Epistemology, Psychology, and Standards of Proof: An Essay on Risinger's "Surprise" Theory

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I. INTRODUCTION

It is a great honor and pleasure to have the opportunity to discuss new work by Michael Risinger as part of this Symposium.[1] Like his other scholarship on evidence, his article on the emotion of surprise and legal standards of proof is creative, enlightening, challenging, and a joy to read.[2] In his characteristic style, he moves across disciplinary boundaries, gathering abstract insights about evidence and inference wherever he finds them, while also remaining acutely focused on the practical problems of legal proof. Risinger's article, like his work generally, contains some of the most abstract of abstract theorizing combined with impressive knowledge of the day-to-day realities of law and a healthy dose of common sense.[3] The article concerns the particular legal and moral problem of convicting factually innocent criminal defendants (a common theme for Michael); in this instance, he approaches the problem through the lens of standards of proof.[4]

[1] This paper was presented at the Symposium on "Experts, Inference, and Innocence," honoring the work of Michael Risinger, John J. Gibbons Professor of Law, Seton Hall University School of Law.

[2] D. Michael Risinger, *Leveraging Surprise: What Standards of Proof Imply that We Want from Jurors, and What We Should Say to Them to Get It*, 48 SETON HALL L. REV. 965 (2018).

[3] *See generally id.*

[4] *Id.*

Risinger proposes a general account of standards of proof based on the emotion of "surprise," focusing in particular on the "beyond a reasonable doubt" (BARD) standard in criminal cases.[5] He supports this account with three general claims. First, he argues that the primary purpose of standards of proof is "to define the level of subjective certainty necessary for such a decision to be a morally justified decision".[6] To achieve this aim, standards of proof function (or ought to function) by "making jurors determine [their] degree of belief, and then norming them to understand the degree of belief which the law requires for an affirmative finding."[7] Second, he argues that the standard decision-theoretic tools for defining standards of proof and measuring "degrees of belief" are "ill-suited" for legal proof.[8] Instead, his "central claim is that people believe something to be true to the extent that they would be surprised to find out it was false."[9] Third, he argues that "the extent of surprise" is "best revealed" by "asking directly how surprised one would be to find out that the thing believed was false."[10] In conveying to jurors the level of surprise necessary for a conviction, the BARD standard can achieve its primary purpose: "to get the jurors to understand the moral burden they bear in the individual case."[11]

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[5] *Id.* at 970 (positing that "when humans evaluate evidence and determine what they believe in regard to facts, the primary, though usually implicit, operator in those determinations is, or at least ought to be, the fundamental emotion of surprise").

[6] *Id.* at 980. *See also id.* at 979 ("[S]tandards of proof . . . are intended to speak to jurors about their level of certainty concerning the material issues of the case they are deciding after they have seen the evidence produced at the trial.").

[7] Risinger, *supra* note 2, at 981.

[8] Risinger, *supra* note 2, at 968–981. His critique of this model for standards of proof is based on two primary arguments. First, in defining standards of proof, he argues that although various systemic issues (based on the utilities of different outcomes) are inevitable consequences of the standards, they are not their primary purpose. *Id.* at 979–80. For this reason, he rejects the idea of defining the standards as probabilistic thresholds based on these utilities. Second, he argues that "betting exercises" are a "poor proxy" for measuring subjective uncertainty in the context of legal proof. *Id.* at 981. Although her argument is framed somewhat differently, the philosopher Lara Buchak has argued along similar lines: "credences" (or degrees of belief, as measured by rational betting behavior) are, she claims, responsive to different features of evidence than beliefs and norms about moral blame. *See* Lara Buchak, *Belief, Credence, and Norms*, 169 PHIL. STUD. 285 (2014).

[9] Risinger, *supra* note 2, at 981.

[10] Risinger, *supra* note 2, at 981. Risinger proposes a system of "estimative surprise" to rank-order the level of surprise: "mildly surprised, surprised, quite surprised, greatly surprised, astonished, shocked, etc." *Id.* at 982. He also notes that "[t]he opposite of surprise is expectation." *Id.* at 970 n.17.

[11] *Id.* at 980 n.47. Risinger qualifies the theory by noting that the surprise framework may not map as clearly onto evaluate issues (e.g., reasonableness) decided by juries as it does for more purely factual disputes. *Id.* at 985–88.

My discussion will focus on epistemological issues underlying the surprise theory. I will first discuss some general methodological issues and then focus on two specific considerations: epistemic safety and explanations. I will argue that each consideration grounds the underlying epistemic question of how surprised jurors ought to be in light of the evidence. The safer the verdict, the more surprised jurors ought to be if their finding turned out to be false. Similarly, the better an explanation of the evidence, the more likely jurors should be surprised if the explanation turned out to be false. A corollary of this is that jurors should be very surprised when there is no plausible explanation that would imply that their factual finding is false. I conclude by discussing two case examples that illustrate how these considerations of safety and explanations relate to Risinger's proposed theory.

