

# Ten Legal Dissonances

by **Morris B. Hoffman**\*

The law is extraordinarily good at operationalizing our folk psychology. Law is, indeed, common sense writ large. As we have learned more, however, about human nature and how the brain instantiates that nature, it is becoming equally clear that there are some fissures in this picture, some discrete aspects of our presumed natures, that the law consistently gets terribly wrong. In this essay, I briefly discuss ten common and wide-ranging legal dissonances. Although I will touch on some suggested patches, by and large, this Article is a descriptive, rather than prescriptive, exercise.

First, some apologies about nomenclature. By using the word “dissonance,” I do not mean to suggest any analogy to what psychologists call “cognitive dissonance.” Cognitive dissonance is a well-described phenomenon in which it appears the brain sometimes tries to reconcile conflicting information by producing self-deluding beliefs.<sup>1</sup> The

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1. Jack W. Brehm, *Postdecision Changes in the Desirability of Alternatives*, 52 J. AB. & SOC. PSYCHOL. 384, 384 (1956). One of the seminal cognitive dissonance experiments was conducted by Jack Brehm in 1956. He asked female subjects to rate the desirability of eight different household appliances. He then randomly picked two appliances for each subject and invited the subject to take one of the two appliances home as a gift. He then asked the same subjects to re-rate the same eight appliances. The appliance they chose to take home rose dramatically in their rankings, while the rejected appliance fell dramatically. *Id.* at 384-87. The cognitive dissonance explanation of these results is that when the subject chooses one appliance over another, the very binary nature of this choice is dissonant with the fact that the rejected appliance also has some good features. Once we pick the better of the two, we seem to resolve the dissonance of the choice by convincing ourselves the better was the best and the less good was the worst.

dissonances discussed in this Article are probably more accurately called “decision errors.”<sup>2</sup> I will stick, however, with “dissonances” because the deeper point is that they are all examples of what Owen Jones has called “time-shifted rationality”—behaviors with which evolution has armed us but that, because of changes in our environment, no longer serve us as well as they once did.<sup>3</sup> For the rationalists out there who believe that reason is God, the law is an exercise in pure reason, and we are largely rational beings whose ordinary common sense will seldom lead us astray,<sup>4</sup> this Article begins with three well-known examples from psychology and probability that show our cognitive powers and common sense are not always what they are cracked up to be.

### I. COGNITIVE REFLECTION

Consider these simple story problems. Try to answer them quickly, without resort to writing down any algebra or other notes: (1) A bat and ball cost \$1.10 together. The bat costs \$1.00 more than the ball. How much does the ball cost? (2) If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets? (3) In a lake, there is a patch of lily pads. Every day the patch doubles in size. If it takes 100 days for the patch to cover the entire lake, how long did it take for the patch to cover half of the lake?

If you answered (1) \$0.10, (2) 100 minutes, or (3) anything other than 99 days, you answered incorrectly.<sup>5</sup> But do not be embarrassed, you are in good company. In fact, in a study of undergraduates at seven

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2. I would like to thank an anonymous psychologist in the audience at the Mercer Law Review Symposium who brought this nomenclature issue to my attention. It turns out, however, that some very interesting work by two economists—Keith Chen at Yale University and Jane L. Risen at the University of Chicago—is challenging the orthodox cognitive dissonance model, suggesting that the post-choice preference change shown in Brehm-like experiments is actually an artifact of—get ready to be surprised here—the Monty Hall Paradox, see M. Keith Chen & Jane L. Risen, *How Choice Affects and Reflects Preferences: Revisiting the Free-Choice Paradigm*, 99 *J. Pers. & Soc. Psychol.* 573 (2010), discussed later in this Article. See *infra* Part II. So maybe, without even knowing it, I was right after all to use the word “dissonance.”

3. Owen D. Jones, *Time-Shifted Rationality and the Law of Law's Leverage: Behavioral Economics Meets Behavioral Biology*, 95 *Nw. U. L. Rev.* 1141, 1172 (2001).

4. There are still a few rationalists left. In fact, except for the kinds of exceptions discussed, I am a big believer in the power of ordinary common sense, and indeed in a kind of moral realism informed by evolution. See, e.g., Morris B. Hoffman, *The Neuroeconomic Path of the Law*, in *LAW AND THE BRAIN* 3 (Semir Zeki & Oliver Goodenough eds., 2006). I have a strong faith in our ordinary cognitive powers, which makes it all the more important to recognize those few legal areas in which our common sense so comprehensively fails us.

5. The answers are (1) \$0.05, (2) 5 minutes, and (3) 99 days.

different universities, you can see that the best any single group did—the cohort from the Massachusetts Institute of Technology (MIT)—was to average two right and one wrong:

Sample	Mean score
MIT	2.18
Carnegie Mellon	1.51
Harvard	1.43
Michigan	1.18
Bowling Green	0.87
Michigan State	0.79
Toledo	0.57 <sup>6</sup>

On the other hand, if you got two or even all three right, do not gloat too much. You probably sensed that they were trick questions and intentionally resisted your first impulsive answer. Indeed, these kinds of questions, called cognitive reflection tests (CRTs), are used by researchers to study just that—the extent to which we can and cannot resist our first impulse about what appears to be a purely logical task, and what exactly it means to have such an “impulse” and to be able to “resist” it. It turns out that just knowing these are tricky questions arms most of us with an ability to avoid their pitfalls. In fact, when CRT studies are conducted, the tricky questions are typically embedded in a much larger number of non-tricky questions precisely to avoid this powerful arming phenomenon.<sup>7</sup>

Psychologists have long known, and long been delighted, that there are many kinds of tasks at which humans are surprisingly bad, from CRTs to a myriad of well-known visual and language tests. These sorts of dissonances not only vary in kind, they vary in magnitude—what we might also call “stickiness.” It seems that we can avoid some dissonances just by knowing about them ahead of time, like the CRTs. We cannot seem to shake other dissonance, no matter how long we cogitate about

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6. Shane Frederick, *Cognitive Reflection and Decision Making*, 19 J. ECON. PERSP. 25, 29 tbl. 1 (2005). Chris Guthrie and his colleagues repeated Frederick’s experiment with Florida trial judges, who performed somewhere between Harvard University and University of Michigan undergraduates. Chris Guthrie et al., *Blinking on the Bench: How Judges Decide Cases*, 93 CORNELL L. REV. 1, 13-14 (2007). These same authors have written a wonderful survey of decision-making errors, both in theory and in practice, specifically targeting the decisions of judges. See Chris Guthrie et al., *Inside the Judicial Mind*, 86 CORNELL L. REV. 777 (2001).

