cass Sunstein's work is a daunting task. There is simply so much of it. Professor Sunstein produces scholarship at a rate that is faster than I can consume it. Scarcely an area of law has failed to feel his impact. One cannot today write an article on administrative law, free speech, punitive damages, Internet law, law and economics, separation of powers, or animal rights law without addressing one or more of Sunstein's papers. And his work is typically not a mere footnote. Sunstein has changed how scholars think about each of these areas of law. More broadly, his work has made his mark on psychology, economics, and political science. But, surprisingly, one of his most subversive, and important, articles, *Moral Heuristics*, is directed primarily at philosophers.[1]

Sunstein's *Moral Heuristics* approaches the gates of philosophical discourse like a Trojan Horse. The article's title uses the well-known jargon of psychology. This is no surprise, as the piece is published in a psychological journal (albeit one known for sometimes engaging in philosophical inquiry). It thus seems that the piece will be another of his many valuable conversions of psychological research into legal concepts. Sunstein is well know for mining out nuggets of social and cognitive psychology that have been previously ignored by legal scholars and demonstrating that an understanding of these principles is actually critical for understanding some area of law. But *Moral Heuristics* is not such a piece. It brings some psychological research to bear on legal issues, but the piece is more ambitious than that. It provides a new way for both psychologists and legal scholars to think about the concept of heuristics. It then uses this new approach to challenge the basic epistemological assumptions of contemporary moral philosophy.

The basic thesis of *Moral Heuristics* is that people rely on simple habits of the mind when thinking about moral issues.[2] As in many areas of life, they do not adhere to principles of deductive logic. They resist relying on broad-based optimization strategies (such as cost-benefit analysis) as a means of addressing hard moral questions in favor of simple rules of thumb. For example, Sunstein argues that people avoid making decisions that they know will result in the death of another person.[3] This is a good principle to

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1. Cass R. Sunstein, *Moral Heuristics*, 28 Behavioral & Brain Sci. 531 (2005).

2. *Id.* at 531–32 ("[I]t is important to see that some of our deeply held moral beliefs might be products of heuristics that sometimes produce mistakes.").

3. *Id.* at 536 (articulating the rule: "Do not knowingly cause a human death." (emphasis omitted)).

follow, of course, but blind application of it can lead to paradox because some fatalities are more invisible than others. The principle can produce condemnation of those who account for less visible, indirect fatalities, as happens in cost-benefit analysis. Cost-benefit analysis makes indirect fatalities transparent, thereby making those who rely on it seem callous, even if they are trying to minimize the total fatality rate.[4]

But Sunstein's admonition against using overly simple habits of mind to assess complex choices in modern society is not what is novel about this paper. Many of his papers engage in that kind of exposition. What sets this paper apart is how he uses the concept of heuristics. In this paper, Sunstein uses the idea of mental shortcuts in a highly contextual way. He seems, at times, to be inventing new heuristics. New to this paper are terms such as the "'cold-heart heuristic'"[5] and the "'do not play God'" heuristic.[6] And obviously the "'Justice Antonin Scalia heuristic'" is not one psychologists would have heard before.[7] Implicit in this move is that Sunstein must be arguing that the mental shortcuts that people are taking are highly specific. They are not global habits of mind that people use in all places to suit all purposes. Rather, people seize upon these heuristics to solve certain problems. That is a novel move and one that nicely embraces some of the criticisms levied against the concept of heuristics, both in psychology and in law, and shows them to be modifications, rather than criticisms.

The second novel claim of the paper is its main target. In asserting that the psychological concept of heuristics speaks directly to the epistemology of moral philosophy, Sunstein attacks the foundations of contemporary moral philosophy.[8] Sunstein argues that people reject deductive logic in their approach to statistical and probabilistic reasoning, preferring instead to rely on heuristics that are often inconsistent with logic. Consequently, creating a workable, internally coherent mathematics based on people's intuitions about numbers would be a foolish undertaking. Sunstein argues that the same is true for moral philosophy. Intuitions about moral issues, he contends, are no more apt to be coherent than intuitions about probability theory.[9] Therefore, founding a normative theory of moral philosophy upon intuition is just as misguided as founding mathematics on intuition. And yet, that is exactly what contemporary moral philosophers undertake.

I flesh out these issues in this paper. First, I discuss how Sunstein's approach to heuristics differs from what many psychologists adopt and how this new approach addresses some of the criticism levied at the heuristics and biases literature. Second, I review how this new approach undergirds Sunstein's critique of moral philosophy.

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4. *Id.* ("When people object to risky action taken after cost-benefit analysis, it seems to be partly because that very analysis puts the number of expected deaths squarely 'on screen.'" (citation omitted)).

5. *Id.*

6. Sunstein, *supra* n. 1, at 539.

7. *Id.* at 533 ("If students are unsure how to analyze a constitutional problem, they might ask instead what Justice Scalia . . . thinks—and either follow him or do the opposite.").

8. *Id.* at 531 ("We should not treat the underlying moral intuitions as fixed points for analysis, rather than as unreliable and potentially erroneous.").

9. *Id.* at 542 ("[I]n particular cases, sensible rules of thumb lead to demonstrable errors . . . in the domains of morality, politics, and law . . . .").

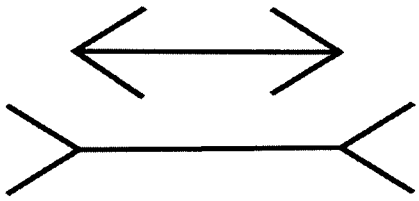
I. A NEW APPROACH TO HEURISTICS

Sunstein's approach to judgment and decision making in *Moral Heuristics* represents a significant departure from the approaches seen in both law and psychology. It also represents a departure from his own use of the concept. This break from the past addresses many of the criticisms of the "heuristics and biases" paradigm and puts the work on firmer footing for application to law and beyond.