II. THE EPISTEMOLOGY AND PSYCHOLOGY OF PROOF STANDARDS

Standards of proof have both psychological and epistemic aspects. The psychological aspects concern various descriptive issues about what legal actors do and think in the context of legal fact finding. For example, how do jurors process and evaluate evidence? What do they understand the standards of proof to mean? And what criteria do they use in determining whether a standard of proof has been satisfied? Successful answers to these questions will involve accurate descriptions and explanations of how legal fact finders believe, reason, and decide as they do.[12] By contrast, the epistemic aspects have a normative or evaluative component. The epistemic aspects are concerned with what jurors *ought* to believe, and how they *ought* to reason and decide based on the evidence and the standard of proof.[13] They are also concerned with whether particular jury findings are "reasonable" or "rational" in light of the evidence.[14]

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[12]   *See generally* MICHAEL J. SAKS & BARBARA A. SPELLMAN, THE PSYCHOLOGICAL FOUNDATIONS OF EVIDENCE LAW (2016).

[13]   *See* LARRY LAUDAN, TRUTH, ERROR, AND CRIMINAL LAW: AN ESSAY IN LEGAL EPISTEMOLOGY 31 (2006); Susan Haack, *Legal Probabilism: An Epistemological Dissent*, *in* EVIDENCE MATTERS: SCIENCE, PROOF, AND TRUTH IN THE LAW 47 (2014).

[14]   *See* FED. R. CRIM. P. 29; Jackson v. Virginia, 443 U.S. 307, 319 (1979) (explaining the sufficiency standard for criminal convictions depends on whether "*any* rational trier of fact could have found the essential elements of the crime beyond a reasonable doubt"). FED. R. CIV. P. 56; FED. R. CIV. P. 50; Reeves v. Sanderson Plumbing Prods., Inc., 530 U.S. 133, 150 (2000) (explaining that the standard for judgment as a matter of law "mirrors" the summary judgment standard); Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 252 (1986) (explaining that summary judgment depends on whether "reasonable jurors could find by a preponderance of the evidence" for the non-moving party).

The distinction between these two aspects is intuitive but is also subject to a number of possible confusions. One source of possible confusion concerns the relationship between the psychological and epistemic aspects. There is not—and need not be—any sharp division between the two categories. The epistemology at issue in legal proof generally, and with standards of proof in particular, is "naturalized" in the sense that psychological evidence is both relevant for epistemic theorizing and also potentially constraining.[15] It is relevant for evaluating the extent to which the psychological processes of fact finders match what they ought to be, and for identifying areas in need of improvement or ways to improve decision-making.[16] It is also potentially constraining by identifying realistic limits that any normative theorizing must take into account (in other words, "ought implies can").[17] A second potential source of confusion follows from the fact that some of the demands placed on "knowledge" and "beliefs" in epistemology may be irrelevant for legal fact finding because, for example, they are too demanding for what can be expected of legal decision-makers.[18] Even if the context of the trial makes some epistemic requirements inapplicable, however, this does not mean that epistemic evaluations cannot be made—practices may be better or worse at arriving at the truth, some types of evidence are better than others, and factual findings will be more or less justified based on the evidence.

The connections between these general reflections and Risinger's theory are hopefully clear. The "surprise" theory is primarily a *psychological* account of standards of proof. The account depends on identifying a particular mental state of the fact finder—i.e., their subjective level of "surprise"—and assessing it against the level of subjective certainty associated with the applicable standard of proof. In this sense, the surprise model is similar to subjective probability models of proof, except for replacing one subjective criterion with another. Subjective mental states, however, are not by themselves sufficient to adequately account for standards of proof. What is missing is some account of the epistemic aspects. In other words, rather than examining, based on the evidence, *how surprised the fact finder would be* (and whether this is enough to meet the standard of proof), the epistemic question is *how surprised should the fact finder be*?

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[15] *See* Hilary Kornblith, *What is Naturalistic Epistemology?*, *in* NATURALIZING EPISTEMOLOGY 14 (Hilary Kornblith ed., 2d ed. 1994); Ronald J. Allen & Brian Leiter, *Naturalized Epistemology and the Law of Evidence*, 87 VA. L. REV. 1491 (2001).

[16] Kornblith, *supra* note 15.

[17] *See* Allen & Leiter, *supra* note 15, at 1503.

[18] For discussion of these issues, see Michael S. Pardo, *The Gettier Problem and Legal Proof*, 16 LEGAL THEORY 37 (2010).

Risinger, of course, recognizes this and accordingly he mentions the need to provide the jury with "norms" on applying the standards.[19] It is important, however, to distinguish two different types of normative considerations that might apply in this context. One sense—what I will call "weak" norms—concerns informing jurors about the appropriate level of surprise required for each standard and aligning outcomes so that subjective degrees of belief (measured by surprise) match the standards' requirements[20] Risinger's discussion of "norming" in the paper appears to focus on this weaker sense.[21] A second sense—what I will call "strong" norms—concerns whether fact finders' subjective assessments are epistemically warranted. This stronger sense is less concerned with the subjective mental states of fact finders; instead, it is concerned with what those subjective mental states should be. In other words, it is not about how surprised they would be if their finding turned out to be false, but about how surprised they should be. Any theory of standards of proof also needs to account for these epistemic aspects—the policy goals underlying the rules and legal doctrine require it.[22]

The next Part discusses two epistemic considerations that will help flesh out the epistemic aspects to standards of proof defined in terms of surprise.

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[19]   As I understand it, the surprise criterion is meant to capture a necessary condition, not a sufficient one. *See* Risinger, *supra* note 2, at 980 (referring to "the level of subjective certainty necessary for [a verdict] to be a morally justified decision").

