

BARE STATISTICAL EVIDENCE AND THE RIGHT TO SECURITY

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Evidence is presented at trial to inform a judgment of law. A primary way that we evaluate evidence is its reliability, its propensity to indicate the truth or falsity of disputed facts. However, there is a type of apparently highly reliable evidence that we sometimes refuse to use at trial: statistics. This gap between our theoretical assessment of statistics and our practical treatment of them is the core of the problem of bare statistical evidence.

There are two basic strategies to addressing the problem, debunking or vindication. The rarely pursued debunking strategy aims to resolve the problem by rejecting our current practice: once we appreciate the strength of statistical evidence, we should overcome our prejudices and use it in court, as elsewhere.¹ In contrast, the vindicatory strategy aims to make sense of our refusal to use bare statistical evidence, usually while admitting that statistics are highly reliable.² This is much more commonly pursued because our refusal is widely endorsed in legal practice, theorists' armchair judgments, and a range of empirical findings.

In this article, I defend a new vindicatory strategy based on what I call the right to security. It is widely (though not universally) recognized that our refusal to use bare statistical evidence is moral in nature: finding against the defendant on such evidence would *wrong* them. The right to security explains this wrong. Understood here as a robust good in Philip Pettit's framework, security requires that someone risking harm to another's protected interests adopts a disposition of concern towards the other which controls against wrongfully harming them across an appropriate range of possible worlds.³ Adjudicating disputes via trial risks defendant's interests, so the state must control against wrongfully harming those interests. If the state uses bare statistical evidence in making its legal judgment, it fails to realize this control and so violates the defendant's right to security. This vindication is offered as a reconstruction of our settled practice and an explanation of the attached moral judgment. I argue that such an approach is especially apt for legal-political practices and connects to security's role in grounding judicial procedural rights more generally.

Here's the plan. In Section I, I lay out the problem of bare statistical evidence and consider some desiderata on potential solutions. In Section II, I explain Pettit's

¹ For example, see Schauer, *Profiles, Probabilities, and Stereotypes*, 106; Hedden and Colyvan, "Legal Probabilism: A Qualified Defence"; Papineau, "The disvalue of knowledge."

² Some vindicatory strategies are only partially vindicatory, saving some uses of our practice and rejecting others. I mostly ignore the vindicatory strategy that attempts to dissolve the problem by undermining the statistics' reliability.

³ Pettit, *The Robust Demands of the Good*.

notion of a robust good and use it to elucidate security. In Section III, I apply the right to security to trial and to the use of statistics. Finally, in Section IV I show that this framework is especially apt for explaining a political practice and I emphasize its explanatory scope.

1. Bare Statistical Evidence

The problem of bare statistical evidence has been present in law for at least 75 years and has been the subject of regular debate over that period.⁴ The last decade has seen a noticeable surge in interest from philosophers, especially under an epistemic frame and partly coinciding with increased focus on the practical aspects of knowledge.⁵ In this section, I offer a brief characterization of the problem and the features that will concern us here.⁶

Consider a hypothetical, drawn from one of the original court cases. Smith's car is damaged and we can tell from the markings that a bus caused the damage, but no other identifying features of the bus are available. Smith sues Blue Bus Company and can provide statistics showing that it operates 80% of the buses in the city, while the remainder are operated by Red Bus. Can we find Blue Bus liable for the damage to the car merely because of the company's share of buses? In a civil suit such as this,

⁴ Smith v Rapid Transit, Inc.; Tribe, "Trial by Mathematics"; Nesson, "The Evidence or the Event? On Judicial Proof and the Acceptability of Verdicts"; Thomson, "Liability and Individualized Evidence"; Wasserman, "The Morality of Statistical Proof and the Risk of Mistaken Liability"; Posner, "An Economic Approach to the Law of Evidence"; Ho, *A Philosophy of Evidence Law*.

⁵ Many recent epistemically inclined discussions build on Redmayne, "Exploring the Proof Paradoxes". In the last decade, see Enoch, Spectre, and Fisher, "Statistical Evidence, Sensitivity, and the Legal Value of Knowledge"; Buchak, "Belief, credence, and norms"; Blome-Tillman, "Sensitivity, Causality, and Statistical Evidence in Courts of Law," "More Likely Than Not—Knowledge First and the Role of Statistical Evidence in Courts of Law," and "Statistical Evidence, Normalcy, and the Gatecrasher Paradox"; Littlejohn, "Truth, knowledge, and the standard of proof in criminal law"; Gardiner, "Legal Burdens of Proof and Statistical Evidence," "The Reasonable and the Relevant: Legal Standards of Proof," "Profiling and Proof: Are Statistics Safe?," and "Relevance and risk: How the relevant alternatives framework models the epistemology of risk"; Di Bello, "Trial by Statistics: Is a High Probability of Guilt Enough to Convict?," "Proof Paradoxes and Normic Support: Socializing or Relativizing?" and "When statistical evidence is not specific enough"; Pardo, "Safety vs. Sensitivity: Possible Worlds and the Law of Evidence"; Smith, "When Does Evidence Suffice for Conviction?" and "More on Normic Support and the Criminal Standard of Proof"; Pritchard, "Legal risk, legal evidence and the arithmetic of criminal justice"; Sarah Moss, "Moral Encroachment" and "Knowledge and Legal Proof"; Bolinger, "The rational impermissibility of accepting (some) racial generalizations"; Di Bello and O'Neill, "Profile Evidence, Fairness, and the Risks of Mistaken Convictions."