A. The Origins of Heuristics and Biases

Most of the psychological research on judgment and decision making that has filtered into the legal literature has its origins in the late 1960s and early 1970s, in the study of the cognitive processes underlying memory and perception.[10] The primary methodological approach at the time was to study the ways that memory and perception might go astray. For example, psychologists studying memory found that when they presented people with lists of words to memorize, people more easily remember the words at the beginning (primacy) and at the end of the lists (recency).[11] From this pattern, psychologists inferred that memory includes a short-term storage buffer with limited capacity. At the beginning of the list, the short-term buffer is not yet fully engaged, and hence, it can be used for active rehearsal of the words. At the end of the list, the buffer is not clouded with subsequent words and can be used to facilitate the transfer of the words into long-term storage. The errors in memory, in effect, guide the cognitive theory of how memory works.[12]

Research on human perception operates the same way as research on memory. Consider the Müller-Lyer illusion below.[13] Although the parallel lines are identical in length, the lower line looks longer. The arrows cause the illusion by taking advantage of how people use clues to depth perception. The lines mimic the way parallel lines look as they run away from the perceiver, which normally provides an excellent clue to distance and size.



In this instance, the clues that normally facilitate accurate perception of the horizon instead lead people to misperceive the lines. The illusion shows how the mind normally

10. Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 Nw. U. L. Rev. 1165, 1169–70 (2003) (describing the origins of the psychological research on judgment and choice).

11. *See* Eugene B. Zechmeister & Stanley E. Nyberg, *Human Memory: An Introduction to Research and Theory* 60–71 (Brooks/Cole Publg. Co. 1982) (reviewing research on primacy and recency effects in memory).

12. *See* Michael J. Watkins & Endel Tulving, *Episodic Memory: When Recognition Fails*, 104 J. Experimental Psychol.: Gen. 5 (1975) (describing how memory researchers make inferences from errors).

13. Wikipedia, *Müller-Lyer Illusion*, http://en.wikipedia.org/wiki/M%C3%BCller-Lyer_illusion (last accessed Jan. 13, 2009) (describing the Müller-Lyer Illusion).

processes depth perception. The arrows provide the clues that the brain uses to make the judgment as to which is longer. The illusion is interesting by itself, but what is more important is how it reveals the way the brain processes this kind of information.

The early work on judgment and decision making by psychologists transported the same principles used in the study of memory and perception into the study of judgment and choice. In particular, Tversky and Kahneman in the 1970s began to devise experiments meant to identify specific ways in which judgment and choice would depart from a fully rational model.[14] Tversky and Kahneman began using the concept of perfect rationality as a foil, knowing full well that they could show deviations from perfection, just as researchers on memory and perception did. And just as the memory and perception researchers crafted unusual methodologies to test the limits of memory and perception, Tversky and Kahneman began to craft exotic decision-making tasks to study judgment.

The well-known scenario of Linda the bank teller, which Sunstein discusses in his article,[15] is typical of this kind of work. Tversky and Kahneman presented people with a description of Linda:

> Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.
>
> [Which is more probable?]
>
> . . .
>
> [1.] Linda is a bank teller.
>
> [2.] Linda is a bank teller and is active in the feminist movement.[16]

Deductive logic dictates that it must be more likely that Linda is a bank teller than that Linda is both a bank teller and active in the feminist movement because the latter is a subset of the former. And yet, most people presented with this question conclude that it more likely she is both a bank teller and active in the feminist movement.

Just as the departures from perfect memory allow researchers to make inferences about how the mnemonic system works, this departure from rational choice allows for an inference as to how people make judgments of this type. Tversky and Kahneman argued that this problem represents an example of how judgment departs from the ideal of rational choice. People rely on the feeling that Linda seems like she would be active in the feminist movement in making the judgment.[17] The judgment, however, is not one that calls for a reliance on intuition; it is best made by the application of deductive logic.

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14. Amos Tversky & Daniel Kahneman, *Judgment under Uncertainty: Heuristics and Biases*, 185 Sci. 1124, 1124–25 (1974).

15. Sunstein, *supra* n. 1, at 532 (describing this problem).

16. Amos Tversky & Daniel Kahneman, *Judgments of and by Representativeness*, in *Judgment under Uncertainty: Heuristics and Biases* 84, 92 (Daniel Kahneman, Paul Slovic & Amos Tversky eds., Cambridge U. Press 1982).

17. *Id.* at 97 ("[P]eople evaluate the probability of events by the degree to which these events are representative of a relevant model or process.").

But Tversky and Kahneman show that people seem to rely on their feelings rather than logic. And in this case, their feelings lead them astray. They rely on what Tversky and Kahneman called the "representativeness heuristic," which is founding probabilistic judgments on the apparent similarity between an instance and the general category, rather than on deductive logic.[18]

Other examples illustrate the method even more clearly. Tversky and Kahneman argued than when making an assessment as to how likely or common some events are, people rely on a sense of the ease with which instances of the event can be called to mind. For example, in one study, Tversky and Kahneman provided subjects with lists of people's names (both first names and surnames).[19] They then took away the list and asked the subjects to estimate whether there were more male or female names on the list. Having used clearly gendered names and having put an equal number of male and female names on the lists, they reasoned that if memory were simply following rules of logic, people would be as likely to conclude that there were more men on the list as they would be to conclude that there were more women. But, they cheated a bit by putting names of celebrities on the lists. When the lists included more male than female celebrities, the subjects tended to conclude there were more men than women. When there were more women celebrities on the list, the subjects tended to conclude that there were more women on the list. Because celebrities' names were easier to recall, Tversky and Kahneman reasoned that people are relying on ease of recall as a means of assessing frequency. They termed this process the "availability" heuristic.[20]

The insight of Tversky and Kahneman and other early pioneers of this work was precisely that when people make decisions, they rely on the same kinds of systems that support memory and perception.[21] Cognitive psychologists assumed that human memory does not work the same way as a tape recorder, but they also reasoned that the departures from the concept of human memory as a tape recorder could provide insights into the underlying cognitive systems supporting memory. Likewise, cognitive psychologists studying human judgment and choice rejected the idea that human judgment and choice perfectly followed deductive logic and rationality, but they also reasoned that departures from this vision of human judgment would give clues as to how these systems actually worked. And thus, the methodology that produced insights into the understanding of memory and perception should produce insights into understanding of judgment and choice as well.

Within psychology, this work quickly became known as the "heuristics and biases approach" to studying human judgment and choice.[22] Its influence grew quickly in psychology and then spread to other disciplines. This approach undergirds what has come to be known as behavioral law and economics.