7. Guthrie et al., *Blinking on the Bench*, *supra* note 6, at 10-12.

them.<sup>8</sup> Most of these difficult-to-overcome dissonances, at least the ones most salient for the law, are probability dissonances: problems we all have in evaluating risk, even—and, it seems, most especially—the most mathematically gifted of us.<sup>9</sup>

## II. THE MONTY HALL PARADOX

The most famous of the probability errors, and no doubt one of the stickiest, is called the Monty Hall Paradox, named after the host of the old game show, “Let’s Make a Deal.” At the end of each show, Monty would give the day’s big winner one last chance to win a really big prize. He would display three doors. Behind two of them were dud prizes—for our purposes, let us say the dud prizes were goats. But behind one of the doors was a fantastic prize. The placement of the goats and prize was random, but Monty knew what was behind each door before each game began. The contestant would then pick a door—let us say she picked Door No. 1. To tease the contestant and to increase the level of the audience’s anticipation, Monty would open one of the other two doors to reveal a goat—let us say he opened Door No. 3.<sup>10</sup>

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8. The stickiness of a particular dissonance is probably a function of the magnitude of its adaptive value. Perhaps the CRT-type errors are easy for us to overcome because, although we certainly need to make quick decisions in some circumstances, our brain size and intelligence also put an adaptive premium on taking a more measured and thoughtful approach in other circumstances. The probability errors, which seem grounded at least in part on the problem of hyperbolic discounting, *see infra* note 9, were probably driven by much stronger adaptive pressures. Having a preference for keeping a bird in hand rather than trading it for two in the bush would have been supremely adaptive in an era when survival from day to day was dicey.

9. *See infra* Part IV.A. There are many evolutionary explanations for why humans are generally so poor at assessing modern risks. First, the risks that mattered in the Pleistocene—dying from cold or malnutrition, being killed by tigers or each other—have largely been supplanted by much less direct, more complicated, risks. As Maia Szalavitz so pithily put it, we are still more afraid of snakes than cars. Maia Szalavitz, *10 Ways We Get the Odds Wrong*, PSYCHOL. TODAY, Jan. 1, 2008, <http://www.psychologytoday.com/articles/pto-20071228-000005.html>. We evolved in small groups, which arguably made us very good at thinking about probability when the denominator is small, but not when the denominator is large. *See* Paul H. Rubin, *How Humans Make Political Decisions*, 41 JURIMETRICS 337, 344-45 (2001). And perhaps most importantly, like most living organisms, we are hyperbolic discounters—we greatly overvalue goods we presently own (and current risks we face) compared to goods we might obtain (or risks we might face) in the future. *See generally* George Ainslie & Nick Haslam, *Hyperbolic Discounting*, in CHOICE OVER TIME 57 (George Loewenstein & Jon Elster eds., 1992).

10. There will always be such a door because either both unpicked doors have goats in them (if the contestant’s door has the prize in it) or one does (if the contestant picked a door with a goat). Because Monty knows where the prize is, he can always pick a door with a goat in it.

Now this is where it gets interesting. Monty would ask the contestant if she wanted to stick with her original pick (Door No. 1) or switch (to Door No. 2). Here is the million dollar question: Do her odds of picking the prize change if she switches? Most folks with even a passing knowledge of probability say “no.” After all, at the beginning of the game the contestant had a 1 in 3 chance of picking the door with the prize. Surely that probability could not change by switching to a door that also, at the beginning, had a 1 in 3 probability of containing the prize. Whether the contestant switches or not, she cannot improve her odds above 1 in 3. An alternative explanation for why switching does not help is that once Monty opened a door with a goat in it, two doors were left, one of which has a goat and the other a prize. That means the contestant’s chances are now 1 in 2, but that is true whether she switches or not. So, again, it does not matter if she switches.

It turns out, however, that both of these analyses are flatly wrong. Switching increases the contestant’s odds of getting the prize from 1 in 3 to a whopping 2 in 3! But nobody believes that result, even after it is posited. The Monty Hall error is *very* sticky. In September 1990, *Parade Magazine* posed the Monty Hall Paradox to its readers, inviting them to respond.<sup>11</sup> Out of more than 10,000 responses, only a few correctly answered that the contestant improves—indeed, doubles—her odds by switching.<sup>12</sup> Among the wrong answerers were several mathematicians who supplied defective proofs, sometimes along with letters bemoaning the sorry state of math education in the United States.<sup>13</sup>

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11. John Tierney, *Behind Monty Hall’s Doors: Puzzle, Debate and Answer?*, N.Y. TIMES, July 21, 1991, <http://www.nytimes.com/1991/07/21/us/behind-monty-hall-s-doors-puzzle-debate-and-answer.html>.

12. *Id.* It is unclear what is more surprising—the Monty Hall result or that at least 10,000 people read *Parade Magazine*.

13. *Id.* The question was actually posed by a reader of a column called “Ask Marilyn,” written by a woman who calls herself Marilyn vos Savant, a self-reported genius whose column delights in Mensa-style superiority celebrations. *Id.* To give Ms. vos Savant her due, she correctly answered that a switch improves the odds, and it was that answer that caused the firestorm of responses, almost all disagreeing with her. *Id.* The ensuing Monty Hall debate became a bit of a cause célèbre in the mathematical and non-mathematical communities, the former eventually acknowledging that even mathematicians are fooled by the stickiness of this dissonance, and the latter chortling about common sense and elitism. *See id.* Even Monty Hall himself joined in the fun. *Id.* Interestingly, he seemed much more willing to accept the paradoxical result than the average person or even the average mathematician. *See id.* Many years before the controversy, Martin Gardiner, the mathematician-in-residence at *Scientific American*, posed a similar problem and lamented “that ‘in no other branch of mathematics is it so easy for experts to blunder as in probability theory.’” *Id.*

The Monty Hall result is easy to prove as a mathematical matter, but explaining the result in words is much harder, precisely because the dissonance it represents is so profoundly sticky in all of us. We *know* the contestant improves her odds by switching, but it is hard for us to *believe* it. One of the best ways to explain it is to imagine that there are 52 doors (or 52 cards). When Monty opens 50 doors to reveal goats behind each and leaves the contestant with 2, perhaps it is easier to see that switching to a door that Monty could have opened but did not (he cannot open yours) is a much better play than sticking with the first choice. Now, the switching contestant increases her odds from 1 in 52 to 51 in 52!<sup>14</sup>

The Monty Hall Paradox is just one example of a broader class of problems that deals with changing information and conditional probabilities, problems often grouped under the name “Bayesian Reasoning.”

