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Acknowledging Guilt: Forcing Self-Identification in Post-Conviction DNA Testing

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Abstract

Despite the enormous media attention given to the success of Innocence Projects in exonerating wrongfully convicted defendants in criminal cases through the use of post-conviction DNA testing, it is far more common for such tests to confirm petitioners’ guilt. Guilt-confirming DNA testing imposes enormous costs on the state, in terms of the financial cost of testing, prosecutors’ time in vetting petitions, and victim trauma. This Article develops an economic screening model that shows that the best regulatory response is to punish prisoners who seek post-conviction DNA testing – when those tests confirm guilt – with additional incarceration. This has the effect of forcing prisoners to self-identify as guilty or innocent, and of discouraging guilty prisoners from seeking petitions, while freeing up resources to help exonerate the truly innocent. We examine the limitations of alternative responses taken by state regulators. We also consider possible constitutional objections to our proposal, both in terms of cruel and unusual punishment and due process requirements. The self-screening scheme can most easily be adopted by states through use of the good time credits systems, since every state that has a post-conviction DNA testing regime also has a good time credits statutory regime, and the Supreme Court has approved punishment in the form of revocation of good time credits. The self-screening scheme proposed here has been largely adopted in Missouri, however Missouri imposes a set penalty of 60 days additional incarceration for guilt-confirming tests. Our model shows that perfect self identification will only occur when either (i) the incarceration penalty is considerably higher than Missouri’s 60 day penalty; or (ii) the incarceration penalty varies by the length of sentence of the petitioner. If either of these schemes is adopted, petitions for post-conviction DNA testing by guilty prisoners can be expected to be overwhelmingly diminished, saving the state considerable resources, and removing a major obstacle to exonerating actually innocent prisoners.

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I. Introduction

The role of post-conviction DNA testing in exonerating the actually innocent, as well as the wrongfully convicted, has gained widespread public attention. What receives far less public attention, but is nonetheless a much more common story, are cases where inmates seek post-conviction DNA testing, but the results confirm their guilt. This phenomenon has become so widespread that it has overwhelmed state prosecutors’ offices, dramatically hampering their ability to process meritorious claims.

A costless chance at freedom through post-conviction DNA testing will be attractive to the innocent and guilty alike. Numerous states have recognized that since the judicial system cannot cope with every prisoner trying their luck in this way, they must develop a system that imposes costs for post-conviction DNA testing. But most states have responded by imposing monetary costs, which apply regardless of whether the tests establish prisoners’ innocence or confirm their guilt. As such, these regimes do not address the fundamental problem of perverse incentives, which currently encourage the guilty to seek post-conviction DNA testing. Additionally, imposing purely monetary costs overly punishes poor or indigent prisoners who are potentially innocent, while at the same time under-sanctioning wealthy guilty prisoners.

This is a problem of private information: the state wants to make a post-conviction DNA testing process available only to the innocent, but while prisoners know whether they are innocent, the state does not. The standard legal response to such a problem is to get more information, which has been the other major response by states to the problem of an unmanageable number of post-conviction DNA petitions. Various states and the federal government have set up comprehensive vetting mechanisms, to attempt to ascertain which petitions are most likely to lead to exonerations. However, this process necessarily devolves down to highly subjective judgments, adds to the workload of prosecutors and other vetters – thus worsening the problem of the overloaded petition system – and potentially excludes petitions of both guilty and innocent parties.

In contrast, an economic solution to the problem of private information is to structure incentives so as to force innocent and guilty prisoners alike to self identify as such, by creating screening mechanisms; that is, by altering the incentives of prisoners, so as to make it attractive to actually innocent prisoners to seek post-conviction DNA testing, while at the same time making it unattractive to guilty prisoners to seek such

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1 In cases of wrongful conviction, a defendant may be factually guilty but have been the victim of prosecutorial misconduct, police brutality or judicial error. See BARRY SCHECK, PETER NEUFELD & JIM DWYER, ACTUAL INNOCENCE xvi, (Signet 2000).