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18. Tversky & Kahneman, *supra* n. 14, at 1124.

19. *Id.* at 1127.

20. *Id.*

21. *See* Rachlinski, *supra* n. 10, at 1170.

22. Daniel Kahneman & Amos Tversky, *On the Reality of Cognitive Illusions*, 103 Psychol. Rev. 582, 582 (1996) (emphasis omitted) ("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*." (citation omitted)).

B. *Criticisms of the "Heuristics and Biases Approach" to Human Judgment*

The heuristics and biases approach to assessing human judgment has extraordinary strengths. It provides a simple, inexpensive methodology for studying human judgment and decision making. It also capitalizes on the enormous success of the cognitive psychology of memory and perception in documenting how the brain functions. But, it also inspires criticisms. It arguably fails to account for variations in human ability in judgment, fails to account for motivated reasoning processes, and simply makes people seem too inept. Sunstein's new approach addresses these concerns. But first, I will lay them out below.

1. The Nomothetic Assumption

Most forms of cognitive psychology embrace a nomothetic approach.[23] That is, cognitive psychology assumes that everyone relies upon fundamentally similar cognitive processes. For human memory, the nomothetic assumption might be largely accurate. For example, virtually everyone who has a normally functioning brain exhibits both primacy and recency effects. The basic methodology of identifying notable departures from a simple model of memory as a tape recorder is a robust one that has produced something close to a set of basic laws of the human mnemonic system. The study of perception has followed a similar course. Absent unusual circumstances, most visual illusions have the same effect on most adults.

Because the research on human judgment and choice uses similar methods to the work on perception and memory, it naturally incorporates the same nomothetic assumption. Just as memory researchers identified stable mechanisms, like short-term memory, that produce stable phenomena, like primacy and recency, and just like the studies of perception reveal a stable illusion, so too have most researchers in the psychology of judgment and choice assumed that they would identify stable cognitive processes that underlie all human judgment. This led the early researchers to describe the cognitive processes that they uncovered as if they were universal facets of the human mind.[24]

In an early paper, for example, Tversky and Kahneman described the cognitive processes of representativeness and availability as if they were as universal as short-term memory.[25] They claimed that representativeness was the principal means by which people make judgments as to whether a particular exemplar is a member of a broader category. Similarly, they proposed that people persistently rely on the availability heuristic when making frequency judgments.[26] Tversky and Kahneman ultimately quantified some of their findings on other aspects of judgment and choice (loss aversion and the psychophysics of probability) into a rule-like, almost axiomatic, system of

23. *See* Jeffrey J. Rachlinski, *Cognitive Errors, Individual Differences, and Paternalism*, 73 U. Chi. L. Rev. 207, 209–10 (2006) (describing the "nomothetic foundation of behavioral law and economics" as arising from cognitive psychology).

24. *Id.*

25. Tversky & Kahneman, *supra* n. 14, at 1124.

26. *Id.* at 1127.

judgment about risky events that they termed "Prospect Theory."[27]

It was understandable that Tversky and Kahneman incorporated the nomothetic assumption that underlies memory and perception into the psychology of judgment and choice. They were both trained as mathematical psychologists—an area of psychology that produces precise models of human perception. And the methods that they adopted from memory and perception had proven enormously fruitful in these cognitive domains. It is natural that they would assume that judgment would function the same way.

The nomothetic assumption that describes human perception and memory so well, however, might not hold true for human judgment and choice.[28] The data supporting the phenomena that researchers in judgment and choice rely upon is more erratic than the data supporting the conclusions in human perception and memory. Consider the problem involving Linda the bank teller as one example. Most people incorrectly conclude that Linda is more likely to be a feminist bank teller than just a bank teller, but some also come to the correct conclusion.[29] In contrast, no one with ordinary brain function fails to exhibit primacy and recency effects in memory.

Human decision making might simply be more complex than perception and memory. Problems of judgment can be seen in different ways. If people judge Linda based on how things seem at a superficial level, they come to a different conclusion than if they see the problem as a species of deductive logic. The fact that the problem can be seen in different ways means that people with different backgrounds and experiences might treat the problem differently. The same is not true of memory or perception.

2. Cultural Cognition

Are the variations in how people respond to the scenarios that researchers in judgment and choice have crafted predictable? If not, the variations might just mean that the scenarios are just noisy ways of measuring cognitive error. Recent research in "cultural cognition," however, suggests that the variations are both systematic and predictable.[30] Cultural cognition shows that people rely on different ways of thinking about social risks. Although assessing risk is only one aspect of judgment and choice, it has been a central one in the research. Hence, if the nomothetic assumption does not apply to judgments about risk, then it is a troubling assumption.

In a series of studies, Dan Kahan and his colleagues have demonstrated that different people's fears vary along political dimensions.[31] These researchers categorize people according to the political attitude scales devised by Aaron Wildavsky, who argues that political orientations tend to cluster along two dimensions: the hierarchy-egalitarian

27. Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision under Risk*, 47 Econometrica 263, 268–69 (1979).

28. Keith E. Stanovich & Richard F. West, *Individual Differences in Reasoning: Implications for the Rationality Debate?* 23 Behavioral & Brain Sci. 645, 645 (2000).

29. Tversky & Kahneman, *supra* n. 16, at 93 (reporting that 89% of their participants erred when answering the "Linda problem").

30. Dan M. Kahan, *The Cognitively Illiberal State*, 60 Stan. L. Rev. 115, 119–25 (2007) (describing the cultural cognition project).

