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THE ELEMENTARY EPISTEMIC ARITHMETIC OF CRIMINAL JUSTICE

ABSTRACT

This paper propounds the following theses: 1). that the traditional focus on the Blackstone ratio of errors as a device for setting the criminal standard of proof is ill-conceived, 2). that the preoccupation with the *rate* of false convictions in criminal trials is myopic, and 3). that the key ratio of interest, in judging the political morality of a system of criminal justice, involves the relation between the risk that an innocent person runs of being falsely convicted of a serious crime and the risk of being criminally victimized by someone who was falsely acquitted.

In the epic battle between those who hold that we should convict more of the bad guys and those who think we should convict fewer of the good ones, each side exhibits the classic symptom of the ideologue: a mighty indifference to the empirical data. The one camp firmly believes that false convictions are as rare as hen's teeth, which they are not, and that convictions massively deter crime, which may or may not be true. The other camp believes that the costs of false acquittals are trivial compared to the costs of false convictions, thereby justifying its opposition to putting any meaningful controls on the frequency of false acquittals. The trouble here is that the social and human costs of false acquittals are *not* trivial in comparison with the costs of false convictions. This second camp likewise denies that there is any important causal relation between the rate of conviction and the rate of violent crime, even when this particular inverse relation is one of the few robust conclusions to emerge from criminology. In short, both camps are in data denial. We have ample evidence that false convictions are commonplace, an injustice that should neither be dismissed nor downplayed. But we also have impressive evidence that false acquittals have a dramatic, deleterious effect on the crime rate, chiefly by failing to incapacitate serial offenders.[2]

It goes without saying that data denial is a worrisome thing. But my plea here is not so much that we need to take the data more seriously than we have – true as that is – but, rather, that we need to be a lot more savvy and careful than we have been about the conceptual tools we use for embedding those data in our discussions

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about crime, punishment, and the rules of trial. To that end, in this paper, I want to present some home truths about how the justice system can, and does, work. My preferred idiom will be garden-variety arithmetic and, where necessary, plain English; my aim will be to show that we have fastened on the wrong measures and the wrong quantitative ideals for thinking about the problems of error in the law.

The use of the penal sanction involves a host of emotionally-charged issues. Accordingly, discussions of these themes often tend to reduce to a war of rhetorical barbs rather than a dispassionate exchange of carefully-crafted arguments. Nowhere is this suspension of the critical faculties more apparent than when we confront questions surrounding the issue of false convictions. This problem, of course, has long dogged the heels and pricked the consciences of liberal jurists and academic lawyers. A century and a half ago, Jeremy Bentham trenchantly pointed out the absurdity of a bidding war between judicial experts, each outdoing the other to see who was willing to absorb more false acquittals to save one innocent person from false conviction.[3] But, like Banquo's ghost at Macbeth's banquet, this specter just won't stay away. Acknowledging that sorry history, I'm nonetheless minded to make one more shot at trying to bring the discussion of this issue down to earth, hoping that we can debate it without too much sentimentality.

If, as honest fallibilists must, we once accept that mistakes – including this particularly egregious form of mistake – are inevitable in human affairs, then the issue becomes not a matter of wholly eliminating such errors from the repertoire of criminal justice but rather one of framing a coherent answer to the question: what is an *acceptable* level of false convictions? One in ten? One in a hundred? Should we share the obvious shock of our colleague Professor Sam Gross and his fellow researchers at discovering, at the end of a lengthy study of exonerations over a decade and a half, that: "Any plausible guess at the total number of miscarriages of justice in America in the last fifteen years must be in the thousands, perhaps tens of thousands" (Gross et al. 2005, 551). Should we be appalled to discover that, out of more than fifteen million criminal convictions in this period, perhaps 10,000 or more of them were false convictions?[4]