3 See infra Part II.

4 See discussion infra, Part III.
tests. We develop an economic screening model that would allow states to differentiate between innocent and guilty petitioners for the purposes of post-conviction DNA testing: petitioners whose guilt is confirmed by DNA tests must be punished with additional incarceration. Such a scheme may sound draconian, but under this system, actually innocent prisoners who were wrongfully incarcerated will have a far better chance of being exonerated than under a system that indulges the socially worthless practice of allowing guilty petitioners to try their luck at freedom. Not only will punishing the guilty who falsely claim their innocence save the state considerable resources, but in doing so it will free up those resources to exonerate the actually innocent in a timely fashion.

To understand how our proposal works, consider the analogy of airline prices and different classes of service. Airlines will deliberately make the conditions in coach class less favorable, sometimes even spending additional money to do so, because it allows them to maximize the profit they get from both business class and coach passengers.5 Not satisfied to simply differentiate between coach and business class passengers, airlines often make coach airfares more expensive for other conditions, such as if a passenger does not stay a Saturday night; this is not because the airlines necessarily care when passengers travel, but instead because imposing costs on passengers makes them self identify between those within coach class who are willing to pay more and those who are willing to pay less.6

The same logic applies to structuring the incentives of prisoners: if states wish to encourage the innocent to seek potentially exonerating tests, while at the same time discouraging the guilty from doing so, they must impose costs on petitioners.7 Fortunately, unlike airlines, states do not need to maximize profit; rather, their interest is in improving the efficiency and fairness of the criminal justice system. As such, states can make testing free for innocent prisoners, but costly for the guilty. These costs do not need to be monetary: we propose the states to make petitioning costly by imposing additional incarceration, conditional on a test confirming a prisoner’s guilt.

This Article provides a novel solution to the problems of administering post-conviction DNA testing schemes. Three states have developed schemes that have some of our endorsed elements. Whereas most states have responded to the problem of the flood of petitions for post-conviction DNA testing by imposing monetary costs on all petitioners, three states – Maryland, Missouri and Utah – make those penalties conditional on showings of guilt. Conditioning monetary penalties on showings of guilt is an improvement on across-the-board monetary costs for petitions – in that they do


7 See e.g. Steven Shavell, *The Appeals Process as a Means of Error Correction*, 24 J. LEGAL STUDIES 379, 388 (1995), who argues in the context of judicial appeals that state imposition of fees on litigants will advantage the screening process, but will not always be essential if there are also private costs in appealing; in the context of petitioning, no such private costs will reliably occur, and so cost imposition is essential.
not discriminate against poor but innocent petitioners – however monetary costs are an inadequate disincentive to guilty petitioners. Monetary penalties cannot legitimately be high enough to capture all of the costs of post-conviction DNA testing, or to offset the benefit of potential freedom. One state, Missouri, has recently adopted a scheme that includes two of our screening techniques. It not only imposes penalties only when tests confirm guilt, it imposes those penalties in the relevant currency: time spent incarcerated. Prisoners whose guilt is confirmed by post-conviction DNA testing are penalized by having their sentences increased. Missouri’s system, however, imposes a maximum of 60 days additional incarceration; when applied to a convict contemplating a 40 year jail term, the risk of an additional 60 days incarceration will be inadequate to properly deter guilty petitioners from post-conviction seeking DNA testing. We show that the necessary penalty can be over 60 days for a prisoner who would otherwise be facing a 20-year sentence, and is always over 130 days for a prisoner facing a 40 year sentence.