⁶ The problem is related to a variety of issues that have also seen recent uptake that I set aside, for example general legal probabilism and profiling.

the standard of proof is preponderance of the evidence, often glossed as “more likely than not” or as greater than 0.5 probability. The statistics seem to ground a 0.8 credence that a Blue Bus caused the damage (or, at least, greater than 0.5), and so would seem to support a finding against Blue Bus. In the actual case, the trial court did not even let the jury hear the case; the evidence was deemed insufficient, a ruling upheld by the Massachusetts Supreme Court. Armchair judgments concur and studies of hypothetical jurors have found that large majorities are unwilling to make a finding on this sort of statistical basis.⁷

Contrast this with a parallel bus case where we have an eyewitness who identifies the bus that damaged Smith’s car as belonging to Blue Bus. Eyewitness testimony is notoriously imperfect; we estimate this eyewitness’ reliability to be 80%. Can we find Blue Bus liable for the damage to the car based on the eyewitness identification? At the very least it is clear that this evidence would be sufficient in the legal sense and so presented to a jury for evaluation. More strongly, we would be comfortable if a jury found against the company on this basis and hypothetical jurors express a willingness to base legal findings on eyewitness testimony. There seems to be something missing from bare statistical evidence. Even when it is as reliable as other kinds of evidence, we resist using it. Even when it is more reliable than other kinds of evidence (perhaps Blue Bus operates 90% of the buses), we resist using it. This is true even when we judge that the evidence is sufficient to ground a belief that the defendant is guilty.⁸ In my view, the notion of use is key: in court, evidence is used against someone.

The general form of a vindication has been widely recognized for some time. Bare statistical evidence lacks a “direct” or “individualized” connection to the subject, yet this is what is required for a finding against.⁹ We can distinguish epistemic and practical approaches to characterizing the nature of this requirement and corresponding lack. Epistemic approaches usually argue that bare statistical evidence is not enough for knowledge; they less commonly argue that it is not enough for full belief or justified belief. Practical approaches argue that using bare statistical evidence cannot serve some practical goal of the trial system, for example deterrence, economic efficiency, respecting rights, or upholding the sociological legitimacy of the

⁷ Wells, “Naked statistical evidence of liability: Is subjective probability enough?” Also see Wright et al, “Factors Affecting the Use of Naked Statistical Evidence of Liability”; Niedermeier, Kerr, and Messé, “Jurors’ Use of Naked Statistical Evidence: Exploring Bases and Implications of the Wells Effect”; Arkes, Shoots-Reinhard, and Mayes, “Disjunction Between Probability and Verdict in Juror Decision Making.”

⁸ Wells, “Naked statistical evidence of liability: Is subjective probability enough?” 739. Niedermeier et al and Arkes et al both manipulate this gap between respondents’ belief in guilt and willingness to find liability.

⁹ Thomson, “Liability and Individualized Evidence.”

judicial system.

Many recent approaches hybridize practical and epistemic concerns. Consider one such hybrid approach, which has some features I draw on below. David Enoch, Levi Spectre, and Talia Fisher note the parallels between modal conditions on knowledge and the problem of bare statistical evidence.¹⁰ Modal conditions capture the idea that even having a justified true belief cannot count as knowledge if that state is reached in a lucky or circumstantial way. Enoch, Spectre, and Fisher pick out the modal condition called Sensitivity: the belief must be sensitive to the truth, roughly meaning that if the proposition were false, the agent would not have the belief. A purely epistemic approach would simply take Sensitivity and apply it to the law, arguing that bare statistical evidence is insensitive, and therefore cannot be knowledge (adding some story about why knowledge is required for the legal finding). Instead, Enoch, Spectre, and Fisher argue that something akin to Sensitivity applies to law because insensitive evidence distorts legal subjects' incentives. If subjects of the law know that they might be convicted on the statistical likelihood that they performed some act because of a reference class they belong to rather than on the direct evidence that follows from a particular violation, they have less incentive to avoid committing the violation. It makes sense for us to refuse to use bare statistical evidence because it is insensitive. This justification for refusing to use bare statistical evidence is practical but draws on some conceptual resources from contemporary epistemology.

Enoch, Spectre, and Fisher's approach shares a flaw with many others that appeal to epistemic resources. Our refusal to use bare statistical evidence has a specific character. The problem is not merely one of the fact-finder's irrationality or the overall structure of the legal system. The problem is that using bare statistical evidence in these cases would *wrong* its subject.¹¹ This comes through especially clearly in earlier discussions and those that take a more holistic perspective on the trial process. Judith Jarvis Thomson argues that using bare statistical evidence makes the finding a matter of luck and this is "unjust."¹² Laurence Tribe holds that it amounts to sacrificing the defendant's rights as a person for public safety.¹³ Hock Lai Ho gives the strongest contemporary expression of this sentiment, noting the "special repugnance" of basing a finding on bare statistical evidence: "we intentionally

¹⁰ Enoch, Spectre, and Fisher, "Statistical Evidence, Sensitivity, and the Legal Value of Knowledge," 220-3.

¹¹ Gardiner, "Legal Burdens of Proof and Statistical Evidence," 187.

¹² Thomson, "Liability and Individualized Evidence," 214.

¹³ Tribe, "Trial by Mathematics," 1374; for similar thoughts, see Wasserman "The Morality of Statistical Proof and the Risk of Mistaken Liability," and Pundik, "Statistical evidence and individual litigants: a reconsideration of Wasserman's argument from autonomy."

subjected the defendant to an open risk of injustice: we gamble on the facts at his expense.”¹⁴

Theories that incorporate a moral judgment of this kind have immediate advantages over theories that explain the problem by appealing to non-moral features. The moral judgment explains why people refuse to use the evidence to convict even when they hold that it is sufficient grounds for believing that the defendant performed the act and why they offer moral explanations of this refusal. Incorporating a moral judgment also directly explains why our legal procedures should be constrained in this way, i.e. why we should potentially sacrifice the accuracy of the court by rejecting this evidence.