### III. BAYESIAN REASONING

When all the links in a causal chain are not evident, we must resort to probabilities to enable us to infer causation. That is, when we are not exactly sure how, or even whether, A causes B, we need to look carefully at how often B happens when A happens and how often A happens when B happens. This problem is summarized by the well-worn phrase “coincidence is not causation.” But how high must the probabilities be before we are willing to cross from coincidence to causation? And what effect on those probabilities does additional information have (a question particularly significant in the real worlds of science and even law, in which information is accumulated over time)?

In some sense these are normative questions, not unlike how “sure” a fact-finder must be before concluding that something has been proved by a preponderance of the evidence or beyond a reasonable doubt. But it turns out these normative questions are highly dependent on a simple, but often overlooked, mathematical principle first articulated and proved in the mid-1700s by Thomas Bayes, an English minister and amateur mathematician. Known as Bayes’s Theorem, it is a simple result in probability theory,<sup>15</sup> but its tendrils reach comprehensively, and

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14. The surprising result of the Monty Hall Paradox depends on two conditions: (1) Monty knows where the prize is, and (2) he opens one of the doors he knows has a goat in it. If either of these conditions is not satisfied—that is, if Monty does not know where the prize is or if he skips the step of showing the goat behind one of the two remaining doors—then the contestant does not improve her odds by switching her initial pick.

15. See Ward Edwards, *Conservatism in Human Information Processing*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 359, 359-60 (D. Kahneman et al. eds., 1982).

sometimes surprisingly, into many different areas of science and law.<sup>16</sup> The Theorem's effects, and our natural resistance to them, are best illustrated by a famous example called the Taxi Problem.

Imagine you are a plaintiff's lawyer representing a man hit from behind by a taxi. There are only two taxi companies in this hypothetical town—orange taxis and yellow taxis. Your client never saw the taxi, but an independent witness tells police he is 80% sure the taxi that hit your client was yellow. Confident that 80% is more than enough to meet your burden of proving your civil case by a preponderance of the evidence, you sue the yellow taxi company.

A skeptical defense lawyer decides to test the witness's reliability to see if he was really as reliable as his self-reported 80%, and you foolishly go along (or the judge orders the test over your objection). The defense lawyer devises a test involving video recreations that accurately depict the scene as the witness claims to have seen it, and that also replicate the split-second of time that the witness had the opportunity to make his observations. He shows the witness 10 different videos, 5 with yellow taxis in them and 5 with orange taxis in them, the sequence of them randomized.<sup>17</sup> Low and behold, of the 5 videos with yellow taxis in them, the witness identifies 4 as yellow, matching his self-described 80% confidence level. Likewise, of the 5 videos with orange taxis in them, the witness correctly identifies 4 of them as orange, again an 80% success rate. Is it time for the yellow taxi company to pull out its checkbook?

Not at all, because the *real* probability that the hit-and-run taxi was yellow depends very much on the base rates of yellow and orange taxis—that is, how many yellow taxis and orange taxis there are in the town. At first blush, this base rate information seems beside the point. No matter what the distribution of yellow versus orange taxis, our witness was still demonstrably accurate 80% of the time. But actually the base rates matter very much.

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Bayes actually considered two cases, the so-called discrete case (in which we are concerned with single probabilities) and the continuous case (in which we are concerned with probability functions through which a given probability varies over some variable, such as time). *See id.* In the discrete case, if P(A) is the probability of A, and P(B) is the non-zero probability of B, then Bayes's Theorem states that the conditional probability of A given B (A/B) is: 
$$P(A/B) = \frac{P(B/A) P(A)}{P(B)}.$$

*See id.*

16. *See* Amos Tversky & Daniel Kahneman, *Evidential Impact of Base Rates*, in *JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES*, *supra* note 15, at 153 (the seminal treatment of the base rate problem as a psychological decision-error).

17. Of course, to get statistically valid results, we might have to do more than ten tests, but I use ten illustratively.

To see why, let us assume there are 100 taxis in the town, all of which were out on the night in question, and that 85 are orange and 15 are yellow. Now, let us imagine that our witness saw each of those taxis strike the client and then reported on the taxi's color with 80% accuracy. The table below summarizes the witness's reports:

True yellow	False yellow
12	17
True orange	False orange
68	3

Moving from the top left cell counterclockwise, the witness accurately reports 12 yellow taxis (80% of the total of 15 yellow taxis) and 68 orange taxis (80% of the 85 orange taxis), while misreporting 17 orange taxis as yellow (20% of 85) and 3 yellow taxis as orange (20% of 15).

When we ask what the chances are that the taxi in our actual case was yellow, we must take into account not only the witness's 80% accurate reports, but also his 20% false positives. Because of the unequal distribution in the base rates in our example, the number of the witness's false positives is actually greater than the number of his true positives. Based on the witness's reports, the actual Bayesian probability of the taxi in question being yellow is only 41% (12 out of 29), not the non-Bayesian 80% we might think if we paid attention only to the witness's reliability without regard to base rates. At 41%, we would be better off deciding this case by letting a monkey throw a dart at pictures of yellow and orange taxis than to rely on our 80% accurate witness. Conversely, our witness's actual ability to identify *orange* taxis was *increased* by the asymmetry of the base rates—it rose from 80% pre-Bayesian to a whopping 96% post-Bayesian (68 out of 71). This seems profoundly paradoxical—an 80% accurate witness does far better if he identifies a common event than an uncommon one. We will return to this paradox when we discuss witness identifications and lineups.<sup>18</sup>

The problems of base rates, conditional probability, and Bayesian reasoning are everywhere in the law because causation is everywhere in the law. When the plaintiff's expert testifies that he is 80% sure product A caused plaintiff to have disease B (or the defense's expert that he is 80% sure it did not), the testimony is utterly worthless without knowing the base rates—how many people in the general population have had this disease caused by this product (yellow taxis) and how many have the disease and have never been exposed to the product (orange taxis)?

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18. See *infra* Part IV.A.