Even if Prof. Gross's worst fears are realized, the justice system makes a mistake less than once in every thousand convictions. Is there *any* other form of human deliberation in which errors are so rare? I know no epistemologist or experimental psychologist or statistician who would not regard this figure, if true, as anything less than an astonishingly successful cognitive achievement. Even if there were 100,000 false convictions in the fifteen years covered by Gross's study – instead of the 340 that he actually found – this would still represent an error rate of less than one percent. Would a type-I error rate as "high" as that really be unacceptable? Almost no one wants to give that question a straight answer. Partly, the reluctance stems (as Lawrence Tribe and Justice Brennan have both argued) from a recognition that any answer greater than zero would appear to (and, indeed, would) acquiesce in and condone committing the occasional grave injustice. But mostly, it derives

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not so much from such squeamishness as from an unresolved perplexity about how we might go about rationally deciding what an acceptable number would be. Muddling on, or blithely suggesting that we must do the best we can to keep false convictions to a minimum, is neither very informative nor very ameliorative, since literally "doing the best we can to protect the innocent" – as I have argued in detail elsewhere (2009) – exacts a higher price in lost convictions of the guilty than any reasonable person should be prepared to pay.

In this paper, I will eventually propose a politically incorrect answer to this morally delicate question. But our route from here to there must take us along a pair of detours that have, in my view, profoundly muddied the waters and thus muddled our thinking about the problem of false convictions. I begin by reminding us all that legal scholars have generally fastened on one of two ratios for exploring this matter. They have either settled on the Blackstone ratio (represented hereafter as BR and given by N_{FA}/N_{FC}), which they want to keep high, or they have focused on the false conviction rate (given by N_{FC}/N_C), which they want to keep low. In the first section of my remarks, I will try to explain why these foci are misleading and have stymied our arriving at any convincing answer to the question: How many false convictions are acceptable? In the second, more constructive and controversial part of the paper, I will suggest what the answer to that question ought to be.

I. BLACKSTONE AND OTHER MISLEADING RATIOS

a) Blackstone and the Mystic Order-of-Magnitude Cult

It has become an almost unquestioned article of faith in Anglo-Saxon legal circles that justice fails to be served if there are fewer than ten false acquittals for every false conviction at trial. Serious scholars have attempted, notably without success, to devise ways of defining the standard of proof so that it will guarantee that the error ratio in real trials will reproduce this ratio. Never mind that – as Ron Allen, Michael DeKay, and others have valiantly argued – one can show that *no* standard of proof can be guaranteed to produce *any* particular ratio of errors, since the actual error ratio in any random run of trials will inevitably reflect the uncontrollable vagaries of genuine guilt and innocence among those defendants brought to trial.

What I want to challenge here is the notion that we should adopt *as a regulative ideal* the thesis that an important indicator that a justice system is indeed just is whether it is acquitting around ten guilty defendants at trial for every innocent one convicted.

What work does a BR=10 do for us? At a minimum, it guarantees that, in a representative run of 100 criminal trials, there would be no more than 9 false convictions. That is all well and good; still, Blackstone does sanction up to 9 false convictions and since 9 false convictions in every 100 trials would generally be regarded as wholly unacceptable, especially among those left nauseous by the thought of even one of them, we perhaps need to rethink what we are doing. Aside

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from noting that adherence to BR=10 does not maintain the frequency of false convictions within acceptable limits, there are even more unseemly consequences. In the scenario just described, for instance, at least 90 false acquittals would be required by the BR, leaving at best the possibility that one verdict out of 100 was correct. So, the BR permits more false convictions than are acceptable and – thanks to that promiscuity – countenances obscenely high levels of general error. At least in this scenario, we are doing nothing whatever to control errors in general and precious little to control erroneous convictions in particular. Virtually every innocent defendant is convicted and virtually every guilty defendant is acquitted. Still, the BR=10 rule has been scrupulously observed.[5]

Take a less extreme scenario. Suppose that there are 50 convictions in a sequence of 100 trials, 5 of which are false. Blackstone would clearly require fifty false acquittals. So, *every* acquittal would have to be false, meaning fifty guilty felons would go free and 45 guilty felons were convicted. The risk that an innocent defendant runs of being convicted under this scenario is 100%, twice the risk that a felon runs of being convicted. In its way, this scenario is nearly as perverse as the previous one. Yet this, too, is Blackstone-compliant.