Epistemic approaches have a more difficult task here. The question is why courts should concern themselves with whether the court (or the jury, or a specific juror) obtains a relevant doxastic state or meets some kind of epistemic qualification. Taken to an extreme, this becomes what Enoch, Spectre, and Fisher call epistemic fetishism.¹⁵ Many constraints on court procedure, including rules of evidence, come at the cost of accuracy; ignoring probative evidence will mean more guilty people are acquitted and innocents convicted. Balancing such costs against epistemic gains seems to fetishize epistemic values.¹⁶

The same must be said of approaches that justify such rules on grounds of rationality. There are many plausible yet conflicting theories of rationality, especially once we get to the level of specific decision rules, and different theories of rationality play different explanatory and evaluative roles.¹⁷ Showing that some court rule is irrational according to one or another of these theories is incomplete at best. Such theories need an account of rationality in law considered as a political practice, without which declaring some practice irrational and therefore unjustified smacks of rationality fetishism.

A striking feature of this problem is that practice precedes theory. The object of vindication (or debunking) is a settled, public, legal practice with a moral character. Approaches that make the problem simply contiguous with parallel problems of rationality or epistemology are incomplete. They must explain why we would expect this to be realized in a political practice and why it is appropriate to the specific context of law.¹⁸

¹⁴ Ho, *A Philosophy of Evidence Law*, 142.

¹⁵ Enoch, Spectre, and Fisher, “Statistical Evidence, Sensitivity, and the Legal Value of Knowledge,” 213.

¹⁶ Some do connect their epistemic concerns to morality, as with Littlejohn’s focus on blame.

¹⁷ Bermudez, *Decision Theory and Rationality*.

¹⁸ While certainly possible, the difficulties of such explanations are often overlooked. For example, who is the relevant agent who needs to know or believe in the guilt of the defendant? The reasonable doubt standard arose historically because the prior “moral certainty” standard, which required jurors’

With the core problem before us, we can identify two important boundaries. First, the problem seems to dissipate in the case of bare DNA evidence. DNA evidence is explicitly statistical: laboratories compare samples on comparatively few alleles and then extrapolate the statistical chances of a random match based on prevalence of allele patterns in the population.¹⁹ Cases based solely on DNA are increasingly commonplace and generally accepted, so rejecting bare statistical DNA evidence is a serious theoretical cost.²⁰ There seems to be something about DNA that distinguishes it from other kinds of bare statistical evidence, perhaps its sheer level of certainty.²¹

The second boundary is terminologically apparent: the problem of statistical evidence is a problem when it is “bare” or “naked.” The relevant contrast is the use of the same kinds of statistical evidence as corroboration. If Smith presents the rate of bus ownership alongside eyewitness testimony or other kinds of direct evidence, it seems that the statistical evidence would appropriately be taken to bolster the overall case. The exact same statistics can be appropriately used in court in a different context. Statistics are not categorically excluded, rather it is the specific use that they are put to that is thought to be objectionable.²²

Calling this “bare” statistical evidence is only appropriate once we have narrowed our focus to a very specific role for evidence. Other, non-statistical evidence is always present in these cases. Often, this other evidence is not contested at trial or indeed is a prerequisite on the trial occurring at all. This may put such evidence outside the remit of certain rules of evidence or burdens of demonstration but at the level of justification we need to be clear about the specific role that statistical evidence is playing when we reject its use. What is this role?

In the Blue Bus case, a specific violation is identified and there is already enough proof to show that a bus did the damage; the role of the statistical evidence is to identify which agent is responsible for the damage. Similarly, in cold hit DNA cases, the DNA sample must be obtained in such a way as to connect it to the harm done. The sample, for example, is found on the murder weapon or on the person harmed. Without this connection between the sample and the harmful outcome, the connection that the statistics make between the sample and the individual is irrelevant. In general, such cases involve established facts of some specific harm

personal belief in guilt, was restrictive enough to impede courts’ functions. See Roth, “Safety in Numbers – Deciding when DNA Alone is Enough to Convict,” 1161.

¹⁹ For an overview, see *ibid.*

²⁰ Some are willing to accept this cost; see Pritchard, “Legal risk, legal evidence and the arithmetic of criminal justice,” and Smith, “When Does Evidence Suffice for Conviction?”

²¹ Roth, “Safety in Numbers.”

²² Ross, “Rehabilitating Statistical Evidence.” This would rule out some solutions, such as a hypothetical extension of the argument from Pundik, “Predictive Evidence and Unpredictable Freedom,”

(often a preliminary requirement of the possibility of a legal case) as well as some causal story about how the harm occurred (even if this story is quite general, e.g. we know that some human caused the harm). The statistics' role is to identify the responsible agent as grounds for a finding of culpability. It is performing this role without other evidence that we (sometimes) find objectionable. Statistics have been used by courts, apparently less objectionably, to fill in different elements of this story.²³

2. The Right to Security

My central claim is that the use of bare statistical evidence to assign legal culpability is impermissible because it violates individuals' right to security. In this section I present the right to security, applying it to the trial context in the next. My presentation proceeds in three steps: robust goods, security as a robust good, and a right to security. The idea of a robust good is the centerpiece of a conceptual framework proposed and defended by Philip Pettit.²⁴ Understanding security as a robust good is an extension proposed by Seth Lazar in a separate context.²⁵ I follow the general contours set by both Pettit and Lazar but differ in some details.

A. Robust goods

Pettit proposes the notion of a robust good to better characterize how we value relationships and social life. A useful example is the robust good of friendship. Robust goods begin with more familiar thin goods. For example, friendship involves a variety of goods such as favor, care, camaraderie, and various pleasures. We realize these thin goods in the course of being friends, for example while having a nice dinner and conversation. But friendship is more than an accumulation of thin goods. Friendship is about how those goods are brought about in the context of a relationship. Fair-weather friends are not real friends because they bring about the thin goods only when it is convenient. A real friend's concern for you is realized in inconvenient circumstances as well.

This gestures towards the key role of modality. Real friends provide each other the thin goods of friendship across different possible worlds. This is a fine starting point but it is a bit odd to think that the goods in this world are dependent on the goods of other worlds. It is not quite that you are friends because of what would have happened. You are friends because the care and favor you display in your friendship

²³ Summers v. Tice; Sindell v. Abbott Laboratories.