[20]   In a sense, this type of weak normative constraint is similar to the consistency constraints in subjective probability theory. Although they help to maintain consistency among subjective beliefs, they need not have any necessary connection with the truth of those beliefs. *See* Alvin I. Goldman, *Quasi-Objective Bayesianism and Legal Evidence*, 42 JURIMETRICS J. 237, 239 (2002) ("[S]ubjective Bayesianism does not commend itself as a basis for truth acquisition."). Similarly, properly matching subjective levels of surprise with the subjective level associated with each standard need not have any necessary connection with accuracy, unless subjective states of surprise are constrained by, or otherwise reliably track, objective features in the world.

[21]   *See* Risinger, *supra* note 2, at 982 ("What is needed is a way of norming jurors into reasonably consistent designations in the use of the scale.").

[22]   *See supra* note 14. The policy goals concern overall systemic consequences regarding accuracy and the risk of error. *See* Risinger, *supra* note 2, at 979–80.

III. SAFETY AND EXPLANATIONS

According to the surprise framework, the level of surprise necessary for a verdict should rise as the standard of proof rises.[23] For the most demanding standard—BARD—the jury should only convict when they would be very surprised ("shocked") if it turned out the defendant is innocent.[24] In turning the question around to its epistemic side, the issue becomes when jurors should be so surprised. In discussing this issue, I focus on two considerations that should affect estimates of surprise. The first concerns the epistemic safety of factual findings, and the second concerns the competing possible explanations of the evidence and events. Each affects the extent to which jurors should be surprised if a factual finding turns out to be false.

The concept of epistemic safety is a modal notion that arises in epistemological discussions of knowledge.[25] Specifically, safety has been proposed as a condition for true beliefs to qualify as knowledge.[26] For example, suppose I believe that "the cat is on the mat" (and that this belief is true). If I could easily be mistaken about this, then my belief is *unsafe*. If I could not easily be mistaken, then my belief is *safe*. Philosophers typically articulate safety conditions in terms of whether there are close "possible worlds" in which the agent forms the same belief and the belief is false.[27] For example, if there are close possibilities in which I mistakenly believe that the cat is on the mat, then my belief is unsafe.

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[23] Risinger, *supra* note 2, at 984.

[24] Risinger, *supra* note 2, at 984. ("Even simply the use of the terms of estimative surprise, like 'shocked' for a description of reasonable doubt, might do.").

[25] Ernest Sosa, *How to Defeat Opposition to Moore*, 13 PHIL. PERSPS. 141, 142 (1999) ("S would believe that p only if it were so that p."). *See also* Duncan Pritchard, *Safety, Sensitivity, and Anti-Luck Epistemology*, *in* THE OXFORD HANDBOOK OF SKEPTICISM (John Greco ed., 2008).

[26] Pritchard, *supra* note 25; Sosa, *supra* note 25. Risinger explored a related notion of safety in prior work, see D. Michael Risinger, *Unsafe Verdicts: The Need for Reformed Standards for the Trial and Review of Factual Innocence Claims*, 41 HOUS. L. REV. 1281, 1332 (2004), which draws on the "unsafe verdict" standard for reviewing criminal convictions in the UK. *See* CRIMINAL APPEAL ACT 1995, c. 35, § 2 (UK). As I understand it, the concept of epistemic safety is narrower than Risinger's proposed standard or the UK standard. In other words, a lack of epistemic safety may be one reason why a verdict is unsafe under either of the latter.

[27] John Greco, *Better Safe than Sensitive*, *in* THE SENSITIVITY PRINCIPLE IN EPISTEMOLOGY 193, 194–95 (Kelly Becker & Tim Black eds., 2012) ("The spirit of a safety condition is that, in cases of knowledge, S would not easily go wrong by believing as she does . . . . S's belief that p is safe just in case: there are no close worlds where both S believes that p, and p is false."). In this discussion, I am putting aside the complex philosophical issues regarding possible worlds and how best to measure similarity. On possible worlds generally, see JOHN DIVERS, POSSIBLE WORLDS (2002); DAVID K. LEWIS, ON THE PLURALITY OF WORLDS (1986); Christopher Menzel, *Possible Worlds*, *in* STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., 2016), http://plato.stanford.edu/entries/possible-worlds/.

Within epistemology, a lot depends on how exactly "close" is determined and how other details are specified.[28] Many details of these debates are not important for purposes of legal evidence and proof, but two details are significant. First, closeness will depend on how much would have to change or be different for beliefs to be true or false.[29] This will be a matter of degree. Second, safety essentially concerns the reliability of inferences in close possible worlds.[30] This, too, will be a matter of degree.

These details suggest how epistemic safety maps onto legal proof and also, I contend, the notion of surprise. Epistemic safety concerns the reliability of findings in close possible worlds. In the context of the trial, the issue is how easily the jury could, based on the evidence, find the defendant guilty and be mistaken. The more difficult it is for this to occur, the safer the verdict; the easier it is, the more unsafe. My suggestion is that the level of surprise should track the degree of epistemic safety. We should be more surprised to learn that a verdict is mistaken when it is safe than when it is unsafe.