If we contemplate more reasonable scenarios, the problem we face is not that the BR=10 intuition leads to unacceptable results, but that it produces *no* results at all. Suppose that, as a general rule, 75% of defendants on trial are convicted and that some 5% of those convictions are false. (These figures are probably a good first approximation to the state of affairs in US courts today.[6]) In this case, roughly 4 innocent defendants will be convicted in every 100 trials. Blackstone obviously requires this to be balanced against roughly 40 false acquittals. But there are only 25 acquittals to be had, even if we implausibly suppose that every acquitted defendant is guilty. In short, the BR=10 rule cannot in principle be satisfied in American courts, given highly plausible assumptions about how American trials work.[7]

This point can be generalized by a simple proof that can be found elsewhere. (Allen & Laudan 2008). The general formula that obtains is this:

$$BR_{max} = [1/F(CF)] \times [(1/CR) - 1], \quad (1)$$

where BR_{max} is the upper limit to the Blackstone ratio in any system of criminal justice with a given rate of conviction, (CR), and a given false conviction rate, F(CF). It follows from (1) that *any* system with a 5% false conviction rate and a conviction rate $\geq$67% cannot possibly achieve a BR=10. That probably includes most of the judicial systems in the world, and certainly all the common law ones. Indeed, in looking at comparative international figures, I have not found any country whose legal system could, even in principle, be Blackstone-compliant (except the United States for a brief period around the early 1970s, when the conviction rate dipped to around 50–60%).

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Well then, is this a judgment we are prepared to endorse? Are we, on the strength of a number (ten) produced by a conjurer's trick – a number which has never been justified by an even cursory examination of the respective costs of false convictions and false acquittals – prepared to label as unjust every legal system that fails to yield ten false acquittals for every false conviction? The question, of course, is rhetorical. But the answer has to include an acknowledgement that the Blackstone ratio is not *the* (nor even *a*) key part of what any legal system should aspire to satisfy. It permits a prodigious harvest of both sorts of error, it requires the deliberate erroneous acquittal of vast numbers of guilty defendants (given plausible assumptions about the de facto frequency of false convictions), and it never had any but the shallowest justification. The wonder is that this piece of drivel has driven legal theorizing for so long. The most charitable view of it was that its early proponents supposed that false convictions were indeed rare and that the false acquittals necessary to counterbalance them could be had without acquitting almost every guilty defendant.

b) The False Conviction Rate

When legal scholars are not holding forth on how thoroughly the awfulness of a false conviction swamps the egregiousness of a false acquittal (and that point is the central message of virtually every discussion of the Blackstone ratio since the eighteenth century[8]), they are voicing alarm at the size of another ratio, namely, the rate of false convictions. Understood as the proportion of convictions at trial that involve innocent defendants, the false conviction rate – especially in capital cases – has attracted much attention in the last three-quarters of a century. It typically involves scholars using exoneration studies or judge-jury agreement studies to estimate how many of those convicted of felonies have been materially innocent. While different studies have arrived at different estimates, it is reasonable to infer that an upper-bound on the rate of false convictions in cases that go to trial is about five percent, although the actual value is probably modestly less than this. Upon acknowledging this point, there is generally much ritual wringing-of-hands, accompanied by a firm resolve to devise strategies to bring this ratio down to acceptable levels (supposing that one knew what those were).

I do not for a minute wish to underestimate or to understate the quantitative magnitude of the rate of false convictions. I'm disposed to concede that they occur far more often than many, perhaps most, commentators believe and still more often than most consider acceptable. In particular, I believe that 5% is probably a good (if mildly on the high side) stab at the current value of this ratio in American criminal trials. But I am reluctant, at least for the moment, to join the army of hand-wringers. My reluctance stems, not from a callous indifference to false convictions, but from a hunch that fixating on the *rate* of false convictions obscures what should be our genuine concern. More concretely, I intend now to argue that the focus on the rate of false convictions as either an intellectual or a moral problem has

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been blown out of all proportion to its real significance, which *may* be vanishingly small.[9] While every one of those false convictions represents a grievous injustice, a preoccupation with the *rate* of false convictions to total convictions is, I submit, a decidedly unilluminating way to pose the question.

