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such as delineating boundary conditions for competing principles and merging those principles into higher-order composites.

From this standpoint, there is value in conducting reflective-equilibrium experiments even in “exotic” cases. I have done some small-scale experiments along these lines and they reveal how flummoxed people become when researchers design head-on collisions between powerful moral intuitions. Pilot work has shown that, although most people initially agree with Kass’s arguments against biotechnology, their opposition even to currently far-out proposals, such as designer babies, is not absolute. Opposition significantly tapers off when we pit Kassian categorical imperatives against countervailing pragmatic pressure (e.g., a major international competitor, China, moving ahead with “modifying the genome of its population” and raising its average IQ to 165, thereby dominating high technology, and sweeping both the Nobel prizes and the Olympics). And most of the remaining opposition is confined to resisting the premise (“that just is not possible”), raising the possibility that if the “impossible” proved possible, they too might change their minds. Few feel comfortable consigning their descendants to perpetual inferiority. History, it is useful to remember, offers many precedents for overwhelming majorities turning into eccentric minorities.

In sum, Sunstein is right that much moral reasoning is more rigid and simplistic than we academics like. But heuristics are but one component of a comprehensive explanation. “Rigidity” also serves valuable self-control and social-solidarity functions. And people are far from hopelessly rigid; they can be quite flexible when reality demands it and politicians obligingly provide the right rhetorical framing.

## Towards a taxonomy of modes of moral decision-making

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**Abstract:** Sunstein advocates a more systematic approach to the study of moral decision-making, namely the heuristics-and-biases paradigm. We offer two concerns and suggest that a focus on decision processes can add value. Recent research on decision modes suggest that it is useful to distinguish between the qualitative differences in the ways in which moral decisions can be made when they are not made by reflective, consequentialist reasoning.

Because psychological and economic decision researchers have tended to focus on content-independent aspects of judgment and choice (Goldstein & Weber 1995), they have only occasionally discussed decisions with moral implications. Even when such topics have been considered, their treatment has been unsystematic. Sunstein advocates a more systematic approach, namely, to apply Tversky and Kahneman’s (1974) heuristics-and-biases research paradigm to moral decision-making. We endorse his goal of a systematic research program, offer two concerns, and suggest fruitful research extensions to Sunstein’s call for action.

As Sunstein acknowledges, the heuristics-and-biases research program examined how individuals thought about questions of fact, such as event probabilities. Judgments and decisions could be compared to objective facts, and systematic deviations from normatively correct answer were dubbed *biases*. In the moral domain, such a research program cannot be pursued without a consensus on the normatively correct answer. Sunstein suggests that virtually everyone would agree on the moral superiority of the *weak consequentialist* perspective, which should thus be treated as the normatively correct moral model. Yet he is forced to ac-

knowledge that the weak consequentialist model is not uncontroversial; for example, strong deontologists, such as religious conservatives, might disagree that negative consequences of a moral choice should carry moral weight. Consequently, Sunstein’s suggested research program cannot be considered analogous to Kahneman and Tversky’s original work in probabilistic reasoning. It must instead be considered the product of a particular ethical worldview. Baron has explicitly acknowledged this in *Thinking and Deciding* (1994b) and *Morality and Rational Choice* (1993b). In both books, he prefaces his discussion of moral decision-making with arguments in favor of utilitarianism as the normatively correct moral framework. Only if utilitarianism is accepted can a heuristics-and-biases interpretation be applied.

Our second concern relates to Sunstein’s loose definition of the term “heuristic.” He uses the term to denote decisions made by attribute substitution, those made by consulting an authority figure, and those made by recognizing the similarity between the current situation and another for which the decision-maker already has determined the best course of action. Elsewhere, he defines a heuristic as being any form of reasoning other than reflective reasoning. Thus, in Sunstein’s article, heuristic reasoning is any decision process that is less cognitively effortful than reflective, consequentialist reasoning and that produces a different outcome (if it produced the same decision, it would not be detected). Simply put, Sunstein seems to blame “heuristics” for all instances in which moral decisions deviate from the weak consequentialist perspective.