In fleshing out this suggestion, we need some concept or criteria for determining "how easily" a jury's guilty verdict could be mistaken. One possibility is to focus on the "modal proximity" of an erroneous factual finding.[31] This conception is related to but distinct from a conception based on probability (i.e., the probability of an erroneous finding).[32] A probabilistically unlikely event may nevertheless be an "easy" modal possibility. The philosopher Duncan Pritchard discusses the example of lotteries in order to distinguish the two conceptions. He contrasts them with the following thought experiment:

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[28] These issues and their potential relevance for legal proof are discussed in more detail in Michael S. Pardo, *Safety vs. Sensitivity: Possible Worlds and the Law of Evidence*, 24 LEGAL THEORY 1 (2018), https://www.cambridge.org/core/journals/legal-theory/article/safe ty-vs-sensitivity-possible-worlds-and-the-law-of-evidence/DEEA205B0A31A5582D370A735A25B1F3.

[29] For an excellent overview in the context of constitutional theory, see Lawrence B. Solum, *Constitutional Possibilities*, 83 IND. L.J. 307, 316–20 (2008).

[30] *See* Greco, *supra* note 27, at 193 ("[S]afety *just is* reliability throughout a space of close counterfactual situations."). Reliability in general and in close possible worlds may diverge. *See* David Manley, *Safety, Content, Apriority, Self-Knowledge*, 104 J. PHIL. 403, 409 (2007) ("My ability to discriminate larks from other birds may be so reliable that there are only five token birds in the world that I would mistake for larks. But if all five of them happen to be in my yard along with a real lark, that is enough to undermine my knowledge.").

[31] Duncan Pritchard, *Risk*, 46 METAPHILOSOPHY 436, 447, 452–57 (2015).

[32] *Id.* at 449 ("[T]he modal ordering of possible worlds in terms of similarity is often closely aligned with the probabilities of the events in question, such that low-probability events tend to be concerned with far-off possible worlds, and high-probability events tend to be concerned with close possible worlds. Appeals to probability can thus remain as a general guide to assessing risk. The point is just that this cannot be the full story[.]").

> *Case 1:* An evil scientist has rigged up a large bomb . . . The bomb will only detonate, however, if a certain set of numbers comes up on the next national lottery draw. The odds of these numbers appearing is fourteen million to one. It is not possible to interfere with this lottery draw.[33]

> *Case 2:* An evil scientist has rigged up a large bomb . . . The bomb will only detonate, however, if a series of three highly unlikely events obtains. First, the weakest horse in the field at the Grand National, Lucky Loser, must win the race by at least ten furlongs. Second, the worst team remaining in the FA Cup draw, Accrington Stanley, must beat the best team remaining, Manchester United, by at least ten goals. And third, the queen of England must spontaneously choose to speak a complete sentence of Polish during her next public speech. The odds of this chain of events occurring are fourteen million to one. It is not possible to interfere with the outcomes of any of the events in this chain.[34]

Pritchard argues that there is a much higher level of risk in Case 1 than 2, despite identical probabilities.[35] In Case 1, "even despite the odds involved, the bomb blast is nonetheless something that *could very easily* occur."[36] All it would take is "for a few coloured balls . . . to fall in a certain configuration."[37] By contrast, Case 2 could not so easily occur.[38] Each event, while possible, "is incredibly far-fetched" and "would require an incredible run of events."[39] "[S]tranger things have happened" but the bomb going off in Case 2 "is not something that could very easily occur," unlike in Case 1.[40] Pritchard extends this distinction to legal proof by modeling wrongful criminal convictions based on the two types of cases. On one hand, we can imagine a "lottery-style" wrongful conviction similar to Case 1. For example, he gives a stylized DNA example in which the chance that a sample belongs to anyone other than the defendant is also fourteen million to one.[41]

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[33]   *Id.* at 441.
[34]   *Id.*
[35]   *Id.* at 442.
[36]   *Id.*
[37]   Pritchard, *supra* note 31, at 442.
[38]   *Id.*
[39]   *Id.*
[40]   *Id.*
[41]   *Id.* at 455.   The example assumes this is the primary prosecution evidence and stipulates (1) there is no room for error in collection or analysis of the sample, and (2) the sample belonging to someone else is "a modally close possibility, in that not much would need to be different about the actual world for this fourteen-million-to-one event to obtain." *Id.*

On the other hand, we can imagine an equally unlikely wrongful conviction, but one that does not occur as easily. Perhaps two independent eyewitnesses misidentify the defendant; the defendant's DNA is found at the scene but was there for a non-inculpatory reason (he used to work in the building);[42] and potentially exonerating alibi evidence is inadvertently destroyed (through no fault of the prosecution or the defense). The defendants in both cases were unlucky, but they were unlucky in very different ways.

This modal account of the risk of erroneous factual findings fits well with Risinger's surprise framework.[43] Under this account, the key issue concerns what would have to have gone wrong, and in what ways, for the jury's verdict to be erroneous?[44] Answering this question will tell us something about how surprised jurors ought to be if their findings turned out to be false. We are, in a sense, "surprised" if a particular set of lottery numbers comes up, given the unlikely odds.[45] But, in another sense, we aren't nearly as "surprised" as when an incredible series of unlikely events all occur.[46] Apart from the probabilities, it does seem to be the case that events that could not easily occur (unlike the lottery) are more surprising, and are more surprising for that reason.

I turn now to the second consideration relevant for surprise: explanations. According to the general theory of proof that Ron Allen and I have developed, standards of proof are best explained in terms of explanatory thresholds.[47] Like Risinger, we therefore reject defining standards of proof as probabilistic thresholds. According to the explanatory account, the proof process involves two stages: (1) the generation of potential explanations of the evidence and events, and (2) a comparison of the explanations in light of the applicable standard of proof. In general, the process depends on the parties to obtain evidence and to offer what they consider to be the best explanation (or explanations) that support their respective cases. Fact

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[42]   For examples, see ERIN E. MURPHY, INSIDE THE CELL: THE DARK SIDE OF FORENSIC DNA 33 (2015).