²⁴ Pettit, *The Robust Demands of the Good*.

²⁵ Lazar, "Risky Killing: How Risks Worsen Violations of Objective Rights."

arises in a specific way, one aspect of which is that you would also give each other care and favor under different circumstances. The key is what Pettit calls a disposition. When you are someone's friend, you build them into your life by structuring your attitudes and decision-making to account for their interests and your shared relationship. Friends have a disposition to favor each other. This disposition *controls* for being friends: as we encounter challenges and changing contexts, our disposition adjusts our behavior so that we still favor our friends. When you favor someone in the characteristic ways of friendship out of a disposition for doing so, you also give them the great additional good of being their friend. In general, robust goods are thin goods realized by dispositional control. For Pettit, they include romantic love, respect, and republican freedom, among many others.

One way of thinking about the modally robust provision of thin goods would be via expected value: you get a higher expected quantity of thin goods from people who would give you the thin goods across a wider range of possible worlds. But Pettit emphasizes that this is the wrong way to think about it, as should be particularly clear for friendship. Treating friendship instrumentally is to miss the point of friendship. The disposition of concern is valuable not because it makes the provision of thin goods more reliable, although it has that effect. Dispositions of concern constitute important parts of a relationship. To form a disposition of concern for someone is to build them into your life, to value their interests precisely in the sense that their interests become choiceworthy in your attitudes and decision-making, and do so by default. Due to the disposition, friends don't have to consider whether to favor on every occasion—that would be one thought too many, repeatedly.

One more detail from Pettit's complex framework is relevant for our purposes here: setting the range of possible worlds. Friends must control for providing favor over some broad range to count as friends at all. If we provide favor too narrowly, we are fair-weather friends or just acquaintances. But friendship also does not demand favor in all possible worlds: friends can take time for themselves, friendships can end appropriately, have limits on sacrifice, and so on. The key is that friendship is a social practice that involves shared understanding. The appropriate range is something that we collectively construct in our cultural understandings of friendship, that can change over time, that individual friendships negotiate explicitly or implicitly, and so on.²⁶ The appropriate range depends on how we understand and value friendship; there is no way of determining it solely through definitions or transcendental deductions. The scope of friendship is something we understand and work out, together.

B. Security

²⁶ Pettit, *The Robust Demands of the Good*, 17-20.

With the robust goods framework in hand, we turn to security. Security vaguely involves protections against risk and harm but, in Jeremy Waldron's assessment, the concept "has not been properly analyzed" and its discussion is in a "sorry state."²⁷ Thus adapting the robust goods framework to the context of security may be fruitful. Let's see.

Security as a robust good must involve the provision of some thin good out of a disposition of concern that secures that provision across an appropriate range of possible worlds. Lazar argues that security is the

robust avoidance of pro tanto wrongful harm. To enjoy security, one must not only avoid wrongful harm in the actual world, but also do so across relevant counterfactual scenarios: those in which the victim does not get lucky. We are insecure to the extent that others make our avoidance of wrongful harm depend on luck.²⁸

The thin good, then, is a negative one: the absence of wrongful harm, where wrongfulness correlates to a violation of someone's rights. We make each other secure when we avoid wrongfully harming each other out of a disposition of concern for avoiding such harm.

The profound interdependence of life in community means our rights-protected interests are constantly under the influence of others. Giving and receiving security is therefore a pervasive feature of our social lives. Driving, for example, risks severe harm to others but when we adopt dispositions of care, we can (arguably) give others sufficient security even while we drive. Without the widespread co-provision of security, driving would be unmanageably risky. Security is particularly important in practices that harm constitutively; if we can harm without wrongfully harming, we can be secure in harm. Surgery intentionally and often grievously harms but surgery patients can have security when hospitals and surgical teams adopt dispositions of concern for avoiding negligent, unnecessary, and other kinds of wrongful harm.

Security in this sense is thus a very great good. It has instrumental benefits such as peace of mind and, of course, avoiding harm. As Lazar notes, it is also intrinsically valuable: it is essential to community standing.²⁹ My community only accepts and respects me as a member if they value me, establishing norms for controlling against wrongfully infringing my core interests. Dispositions of concern are realized not only in individual psychological states but also in shared social practices, including laws. Security is also essential for individual autonomy and

²⁷ Waldron, "Security as a Basic Right (After 9/11)," 210.

²⁸ Seth Lazar, "Risky Killing: How Risks Worsen Violations of Objective Rights," 8.

²⁹ Lazar, "Risky Killing," 9. Also see Wolfendale, "Moral Security."

flourishing, and probably also as a social basis of self-respect.³⁰ If I am under constant threat, I can hardly plan for anything other than securing my basic interests.³¹

Robust goods' modal nature is especially apt for security. If my landlord doesn't keep smoke detectors working in my building, I am insecure even if there is never a fire. The harms that would result from a fire are distinct from the ongoing insecurity against fire that I suffer in the absence of smoke detectors. Since the thin good is an absence, it would be bizarre to ignore security's modal character. If my building has caught fire every day for a week, the fact that it has not caught fire today does not make me secure against fire. I am desperately insecure against fire because of the closeness of worlds where my building catches fire.

Security against fire involves more than smoke detectors, for example fire fighters. My right to security against fire involves different sorts of responsibilities that are distributed among different levels within my community: some accrue to public institutions, some to building owners, some to neighbors. An acceptable distribution of fire-related responsibility could take different forms; the authority to determine such a distribution is one of the political powers that rests with my community precisely because control against fire requires socially settled standards, acknowledged responsibilities, settled expectations, sufficient resources, and so on.³²

C. A right to security?

We turn to the question of a right to security as a robust good. The fact that robust goods are very important does not show that we have a right to them; romantic love is important and good but we do not have a right to it, partly because nobody in particular can have a duty to be in love with us.