This Article formally illustrates how it is possible to force prisoners to self identify as innocent or guilty in relation to seeking post-conviction DNA testing. Additionally, it shows why other systems that aim to reduce the occurrence of guilty petitioners seeking post-conviction DNA testing actually create perverse incentives, and only additional incarceration can be expected to be effective in encouraging innocent and guilty prisoners alike to self-identify. This will have the effect of reducing costs on the judicial system, by discouraging guilty prisoners from seeking post-conviction DNA tests, which will also have the effect of making it faster and easier for actually innocent prisoners to seek the tests they need for a timely exoneration.

In Part II, we describe the problem: that costless or low-cost post-conviction DNA testing has created a flood of petitions from guilty prisoners, making it impossible for actually innocent prisoners’ petitions to be dealt with in a timely and just manner. In Part III, we provide a screening model, and show how a certain number of days of additional incarceration creates incentives for guilty petitioners to avoid seeking testing, at the same as time as encouraging and enabling the innocent to seek potentially exonerating post-conviction DNA testing. What the appropriate number of days will be will depend on factors such as the length of the sentence the petitioner would otherwise be facing, and whether the petitioner will bear the monetary costs of the test also. In Part IV, we assess other regimes that govern post-conviction DNA testing, and why they have all failed to adequately deter guilty petitioners from seeking testing, and why many improperly run the risk of deterring the actually innocent from petitioning for testing. In Part V, we briefly review the constitutional issues, and argue that imposition

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8 Data is not yet available on the effect of Missouri’s 2006 legislation at reducing the backlog of post-conviction DNA petitions, but we hope to assess the effect of Missouri’s legislation in future research.

9 § 650.055 R.S.Mo.

10 One of us has elsewhere examined all of the 50 states’ various schemes in detail and endorsed the concept of additional incarceration, as embraced in the Missouri statutory regime, see Gwendolyn Carroll Proven Guilty: An Examination of the Penalty-Free World of Post-Conviction DNA Testing, 97-3 J. CRIM. L. & CRIMINOLOGY_ (forthcoming 2007). This Article continues Carroll’s analysis, utilizing economic models.
of a self-screening system through use of additional incarceration is constitutional, if done properly. We conclude by considering whether our analysis can be applied more generally within the criminal justice system, such as to all habeas petitions made on factual grounds.

II. The Problem: Costless Procedures Encourage Systematic Over-Testing

DNA evidence was first used in 1987 to exclude a suspect in a rape case, and shortly thereafter was used by prosecutors to aid conviction in another rape case. DNA continues to be primarily used for identification of suspects in rape and murder cases, as these cases often rely on biological material left at the scene of the crime. It is now used in every United States jurisdiction.

DNA evidence is also used for post-conviction testing: post-conviction DNA testing is the primary evidence relied on in the systematic exoneration investigations undertaken by various Innocence Projects around the country. Post-conviction DNA testing is undertaken “not only in cases in which DNA testing was never done, but also in cases in which a newer, more sensitive technology may now be able to furnish a conclusive answer.” In response to a 1996 National Institute of Justice report profiling 28 men exonerated by post-conviction DNA testing, a National Commission was established to examine the future of DNA evidence in the criminal justice system, and 38 states and the federal government have since passed statutes providing for post-conviction DNA testing.

Each post-conviction DNA test conducted involves considerable costs. First, there are the direct monetary costs involved with “identifying whether biological

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12 Anna M. Franceschelli, Motions for Post-conviction DNA Testing: Determining the Standard of Proof Necessary in Granting Requests, 31 CAP U. L. REV. 243, 243 (2003). This defendant later sought retesting on the grounds that newer DNA testing technology became available that could potentially exonerate him, but the post-conviction test confirmed his guilt.

13 CONNORS, supra note 11.

14 The Supreme Court recently found a case satisfies the “truly extraordinary” gateway test for reconsideration on the basis of new DNA evidence of actual innocence. House v. Bell, 126 S. Ct. 2064, 2076 (2006).