[43]   *See* Pritchard, *supra* note 31, at 449.

[44]   In other words, we should want wrongful convictions that do (and inevitably will) occur to be not only unlikely, but also ones that could not occur very easily.

[45]   This surprise, of course, is often offset by the realization that some set of numbers had to come up and this set was just as likely as any other.

[46]   Personally, I will note that my surprise ("shock," even) at the Chicago Cubs winning the 2016 World Series far exceeded the probabilistic odds (under any conception of probability).

[47]   See Michael S. Pardo & Ronald J. Allen, *Juridical Proof and the Best Explanation*, 27 LAW & PHIL. 223 (2008), which builds on Ronald J. Allen, *Factual Ambiguity and a Theory of Evidence*, 88 NW. U. L. REV. 604, 606 (1994). Ronald J. Allen, *The Nature of Juridical Proof*, 13 CARDOZO L. REV. 373 (1991). We expand on the account and address various criticisms in detail in Ronald J. Allen & Michael S. Pardo, *Relative Plausibility and Its Critics*, (Univ. of Ala. Legal Studies Research Paper No. 3179601, 2018).

finders, however, may also develop and rely upon explanations other than those advanced by the parties. Whether a party's explanation is sufficient will depend on the standard of proof.

The explanatory thresholds vary depending on the standard—with higher standards requiring a higher threshold.[48] Under the "preponderance of the evidence" standard, fact finders determine whether the best of the available explanations favors the plaintiff or the defendant.[49] The best available explanation will favor the plaintiff if it includes all of the legal elements of the plaintiff's claim; it will favor the defendant when it fails to include one or more elements.[50] A number of general criteria affect the strength or quality of an explanation.[51] These criteria include considerations such as: consistency, coherence, fit with background knowledge, simplicity, absence of gaps, and the number of unlikely assumptions that need to be made.[52] Higher standards require more from the party with the burden of proof. In criminal cases, under the "beyond a reasonable doubt" standard, the prosecution must do more than present a *better* explanation than the defense (or the best available explanation): fact finders should convict only when the prosecution's explanation (which includes all of the legal elements) is plausible, given the evidence, and there is *no* plausible defense

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[48] In this respect, they are similar to the probabilistic account of the standards.

[49] *See, e.g.*, Anderson v. Griffin, 397 F.3d 515, 521–22 (7th Cir. 2005) (comparing explanations); Bammerlin v. Navistar Int'l Transp. Corp., 30 F.3d 898, 902 (7th Cir. 1994) (same); Yeschick v. Mineta, 675 F.3d 622, 627 (6th Cir. 2012) (same).

[50] An explanation will "include" an element if the element is a part of, or is entailed by the explanation. For example, in a negligence case, the plaintiff's explanation must include each of the elements; if the better explanation fails to include an element (e.g., causation), then the defendant will win.

[51] These general criteria affect the quality of explanations in a wide variety of contexts such as science, history, and everyday common sense reasoning. *See* PETER ACHINSTEIN, THE NATURE OF EXPLANATION (1983); GILBERT HARMAN, CHANGE IN VIEW: PRINCIPLES OF REASONING 65–75 (1986); PHILIP N. JOHNSON-LAIRD, HOW WE REASON 186–88 (2006) (discussing the role of explanations in reasoning); PETER LIPTON, INFERENCE TO THE BEST EXPLANATION (2d ed. 2004); Tania Lombrozo, *Explanation and Abductive Inference*, *in* THE OXFORD HANDBOOK OF THINKING AND REASONING 260 (Keith J. Holyoak & Robert G. Morrison eds., 2012).

[52] In general, the quality of an explanation serves as a proxy for likelihood: the better the explanation, the more likely, when compared with the available alternatives. LIPTON, *supra* note 51, at 119; Timothy Williamson, *Abductive Philosophy*, 47 PHIL. FORUM 263, 267 (2016) ("Inference to the best explanation does not directly rank potential explanations according to their probability. This does not . . . make it inconsistent with a probabilistic epistemology[.] . . . [It] may be a good heuristic to use when—as often happens— probabilities are hard to estimate[.]"). *See also* Anderson v. Griffin, 397 F.3d 515, 521 (7th Cir. 2005) ("[I]f in a particular case all the alternatives are ruled out, we can be confident that the case presents one of those [rare] instances in which the rare event did occur."); United States v. Beard, 354 F.3d 691, 693 (7th Cir. 2004) ("Relative to the alternatives, the government's case was more powerful than it would have seemed in the abstract.").

explanation.[53]

This explanatory threshold—i.e., that the jury should convict if and only if the only plausible explanation(s) favors the prosecution—is a natural fit with Risinger's surprise framework.[54] At the very least they are fellow travelers. Here is why: when there is a plausible explanation available to jurors (presented by the defendant or constructed by themselves) in which the defendant is innocent, then jurors should not be very surprised to learn the defendant is not guilty. Under both accounts, a conviction is not warranted. On the other hand, when the only plausible explanations of what happened support the prosecution's case—i.e., no plausible alternatives have been presented or can be constructed—then jurors should be surprised, and likely would be surprised, to learn the defendant is not guilty. Moreover, to the extent explanatory considerations are a proxy for likelihood of truth, and explanatory considerations similarly track surprise, then explanations provide a link between the surprise framework and the traditional systemic considerations (accuracy and the risk of error) underlying standards of proof.[55] In this way, the explanatory framework may bring the psychology of surprise in line with the epistemology of proof.