It may be thought that security is different because it involves rights as part of the thin good. But while it is true that we have rights not to be harmed in certain ways, security is about the separate issue of robustly controlling for avoiding such harms. Some rights are relatively minor and, while they shouldn't be violated, may not constrain our deliberations and attitudes in the way that robust provision from a disposition of concern entails. I have property rights in my pens and perhaps a coworker occasionally takes a pen from my desk, violating those rights. He also doesn't concern himself with not taking my pens. Taking my pen violates my rights but it's not clear that his lack of disposition against such takings *further* wrongs me, given that my pen-related interests are quite insubstantial. I may not have a claim-

³⁰ Rawls, *Political Liberalism*, 106.

³¹ Waldron, "Security as a Basic Right (After 9/11)."

³² Security, then, is helpfully paired with the harms of patterned, repetitive risk, for example as explicated in Bolinger, "The rational impermissibility of accepting (some) racial generalizations."

right against others to provide me this kind of security.

Resolving the precise conditions under which we have a right to security would require detailed forays into various theories of rights, for example will or interest theories. However, pursuing these options is unnecessary given our concern with the context of trial. In general, we can say that we have a right to security when our basic or core interests are at stake. Control against the setback of those interests is going to be sufficient to ground a right on either the will or interest route. Human rights, for example, protect such interests. Following Henry Shue, enjoying such fundamental rights requires more than circumstantial non-infringement, it requires the robust (institutional) provision of non-infringement.³³ Trials involve basic interests such as bodily integrity, community standing, and property; significant interests are at play by stipulation (presuming *de minimis non curat lex*). Given that, it is plausible that trial is a context where the value of security translates into a claim-right on the provision of security.

Two final comments about robust goods and security. First, robust goods are a conceptual framework for understanding the nature of some kinds of value, not an axiology per se. The conceptual framework is consistent with many different (though not all) positive value commitments. Grounding the right to security in the robust good framework is relatively ecumenical.

Second, on this construal security is a fundamentally social notion. Security is helpfully paired with the notion of vulnerability: we are vulnerable to others when they have discretion over our interests.³⁴ We cannot avoid being vulnerable to others, both physically and socially; interdependence implies mutual vulnerability. Security is not invulnerability but living in social relations where others recognize our vulnerability and concern themselves with us by adopting dispositions that control for not exploiting our vulnerability.³⁵ Recognizing that they have discretion over our interests, they ensure that they will not use that discretion to wrongfully harm us. This is a basic relation of respect in community.³⁶

3. Security at Trial

Trials are intrinsically constructed to potentially result in harm. Courts' dispute-

³³ Shue, *Basic Rights*. Shue notes that physical security is a precondition on enjoying rights; we are concerned with a broader sense.

³⁴ Baier, "Trust and Antitrust."

³⁵ Understanding security as a robust good therefore connects basic material rights with their social provision and recognition.

³⁶ It is unclear where security would fall in Pettit's schema of robust goods, where he distinguishes between the general virtues, attachments, and respect. It may be that respect and security fall under a more general category of status-based goods or community membership.

resolution function rests on their authority to change legal status, especially to impose costs. Even when the case is rejected or the result is no further change there is the costly closing of potential avenues of relief since the state claims final authority. The intrinsic possibility of change in interests is clearest in the case of criminal trials where punishment looms, but civil proceedings also involve setback interests or harms, such as fines, settlements, loss or transfer of legal status, and so on. It is precisely when harms are constitutively at stake that security is most relevant.

I argued above that we have a right to security whenever our fundamental interests are at stake. Since risking such interests is constitutive of courts' dispute-resolution function, individuals plainly have a right to security at trial. Avoiding harms altogether is not possible in this context so security must concern avoiding wrongful harms. Wrongfulness could concern a variety of factors, including the permissibility of imposing harms or disproportionate harms, going far beyond the basic concern of not punishing the innocent. Trials attempt to ensure that the harms they mete out are not wrongful by testing and assessing the claims of rights and desert that the parties make. This is the point of fact-finding: to figure out what happened in order to apply the law's deontic framework to draw conclusions about how people deserve to be treated. In central ways, the process of trial is a security mechanism.

Security requires a disposition of concern that controls for avoiding wrongful harm. On my view, the state bears the primary correlative duty to provide security, so we are looking for security realized via state dispositions. This is not like friendship, which is primarily about affective and psychological states. We are concerned with the state as an institutional and group agent. Its decision-making is primarily a matter of institutional rules and procedures that define individual roles and direct the conduct of participants, combining individual inputs in such a way as to constitute collective behavior. It is also a matter of more informal elements, for example institutional culture and implicit norms of professional conduct. The disposition of concern that controls for avoiding wrongful harm to parties must be realized institutionally, whether in standards of proof, rules of evidence, established precedent, or constitutional protections.

If we identify the duty-bearers as individuals, dispositions are a matter of individual psychology. This seems misleading, not least because there is no way to guarantee that any individual juror has this disposition.³⁷ The court should function with average citizens in official roles, not require moral excellence. So while the role-specific norms of juror behavior will matter for security, the disposition of concern is

³⁷ Ho's version is particularly demanding: jurors must have empathic care. See Ho, *A Philosophy of Evidence Law*, 209-10.

primarily realized through an institutional process that individual jurors take part in.³⁸

Defendants at trial have a right to security and states have a duty to provide that security by adopting dispositions for controlling against wrongfully harming them. This grounds a host of procedures that aim to reduce the risk of wrongfully harming, including some rules of evidence such as the requirement that forensics be based on established science. But we cannot understand the refusal to use bare statistical evidence on these grounds if we understand this risk in purely probabilistic terms since the problem arises from our assessment that the statistics are reliable. Robustness avoids this trap; Pettit introduced the notion specifically in part to reject the reduction of relational goods to expected values.