Depending on the ratio of those base rates, our 80% confident witness may actually be a 41% accurate dart-throwing monkey or a 96% accurate oracle.

I am unaware of any literature about how sticky this general Bayesian dissonance is, but my guess is that it is somewhere between the not very sticky CRTs and the impossibly sticky Monty Hall Paradox. Last summer I presented these general problems to a conference of medical malpractice lawyers and a few said that in some cases they have begun to call statisticians to educate juries on the nuances of Bayesian reasoning.<sup>19</sup> We will now see, as we finally get to my top ten legal dissonances, the real problem with Bayesian dissonance is not necessarily that it is too sticky, but that it crops up in areas in which we often do not even imagine there is a base-rate issue at all.

#### IV. TEN LEGAL DISSONANCES

Here is my list, followed by some discussion divided by the category of dissonance.

##### Probability Dissonances

1. Eyewitness Identification
2. Line-ups
3. Forensic “science”
4. Causation in general

##### In-group/Out-group Dissonances

5. Cross-racial identification
6. Peremptory challenges/*Batson*

##### Blaming Dissonances

7. Felony-murder
8. Employment-at-will
9. Moral luck
10. Severity of punishment in general

##### A. *Probability Dissonances*

Every time a witness testifies in a case, it is the taxi problem all over again. A witness may be 99% sure of something, but without some sense of the base rates we cannot know whether the 1% error rate will swamp the correct identifications. And, as mentioned above, our intuitions about the effect the base rate ratios have on reliability are exactly wrong. Most people, and therefore most judges and jurors, will give

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19. I presented a version of this Article at the annual convention of the Colorado Trial Lawyers Association in August 2010.

much more credence to our 99% confident witness if what he identified was an unusual event or an unusual person—for example, a one-legged man with an eye-patch. But the uniqueness of the thing being identified is already part of the 99% confidence level. If there are only a few one-legged, one-eyed candidates in the relevant population—for example, just 15 yellow taxis—that means almost everyone else is not one-legged and one-eyed (85 orange taxis). That means that even a small error rate applied to a large group will produce a large number of false positives—that is, a large number of two-legged, two-eyed people whom our 99% confident witness will still identify as one-legged and one-eyed.

One can imagine quite effective Bayesian cross-examination in such a case, but only if the cross-examining lawyer can get over the dissonance that we seem to pay much more attention to the 99% confidence level than to the base rates. In the right kind of case, perhaps even a statistician could be used to explain Bayesian reasoning using the taxi problem (as some civil lawyers are now doing). Conversely, if the base rates are more evenly distributed, or even reversed, so that the high confidence level actually translates into a small number of false positives, prosecutors might also consider calling statisticians to talk about the taxi problem.

Nowhere is the problem of a lack of base rate information more apparent than in the case of identifications using line-ups, either in person or, nowadays, the much more common photo line-up. With such line-ups, we not only have no explicit base rate information (how many people in the relevant population look like the defendant), but we are suggesting to the witness that the entire base is represented by the other photos. But of course it is not. Detectives, and even on occasion a few appellate judges, have long recognized that in putting together an effective line-up the challenge is to walk between two constraints: we do not want the suspect to stick out so much that the line-up is suggestive, but we also do not want to have the non-suspects look so much like the suspect that there will be no hope of an identification.<sup>20</sup> Before the days of computer-generated line-ups, this was often a very difficult challenge. Now it seems easy, but what is a computer really doing when

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20. The jurisprudence of lineups, both in federal and state courts, has generally followed a forgiving arc. The number of comparison photographs and the extent to which the suspect does or does not stand out from those comparisons is part of the totality of circumstances trial judges are directed to consider. *See, e.g.*, *United States v. Rosa*, 11 F.3d 315, 330 (2d Cir. 1993); *United States v. Sanchez*, 24 F.3d 1259, 1261-62 (10th Cir. 1994). But even one-photo line-ups or in-person “show-ups,” though disfavored, have passed constitutional muster. *See, e.g.*, *Nova v. Sec’y, Dep’t of Corr.*, No. 5:06-cv-61-Oc-10GRJ, 2009 WL 2242399, at \*5-6 (M.D. Fla. July 24, 2009).

it selects non-suspects with a short laundry list of similar characteristics?

The computer is constructing the illusion of a base rate. But the real base rates may be nothing like the illusion. Good prosecutors can use this to their advantage, and I have seen them do so: “Not only did Witness X identify Defendant out of this photo line-up, but look at that line-up. Look at how similar those other five people are to Defendant. Yet Witness X unhesitatingly picked Defendant, and that’s because Witness X was there and saw Defendant.” Again, however, this assumes no great disparity in the base rates of people who generally look like the defendant. If the defendant is very unusual looking (and therefore the line-up with similar-looking people is quite unrepresentative), then the identification is *less* reliable because the error rate will be applied to a very large number of people who do not look anything like the defendant, generating a huge number of false positives. This is our one-legged, one-eyed example. In this kind of case, a defense lawyer might be well served to call a statistician to testify about the paradoxes of Bayesian reasoning.

One of the giant storm clouds gathering in criminal law is in the traditional but unscientific area of forensic “science”—what David Faigman calls “anecdotal forensics.”<sup>21</sup> These are practices that include latent fingerprint identification, some aspects of arson investigations, and the comparisons of tool marks, bite marks, handwriting, and non-DNA hair samples, none of which have been subjected to anything like the rigors of the scientific method,<sup>22</sup> instead enjoying a kind of grandfathering around *Daubert v. Merrell Dow Pharmaceuticals, Inc.*<sup>23</sup> Although crime labs have generally been quite good about things like inter-tester reliability, we really know very little about the confidence levels of these techniques because the techniques have not been subject to falsification testing.<sup>24</sup> Even if we were to overcome the problem of the reliability of the test itself, we still face enormous base rate issues. How many sets of fingerprints in the relevant population are so similar as to be indistinguishable by this test? How often does stippling *not*

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21. David L. Faigman, *Anecdotal Forensics, Phrenology, and Other Abject Lessons from the History of Science*, 59 HASTINGS L.J. 979, 979 (2008).

22. *Id.* at 980.

23. 509 U.S. 579 (1993).