Finally, it should be noted that the two considerations—safety and explanations—are related. When fact finders compare and evaluate alternative explanations of the evidence and events, considerations of epistemic safety affect the process. When the inferences from evidence are safe, the evidence is better in distinguishing between the different factual possibilities.[56] When the inferences are unsafe, the evidence is consistent with different close possibilities (e.g., guilt and innocence). The more unsafe, the less likely the evidence distinguishes between these possibilities.[57] When the inferences are safe, the evidence is better at ruling out the false alternatives. Safe evidence is thus better evidence precisely because it better supports one explanation (over its alternatives) in close possible worlds. In such circumstances, we should be more surprised to learn that a chosen explanation (leading to a guilty verdict) turned out to be false. In the next Part, I illustrate these abstract reflections on safety, explanation,

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[53]   Pardo & Allen, *supra* note 47.

[54]   *See* Risinger, *supra* note 2, at 984.

[55]   For example, if one aim of the preponderance standard is to favor whichever side's factual theory is more likely to be true, and better explanations are more likely to be true than worse ones, then favoring the better of the available explanations will serve as a proxy for which theory is more likely to be true. Surprise fits naturally into this picture. Jurors should be more surprised to learn the better explanation is false than to learn the worse explanation is false, and therefore they should favor the former. Similar considerations apply, with necessary adjustments, for higher standards aimed at skewing the risk of error in a particular direction.

[56]   *See* Pardo, *supra* note 28 (discussing this issue).

[57]   Accordingly, safety affects the probative value of evidence. FED. R. EVID. 403.

and surprise with two examples.

IV. TWO EXAMPLES

I conclude by discussing two cases in which defendants were convicted and challenged the sufficiency of the evidence against them. Both cases raised the same doctrinal question: whether, based on the evidence, a rational jury could find the defendant guilty beyond a reasonable doubt.[58] The examples are instructive for illustrating the epistemic aspects of the BARD standard because they both involve reviewing courts that articulate why the evidence is or is not sufficient to warrant a conviction. The examples fall on either side of the line in answering this question.

The first example, *O'Laughlin v. O'Brien*, involved a conviction for burglary and assault.[59] The victim, Annmarie Kotowski, was found "severely beaten and covered in blood" in her apartment; an expert testified that she suffered approximately fifteen to twenty blows to her face (breaking nearly every bone in her face and skull) and that she had defense wounds on her hands from five to ten blows.[60] Kotowski lived alone in her apartment and could not remember any details of the attack or her assailant.[61] The defendant, Michael O'Laughlin, a member of the apartment complex's maintenance staff, lived two doors down from the victim.[62]

The attack apparently occurred late at night or early in the morning.[63] A neighbor called 911 at 2:00 AM to report a woman screaming and what sounded like "wood hitting wood."[64] But when police arrived shortly after they apparently could not locate the apartment from where the reported screams were coming.[65] They did, however, see the defendant walking on a pathway outside of his apartment, wearing only boxer shorts.[66] He said that he heard screaming but thought that it was a raccoon trapped in a dumpster; he went out to prop the dumpster open with a stick.[67] The police confirmed the stick in the dumpster, searched the area further, and then left after noting nothing else suspicious.[68] Kotowski was found at 5:45 AM by her boyfriend,

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[58] Jackson v. Virginia, 443 U.S. 307, 318 (1979) (establishing this sufficiency standard as a constitutional right required by due process).

[59] 568 F.3d 287 (1st Cir. 2009).

[60] *Id.* at 289–95 (summarizing the facts).

[61] *Id.* at 289–90.

[62] *Id.* at 290.

[63] *See id.* at 289–90

[64] *Id.* at 291.

[65] *O'Laughlin*, 568 F.3d at 291.

[66] *Id.*

[67] *Id.* The defendant's supervisor testified that the apartment complex had been having problems with raccoons getting trapped in the dumpster. *Id.* at 291 n.5.

[68] *Id.* at 291.

who arrived to have coffee with her.[69]

The prosecution's theory was that O'Laughlin, desperate for drug money, entered Kotowski's apartment searching for cash or valuables and attacked her in the process.[70] According to the evidence presented at trial, on the night of the attack O'Laughlin had smoked crack cocaine at the home of a friend, and when he returned to his apartment he apparently tried several times to call "known drug dealers."[71] As a member of the maintenance staff, he possessed a key to Kotowski's apartment and had once fixed a window in her apartment.[72] In addition, there was testimony that he once remarked that she had expensive furniture and that she was "his type." There were no eyewitnesses to the attack, and no forensic evidence linked O'Laughlin to the attack.[73] The prosecution's additional evidence included a metal baseball bat with the defendant's name on it found in the woods near the apartment complex, a small cut on the defendant's face, and demeanor and other "consciousness of guilt" evidence concerning his reactions and behavior following interactions with the police.[74] The defendant denied involvement and at trial also argued that Kotowski's husband was the attacker.[75] She had moved to the apartment a couple of months earlier after informing her

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[69]   *Id.* at 292. Kotowski was married but had moved out of her house and into the apartment months earlier, after informing her husband that she was having an affair with a man named Finn. *Id.* at 290. Finn is the boyfriend who discovered her and called 911. *Id.* at 292.