31. *Id.* at 122–23.

dimension and the individual-communitarian dimension.[32] Hierarchs believe strongly in rigid social structures while egalitarians believe in social mobility. Individuals believe individual achievement is most critical to society while communitarians believe society functions best in cooperative groups. According to Kahan and his colleagues, these political dimensions predict the reactions that people have to various social risks.[33]

As one example of these cultural variations in risk assessment, Kahan and his colleagues have found that those who are individualists and hierarchs support gun ownership as a safe undertaking but worry about crime and social disruption.[34] By contrast, communitarians and egalitarians worry that widespread gun ownership itself produces violence and worry less about low-level crime and social disruption.[35] Even on technological risks, these groups vary according to their political beliefs. Individual-hierarchs do not worry about nuclear power or global climate change, but they worry about the HPV vaccine (designed to prevent cervical cancer caused by the spread of a virus through sexual intercourse) and the risks of having an abortion.[36] Their communitarian-egalitarian counterparts worry about nuclear power and climate change but not so much about the HPV vaccine and abortions.[37]

Kahan and his colleagues argue that this pattern of social fears affirms people's identities and their place in society.[38] For example, people buy and own handguns in part because of the role that they see themselves playing in their families and communities. Gun owners see themselves as valuable members of their communities, just as most people do, and, hence, they will not see gun ownership as something to be feared. The same is true of people who sign petitions against nuclear power, or who write their member of Congress about climate change. In effect, we are what we fear.

The cultural cognition project poses a serious challenge to the nomothetic approach to research on judgment and choice. If people use the same kinds of processes, why do they come to such different conclusions on which social risks are to be feared and which ones are to be ignored? Consider how the nomothetic approach would treat the availability and representativeness heuristics and the risk of nuclear power. The widely reported nuclear accidents at Three Mile Island and Chernobyl, along with fictitious depictions of problems at nuclear power plants in movies and on television, ensure that most citizens have easy cognitive access to vibrant memories of the risks posed by nuclear power. Similarly, nuclear power plants are easily associated with nuclear weapons and radiation and generally seem like the kinds of activities that pose serious risks (unlike radon in basements, for example). Together, these two heuristics predict that everyone, except perhaps experts who do not rely on these heuristics, will overestimate the risks posed by nuclear power. Kahan and his colleagues, however, find

32. Aaron Wildavsky, *Choosing Preferences by Constructing Institutions: A Cultural Theory of Preference Formation*, 81 Am. Political Sci. Rev. 3, 11 (1987).

33. Kahan, *supra* n. 30, at 124.

34. *Id.* at 123.

35. *Id.*

36. *Id.*

37. *Id.*

38. Kahan, *supra* n. 30, at 123.

that hierarchs tend not to be afraid of nuclear power nearly as much as egalitarians. People who embrace different political orientations must use different cognitive processes to assess risks and thereby reach different conclusions about which risks pose real dangers.

To be sure, the availability heuristic allows for some individual differences in ways that might account for some of the data that Kahan and his colleagues have obtained. People might vary in the extent to which the risk is cognitively available to them, as they might have different degrees of exposure to media coverage of Three Mile Island and Chernobyl. Furthermore, people with different political orientations are apt to attend to different materials in the media. But availability seems like only part of the story. The research on cultural cognition links people's fears to their core beliefs about how they see themselves.[39] The research supports the idea that social fears are the products of motivated inferences. People must be selectively using different cognitive mechanisms that convert the information they have into an assessment of risk. This conversion is clearly not done in a uniform fashion.[40]

3. Ecological Rationality

Finally, some psychologists have reacted with great skepticism to the idea that cognitive biases in judgment could be widespread and uniform.[41] Chief among these are the evolutionary psychologists. For this school of thought, the human brain, like every other organ in the human body, is best thought of as a system that has survived the rigors of ancestral evolution. Elements of the brain and ways of thinking that gave our ancestors evolutionary advantages were likely to be replicated and passed down through the generations. Habits of thought that undermined our ancestors' abilities to procreate successfully would have been systematically weeded out. Given this process, how could it be that humans would continue to embrace ways of thinking about risk and uncertainty that produce systematic errors in judgment?

Evolutionary psychologists contend that the other cognitive systems, such as memory and perception, are well-suited to the tasks that faced our ancestors and remain well-suited today. They contend that the heuristics and biases approach to judgment and choice fails to account for the context in which decisions are often made and, hence, fails to recognize the overwhelming advantages of relying on heuristics to make decisions. This critique is often called the "ecological rationality" approach, as it embraces the notion that people might make choices that seem irrational in rarified, constructed scenarios but not in familiar, ordinary settings of everyday life.[42]

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39. *See* Dan M. Kahan et al., *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 Harv. L. Rev. 1071 (2006).

40. Variations in memory and perception have been documented as well, of course. But observed variations in memory and perception do undermine researchers' faith in the basic model of memory or perception. For example, although memory is better for familiar concepts, primacy and recency are still observed among such concepts.

41. *See* Gerd Gigerenzer, Peter M. Todd & ABC Research Group, *Simple Heuristics That Make Us Smart* (Stephen Stich ed., Oxford U. Press 1999).

42. Gerd Gigerenzer & Peter M. Todd, *Fast and Frugal Heuristics: The Adaptive Toolbox*, in Gerd

One of the best examples of this is illustrated by a study done by Leda Cosmides and John Tooby.[43] They take on the "confirmation bias," which is the tendency for people to attend to information that supports their beliefs while ignoring or avoiding information that could disconfirm their beliefs. Confirmation bias is best illustrated with the Wason card-selection task.[44] In this task, people confront four cards that have letters on one side and colors on the other. They are confronted with four cards, as described in the question:

> You are shown a set of four cards placed on a table, each of which has a number on one side and a colored patch on the other side. The visible faces of the cards show 3, 8, red, and brown. Which cards should you turn over in order to test the truth of the proposition that if a card shows an even number on one face, then its opposite face shows a primary color?[45]

People who confront this task generally fail to turn over the cards that could provide disconfirming information (that is, the 8 and the brown). Instead, they tend to look for confirmation of the proposition by turning over the red card (although turning over the 8 is also common). Even if the red card has an odd number on the back, this would not refute the proposition stated.

Cosmides and Tooby demonstrated that adding a familiar context to the Wason card-selection task makes it quite easy. For example, if the proposition is changed to "if you are drinking alcohol then you must be over 18," and the cards have an age on one side and beverage on the other, e.g., "17," "beer," "22," "coke," the task becomes much easier and people generally select the correct cards ("17" and "beer").[46] In effect, they know how to search for people who might be defying the rules, as would be the case with a 17-year old with a beer or a beer with a 17-year-old. Proponents of evolutionary psychology argue that we are well programmed to identify instances of social defection. We are not as well-suited to performing abstract tasks such as the one that Wason used, but abstract tasks are not a central aspect of social life. The important incidents of social risk and social judgment might arise in the kinds of contexts that humans are well-suited to understanding. Humans could thus possess an ecologically based rationality that is not properly tested by sterile tasks.