24. That is, testing of the kind on which our defense lawyer in the taxi problem insisted, when testers know whether the known and test sample are connected, use both connected and unconnected examples, and then rate the reliability of the test. For a good survey of the scientific failures of these forensic disciplines, see Michael J. Saks & David L. Faigman, *Failed Forensics: How Forensic Science Lost its Way, and How it Might Yet Find It*, 4 ANN. REV. L. SOC. SCI. 149 (2008).

occur when a firearm is less than five feet from the victim? Base rates like these are extraordinarily difficult to accumulate. Real science spends decades and even centuries doing experiments to give some confidence in these rates.

Causation in general, in all its myriad forms in the law, presents profoundly difficult Bayesian issues. Every negligence case in which cause is a genuine issue requires us to consider base rates. We may be certain there is a 90% chance that smoking will lead to lung cancer, but the base rates of lung cancer and smoking matter very much in deciding whether a particular smoker died from lung cancer. Epidemiological evidence, phrased as it often is in hidden conditional probabilities, is especially prone to Bayesian dissonances. A headline states, “Drug X Doubles the Chances of Disease Y.” Our inclination would be to avoid Drug X. But if the base rate of Disease Y is 0.00001, and using Drug X increases that base rate only to a still-negligible 0.0005, then we would not want to avoid using Drug X, especially if using Drug X reduces the chance of having another more serious disease with a much greater base rate.

General causation issues, and therefore Bayesian issues, rear their heads in virtually every *Daubert* motion. Indeed, the Supreme Court of the United States did us all an enormous favor in *Daubert* by focusing on some of the probability issues implicit in the “reliability” of expert testimony.<sup>25</sup> One of those articulated factors—error rates<sup>26</sup>—starts to nudge up to Bayesian reasoning, but, alas, without a consideration of the base rates to which to apply those error rates, the error rates alone mean very little. In fact, the error rates just repeat the essential non-Bayesian mistake. In our taxi example, our witness had only a 20% error rate, but the base rates were so skewed that the error rate turned into a real error rate of 59%. In so-called *Daubert*-minus jurisdictions, like mine, in which trial courts are not commanded to consider the *Daubert* factors but rather to make some gestalt determination of reliability,<sup>27</sup> the chance that the gate-keeper will be thinking of base rates may be even less.

### B. *In-group/Out-group Dissonances*

We evolved in small groups, and are intensely social and highly cooperative—more highly cooperative than any genetically heterogeneous

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25. See 509 U.S. at 594.

26. *Id.*

27. See, e.g., *People v. Shreck*, 22 P.3d 68, 70 (Colo. 2001).

animal on the planet.<sup>28</sup> All this cooperation evolved to help us stay in groups because living in groups gave us an enormous evolutionary advantage. As a result, our cooperative impulses were sharply limited to fellow group members, and we evolved powerful mechanisms to distinguish in-group members (with whom we would presumptively cooperate) from out-group members (with whom we would not only not cooperate but often fight to the death). As civilization has expanded the size of our groups, from clans to tribes to villages to nation-states, our institutionally-commanded obligation to treat members of these new artificial groups as if they were clan members has strained against our deeply embedded impulses to distinguish in-group members from out-group members. Racial and ethnic prejudice is a part of this tension.

Much work has been done investigating the unreliability of cross-racial identification,<sup>29</sup> but the results of those studies may themselves be infected with a failure of Bayesian reasoning. To see how this could be true, let us assume our 80% accurate witness from the taxi problem is himself orange, and that although he can reliably identify an orange taxi with 80% accuracy, that confidence drops to 60% when asked to identify a yellow taxi. Let us also assume the same base rates—85 orange taxis and 15 yellow taxis.

Here is what our table looks like:

True yellow	False yellow
9	17
True orange	False orange
68	6

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28. The social insects are more “cooperative,” but they do not play fair. They are all genetic brothers and sisters. Humans regularly cooperate with unrelated individuals, to an extent unmatched in the animal kingdom. Still, our cooperation is just one side of the evolutionary coin. On the other side is an animal built to defect from the group whenever he thinks he can get away with it, and paradoxically, to be vigilant for defections by others (and, mentioned below in the text on blaming dissonances, driven to punish those defections). *See infra* Part IV.C.

29. *See, e.g.*, Sheri Lynn Johnson, *Cross-Racial Identification Errors in Criminal Cases*, 69 CORNELL L. REV. 934 (1984). The cross-racial identification literature remains controversial. Although researchers generally agree that there is some reduction in the reliability of cross-racial identifications compared with same-race identifications, the magnitude of that reduction remains quite unclear. *Id.* at 941. As the New Jersey Supreme Court itself admitted in *State v. Cromedy*, 727 A.2d 457 (N.J. 1999), the first case that held a defendant was entitled to a cross-racial identification instruction, “[a] snapshot of the literature reveals that although many scientists agree that witnesses are better at identifying suspects of their own race, they cannot agree on the extent to which cross-racial impairment affects identification.” *Id.* at 458-59, 462.

Now, the post-Bayesian reliability of our cross-color witness is only 35% (9 out of 21), a non-negligible drop from the 41% when our witness was color-neutral. Perhaps more surprising, the within-color confidence also dropped slightly, from 96% to 92% (68 out of 74), because of the increase in false oranges.

Look at what happens, however, when we examine the same kind of color bias, but this time in the minority's ability to identify the majority (that is, the witness is yellow and has an 80% confidence in identifying yellow but only a 60% confidence in identifying orange):

True yellow	False yellow
12	34
True orange	False orange
51	3

Our yellow witness's accuracy in identifying orange taxis goes down, but the accuracy only goes down a little, from 96% to 95%. His ability, however, to identify yellow taxis—those of his own color—shoots down dramatically, 41% to 26% (12 out of 46).

All of this suggests that the cross-racial identification problem may be even worse than the literature posits. More surprisingly, the data suggests that having a cross-racial bias will also reduce a member's ability to make accurate within-group identifications, especially if that member is a minority. Of course, real witnesses seldom have problems distinguishing between races (just like real witnesses seldom have problems distinguishing between yellow and orange taxis), precisely because of our well-formed ability to distinguish in-group members from out-group members. The cross-racial identification literature is about how good an orange witness is in identifying a *particular* orange taxi versus a *particular* yellow taxi. That is, to orange witnesses, do yellow taxis look more like each other than orange taxis look like each other, making it harder for orange witnesses to distinguish between yellow taxis? Still, when witnesses use myriad conscious and unconscious tags to make gestalt identifications, the reliability of each of those tags can be sharply affected by the base rates of those tags in exactly the manner shown here.