To explain why, I will first remind you that we could have a very low *rate* of false convictions and yet many false convictions, just as we could have a very high rate of false convictions with few false convictions. This is because there are three factors that principally determine how many false convictions occur in any system of criminal justice: the number of trials, the proportion of those trials that result in convictions, and the proportion of those convictions that are false (this latter is what I have been calling the false conviction rate). There is a very simple relation that obtains between these four values:

$$N_{FC} = N_{trials} \times (N_{convictions}/N_{trials}) \times (N_{FC}/N_{convictions}). \quad (2)$$

This equation makes clear that the total number of false convictions in any system (during, say, one year) is the product of how many trials there are, the conviction rate per trial and the false conviction rate that obtained in those trials. So, if we want to keep the frequency – as opposed to the rate – of false convictions very low, there are at least these three distinct options for doing so: staging fewer trials, lowering the conviction rate, or lowering the false conviction rate. This formula also shows that a system with a high false conviction rate can be made to produce as few false convictions as we like, provided we jigger with the conviction rate and/or the number of trials suitably. The general point here is that a 'high' false conviction rate by itself tells us nothing about how many innocent people are being skewered by the system. Neither does a high conviction rate. If we wish to know how much damage the system is doing (and that is surely an essential preliminary to figuring out whether the current level of damage is acceptable), we have to focus on the question: *How many innocents in the general population are being falsely convicted?* The pertinent question is not: What proportion of the convicted are innocent? But rather: What proportion of the innocent (in the general population) are convicted? Provided the latter ratio is 'acceptably low' (and we will shortly figure out how to define that), we can and should be benignly indifferent to the rate of false convictions at trial. Return briefly to the worry voiced by Professor Gross: What if upwards of ten thousand Americans have been falsely convicted in the last fifteen years? That comes to 667 false convictions per year, meaning that the annual risk an average American runs of being falsely convicted of some crime or other is less than 0.0003%. This risk is the same as the odds of a man my age dying within the next 90 minutes or the odds that you will choke to death this year on something you have eaten. We don't fret very much about those dangers. Why, then, the abiding preoccupation with false convictions?

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c) Shielding the Innocent

An analogous argument applies to a third ratio that one might be tempted to explore: the proportion of those innocents committed for trial who are acquitted ($N_{\text{innocents acquitted}}/N_{\text{innocents tried}}$). This seems a promising relation. After all, a natural way of voicing one's concern about protecting the innocent is to say that we want to insure that most innocent persons who go to trial are acquitted. Therefore, one might think that we want this ratio – basically the ratio of true acquittals to innocents at risk by trial – to be as large as we can make it. But this suffers from precisely the same defects as the rate of false convictions. If prosecutors take many innocent defendants to trial, and even if the vast majority of them are acquitted, it may still be true that many innocents are being falsely convicted. Similarly, if we dramatically increase the number of trials, even a regime with a very high ratio of true acquittals to innocent defendants can lead to as many false convictions as the current system or more. The general point can be put this way:

$$N_{FC} = N_{\text{trials}} \times (N_{\text{innocents tried}}/N_{\text{trials}}) \times (N_{FC}/N_{\text{innocents tried}}). \quad (3)$$

This equality shows that the proportion of innocents convicted among those on trial could be very high even while the overall number of false convictions would still be very low, provided that either the proportion of innocents tried was low and/or the number of trials was low. Likewise, we could get large numbers of innocents convicted even if the ratio of innocents acquitted to innocents tried was quite low, provided that there were a vast number of trials. So this ratio of innocents acquitted to innocents convicted, like the false conviction rate, fails to get us to the nub of the issue, which is how to keep a cap on the number of innocents (in the general population) who are falsely convicted.

The point, then, is that we should not be aiming to maximize or otherwise to settle in advance the value of the ratio of false acquittals to false convictions. Nor should we make it our primary target to minimize the rate of false convictions or to maximize the proportion of innocent defendants who win acquittals. What we *should* be aiming to do is to keep the probability that a random innocent citizen will be convicted within acceptable limits. This doesn't yet tell us what those limits are but it does identify the ratio that must concern us. It gives us, in short, the right numerator and denominator, without yet telling us what the value of their ratio should be.