As noted above in the case of friendship, the range of possible worlds can only be determined by a shared understanding of the values at stake. We should not imagine the range of control as extending to possible worlds in an even bubble of likelihood with some numerical threshold. The disposition will control for the provision of the good in some quite distant (very unlikely) worlds while not controlling for the provision in some relatively close worlds, more like an amoeba with quite different length and size appendages. Being secure against some harm is not about that harm being 1% likely or any other number. Instead, control follows the contours of our shared understanding of security, especially in its role in enabling community life and giving mutual respect.

We may still use numerical thresholds or standards like beyond a reasonable doubt for some kinds of security. The point is that security extends beyond this, for example protections against certain kinds of wrongful harm.³⁹ Consider the risk of a corrupt conviction, where evidence is falsified by officials to secure their preferred outcome. We do not need to measure how corrupt convictions affect the overall accuracy of the trial process to say that falsified evidence should be excluded. A smaller risk of a corrupt conviction may make us insecure while a larger risk of coincidental conviction does not.⁴⁰ The difference is that falsified evidence directly

³⁸ Notice that the right to security is only violated if the agent threatening harm fails to control for not wrongfully harming. This is consistent with wrongfully harming since control is imperfect, so mistaken convictions are consistent with security. These are distinct injustices: to be convicted without committing a violation and to be convicted via a process that didn't account for your rights-protected interests.

³⁹ This kind of thought explains why even very low probability of interpersonal, community-based harm is (correctly) perceived as more threatening (to our security) than higher probabilities of impersonal harms such as natural disasters.

⁴⁰ The implications of this may be quite revisionary; my claim is not that courts as currently constituted provide sufficient security on the whole. However, my claim is also not that any risk of corruption renders trials illegitimate, since that is a practical impossibility. The point is that defendants have

disregards security: it fails to control for avoiding wrongful harms because it circumvents the procedures that are testing for determining liability and so the wrongfulness of potential outcomes. Its impact on overall systemic accuracy is irrelevant; defendants' protected interests should not rely on those kinds of vicissitudes.

So my central claim is that using bare statistics to find a defendant culpable violates their right to security because, in an objectionable way, it fails to control for avoiding wrongfully harming their protected interests. This immediately raises the question: in what way and why is it objectionable? In what follows I articulate the wrong using the security framework and I appeal to the resources of the ongoing literature. Ultimately, however, the security account is a reconstruction of our collective judgment as realized in a public practice. The account does not provide an independent criterion in the sense that you can assess the security features of some use of statistics and make a judgment about permissible use in the abstract. In the next section I further defend this methodology.

As noted above, the general form of a solution to the problem of bare statistical evidence has been acknowledged from the start: statistics don't tie the individual to the culpable act in the right kind of way. The boundaries of the problem that I articulated show that the problem is about ascribing culpability. For that reason, I think previous attempts that emphasized the defendant's autonomy got quite close, tying the problem to the concern with a contemporary legalistic understanding of justice.⁴¹ The law cannot treat us as mere members of potentially offending classes, it must ascribe specific violations to us: it must accuse us of acting in a specific way that its individualized deontic framework can apply to.⁴² Statistics show only that someone similarly positioned had some likelihood of acting in some way, not that the defendant acted. The absence of more direct evidence that necessarily accompanies bare statistics makes the possibility of innocence salient.⁴³ Finding against a defendant when the only basis of their culpability is bare statistical evidence wrongs them because it fails to control against the possibility that the defendant is innocent in the way that statistics necessarily leave open, and so not liable to the harms imposed. Using bare statistical evidence makes defendants wrongfully insecure.

claims to protection against different kinds of harms, many of which are not reducible to likelihood of harm. This protection also extends beyond any specific court to legal processes on the whole. Thanks to an anonymous reviewer for pushing me to clarify this.

⁴¹ Tribe, "Trial by Statistics," 1374.

⁴² Wasserman, "The Morality of Statistical Proof and the Risk of Mistaken Liability," 942-3.

⁴³ Pardo and Allen, "Juridical Proof and the Best Explanation"; Gardiner, "The Reasonable and the Relevant: Legal Standards of Proof."

Appealing to a security framework raises some concerns.⁴⁴ It may be unclear what distinct work the appeal to security is doing; the previous paragraph, for example, mostly consists of arguments others have made about statistical evidence presented in security language. But that is my intention. As noted, I think we have had a good grip on the main contours of the debate since the problem was recognized. People have tried to explain it by appealing to autonomy and related moral rights. My argument is that security as a robust good is a better way of filling in something we already understand in outline.

The robust goods framework emphasizes that defendants deserve protections against certain risks of harm that cannot be understood purely probabilistically. The high reliability of statistics in comparison to other kinds of evidence does not end the conversation because different kinds of risks realize different kinds of threats to our standing in community. These threats change, as I am inclined to think we see in the case of statistics. The threat to standing of being found culpable purely on a statistical basis was very different in 1945 than it is in 2021, in the age of big data and high-powered algorithms. The threat from DNA statistics is different from the threat of market share statistics. These statistical threats share the lack of individualized identification but what that threat means in a social context can change drastically over time. Security as a robust good gives us a distinct, and in my view better, way of understanding what's at stake with statistical evidence.

Security here is not reducible to a psychological sense of security. It is mainly constituted by facts about how exposed to harm we are. But what counts as a sufficient level of security that we have a *claim* on others to *provide* in a particular context is largely determined by our values and attitudes about which sorts of risks and harms are relevant to our lives. As above, the modal shape of security is something we work out, together. The point of security is to enable our individual and collective lives. How we understand those lives and how we choose to prioritize certain forms of life therefore directly and dramatically effects what counts as sufficient security and so what counts as wrongful infringements of the right to security.

Using a right to security framework does not settle the bare statistical evidence problem on its own. Security rights pull in opposite directions. The state has a duty not to harm innocent citizens by wrongfully punishing them but it also has a duty to protect citizens from others' harmful actions.⁴⁵ The security rights of a defendant at trial can be in tension with the security rights of the public outside of the

⁴⁴ Thanks to an anonymous reviewer for pushing me to clarify the issues raised in the next four paragraphs.