Next to the question about the real magnitude of cross-racial identification, the most important question is whether there is anything we can do to help solve the problem without making things worse.<sup>30</sup> That, in turn, will depend on how sticky the in-group/out-group bias is in this identification context. The literature is not terribly clear. Like

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30. See Johnson, *supra* note 29, at 965.

CRTs, it seems some reduction in misidentification can be achieved by simply telling subjects that cross-racial identification is hard.<sup>31</sup> But who knows how much traction that kind of arming strategy might give us in the real world of witness identification. Perhaps it would help if police and prosecutors gave all identifying witnesses an admonition, similar to the admonition typically given before a line-up, that included a statement like, “Studies have shown that identification across races is less reliable than identification within a race.” Whether the benefits of this kind of solution outweigh the costs in chilling accurate cross-racial identifications is simply not known.

More aggressively, some states allow a criminal defendant who has been cross-racially identified to insist on an instruction warning jurors of the problem.<sup>32</sup> In 2008 the American Bar Association (ABA) passed a resolution recommending such a procedure in all states.<sup>33</sup> At the moment, however, this solution suffers from similar unknowns—will the solution’s benefits in preventing wrongful convictions outweigh its costs in precluding rightful ones? Hopefully, the neuroscience of in-group/out-group bias will someday be useful in answering these difficult policy questions. In the meantime, the politics of race will likely continue to demand action whether science justifies it or not.<sup>34</sup>

Racial bias in selecting jurors is another common problem touching on the in-group/out-group bias. Here again, the extent to which we can prevent this problem by adopting various arming strategies is not at all clear. This is a problem that will probably be easier to solve than the problem of cross-racial identification, if for no other reason than that we have a chance to say things to jurors that we simply do not get with identifying witnesses. As with CRTs and implicit race bias tests, maybe just making everyone aware of the problem will help.

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31. *See id.* at 974-75.

32. *See, e.g.*, N.J. MODEL CRIMINAL JURY CHARGES, Non 2C Charges (2007).

33. American Bar Association, *American Bar Association Policy 104D: Cross-racial Identification*, 37 SW. U. L. REV. 917, 917 (2008). New Jersey’s instruction is typical: [Y]ou may consider . . . (9) The fact that an identifying witness is not of the same race as the perpetrator and/or defendant, and whether that fact might have had an impact on the accuracy of the witness’s original perception, and/or the accuracy of the subsequent identification. You should consider that in ordinary human experience, people may have greater difficulty in accurately identifying members of a different race.

N.J. MODEL CRIMINAL JURY CHARGES, Non 2C Charges. Does the prosecution get such an instruction when an alibi witness for the defense is a cross-racial identifier?

34. *See* David L. Faigman, *Looking for Policy in All the Wrong Places: A Comment on the Strategies of “The Race and Gender Crowd” Toward Evidence Law*, 28 SW. U. L. REV. 289 (1999).

One of the best public defenders in my courtroom, and indeed one of the best in the whole state, was an African-American lawyer, now retired, who regularly raised the issue of race in voir dire in a way that seemed highly effective in arming jurors against race bias. In the middle of what was always a consummately folksy performance, this lawyer would say something like this, always couched as an afterthought: "Oh, I also wanted to talk about this. You may have noticed that I'm black, and that my client's black. Believe it or not, even in this day and age, some people might hold that against him and against me. Anyone here with those kinds of issues?" Occasionally, a juror would respond, we would go into chambers, and the juror would confess to some racial bias. More often, no one would respond, but the questions themselves may well have helped to diffuse the problem.

Another tack is to try to make sure there are minorities on the jury. The empirical literature suggests that including a minority in a decision group reduces the expression of racial bias, both in the deliberations and in the outcome.<sup>35</sup> In fact, some commentators have argued for a kind of peremptory challenge veto to insure such representation.<sup>36</sup> But there are several problems with such a scheme. First, it plainly conflicts with *Batson v. Kentucky*,<sup>37</sup> which has now been expanded to prohibit racial (and other) discrimination by both prosecutors<sup>38</sup> and defense lawyers in the exercise of peremptory challenges, regardless of the race of the defendant or the juror.<sup>39</sup> Second, lawyers do not want bias-free jurors. They want jurors secretly biased in their client's favor. Criminal defense lawyers facing slam dunk prosecutions want jurors who share their client's minority race not because they think the presence of such jurors will arm the group against racial bias, but because they want those jurors to nullify. They want racial bias, but in their client's favor. Finally, this kind of coarse racial tinkering will do exactly the opposite of arming against racial bias—it will send the message to all jurors that everyone is racially biased, that bias cannot be overcome, and that a trial is not about truth but is a political event in which these representational biases must clash and fight it out in the jury room. Only a few

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35. See, e.g., Deirdre Golash, *Race, Fairness, and Jury Selection*, 10 BEHAV. SCI. & L. 155, 170 (1992).

36. See, e.g., Deborah Ramirez, *Affirmative Jury Selection: A Proposal to Advance Both the Deliberative Ideal and Jury Diversity*, 1998 U. CHI. LEGAL F. 161, 162 (1998).

37. 476 U.S. 79 (1986).

38. *Powers v. Ohio*, 499 U.S. 400, 409 (1991).

39. *Georgia v. McCollum*, 505 U.S. 42, 59 (1992). The Supreme Court has held that the Sixth Amendment's fair cross-section requirement does not guarantee a defendant a representative jury, only a representative jury pool. *Holland v. Illinois*, 493 U.S. 474, 478 (1990).

political extremists actually believe that nonsense, and it is likely they have not seen many real trials.

### C. *Blaming Dissonances*

It is becoming clearer and clearer that humans evolved some moral intuitions as part of the behavioral toolboxes that enabled us to evolve as intensely social animals.<sup>40</sup> Part of those intuitions seems to be an innate tendency to blame when we witness other humans defecting from the group. Indeed, giant chunks of criminal law appear to reflect some of these deeply-seated intuitions about the blameworthiness of others, from criminal law's harm principle (generally, there is no criminal liability when there is no harm) to its insistence on mens rea. On the other hand, there are a handful of legal blaming rules that seem quite dissonant with our blaming intuitions, and I will discuss four here: the felony murder rule, employment at will, moral luck, and the severity of punishment in general.