As is obvious from the problem involving Linda the bank teller, many of the phenomena developed by researchers in judgment and choice are, in fact, described in relevant social contexts. Evolutionary psychologists often challenge the validity of some of the core studies in the heuristics and biases tradition.[47] For example, some have

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Gigerenzer, Peter M. Todd & ABC Research Group, *Simple Heuristics That Make Us Smart* 3, 5 (Stephen Stich ed., Oxford U. Press 1999).

43. Leda Cosmides & John Tooby, *Cognitive Adaptations for Social Exchange*, in *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* 163, 181–83 (Jerome H. Barkow, Leda Cosmides & John Tooby eds., Oxford U. Press 1992).

44. *Id.*

45. *See id.*

46. *See id.* at 183.

47. Leda Cosmides & John Tooby, *Are Humans Good Intuitive Statisticians after All? Rethinking Some Conclusions from the Literature on Judgment under Uncertainty*, 58 Cognition 1 (1996) (testing base rate neglect, probabilistic reasoning, and conjunction fallacy with frequentist presentations); Gerd Gigerenzer, *How*

argued that the results in the "Linda problem" are the result of a misunderstanding of the nature of the question being asked; people may assume that the specificity of the answer "Linda is a bank teller and is active in the feminist movement" implies that the answer "Linda is a bank teller" also means that Linda is *not* active in the feminist movement. Careful deconstruction and reassessment of some of the core studies of judgment and choice thus sometimes might reveal methodological flaws that undermine the basic project.

Whether ecological rationality has been entirely successful is a matter of debate,[48] but proponents of ecological rationality have complicated the portrait of judgment and choice. The drinking age variation on the Wason card-selection task is only one of many instances in which heuristics that have been billed as universals do not seem to function.

4. Summary

Thus stands the three-pronged attack on the nomothetic assumption: the results of the research reveal tendencies, rather than clear universals; different people selectively use different heuristics to assess risk so as to support their cultural worldviews; and people seem to use different heuristics even within the same type of problem.

Not only does this assault pose serious problems for the development of the psychology of judgment and choice, but given the vast incorporation of this line of work into legal scholarship, it poses problems for law as well. Through much of his work, Sunstein describes numerous applications of heuristics to law. And in all cases, Sunstein articulates reforms designed to avoid the influence of regular, predictable cognitive biases. But if the biases are not so regular, then one-size-fits all reforms are not sensible. And if they are not mistakes at all, as the proponents of ecological rationality contend, then reform is not needed.

C. Sunstein's Account

The approach to studying judgment and choice that Sunstein adopts in *Moral Heuristics* represents a departure from the rigid, nomothetic assumption that is vulnerable to these attacks. In arguing that people rely on cognitive shortcuts to think about moral issues, Sunstein does not draw upon the usual set of heuristics like availability and anchoring. He creates a new "catalogue" of heuristics:

- "Do not knowingly cause a human death"[49]
- "[T]he cold-heart heuristic" (punish those who adopt a calculating approach to human life)[50]
- "People should not be permitted to engage in moral wrongdoing for a fee"[51]

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to Make Cognitive Illusions Disappear: Beyond "Heuristics and Biases", 2 Eur. Rev. Soc. Psychol. 83 (1991).

48. Kahneman & Tversky, *supra* n. 22 (arguing against the ecological rationality approach).

49. Sunstein, *supra* n. 1, at 536 (emphasis omitted).

50. *Id.*

51. *Id.* at 537 (emphasis omitted).

- "Punish, and do not reward, betrayals of trust" (betrayal aversion)[52]
- The "outrage heuristic" (use one's sense of outrage at an act to guide decision concerning how much to punish a wrongdoing)[53]
- "Do not tamper with nature"[54]

Traces of some of these heuristics can be found in the existing literature on judgment. The heuristic, "do not tamper with nature," resembles a documented preference for natural things.[55] The outrage heuristic is also similar to the affect heuristic described by Paul Slovic.[56] And, as discussed below, the identification of an influence of betrayal on judgment is not new. What is new in this catalogue, however, is the implication that heuristics are not one-size-fits-all rules that apply in broad contexts, but are highly specific mental shortcuts used to solve specific problems. It is a clear departure from a purely nomothetic approach.

A close analysis of the concept of betrayal aversion makes the point. Sunstein argues that people have a particular aversion to betrayal, and react more negatively to betrayals than to injuries caused outside the context of a betrayal.[57] He relies largely on the work of Koehler and Gershoff for this point.[58] Koehler and Gershoff demonstrate, as one example of betrayal aversion, that people state that they would assign more punishment to a robbery committed by a security guard than by a stranger.[59] Similarly, people are more outraged when faulty wiring in a smoke alarm causes a factory fire than when the same faulty wiring from a refrigerator causes the fire.[60] Sunstein, following Gershoff and Koehler, concludes that people simply treat betrayals as more egregious than other kinds of harms.

Is Sunstein right to call betrayal aversion a heuristic? Koehler and Gershoff demurred on the exact terminology, and Sunstein himself worries that it might be better described as a "taste."[61] Betrayal aversion might be the product of a set of as yet unidentified cognitive processes rather than a heuristic unto itself. But Sunstein likens it to a mental process of identifying those actions that people see as betrayals, and treating them with greater moral intensity than similar acts not so categorized. And indeed, the data from Koehler and Gershoff suggest that betrayal aversion functions like the application of a simple rule. The betrayal aversion they identify operates in a wide variety of settings. People even make efforts to avoid situations that might expose them

52. *Id.* (emphasis omitted).

53. *Id.* at 538 (emphasis omitted).

54. Sunstein, *supra* n. 1, at 539 (emphasis omitted).

55. *See* Paul Rozin, *Technological Stigma: Some Perspectives from the Study of Contagion*, in *Risk, Media, and Stigma: Understanding Public Challenges to Modern Science and Technology* 31 (James Flynn, Paul Slovic & Howard Kunreuther eds., Earthscan Publications Ltd. 2001).