[70]   *Id.* at 291 ("As the night wore on, O'Laughlin was 'depleted of drugs and most of his cash.'").

[71]   *O'Laughlin*, 568 F.3d at 291.

[72]   *Id.* at 290 n.2. There did not appear to be any evidence of forced entry, however, the court also noted that several other employees of the apartment complex also had a key. *Id.* at 302.

[73]   *Id.* at 306. Fourteen sets of fingerprints were found in Kotowski's apartment; none matched O'Laughlin. *Id.* at 294. Footprint impressions taken in the apartment failed to match the defendant's boots. *Id.* The police searched O'Laughlin's apartment on two occasions and did not find any blood that matched Kotowski. *Id.* at 294, 304. An aluminum baseball bat, with O'Laughlin's name on it, was found in the woods outside the complex. *Id.* at 294. A small stain on the handle was determined to be blood: "A state police DNA analyst concluded that while Mrs. Kotowski could not be excluded as a contributor, one in two of any randomly selected individuals could have been the contributor." *Id.* at 294.

[74]   O'Laughlin stated that he owned the bat but did not see it since moving into the apartment. *O'Laughlin*, 568 F.3d at 294. Police testified that they could not tell whether the cut was fresh or not; O'Laughlin said it was a pimple. *Id.* at n.9. The consciousness of guilt evidence consisted primarily of his demeanor ("uneasy and distant") and the fact that after initially consenting to a search of his apartment, he asked the officers to leave. *Id.* at 291, 293. When they informed him later that morning of their intent to secure a warrant, he eventually consented to a second search. *Id.* at 293. His explanation for asking them to leave the first time was his fear that they would take his drug paraphernalia and cash. *Id.* In addition, there was testimony that in between the searches he cleaned a small red-ish stain that police observed the first time and thought might be blood. *Id.*

[75]   *O'Laughlin*, 568 F.3d at 297 n.13.

husband that she was having an affair (with the boyfriend who discovered Kotowski after the attack).[76] Apparently, she and her husband had discussed divorce for the first time a week before the attack.[77] After a nine-day trial, O'Laughlin was convicted and sentenced to thirty-five to fifty years imprisonment.[78]

In concluding the evidence was insufficient to support the conviction, the U.S. Court of the Appeals for the First Circuit focused explicitly on the plausibility of the prosecution's explanation.[79] The court reasoned that the prosecution's explanation for what occurred made no sense in light of the evidence.[80] This was so for two reasons. First, the prosecution's account of the defendant's motives and behavior was inconsistent with the evidence.[81] The prosecution argued that the defendant entered the apartment to steal money or valuables, but nothing was taken from the apartment.[82] Kotowski's purse (which contained cash, credit cards, and a checkbook) was on the floor in plain sight in the bedroom where the attack took place; several items of jewelry and "an expensive watch" were also in plain sight on the dresser; no drawers or cabinets were opened (including a drawer containing over $500 in cash); and nothing else appeared to be disturbed (other than a damaged headboard in the bedroom, from the attack).[83] The court explained that this evidence was inconsistent with the "drug money" theory and fit instead with the explanation that the attack was a personal one directed at the victim (either by the husband or someone else).[84] Second, the court also explained

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[76] *Id.* at 290.

[77] *Id.* at n.1. There was also evidence about the husband being "verbally abusive" and "upset" about the divorce. *Id.* at 297 n.13. As well as evidence that he owned several wooden baseball bats. *Id.* The boyfriend was ruled out by the police as a possible suspect and there does not appear to have been any indication from the defense that this was a possibility worth advancing. *Id.* at 292.

[78] *O'Laughlin*, 568 F.3d at 289. The defendant was convicted of four separate counts: "(1) burglary and armed assault in a dwelling; (2) armed assault in a dwelling; (3) armed assault with intent to murder; and (4) assault and battery by means of a dangerous weapon." *Id.* at 295. The sentence was for concurrent terms of 35–50 years on counts (1) and (2); 19–20 years on count (3); and 9–10 years on count (4). *Id.* at 289.

[79] *Id.* at 301. The issue was before the court on habeas review. *Id.* at 290. In addition to holding the evidence to be insufficient under the *Jackson* standard, the court also held that the state court's application of the *Jackson* standard was "objectively unreasonable." *Id.* at 308.

[80] *O'Laughlin*, 568 F.3d at 308.

[81] *Id.* at 302 ("[T]he evidence that O'Laughlin acted upon a financial motive to commit the attack is weak at best.").

[82] *See id.* at 296.

[83] *Id.* at 292.

[84] *Id.* at 302 ("[T]he assailant's actions are inconsistent with O'Laughlin's purported financial motive in view of the savage beating Mrs. Kotowski suffered at the hands of the assailant, an attack involving at least fifteen to twenty blows that nearly broke every bone in her face and skull. If the assailant were motivated by money, a few blows to incapacitate her

that the failure of any forensic evidence to implicate the defendant was significant, given the brutality of the attack and the amount of blood.[85]

The *O'Laughlin* case fits with each of the considerations discussed above. Not only is there a plausible explanation supporting the defendant's innocence (i.e., the husband), the prosecution's explanation fails on its face to account for several undisputed items of evidence.[86] Moreover, the jury's finding was unsafe: there is at least one close possibility in which the finding is false (i.e., the husband theory), and the evidence would have been the same in other close possibilities in which someone other than O'Laughlin committed the attack. Accordingly, we (and the jurors) should *not* be very surprised to learn that someone other than O'Laughlin attacked Kotowski.