**1. Felony Murder.** In its most robust—but now almost disappeared—form, the felony-murder rule makes a co-participant in a felony guilty of first degree murder if anyone dies during the commission of that felony, even if the defendant did not cause the death, the death was accidental, or if it was the defendant's co-participant who died.<sup>41</sup> Thus, if John decides to rob a bank and in the course of the robbery accidentally discharges his gun, killing a guard, by operation of this most robust form of the rule, John is guilty of first-degree murder every bit as much as if he had killed the guard intentionally and with deliberation.

It turns out, however, that as an empirical matter people simply do not hold our careless robber equally as blameworthy as our determined killer. Work by Paul Robinson and his colleagues have even quantified this dissonance: on a scale of 1 to 24, with 24 being the most blameworthy and 1 the least, subjects ranked our careless robber at a mean of 14.7—significantly lower than a planned ambush killing (23.3)—and not even as high as reckless manslaughter (19.0).<sup>42</sup>

The felony-murder rule is famously dissonant, has come under increasing scrutiny over the years, and has all but been abandoned in its

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40. See, e.g., FRANS DE WAAL et al., PRIMATES AND PHILOSOPHERS: HOW MORALITY EVOLVED (2006); MARC D. HAUSER, MORAL MINDS: THE NATURE OF RIGHT AND WRONG (2007).

41. WAYNE R. LAFAVE, SUBSTANTIVE CRIMINAL LAW § 14.5 (2d ed. 2003).

42. Paul H. Robinson et al., *The Disutility of Injustice* 21-25 (Scholarship at Penn. Law, Paper No. 287, 2009), available at [http://lsr.nellco.org/upenn\\_wps/287](http://lsr.nellco.org/upenn_wps/287).

most virulent form.<sup>43</sup> Still, there are states, like Colorado, where the rule persists and has resulted in verdicts and sentences that have been widely criticized<sup>44</sup>—in no small part because these results simply do not coincide with our deeply held moral intuitions about blame and responsibility.<sup>45</sup>

**2. Employment at Will.** Like twelve other states,<sup>46</sup> Colorado also follows the employment-at-will rule, a common law doctrine under which, in the absence of a contract, employers are free to fire their employees for any or no reason.<sup>47</sup> There are some modern prohibited reasons—discrimination based on race, ethnicity, or gender, and public policy exceptions, such as whistle blowing.<sup>48</sup> Other than these exceptions, however, an employer faces no liability for firing any non-contract employee.<sup>49</sup> When these cases are actually tried, jurors deeply resist this doctrine. As early as voir dire, prospective jurors in these kinds of cases often express this dissonance in a colloquy that goes something like this:

Lawyer: We expect that at the end of the evidence in this case, Judge Hoffman will instruct the jurors that Colorado is an employment-at-will state. That means an employer is free to fire an employee for any or no reason. Do any of you have a problem with that?

Jurors: [No response.]<sup>50</sup>

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43. Although forty-three American states still have some form of the felony-murder rule, in all but fifteen states the rule has been watered down to the point of non-existence, *see id.* at 14 & nn.64-66, thanks in large part to the efforts of the American Law Institute, which effectively recommended the rule's abolition in its 1980 version of the Model Penal Code. *See* MODEL PENAL CODE § 210.2 cmt. 6 & n.78 (Official Draft 1980). The English abolished the rule in 1957. Homicide Act, 1957, 5 & 6 Eliz. 2, c. 11, § 2 (Eng.).

44. *See* MODEL PENAL CODE § 210.2 cmt. b & n. 78.

45. *See* Morris B. Hoffman, *Evolutionary Jurisprudence: The End of the Naturalistic Fallacy and the Beginning of Natural Reform?*, in 13 LAW AND NEUROSCIENCE: CURRENT LEGAL ISSUES (Michael Freeman ed., forthcoming 2011) (manuscript at 483) (on file with author).

46. The twelve traditional employment-at-will states are Alabama, Delaware, Florida, Georgia, Louisiana, Mississippi, New York, North Dakota, Rhode Island, Texas, and Wyoming. HOWARD O. HUNTER, MODERN LAW OF CONTRACTS § 22.7 (2010), *available at* Westlaw MODCON.

47. *Id.* § 22.8.

48. *See, e.g., id.* § 22.10.

49. *See id.*

50. Jurors, like regular people everywhere, will seldom voluntarily respond to a group question that starts out “Does anyone have a problem with . . . .”

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*TEN LEGAL DISSONANCES*

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Lawyer: Mr. Jones, what about you? Any problem with that concept?

Juror Jones: No.

Lawyer: You could follow an instruction from Judge Hoffman that said my client could fire this Plaintiff for any or no reason?

Juror Jones: Sure. As long as there was a good reason.

Lawyer: No, no. There doesn't have to be a reason, understand?

Juror Jones: Yes.

Lawyer: So you wouldn't hold it against my client just because he fired the Plaintiff?

Juror Jones: Not as long as there was a good reason.

Additionally, this dissonance often plays out in the jury's findings on pretext. I have had a few cases in which the evidence of pretext seemed very weak—for example, when there were really good economic reasons to fire the plaintiff, but the plaintiff argued that the *real* reason for the firing was one of the prohibited reasons, and the evidence of pretext was nothing more than the plaintiff's own supposition. In each of these cases the jury found for the plaintiff, and I think they simply refused to accept that an employer is free to fire employees for economic reasons.

This dissonance plays out in other ways, including our appellate courts' own relentless chipping away at the doctrine with increasing numbers of categorical exceptions.<sup>51</sup> Perhaps we would all be better off to abandon the rule entirely and fight the battle where the jury thinks it is being fought anyway: did the employer have a good (and not prohibited) reason to fire this employee?

**3. Moral Luck and the Harm Principle.** Legal philosophers have long been interested in the problem they call "moral luck."<sup>52</sup> The law, for the most part, is centered on results, and criminal law specifically is centered on punishing harmful results. There are some exceptions—such as attempt and conspiracy<sup>53</sup>—but by and large criminal law punishes intended harm, not bad intentions that never materialized into harm. But, of course, life is full of bad outcomes that are arguably unrelated to the blameworthiness of the actors. The classic example is drunk driving. Drivers A and B are equally intoxicated, have identical driving records, are driving identical cars, and are identical in every way except one:

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51. See HUNTER, *supra* note 46, at § 22.10.

52. See, e.g., Fiery Cushman, *Crime and Punishment: Distinguishing the Roles of Causal and Intentional Analyses in Moral Judgment*, 108 COGNITION 353, 354 (2008).