56. Paul Slovic et al., *The Affect Heuristic*, in *Heuristics and Biases: The Psychology of Intuitive Judgment* 397 (Thomas Gilovich, Dale Griffin & Daniel Kahneman eds., Cambridge U. Press 2002).

57. Sunstein, *supra* n. 1, at 537–38.

58. Jonathan J. Koehler & Andrew D. Gershoff, *Betrayal Aversion: When Agents of Protection Become Agents of Harm*, 90 Organizational Behavior & Human Dec. Processes 244 (2003).

59. *Id.* at 246.

60. *Id.* at 250.

61. Sunstein, *supra* n. 1, at 537.

to the risk of betrayal, such as vaccines and airbags, even when doing so harms them.[62] It thus seems to function like a mental shortcut that cuts off further analysis—once encountering betrayal, punish more and do not analyze the situation further.

Although it functions like a heuristic, betrayal aversion is somewhat different than the heuristics that Tversky and Kahneman identified in the 1970's. It is not an all-purpose heuristic used in many different settings. Broad-based heuristics like availability and representativeness operate like rules of mathematics, covering all decisions on probability without regard to setting or context. Betrayal aversion, by contrast, reflects a reaction to a particular, circumscribed social circumstance—a reaction to those settings that involve a breach of trust.

Furthermore, the research does not fully identify how or why people will identify a situation as involving a breach of trust; it merely documents the reaction people have to such a breach. Sunstein does not assume that all people will experience betrayal in the same way in the same settings (and neither do Koehler and Gershoff). People with different cultural worldviews may well experience betrayal in different settings. The idea that people react negatively to betrayal itself allows for such variations, making it easier to see how this heuristic is compatible with the research on cultural cognition than the representativeness heuristic. Handgun owners might not feel the betrayal of a gun accident (or they might feel more betrayed because they see the gun as a precaution not as a weapon), whereas handgun opponents might deem a handgun accident an ironic betrayal (or might feel that the owner got what was expected). Research on the representativeness heuristic suggests that to the extent to which activities resemble dangerous undertakings, people treat them as if they are dangerous, regardless of the underlying risk. But such treatment fails to account for variations in how individuals assess risk. Betrayal aversion, by contrast, has variation built in.

Furthermore, the idea of betrayal aversion is one that proponents of ecological rationality can support much more easily than the representativeness heuristic. Evolutionary psychologists, in particular, argue that humans have an ancestral need to be highly vigilant against betrayal.[63] Cooperation was essential to the survival of hunter-gatherer bands of human ancestors, but cooperative undertakings are vulnerable to exploitation by a defector. Human ancestors who were known to react strongly and punish betrayal aggressively likely deterred defection, therebyfacilitating productive cooperation within their group. Ancestors known to tolerate defection would attract defectors who would destroy group cohesiveness. Such accounts might be little more than "just so" stories, but the idea of a universally strong reaction to betrayal at least seems to have some advantages in social settings. Thus, it is easier to square with an ecological rationality than some of the more general heuristics. Koehler and Gershoff, in fact, argue directly that betrayal aversion is rational.[64]

62. Koehler & Gershoff, *supra* n. 58, at 253–54.

63. Cosmides & Tooby, *supra* n. 43, at 177.

64. Jonathan J. Koehler & Andrew D. Gershoff, *Betrayal Aversion Is Reasonable*, 28 Behavioral & Brain Sci. 556, 557 (2005) ("[W]e are not persuaded that a finding that people are willing to incur *some* additional cost to avoid betrayal provides sufficient evidence of a moral heuristic gone awry.").

The other heuristics Sunstein catalogues also display a greater flexibility. Consider Sunstein's heuristic, "do not knowingly cause a human death." More than an admonishment against committing homicide, the heuristic is a means of analyzing complex moral dilemmas. When faced with action that deliberately causes death and inaction that causes death, people seem to prefer inaction, even if more lives end up being lost as a result.[65] Like betrayal aversion, the concept of avoiding deliberate action that causes death is not an attempt to articulate a broad, mathematical rule for how people resolve and weigh all moral dilemmas. It is a particular reaction to a particular situation. Once again, it is still a bit nomothetic. But it is also so specific as to allow for variation in how people process situations. People might see situations differently—some might see connections between their actions and consequences as more direct than others; some might treat an action as inaction. These variations on perspective would undoubtedly be influenced by culture, attitudes, and the like.

Like betrayal aversion, the prohibition against deliberately causing another's death fits well with ecological rationality. Only in a vastly more interconnected modern world do humans face the moral consequences of indirectly causing each other harm through action (voting for a political candidate who starts a war that produces collateral injury to civilians) and inaction (failing to donate to charity that cannot save lives as a consequence of lack of funding). The human brain evolved to process a much smaller social universe than we face today. But in ordinary social settings, the prohibition against directly causing death functions as a sensible way of deciding how to act.

And so Sunstein has embarked upon a more nuanced course that seems to avoid some of the major concerns of the heuristics that have been common currency in behavioral law and economics thus far. He charts a new methodological course for the field that considers context carefully and identifies how people think in that context that allows for variations in how people might perceive the circumstances in which they find themselves. Sunstein's approachmakes people seem less misguided and stupid than the more general heuristics, and will strike many observers as a more plausible account of how simple rules affect judgment.

D. The Heuristics and Biases Approach: Denouement

Sunstein tries to sidestep the debate between the proponents of the heuristics and biases approach and the proponents of ecological rationality.[66] But his intense reliance on the concept of heuristics means that he must inevitably address this debate. Indeed, he does so, implicitly. After Sunstein's restatement, the basic lessons of the heuristics and biases approach remain intact. That is, he argues that people do not always make judgments that are in their best interests. Rather, they make predictable mistakes that a regulatory or legal structure can sometimes help them to avoid. Even though the heuristics that Sunstein identifies are less grand and overarching, they still embrace the concept that people overuse heuristics.

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65. Sunstein, *supra* n. 1, at 540–41.

66. *Id.* at 532 ("For present purposes, it is unnecessary to resolve these debates here.").