II. THE REAL RATIOS AT STAKE

So, then, how might we go about the task of deciding when too many innocent people are being convicted? Put in this bald fashion, the problem eludes solution, for whatever number we pick looks about as arbitrary as the ten in Blackstone's

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ratio. What we need is a reasonable benchmark against which we can argue for fixing this value at one point rather than another.

There is one ready to hand, if we are willing to use it. To see what it is, we simply have to put together information that we already know or can easily enough assemble.

For starters, we know (as we have seen) that the number of innocents convicted depends upon the number of trials, the number of convictions, and the rate of false convictions.

We thus know that reducing either the number of convictions or the rate of false conviction would reduce the numbers of false convictions below current rates. So, we aren't in the dark about how to reduce false convictions, if that is what we were bent on doing: Tinker with the rules of trial so as to reduce either the proportion of persons convicted and/or the rate of false convictions. Or, simpler still, cut the frequency of trials by half. But such maneuvers fail to address our key question: what would an *acceptable* level of false convictions be? This tactic assumes that we have already settled that too many innocent persons are being falsely convicted and proceeds to drive that number downwards. But, one has to ask, how do we know that we should be aiming to *reduce* this number instead of increasing it? Suppose that the number of those falsely convicted is well below what a rational person would regard as acceptable? And, even if it is now too high, how low must it go before our consciences are clear?

Throw in a third thing that we know, and the outlines of the solution to our enigma begin to appear. We know that most of the steps that we might take to reduce either the false conviction rate or the conviction rate are likely to have a predictable, deleterious effect: To wit, they will increase, perhaps dramatically, the number of false acquittals. Each of those is an injustice in its own right but the more salient point is that the average truly guilty felon who is falsely acquitted will return to the streets, and commit a certain number, n, of felonies each year. Those n crimes per year would have been prevented had the felon gotten his just deserts. The evidence against him in the trial in which he was acquitted was powerful enough to persuade the police to arrest him, a grand jury or prosecutor to indict him, and a judge to agree that there was a powerful prima facie case against him. Indeed, if the case actually went to a jury, the judge in question had likewise ascertained that one could believe beyond a reasonable doubt that the prosecutor's case was solid. Still, he was acquitted and falsely so. Had the rules of trial, including the standard of proof, been less acquittal-prone than they are, it is likely that he would have been convicted, incarcerated, and thus incapacitated from perpetrating serious crimes on the general public for the duration of his time in prison.

So, if we want to know what is an acceptable upper bound on the number of false convictions that a compassionate society would accept, we have to balance the costs of a false conviction against the costs of a false acquittal. There is no free lunch, and *almost* everything that we might do to reduce the level of false

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convictions will raise, perhaps dramatically, the rate of false acquittals and thereby the frequency of serious crime.

Let's begin with some of the data we already know. The recent spate of exoneration studies puts us in a position to say that the lifetime risk of being falsely convicted of a serious crime is less than one-tenth of one percent. By contrast, data from the Bureau of Justice Statistics suggest that the lifetime risk of being a victim of a serious crime is about 83% (Koppel 1987). In short, the average American is at least 90,000% more likely to be seriously victimized than falsely convicted of a serious crime. (I should add that, because I have interpreted the figures very unfavorably with respect to my own hypothesis, the more likely ratio of these risks is about 8,000 : 1, in which case one is 800,000% more likely to be a crime victim than the victim of a false conviction.) This is an impressive contrast in magnitude between two dreadful risks. But it is not yet the most salient ratio.

Much more germane to our discussion would be the ratio of being the victim of a serious crime committed by someone who was falsely acquitted and the risk of being falsely convicted. This is the salient proportion for it is the one that should be driving decisions about how defendant-friendly the rules of trial should be. But how can we figure that out, since we don't know how often the legal system falsely acquits defendants? We likewise need to know how often such acquitted but guilty defendants are likely to commit grave crimes.