⁴⁵ Dworkin, *Taking Rights Seriously*, 12. Cf. Laudan, "The Rules of Trial, Political Morality, and the Costs of Error: Or, Is Proof Beyond a Reasonable Doubt Doing More Harm than Good?"

courtroom. Perhaps the public's right to security trumps defendants' right to security such that statistical evidence should be admitted. So the right to security framework on its own doesn't vindicate our current refusal to use such evidence. I am still inclined towards vindication because I think a security approach emphasizes the obligations of the state in its imposition of harm. But this openness is a virtue of the approach. As emphasized above, it gives us a way of understanding the choice we are making with our rules of evidence, presenting it as a matter of security and status in the community.

One significant advantage of appealing to security is how it handles not just the problem's core cases but its boundaries. It makes sense of the striking boundary that statistics are only problematic when used to ascribe culpability. Security is about avoiding wrongful harm. A non-culpable person should not be punished but once culpability has been established, the possibility of permissibly punishing is opened.⁴⁶ Further, although I can't fully argue this here, culpable actions open one to a range of harmful responses. This explains why it can be appropriate to use statistics to apportion harms done by identified culpable agents but still not appropriate to use statistics to determine culpability.⁴⁷ The burdens of evidence shift around the focal point of culpability because culpability is a main determinant of permissible harm, so the demand for security takes a different form as culpability changes. Establishing culpability moves the burden away from the plaintiff; if the circumstances are such that the plaintiff cannot be expected to produce individualized evidence of the causal story, then statistical evidence can be permissible because the culpable act opened the defendant up to such possibilities. What about DNA? To explain that boundary, we must turn to the question of political judgment.

4. Political Explanations

In this section I connect two lingering issues, the nature of the right to security and the type of explanation it provides. I've already tried to show that the right to security is ecumenical both in axiology and at the level of rights theory. Sometimes philosophers pursue this kind of broad scope to secure a wider audience but here it is more fundamental to the type of right in question. This issue has remained mostly hidden in the discussion of bare statistical evidence up to this point. The unifying concern of this section is methodological clarification: what kind of problem is presented by bare statistical evidence and so what kind of solutions are appropriate to that problem?

⁴⁶ That is, there is a weak rights forfeiture assumption; see Wellman, "The Rights Forfeiture Theory of Punishment."

⁴⁷ *Summers v. Tice*; *Sindell v. Abbott Laboratories*.

Consider an appeal to the defendant's autonomy that relies on a Kantian understanding of autonomy. Even if such explanations are plausible on their own terms, they appear inappropriate to the phenomenon they are trying to explain. Vindication of our refusal is vindication of a shared, public practice. A vindictory strategy that says we were correct because we adhered to the underlying moral truth as articulated by Kant misses something important. We should be able to explain and vindicate our refusal to use bare statistical evidence on public and political terms. This doesn't rule out autonomy explanations, since autonomy is plausibly a core public value, but it does rule out those that rely on too narrow interpretations thereof.

This shares some features with Rawls's public reason demands but my claim is not about legitimate constitutional law or other features of the basic structure. The object of analysis here is a long-standing and widely affirmed legal practice. Therefore, the right to security is best understood as a political right in the following quasi-Rawlsian sense: a right included in and following from the commitments of political doctrines, which applies to the public sphere and abjures deep metaphysical commitments.⁴⁸ It is thus explicable to and endorseable from major public perspectives. It is political, rather than legal, in the sense that it is not merely a feature of positive law and should be respected by law where it is not. It is moral, rather than a matter of etiquette or theoretical reason, in the broad sense that it arises from the conditions on shared living, applying to persons in virtue of those conditions, and being sufficiently weighty to constrain the pursuit of even important goods like accuracy at trial.

Explaining the problem of bare statistical evidence by appealing to the right to security understood in this moral and political sense has three virtues. First, already articulated above, such a right is apt for the phenomenon being explained. Explanations that appeal to comprehensive moral doctrines, or indeed theories of epistemology or rationality with non-public metaphysical or evaluative commitments, owe additional explanations for how this connects to a political practice endorsed from many different public perspectives over many decades.

It may seem that my appeal to the idea of a robust good conflicts with my insistence that we give a political explanation. After all, robust goods are a novel framework, not widely accepted, and certainly not the subject of widespread political agreement. But these two elements of my argument are not in conflict. The notion of a robust good is a rational reconstruction and clarification of widely agreed upon values and relationships such as friendship, freedom, and respect. New concepts help us understand these common features of our social life; my claim is that we also better

⁴⁸ In order to understand the right this way, we don't need to buy into the entire Rawlsian public reason framework. I'm also understanding the political domain to be concerned with public interest in some sense, not relying on the idea that there is a public, apolitical domain that defines the contrast.

understand the problem of statistical evidence by bringing this framework to bear. The terminology is unfamiliar but the justification can be put in terms that demonstrate its grounding in shared political values. The reason that we will not use bare statistical evidence in certain ways is because defendants have rights to protections of their core interests and the state has a correlative obligation to control for protecting those interests. This is why the solution to the problem has been widely acknowledged from the outset. The right to security gives a coherence and structure to this solution.

The second virtue of appealing to a political right is its consistency with many of the other explanations being offered and so its ability to use their novel resources. We may be insecure when evidence does not meet Safety or Sensitivity constraints, for example. More promisingly, I think, recent work has appealed to the notion of normality to explain our reasoning in trial contexts. Martin Smith argues that statistical evidence is flawed because it's normal for such evidence to be consistent with the innocence of the victim, in contrast to direct evidence.⁴⁹ Similarly, Georgi Gardiner argues that juries considering reasonable doubt can rule out some alternatives because they are abnormal, violating our expectations of what social life is actually like.⁵⁰ What counts as abnormal is conventional and "can be domain-specific."⁵¹ An account that explains the political practice by appeal to a political right can keep the practice even while alternative, deeper accounts provide new resources for understanding our practice.