Consider betrayal aversion as an example. Punishing a security guard who commits a robbery more seriously than a janitor is defensible. Assigning greater punitive damages against a manufacturer of a smoke alarm whose defective wiring led to a fire than against a manufacturer of a refrigerator with the same problem is more troubling. But declining to use a safety precaution (such as a vaccine) which avoids more risk than it causes is destructive. The uncritical effort to avoid betrayals produces this mistake and induces people to take unnecessary risks.

The more nuanced perspective on heuristics that Sunstein articulates does not lead to the conclusion that people are highly rational creatures after all. It does not support the tenets of ecological rationality. Sunstein articulates a conception of heuristics that is more tailored to individuals and to contexts, but also shows that the overuse of heuristics still occurs and still produces indefensible judgments. People are more nuanced and contextual than the original framework suggests, but they still make important errors.

This new approach highlights an important observation about context and heuristics that is evolving in the literature on judgment and decision-making. That is, heuristics that are learned in one context and then used in another can be destructive.[67] Heuristics are likely learned as a means of addressing simple dilemmas that people encounter in their everyday lives. In ordinary social interaction, it makes good sense to avoid those who will betray us, for example. And most people would be horrified at the prospect of deliberately causing the death of another person. But these heuristics are good for social interaction, not for broad-scale social planning. Heuristics are tools that the human mind uses for particular purposes. Using them in the wrong context is no different than using a hammer to do brain surgery.

The problem of mismatched heuristics is easily seen with the "Linda problem." The problem can easily be answered using the simplest deductive logic but is hard to answer using one's intuition. People who rely on intuition are simply using the wrong tool. Many of the classic problems of judgment and choice are similar—people make mistakes because they rely on the wrong way of thinking about a problem. Their mental representation of the solution set is simply incomplete or leads to the wrong conclusions. Good judgment requires a match between the cognitive process being used and the type of problem being solved.

As the next section shows, Sunstein has other fish to fry, and perhaps did not mean to address the debate between the heuristics and biases approach and ecological rationality. But his analysis weighs in on the debate. Sunstein's approach to heuristics surprisingly shows that the psychology of judgment and choice can embrace the major critiques leveled against the literature on judgment and choice without changing the basic conclusion that people make important mistakes in judgment. People will use what tools they have available to solve the problems that they encounter, whether those tools are sensible ones or not. They will try to paint a wall with a hammer if a hammer is all that is available, or the nature of the problem somehow deceives them into thinking that

67. *See* Callia Piperides et al., *Group Report: What is the Role of Heuristics in Litigation?* in *Heuristics and the Law* 343, 349 (G. Gigerenzer & C. Engel eds., MIT Press 2006).

they are really facing a nail that needs pounding. Whether this approach to judgment and choice will ultimately attract empirical support remains an open question. But it does address some of the major concerns levied against the heuristics and biases approach.

II. SUNSTEIN ON MORAL PHILOSOPHY

Sunstein's novel direction might be an advance for psychology, but it was an aside to his primary target—moral philosophy. Sunstein argues that the methods of moral philosophy require people to use cognitive processes that are incompatible with the underlying issues being addressed. He contends that the basis of moral philosophical discourse relies too heavily on intuition that arises from the reliance on misplaced heuristics. In effect, moral philosophy induces people to use a hammer to paint a wall, and the result is apt to be messy.

Summarizing the full scope of the methods moral philosophers use to advance their arguments lies beyond the scope of this essay and beyond Sunstein's efforts as well. But it is hard to deny the importance of intuitive reasoning in moral philosophy. As Sunstein notes, the well-known Trolley Problem is a case in point.[68] The basic version of the problem asks people to imagine that they see five passengers on a runaway trolley, headed for certain destruction. They can save these five by throwing a switch that would divert the trolley to a safe course, saving the five passengers, but the diversion will end up killing one bystander who happens to be standing on the safe route. The problem thus asks people if they will act in a way that kills one but saves five. Most people struggle, but agree that they would divert the trolley. But if the hypothetical is altered so that the only way to stop the trolley is by pushing a portly individual off of a footbridge onto the tracks so as to stop the trolley, fewer agree to sacrifice the one to save the five. The hypothetical is designed to illustrate the greater moral dilemma associated with direct, forceful action.

Or, consider the Violinist Problem as a means of illustrating the vagaries of morality dealing with abortion.[69] The hypothetical question in the violinist problem asks one to imagine that they have been kidnapped by a group of classical music fanatics. These fanatics are determined to save a famous violinist, who is suffering from failures of his major organs. He can be saved through a transplant, and a donor will ultimately be available, but not for nine months. To save him, his blood stream must be attached to that of someone who matches his genetic makeup closely, so as to use the host's own liver and kidneys to filter his blood and keep him alive while he waits for a transplant. The fanatics have somehow learned that you are a match for the violinist and have therefore kidnapped you and attached him to you. Carrying around the violinist is a nuisance, and it is mildly dangerous. You can struggle and detach yourself, but doing so will kill the violinist. Moral philosophers ask whether it is morally acceptable for you to detach yourself. The problem is obviously meant to replicate the dilemma faced by a

68. Sunstein, *supra* n. 1, at 540 (discussing the Trolley Problem).

69. Judith Jarvis Thomson, *A Defense of Abortion*, 1 Phil. & Pub. Affairs 47, 48–49 (1971) (first describing the Violinist Problem).

woman who has been raped and impregnated and is choosing whether to have an abortion. Moral philosophers argue that if one thinks it is morally acceptable for you to detach yourself from the violinist, then how could it be any different for a woman in such a situation to have an abortion?