53. Both create their own dissonances.

Driver A hits a tree and harms no one; Driver B kills a child. We punish Driver B much more seriously than we punish Driver A, even though the only difference between them is the sheer luck of harm.<sup>54</sup>

It appears the tension we all feel when the law treats these two cases so differently may have its origins in the fact that evolution built our brains to think about blame and punishment differently. It has long been known, as a behavioral matter, that we blame largely in response to our beliefs about the wrongdoer's intentionality, but that we punish largely in response to the harm.<sup>55</sup> It even appears from some fMRI studies that different neural circuits are engaged when we blame than when we punish.<sup>56</sup> Part of the tension we feel with moral luck may be our blaming systems telling us not to blame the drunk driver, but our punishment systems telling us to punish him. The two systems are not integrated.

In fact, criminal law's harm principle may be a kind of evolutionary shortcut—what evolutionary theorists call a “heuristic”—for blame. Natural selection is relentlessly utilitarian, and what mattered at our emergence was whether, in a given case, the enormous costs of third-party punishment were justified by its deterrent benefits, both general and special. These calculations, however, are impossible in any particular case. We have no idea how much punishment will or will not deter a given wrongdoer, let alone how much punishment will deter others. Even if such calculations were possible, the calculations would be too costly to make; therefore, evolution armed us with the ability to make rough guesses about deterrence. Bad intentions unaccompanied by any harm are too hard to detect, so harm became one proxy for blame; however, because punishment is so costly and accidents do sometimes happen, evolution armed us with a second blame proxy—intentionality. It is when there is no intentionality—when our

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54. *See id.* Drunk driving is also an example of another legal dissonance—strict liability crimes. Intentionality, in some form or another, has almost always been a requirement for criminal liability because our evolved notions of blameworthiness are determined by two heuristics: harm and intent. *See infra* text accompanying notes 56-58. There is no more difficult sentence to impose than for vehicular homicide. The difficulty likely has its origins in the no-intention dissonance. As it has developed in modern times to address the scourge of drunk driving, the law appears to have come to treat such cases almost as seriously as an intentional killing, although of course they are not intentional. I will never forget the letter I received from the eight-year old daughter of a defendant I was about to sentence for a long prison term for killing an entire family during a drunken drive. She wrote that it was an accident, and her daddy did not mean to hurt anyone.

55. *Id.*

56. *See, e.g.,* Joshua W. Buckholtz et al., *The Neural Correlates of Third-Party Punishment*, 60 NEURON 930, 930 (2008); Joshua D. Greene et al., *An fMRI Investigation of Emotional Engagement in Moral Judgment*, 293 SCIENCE 2105, 2107 (2001).

blame intuitions depend exclusively on harm alone—that our moral luck dissonance is at its starkest.

**4. The Severity of Punishment in General.** It may be tempting to use some of these evolutionary insights to argue that current levels of punishment in the United States are “unnatural” and should be reformed downward. This kind of generalized punishment naturalism is likely inaccurate as an evolutionary matter and not terribly useful as a policy matter. Dan Kahan and his colleagues have written a critique of punishment naturalism, arguing that we would all be better off if we realized that our evolutionary core has largely been overshadowed by finer cultural and policy judgments.<sup>57</sup> Paul Robinson, Owen Jones, and Rob Kurzban, who were the main “naturalist” targets of the Kahan piece, have written a rebuttal.<sup>58</sup> These papers make marvelous and thought-provoking reading and are must-reads for anyone interested in the extent to which evolved moral intuitions have any useful legal traction. But in the end, the difference between Kahan’s “realism” and Robinson’s “naturalism” is a matter of degree, not of kind. Even if Kahan is right, however, there is no doubt that an evolutionary perspective can still inform these larger punishment issues in two respects.

First, as we have already seen with the felony murder rule, much of our general sentencing severity is the product of specific legal doctrines that can be fairly labeled “unnatural,” if only in the sense that people simply do not accept them. This is not a matter of polemics but of empirical fact. That is, we may debate the size of the evolutionary core, but there really is such a core, and some legal doctrines that drive sentences higher are palpably and demonstrably outside that core. They simply are not shared by our common grammar of blame.

There is also a second way our evolved neuroarchitectures have created a dissonance into which generally too-severe punishment regimens have stepped—the dissonance between blame and punishment. The neural separateness of blame and punishment has significant political implications. When ordinary citizens clamor for higher punishment, they are expressing their sense of blameworthiness. When those same citizens are asked to impose real punishments, for example, juries in capital cases or even subjects in hypothetical experiments, their zeal gets muted. As every prosecutor-turned-judge knows, it is one thing

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57. Donald Braman et al., *Some Realism About Punishment Naturalism*, 77 U. CHI. L. REV. 1531, 1532-33 (2010).

58. See Paul Robinson et al., *Realism, Punishment, and Reform*, 77 U. CHI. L. REV. 1611, 1611 (2010).

to blame and quite another to be the person who actually imposes sentences.

When citizens' un-muted and generalized zeal for blame gets transferred to politicians, they convert it into new crimes and into increased punishments for old ones. The one-way punishment ratchet gets turned up a notch, and there seems to be no way out. Every time a heinous crime is committed and news of it published in the media, ordinary citizens, quite rightly, express their outrage—an outrage that is an expression of *blame* but is converted by the legislative process into an expression of *punishment*. And so the ratchet keeps turning.

I do not have any particular solutions. The stickiness of this dissonance seems political, not neural. Maybe it would help if all legislators were required to be trial judges for a day and actually impose as punishments on real people the blame-driven sentences they approved in the distant comfort of their legislative chambers. Maybe jury sentencing is part of the answer,<sup>59</sup> but even jury-imposed sentences must lie within legislated bounds. Maybe soaring prison costs will be their own agent of reform. Maybe this dissonance is just one of the many prices we must pay for democracy.

#### V. CONCLUSION

As we think about the law, we would be smart to remind ourselves that our cogitations—both *in* the law as lawyers, judges, and jurors and *about* the law as academics and policy makers—are not always perfect. They are sometimes infected by old and persistent enemies of reason. We are not always proficient at assessing some kinds of risk, at treating each other fairly across group lines, or at integrating how we feel about wrongdoers with what we actually do about them. There are many more examples, and even categories, of such dissonances. Just recognizing them as dissonances may help us overcome the least sticky of them. Others will require more work and still others will require much more work.

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59. See Morris B. Hoffman, *The Case for Jury Sentencing*, 52 DUKE L.J. 951 (2003).