Let's tackle the second question first. Statistics from both the US (Blumstein 1986, 5; Peterson 1986, 128) and the UK (Halliday 2001, appendix 3) peg that number somewhere between 12 and 15 per year per felon. For purposes of our discussion, and so as not to skew the figures in favor of my analysis, and as a kind of sop to Lord Blackstone's memory, let us adopt conservatively a value for *n* of ten. Of those 10 felonies per year, something like 1.3 will – on average – be serious, violent crimes. We likewise know that the average sentenced felon will spend about six years in prison (Bureau of Justice Statistics 1995). So, for any given false acquittal for a serious crime, we can anticipate about eight violent crimes that would have been prevented had the legal system not decided to let the guilty felon out of its clutches, either by explicit acquittal or by a dropping or dismissal of charges against him. Of those eight serious crimes, 0.2 will be a homicide, 0.4 will be rapes, and 7.4 will be armed robbery or aggravated assault.[10] So, we have a rough and ready but plausible measure of the gravity of a false acquittal.

But we still don't know how often false acquittals occur. We could try to guestimate that figure but for the purposes of my analysis here, we don't actually need it. This is because we can pose the problem in the following way: The standard of proof and the rules of trial should be set at that point where the ratio of *procedurally* preventable crimes to *procedurally* preventable false convictions approaches a value of one or, to be more precise, where the product of the ratio of the number of preventable crimes times the social cost of those crimes approaches to the product of the value of preventable false convictions times their social cost.

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That is rather a mouthful so let me express it a bit more elegantly as:

$$N_{FC} \times Cost_{FC} \approx N_{FA} \times (N_{crimes\ unprevented}/N_{FA}) \times Cost_{crime\ unprevented}, \quad (4)$$

which reduces to

$$N_{FC} \times Cost_{FC} \approx N_{crimes\ unprevented} \times Cost_{crime\ unprevented}{}^{11}. \quad (5)$$

Supposing, just for the sake of illustration, that the costs of a false conviction for a violent crime and the costs of an unprevented but preventable violent crime are nearly the same, we could say that we should be looking for a justice system (and more specifically a standard of proof) capable of producing this ratio of outcomes:

$$N_{FC}/N_{crimes\ unprevented} \approx 1^{12}. \quad (6)$$

In other words, so long as the typical felon who is falsely acquitted is likely to commit at least one serious crime during the time when he would otherwise have been incarcerated (and the actual number is vastly greater than one), it is simply false to say that securing one fewer erroneous conviction in every hundred is desirable, even if it brings one additional false acquittal in its wake. And, returning full circle to my opening remarks, the Blackstonian intuition that it would be worthwhile reducing the false conviction rate by one – even if that brought *ten* false acquittals in its wake – makes for a completely muddled political morality.

Do we currently know what mix of procedural rules and a standard of proof will realize this result in (6)? Not yet, because the justice system has not bothered to fund nor have academic scholars bothered to undertake the kinds of empirical research that would identify a set of trial rules that could, over the long run, produce a ratio of false convictions to preventable but unprevented crimes that would satisfy the demands of (6). Still, I submit that this is the ratio that should be driving our inquiries, for this ratio is unique in telling us whether the expected utilities embodied in the social contract are being respected by the present rules of trial. Moreover, even without knowing what rules of trial would yield the results embodied in (5) and (6), we are already in a position to assess and to reject the pleas of those numerous distributionist voices who are calling for an overhaul in existing rules of trial so as to reduce still further the risk of false conviction by resorting to remedies that will increase still further the risk of being victimized by someone who was falsely acquitted.

To conclude: Almost 40 years ago, Laurence Tribe wrote a famous essay (1971) in which he inveighed against taking quantification too seriously in the law. I have tried to suggest that quantification has important, even indispensable, uses in assessing the workings of any legal system. But quantification is only as good as the perspicacity we bring to the decision about which parameters to focus on and is only as robust as the clarity with which we work out how those parameters

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play off against one another. As Yogi Berra (had he known anything about the law) might have put it: Legal epistemology is ninety per cent quantitative. The other half is qualitative.[13]

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NOTES

1 I am very grateful to Graham Smith for some interesting and provocative discussions about the general themes of this paper and the Blackstone ratio in particular. Some of the arguments here derive from a paper that I recently wrote jointly with Ron Allen. (See Allen & Laudan 2008.) I am likewise indebted to the Editors of *Episteme* for posing some challenges to my original draft, which I hope have sharpened slightly the clarity of this final version.