Such normality notions help explain the range of worlds over which security requires controlling against wrongfully harming. This is going to be partly a matter of convention: we have simply decided that security requires protection against these kinds of normal threats but not abnormal threats.⁵² We can see this conventional stipulation already at work in the trial context. A Massachusetts laboratory technician was recently found to have been under the influence of illicit drugs, including some potentially cognitive performance-enhancing drugs such as amphetamines. This led to more than 24,000 cases being dismissed.⁵³ This is not based on any specific reliability or accuracy claims but on what risks we are willing to accept. We accept the risks of participants in the court process being under the influence of a variety of licit drugs. These distinctions are not based on reliability measurements but on social

⁴⁹ Smith, "When Does Evidence Suffice for Conviction?" 1209.

⁵⁰ Gardiner, "The Reasonable and the Relevant: Legal Standards of Proof," 305.

⁵¹ Gardiner, "Relevance and risk: How the relevant alternatives framework models the epistemology of risk," 10.

⁵² This can be fruitfully connected to the notion of standard threats from Shue, *Basic Rights*.

⁵³ See Danny McDonald, "24,000 charges tossed because they were tainted by former Amherst lab chemist's misconduct."

conventions about what kinds of risks are acceptable to impose on defendants and which are not.

This returns us finally to the issue of DNA evidence. Normality is likely connected to the degree of certainty DNA evidence apparently licenses and to courts' reliance on established science. It may simply be that DNA evidence moved into the category of normalized risks that we accept as not infringing on our security: statistics we can live with.⁵⁴ Similarly, Lewis D. Ross has recently argued that we are less hostile to using multiple sources of inculpatory statistics despite our overall evidence remaining statistical.⁵⁵ In my view, there may be no principle that distinguishes single from overlapping statistics and yet our practice may not be unjustifiably incoherent. The practice is a collective judgment about what sorts of statistics make us *wrongfully* insecure and that judgment is (largely) up to us. Our understanding of the nature of these risks and our willingness to tolerate them can change over time and be an appropriate part of our security. As Rawls notes, many political issues of this sort "have no precise answers and depend... on judgment. Political philosophy cannot formulate a precise procedure of judgment; and this should be expressly and repeatedly stated."⁵⁶

The third virtue of appealing to a political right to security involves explanatory scope. Epistemic accounts have emphasized that they can explain both the problem of bare statistical evidence and related epistemological problems such as the lottery paradox. This scope is taken to be a theoretical virtue; solutions that apply only to the trial context may appear ad hoc. But there is explanatory scope in other directions as well. As Gardiner, Ho, and others have argued, the solution to the problem of bare statistical evidence may be connected to explanations of other aspects of the trial or legal procedure.⁵⁷

The right to security does much more than explain our refusal to use bare statistical evidence. In my view, it grounds the right to a fair trial and the class of judicial, procedural rights more generally.⁵⁸ Security is the *main* constraint on courts' pursuit of accurate outcomes. Courts do not merely produce beliefs or evidence for some proposition, they are used to justify actions. In virtue of their dispute resolution

⁵⁴ This contradicts Smith's application of his normic standard to DNA evidence. My appeal to normalization does not rely on the particularities of Smith's theory. That said, I agree that in some cases, depending on how the DNA sample is related to the crime scene, the possibility of randomly shedding DNA requires no extra explanation. But in other cold-hit cases, some explanation is required to explain how the defendant's DNA ended, for example, on the murder weapon. Thanks to an anonymous reviewer for pushing me to clarify my appeal to normalization here.

⁵⁵ Ross, "Legal proof and statistical conjunctions."

⁵⁶ Rawls, *Lectures on the History of Political Philosophy*, 135.

⁵⁷ Gardiner, "The Reasonable and the Relevant: Legal Standards of Proof"; Ho, *A Philosophy of Evidence Law*; Schauer, *Profiles, Probabilities, and Stereotypes*.

⁵⁸ Adams, "Grounding Procedural Rights."

function, those actions always threaten costs, sometimes up to and including social and physical death. Setting up a whole institutional apparatus that by its nature metes out costs, supporting it with the glamor and brutality of the state, and forcing individuals to submit is an incredibly risky enterprise. The right to security structures trials fundamentally, explaining a wide range of features of law and many features of evidence law, including exclusionary rules and our refusal to use bare statistical evidence. This account has explanatory scope within a range of related political practices.

The right to security account also has some explanatory scope into epistemological questions, albeit at greater remove. I borrow this idea from Enoch, Spectre, and Levin, who argue that while courts should not concern themselves with epistemology per se, there are underlying reasons why courts would be concerned with something like the Sensitivity condition. Unlike other political-legal explanations, the right to security intrinsically involves a modal element. As stressed, the value of security arises from the provision of the avoidance of harm out of a disposition that controls for outcomes across possible worlds.

Modality is relevant to knowledge and to courts because of underlying concerns with uncertainty, stability across time, and other constitutive elements of human life.⁵⁹ Life under uncertainty requires ruling out some alternatives but not others and drawing a line between the alternatives that are relevant for our actions or beliefs and those that are not. This is why knowledge is more than true belief, security more than the absence of harm, freedom more than non-interference, and honesty more than speaking truly. Modality is increasingly the tool that philosophers use to understand these important features of our lives. Robustness also incorporates agency, intention, and responsibility for modally secure outcomes, relating to the motivating concerns of virtue epistemology. It's no surprise that problems with modal provision and parallel solutions arise across domains. This kind of related but still distinct explanation treats epistemology and legal-political practices as importantly different. Even if the extra robustness of true belief adds nothing in epistemology, it wouldn't follow that the extra robustness of culpability determinations adds nothing to our social lives.⁶⁰

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⁶⁰ Papineau, "On the disvalue of knowledge."

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