15 See About the Innocence Project, http://www.innocenceproject.org/about/index.php (last visited November 22, 2006) (explaining that the Project is only able to accept applicants for whom DNA testing has the potential to provide conclusive proof of innocence).


material is available for testing, obtaining approval to have the testing done, and costs of testing itself.18 The test itself can cost as much of $5,000.19 Second, the process can involve considerable cost to the victim, in terms of re-experiencing trauma from the case being reopened,20 the potential need to provide new samples, and the fear of the loss of resolution.21 Third, examining, vetting and processing these petitions can absorb hundreds of hours of often overburdened state prosecutors’ time. Most petitions take at least one year to resolve, and can take many years if there are evidentiary complications or peculiar circumstances to the case.22

These costs may seem trivial when compared with the possibility of an innocent person remaining in jail, but viewing the trade-off in this way inverts reality. Innocence Projects and courts receive far more petitions than can be granted: most Innocence Projects receive hundreds of petitions for help, but can only pursue a fraction of those in depth, as each project involves thousands of hours of investigation.23 Successes for many Innocence Projects number in the single digits.24 Meritorious claims for post-conviction DNA testing are extremely likely to be lost in the sea of petitions. Thus having a system that allows a flood of petitions prevents the innocent from being exonerated quickly or at all.

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20 Arguably, the impact on victims is being increasingly recognized by the courts, and so becoming more legally salient – see Payne v. Tennessee, 501 U.S. 808 (U.S. 1991) (allowing consideration of victim impact statements in criminal sentencing).

21 See generally Lynne N. Henderson, *The Wrongs of Victim’s Rights*, 37 STAN. L. REV. 937, 965-966 (“A victim’s contact with the criminal justice system may hinder him or her from coming to grips with death, meaning, responsibility, and isolation in innumerable ways. …To be of value to past victims of core crimes, victim’s rights proposals ideally ought to assist, rather than interfere with, the victim’s resolution of the experience.”); Cynthia Bryant, *When One Man’s DNA is Another Man’s Exonerating Evidence: Compelling Consensual Sexual Partners of Rape Victims to Provide DNA Samples to Post-conviction Petitioners*, 33 COLUM. J. L. & SOC. PROBS. 113, 141-150 (2000) (discussing the necessity of obtaining elimination samples from third parties who may have had contact with the victim of a rape, and from whom a sample of DNA is necessary in order eliminate the third party as the perpetrator of the crime).

22 Medwed, supra note 19, 1098 n. 4 (2003).


24 For example, the New England Innocence Project, run through Duquesne University’s Cyril H. Weicht Institute of Forensic Science and Law, has received 350 inquiry letters from inmates since August 2004. The institute is working towards their first exoneration this year. Telephone Interview with María Comas, Manager of Academic and Student Services, The Cyril H. Weicht Institute of Forensic Science and Law (Oct. 13, 2005). After eliminating those inquiries that do not meet certain basic requirements (such as being within the correct jurisdiction), the New England Innocence Project handles 200 inquiries per year, and they “take far fewer than they end up rejecting.” The project has been in existence since 2001, and has been involved with six exonerations.
The major cause of this flooding effect is that, unlike the headline-garnering cases where DNA testing leads to exoneration of prisoners, the majority of petitions involve guilty prisoners trying their luck at post-conviction DNA testing, only to have that test confirm their guilt. Estimates on this phenomenon range from “about half the cases” to as many as sixty percent of cases in which testing “further implicates the defendant.” However those figures understate the problem: this does not mean that 40-50% of those granted post-conviction DNA testing are exonerated by the tests. Many results are neither exculpatory or guilt confirming, but are often inconclusive. And while approximately half of Innocence Project-assisted post-conviction tests result in confimations of guilt, the percentage of petitions from guilty parties is almost certainly considerably higher, as most Innocence Projects rigorously screen applications to attempt to exclude the actually guilty.