2 There are two fashionable (but not mutually exclusive) theories about how false acquittals increase the crime rate: by a failure to incapacitate serial felons who, if free, will continue to ply their trade or by a failure to set an example for those ill-intentioned persons who might have been dissuaded by a conviction. I think that there is robust evidence showing that the *incapacitation* of felons reduces crime rates. The *deterrent* effect of true convictions seems plausible but the evidence is less compelling for this relation than for incapacitation. For such reasons, the arguments of this paper suppose nothing more than that incapacitation of the truly guilty lowers the crime rate and that falsely acquitting the truly guilty raises it. If false acquittals also undermine the deterrent effects

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of the criminal law, so much the better for the analysis offered here. (For a lengthier examination of the empirical evidence for the links between crime and incapacitation, see Laudan (2009).)

3 "We must be on guard against those sentimental exaggerations which tend to give crime impunity, under the pretext of insuring the safety of innocence. Public applause has been, so to speak, set up to auction. At first it was said to be better to save several guilty men, than to condemn a single innocent man; others, to make the maxim more striking, fix the number ten; a third made this ten a hundred, and a fourth made it a thousand. All these candidates for the prize of humanity have been outstripped by I know not how many writers, who hold, that, in no case, ought an accused person to be condemned, unless evidence amount to mathematical or absolute certainty. According to this maxim, nobody ought to be punished, lest an innocent man be punished." (Bentham 1829/1843, 119).

4 According to the online *Sourcebook of Criminal Justice Statistics* (2008), there are slightly more than one million felony convictions annually in state courts alone. Federal felony convictions amount to another 50,000 annually.

5 The examples alluded to here establish that the BR=10 rule is not plausible as a *sufficient* condition for a just system. Neither is it acceptable as a necessary condition. Imagine a system of 1,000 trials with forensic technology so impressive that it leads to a false positive only 0.1% of the time and a false negative only 0.2% of the time. Such a system is patently not Blackstone-compliant (since BR=2 here) yet surely no one could fault it for being unfair to the innocent.

6 In Allen & Laudan (2008), we explain how the existing exoneration studies that have recently appeared warrant us in putting a cap of 5% as the upper range of false convictions at trial.

7 Well, you might say, this just shows that American courts are producing too many false convictions. But the only plausible way to bring that number downwards is by making it even more difficult to convict the innocent, which unfortunately means making it even more difficult to convict the guilty. This would inevitably mean that far fewer trials issued in a conviction. That in turn would mean that far more guilty felons would be falsely acquitted, inevitably driving up the rate of crime against innocent citizens. In short, putting in place the conditions for bringing American justice into compliance with BR=10 would put vastly more guilty felons on the streets.

8 Not for nothing does the literature often refer to 'false' acquittals but 'wrongful' convictions, as if the former were just an honest mistake while the latter smacks of injustice and malicious intent.

9 Except, and this is an important proviso, insofar as it enables us to calculate values of much greater interest to us than this one.

10 I here wholly ignore the effects of deterrence, if any, that are lost when a guilty felon is acquitted rather than convicted. Adding those in would make the case for reducing false acquittals stronger but empirically more precarious.

11 This is what I elsewhere call the Laplace-Nozick thesis (Laudan 2009).

12 There is a crucial side-constraint operating here that we should make explicit. It is conceivable that there are so many unprevented crimes associated with a false acquittal that (6), taken alone, would justify a standard of proof less than 50%. Such a standard would be unacceptable because it has the state deliberately condemning

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someone it believes to be innocent. That is flatly unacceptable. Accordingly, the range of permissible standards is bounded at the lower end by 50+% and at the upper end by < 100%.

13 Berra: "Baseball is ninety percent mental. The other half is physical."

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