These two concerns about Sunstein’s arguments are offered in a constructive spirit. The second, in particular, suggests directions for research that will further Sunstein’s goal of a better and more systematic understanding of moral decision-making. We review recent research on modes of decision-making and outline implications for the study of moral decisions. A decision-modes approach would subsume the heuristics-and-biases approach into a broader and perhaps less judgmental framework.

Several taxonomies of the variety of processes used to arrive at decisions have recently been suggested (Hammond 1996; Weber & Hsee 2000; Yates & Lee 1996). The modes include the following: (a) reflective, consequentialist reasoning such as utilitarianism (often referred to as calculation-based decision-making, with evaluation of component outcomes and their likelihoods, and integration of such information into a judgment), (b) recognition-and-rule-based decisions, where the situation is recognized as a member of a category or schema for which a judgment or best action has already been stored and behavior is triggered as a production rule (schema-based reasoning has been claimed to be an important component of moral decisions; Narvaez 1999; Rest et al. 1999); (c) story-based decisions, where people construct and evaluate alternative “stories” of what might happen under different courses of action; and (d) affect-based decisions, where people base their decisions on holistic affective reactions to choice alternatives.

Decision modes often operate in parallel and at different speeds, and different modes often (though not always) lead to different decisions. We tend to become aware of the operation of different decision modes when our heads point us in one direction (by calculation-based decision-making), but our hearts point us in another (by affect-based processing). Using the very broad taxonomy offered by Kahneman and Frederick (2002) and others before them (see Table 3 of Stanovich & West 2000), we can identify this situation as a conflict between one of the modes from the fast, associative, and intuitive System I, and another from the analytic System II. Confidence in a decision is inversely related to the degree of conflict experienced as the result of parallel decision processes (Weber et al. 2000). Preference for different decision modes appears to be related to decision domain (e.g., social vs. financial vs. ethical decisions), culture, and goal (e.g., the maximization of material well-being vs. social needs) (Weber et al. 2004). There seems to be social consensus about the desirability of certain modes for specific types of decisions (Ames et al. 2004).

What are the implications of decision-mode research for moral decision-making? We suggest that deviations from reflective, consequentialist reasoning should not always be considered errors, but also that decision-mode research can help in the design of interventions or decision aids in situations in which such answers are considered suboptimal. It matters, for example, whether the outrage heuristic cited by Sunstein is an affective response, or the implicit or explicit application of a rule.

A decision-mode approach to the study of moral decision-making would determine the variety of processes by which decision-makers arrive at moral decisions and study how these processes result in different choices. How many different decision modes are there? How do decision-makers select a decision mode? When do decision-makers reason in a consequentialist way, and when do they apply deontological rules? Can choice of decision mode be influenced? What is the role of culture, religion, or political affiliation in determining decision mode? Lumping all of these different modes of decision-making into a single "heuristic" category fails to take advantage of the knowledge conveyed by a process-level analysis of decision-making.

## Regulation of risks

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**Abstract:** Sunstein argues that heuristics misguide moral judgments. Principles that are normally sound falter in unusual cases. In particular, heuristics generate erroneous judgments about regulation of risks. Sunstein's map of moral reasoning omits some prominent contours. The simple heuristics he suggests neglect a reasoner's attempt to balance the pros and cons of regulating a risk.

Prejudice, bias, and unreliable general reasoning heuristics yield mistaken moral judgments. Sunstein shows that, in addition, unreliable moral heuristics generate errors. He presents heuristics to explain bad moral judgments about regulation of risks. The heuristics he suggests ignore considerations that many reasoners recognize as relevant. I sketch an alternative, more fine-grained account of the reasoning behind their judgments. However, in agreement with Sunstein, I acknowledge a need for additional psychological studies of moral reasoning.

A heuristic is a principle. Its application to a case may be unreliable and so yield an inaccurate judgment about the case. Sunstein offers several illustrations concerning risk regulation. For various regulatory issues, he suggests a heuristic and points out its unreliability in reaching a judgment about the issue. Do people use the heuristic suggested to reach the judgment presented? A heuristic may yield a judgment and yet not guide the reasoning that people use to reach the judgment. Also, a heuristic may guide some populations but not other populations. Consequently, the suggested heuristics are not full explanations of judgments.