The second example, *United States v. Beard*, involved a defendant convicted of carrying a gun during and in relation to a drug offense.[87] According to the evidence, police acting on an informant's tip staked out a parking lot and saw two cars park next to each other.[88] Beard got out of one car, entered the other, remained there for a few minutes, and then returned to his car.[89] Both cars were then stopped by the police as they drove off.[90] In the car in which Beard was riding, they found drugs in a secret compartment behind the rear seat and a loaded derringer in the center console of the front seat, hidden under some papers.[91] They found cash in the other car.[92] Neither the driver nor Beard owned the car he was riding in; Beard had borrowed it eight months earlier and had been seen driving it.[93]

would have been sufficient.").

[85] *Id.* at 304 ("It bears repeating that the prosecution had to rely on circumstantial evidence because no physical or DNA evidence linked O'Laughlin to the attack despite the copious amount of blood at the crime scene. Considering the large amount of blood, it is difficult to fathom how O'Laughlin was able to avoid having any blood or other DNA evidence connect him to Mrs. Kotowski.").

[86] *See generally O'Laughlin*, 568 F.3d 289. The primary factor that makes this a difficult case is the deference given to jury findings when there is some evidence supporting the prosecution's explanation. The court stated that the prosecution's explanation was at most a "reasonable speculation". *Id.* at 302. But even this seems generous.

[87] 354 F.3d 691, 693 (7th Cir. 2004).

[88] *Id.* at 691–93 (summarizing the facts).

[89] Beard was a passenger in the car. *Id.* at 692. Neither side argued that the driver was involved in the drug deal or possessed the gun. *See generally id.*

[90] *Id.* at 692.

[91] *Id.*

[92] *Beard*, 354 F.3d 691, 692 (7th Cir. 2004).

[93] *Id.*

The key question for the U.S. Court of Appeals for the Seventh Circuit was whether this evidence was sufficient, under the *Jackson* standard,[94] to support a finding that the gun belonged to Beard.[95] As the court explained:

> No one supposes that the derringer was the property of the car's owner—that she hid a loaded gun in the center console when she lent Beard the car. Since others besides himself used the car during the eight months that he possessed it, conceivably the gun was left there by one of these users, but it is highly unlikely. It would mean that someone who borrowed the car from Beard placed a loaded gun in the console, covered it with papers to conceal it, and then—what? Forgot about it? That is possible, but it was not so lively a possibility as to compel a reasonable jury to acquit Beard.[96]

The court further examined the possibility of alternative plausible explanations and noted that none were forthcoming from the defense or otherwise available.[97] The strength of the prosecution's explanation—i.e. that the gun belonged to Beard—would be undermined by any plausible alternatives and is strengthened by the fact that there were no others: "[t]his left the jury with no alternative theory to the government's. Relative to the alternatives, the government's case was more powerful than it would have seemed in the abstract."[98]

Similar to *O'Laughlin*, the *Beard* case illustrates the comparative nature of proof and the importance of explanations. By itself, the prosecution's explanation and argument is plausible but not overwhelming.[99] What about the alternatives? There are possibilities that could be constructed that are consistent with innocence, but there does not appear to be any evidence or

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[94]   *See* Jackson v. Virginia, 443 U.S. 307, 318 (1979).

[95]   *Beard*, 354 F.3d 691, 692 (7th Cir. 2004) ("The difficult question is whether the gun was his.").

[96]   *Id.*

[97]   *Id.* ("We asked his lawyer at argument what the explanation of the defense was for the presence of the gun in the car that Beard had borrowed. No answer was forthcoming. The lawyer seems to have thought that since the government had the burden of proof and Beard was privileged not to testify (and he did not testify), it was irrelevant that the jury was given no alternative to the government's straightforward theory as to whose gun it was. That is incorrect.").

[98]   *Id.* at 693. The evidence and arguments in *Beard* are modeled formally in Floris Bex & Douglas Walton, *Burdens and Standards of Proof for Inference to the Best Explanation: Three Case Studies*, 11 LAW, PROBABILITY & RISK 113 (2012).

[99]   Bex & Walton, *supra* note 98, at 126 (arguing that the prosecution's case viewed by itself is "a fairly weak one" but that "there doesn't seem to be any evidence supporting the conclusion that some other person left a gun in the console. The argument on the other side appears to be non-existent.").

arguments that make any of these possibilities seem plausible.[100] The court's conclusion therefore fits with the explanatory account of proof: the only plausible explanation available is the one in which the gun is the defendant's. Moreover, this finding, although not demonstrably correct ("stranger things have happened"), appears to be an epistemically safe one in the sense discussed above. No close possibilities in which the defendant is innocent were presented or are otherwise available.[101] Therefore, we (and the jurors) should be very surprised to learn that the gun did not belong to Beard, more so than if we learned that O'Laughlin did not commit the attack.

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[100] *Id.*

[101] It does not seem very easy for an innocent defendant to be convicted based on such evidence. Even in close or similar possible worlds in which someone other than the defendant leaves a loaded gun in the car, it would most likely be discovered at some point before the arrest. Thus, safety depends on how easily it could have been the case that (1) someone left a loaded gun in the car, and (2) no one discovered or removed it until the police did so.