As Sunstein asserts, the enterprise of moral philosophy is founded largely on testing variations in the intuition in these kinds of hypothetical questions to identify guiding principles of ethical conduct.[70] Philosophers add a good dose of logical deduction to the undertaking, of course. They seek to compare and contrast these kinds of hypothetical questions to smoke out logical inconsistencies. They puzzle over large differences that they find between apparently anomalous intuitions, such as that between direct action in the Trolley Problem and highly direct action in the footbridge version of the problem. The effort is intended to produce a kind of "reflective equilibrium," where intuition plays a guiding role, but is tempered by efforts to smooth out logical inconsistencies in these intuitions.[71]

Sunstein rejects the whole enterprise as misguided. He finds most troubling the widespread reliance on intuitive reactions to somewhat anomalous and unusual situations. No one would try to found a theory of probability, set theory, or mathematics entirely on intuition. The literature on heuristics and biases should convince anyone that doing so would be a hopeless enterprise. It is precisely when people are relying on their intuition to answer problems involving probability that they are led astray. The intuitive answer to the "Linda problem" could not provide a basis for developing set theory. And adding and comparing further such hypothetical questions seems unlikely to be a profitable means of creating a deductive theory. Problems of this sort are best addressed by converting the propositions into symbols and relying on a small number of axioms to solve them. From the time of ancient Greece to the present day, the construction of deductive and mathematical principles has been guided by symbolic propositions, not intuition—and wisely so.

It has been a great puzzle for psychologists studying judgment and choice, in fact, that intuition about probability and deductive logic deviates so markedly from logical principles. The discrepancy between the answers people's intuition produces and the teachings of deductive logic underlies some of the backlash against the early literature on heuristics and biases. It has led many to embrace ecological rationality, as discussed above. But most have simply accepted that intuition and deductive logic are not the same,[72] and conclude that it is extremely difficult to develop a unified theory of human judgment and choice that is both descriptively accurate and normatively logical.[73] If that is correct, then relying on intuition to construct a system of logic, probability, or mathematics would be deeply misguided.

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70. Sunstein, *supra* n. 1, at 541.

71. *Id.* at 542. As Sunstein notes, the term "reflective equilibrium" comes from Rawls. *Id.*

72. *See* Philip E. Tetlock & Barbara A. Mellers, *The Great Rationality Debate*, 13 Psychol. Sci. 94, 94 (Jan. 2002) (describing the broad influence that the research program of Tversky and Kahneman has had).

73. *See* R. Duncan Luce & Detlof von Winterfeldt, *What Common Ground Exists for Descriptive, Prescriptive, and Normative Utility Theories?* 40 Mgt. Sci. 263, 263–64 (1994) (describing the challenges to identifying a descriptively accurate and normatively coherent theory of subjective expected utility).

But Sunstein asserts that moral philosophers appear to be engaged in precisely this hopeless enterprise. The similarities between the hypothetical scenarios that moral philosophers craft and those Tversky and Kahneman created are astonishing.[74] Both approaches construct highly unusual fact patterns. Both involve tinkering with the facts to make contrasts and comparisons that might reveal how people think, and both show many internal inconsistencies. The two approaches appear to diverge only in how they treat the inconsistencies. Tversky and Kahneman recognize the inconsistencies as evidence that people rely on intuitive decision-making processes that are often divorced from the demands of logic. They then use the inconsistencies to construct descriptively accurate theories as to how people really think. In contrast, moral philosophers try to rationalize the inconsistencies and use them as the foundations of ethical principles. They try to smooth out the rough edges and come to moral equilibrium, but intuition lies at the heart of the basic principles of their approach. They accept theories that are descriptively accurate, but also those that they label normative and appropriate.

For Sunstein, this is a house built on sand. Intuition is valuable in many ways. It is especially useful when quick judgments are necessary. But it leads to predictable mistakes. Moral philosophy's heavy reliance on exotic hypothetical scenarios is particularly troubling. Exotic hypothetical scenarios seem particularly likely to induce people to use the wrong cognitive tools, as they are unfamiliar settings. Heuristics developed for everyday life are nearly certain to cause mischief when used to solve problems with unusual contexts. The heuristics that support intuition lead to poor choices in exotic settings and should be identified as such, not embraced as a foundation for any coherent moral theory.

Obviously, this bold thesis needs more development than the initial account Sunstein describes in the paper. Philosophers can respond that their efforts to reconcile intuition with deductive logic are doing more than just smoothing out some edges, they are bringing rigor to deduction. Sunstein might respond by asking why they bother with the intuition, but moral philosophers can respond back that they can hardly do without it, when so much of how people describe their moral judgments is intuitive in nature. Indeed the work by psychologist Jonathan Haidt supports this point.[75] He asserts that moral judgments are much like aesthetic ones. People begin with a sense that some conduct is right or wrong, and only then try to supply the reasoning. Morality might be fundamentally so intuitive that intuition cannot be removed.

All of this will require more development, but the adaptive approach to heuristics that Sunstein embraces in the paper is an essential step in launching his challenge to philosophers. If intuition and heuristics are normatively sound and logical, albeit so contextual that the underlying rationality is hard to identify, then philosophers remain on firm footing. The new challenge arises out of the recognition that heuristics are adaptable and yet they still lead to errors. Even though Sunstein asserts he is not taking

74. Sunstein, *supra* n. 1, at 541 ("[P]hilosophical analysis, based on exotic moral dilemmas, is inadvertently and even comically replicating the early work of Kahneman and Tversky.").

75. Jonathan Haidt, *The Emotional Dog and Its Rational Tail: A Social Intuitionist Approach to Moral Judgment*, 108 Psychol. Rev. 814 (2001).

sides in the debate about ecological rationality, his conclusion that heuristics produce errors is necessary to ensure that the challenge to philosophy remains intact. Lay intuition is simply a shortcut, and it has no place in a fully developed theory that is supposed to be logically coherent. It has no place in other normative systems such as probability theory, deductive logic, or mathematics, so why should it be useful to the development of an understanding of morality?

III. CONCLUSION

Whatever the outcome of Sunstein's challenge to moral philosophy and the utility of his new approach to heuristics, it shows how breathtaking Sunstein''s contributions to intellectual life in the academy have become. His work fundamentally changes law, psychology, economics, political science, and, now even philosophy. He even so introduces paradigm-shifting concepts when he is not even trying. He sees the development of a new approach to heuristics only as a handy tool with which to attack philosophers, and yet it also represents a new way of avoiding many of the pitfalls that the psychology of judgment and choice has faced. His attack on philosophy also inadvertently preserves the strength of the many arguments he has made in support of paternalistic intervention to save people from common errors in judgment. Given all that, one can only sense that the best of Sunstein's work is yet to come. I just hope the rest of us can keep up with it.