People condemn failures to make cars safer even when the costs of additional safety devices are very high. Sunstein suggests that they follow the moral principle: Do not knowingly cause a human death. He takes this usually reliable heuristic to yield bad judgments about risks. He contends that it is not morally wrong to hold down the production costs of cars by forgoing expensive safety devices that will save only a few lives.

Conflicting moral principles apply to risk regulation. Auto safety triggers, besides principles concerning lives, principles concerning efficient use of resources to improve the standard of living. Judgments may follow one principle to the exclusion of others, but they may also seek a balance between considerations the conflicting principles express.

Typical reasoners do not use the simple heuristic Sunstein suggests. They do not conclude that an auto company knowingly

causes highway deaths. Rather, they object to profiting from a disregard for life. Their judgments about safety therefore balance considerations and do not narrowly attend to just one consideration.

A second example considers emissions trading. People condemn the practice despite its effectiveness in reducing pollutants. Sunstein suggests that they misapply the heuristic: People should not be permitted to engage in moral wrongdoing for a fee. The heuristic reliably applies to only immoral acts. Emissions are not immoral when justified by the products whose manufacture generates the emissions. The heuristic falls outside its range of reliability.

Another explanation of the judgment against emissions trading is that people regard pollution as non-cooperative behavior. A balance of reasons supporting cooperation leads them to favor a ban on pollution instead of emissions trading, just as it leads them to favor a no-parking zone in front of a hospital instead of high fees for parking there.

A third example concerns fatalities caused by safety measures such as air bags. Sunstein suggests that people use the heuristic: Punish, and do not reward, betrayals of trust. The heuristic is out of its element because the safety measures, not being agents, do not literally betray anyone. Do people follow a heuristic that fits the case so loosely? Its not applying well is evidence that people do not use it. In fact, they do not apply it to other risky interventions, for example, anesthesia during surgery.

A fourth example comes from the section on playing god (sect. 5.3). It concerns food from genetically engineered crops. Sunstein presents the heuristic: Do not tamper with nature. He uses it to explain public support for regulation of genetic engineering.

Are there other explanations for the public's resistance to genetically modified food? Some come to mind readily. For example, the public may not trust scientific assessments of risks. People may believe that the assessments are unreliable because they are sponsored by industries heavily invested in agbiotechnology. The heuristic suggested identifies a source of caution, but does not fully explain judgments about regulations. People do not mind tampering with nature to halt the spread of tooth decay, for example. Perhaps they use the milder maxim: Tampering with nature is risky. A majority of people may favor regulation to reduce risks they perceive, even when evidence about those risks is incomplete, as Weirich (2001, Ch. 7) explains.

Moral rules of thumb such as "Be honest" acknowledge exceptions such as harmless lies to spare another's feelings. Such maxims have two interpretations. They may express heuristics that are occasionally unreliable. Or, they may express nondecisive reasons for acts. Taking them to express reasons yields a better account of their role in moral deliberations. A moral heuristic attends to a single reason, and exclusive reliance on the heuristic makes that reason decisive. Such narrow-mindedness is unreliable. In the examples concerning risk regulation, errors may arise not from unreliable heuristics, but from overlooking or poorly balancing reasons.

People who consider regulatory issues recognize the complexity of the issues. Sunstein's heuristics oversimplify their reasoning. Their deliberations weigh pros and cons and seek a judgment that is best supported by the reasons behind simple maxims.

A convenient deliberational heuristic makes decisive the reason that looms the largest. Gigerenzer (2000, p. 125) proposes this heuristic, and it reconciles Sunstein's moral heuristics with the multiplicity of reasons concerning regulations. It yields Sunstein's heuristics, given that in his examples they identify the weightiest reasons. A supplementary account of the framing of the regulatory issues may explain the salience of those reasons. The reconciliation just sketched, although intriguing, does not have enough empirical support to dethrone the rival view that moral reasoning about risks balances multiple considerations.

Investigating the reliability of moral reasoning teaches us which moral judgments to trust. Its lessons require accurate identification of the reasoning that yields a judgment. Moral judgments