Petitions by guilty parties are overwhelming the post-conviction DNA testing system, and rendering it less likely to vindicate the rights of the innocent. The reason for this is that guilty prisoners can potentially benefit from post-conviction DNA testing despite their guilt, and generally face little or no consequence for the attempt. Although DNA testing is the most concretely verifiable evidence of identification available to the courts, it is not infallible. First, test results can be inconclusive for many reasons, such as if the sample was too small to positively identify the DNA source, or in cases with multiple perpetrators, it can be unclear whether the petitioner’s DNA was deposited at the scene. A survey of 40 laboratories (with 19 laboratories providing sufficient data) reported that of the 21,621 cases received for DNA analysis, 16% yielded inconclusive results, often due to inadequately small or deteriorated test samples; only 23% of cases provided results that excluded suspects. These potential errors will not necessarily

27 Id.
30 Telephone Interview with Robert Hovey, Supervisor of DNA Review Unit, Cook County State’s Attorney’s Office (Oct. 14, 2005).
31 Connors supra, note 11, 20-21. See also Cynthia Jones, Destroyed, Innocence Lost: The Preservation of Biological Evidence Under Innocence Protection Statutes, 42 AM. CRIM. L. REV. 1239, 1240-1241 (2005): “In fact, the Innocence Project of the Benjamin Cardozo School of Law, the national leader in the use of DNA to exonerate wrongly convicted prisoners, reports that 75% of the cases it accepts cannot go forward because the evidence has been lost or destroyed.” Note that this number does not reflect how many cases are affected before trial for loss of evidence, etc. This number only reflects a percentage of a) petitioners seeking post-conviction testing and b) petitions taken on by the Innocence Project. The percentage of cases with evidence deterioration, lab error etc. out of the total number in which DNA testing is performed is probably significantly lower than the 16% quoted by Connors et al. Note also that small samples have been increasingly testable as the testing technology has improved. See Christopher Blakesley, Scientific Testing and Proof of Paternity: Some Controversy and Key Issues for Family Law Counsel, 57 I.A. L. REV. 379, 398 (1997) (Recent developments in DNA replication, however, have made testing minute samples of blood, semen, hair follicles, saliva, or skin tissue possible.”)
result in exclusion of the evidence; rather the fact finder is instructed to give weight to the evidence accordingly.32

Second, and more significantly in terms of potentially overturning a conviction, tests can produce false negatives, that is, results that support exoneration even when the defendant is guilty. Although this is unlikely to result from the testing process itself failing, there is a chance of a false negative arising through laboratory error, contamination, human error, or population database error.33 Also, there exists a range of discretion in interpretation, such as whether markers in two samples have identical bands or extremely similar bands. Studies of error rates in DNA testing estimate that there is approximately a 1% error rate.34

The chance of a false negative result, however small, creates the possibility of guilty parties benefitting from seeking post-conviction DNA testing. Even if the probability of exoneration arising from DNA testing for a guilty petitioner is only 1 in 100, when multiplied by the value of potential freedom, and particularly when compared

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32 See Ryan McDonald, Juries and Crime Labs: Correcting the Weak Links in the DNA Chain, 24 AM. J. L. & MED. 345, 359-360 (1998). (“The jury hears the arguments about lab error and population databases and is told to give weight to the evidence accordingly… Some courts have responded to the problem by allowing the use of DNA evidence without supporting statistical information. Critics are skeptical of this approach, noting that it still subjects juries to complex expert testimony about frequency of allele occurrence and lab error rates.”); See e.g. State v. Thomas, 245 N. J. Super. 428, 437 (App. Div. 1991) (if the test results were either inconclusive or indicated that defendant was the assailant, the conviction would stand; and when the test results indicated that defendant was not the assailant, the trial court may either conduct an in limine hearing on admissibility or order a new trial), Id.; see also Peter Neufeld, Preventing the Execution of the Innocent: Testimony Before the House Judiciary Committee 29 HOFSTRA L. REV. 1155, 1161. However, there is no uniform standard governing the weight given to inconclusive evidence. In some cases, inconclusive evidence has rendered courts reluctant to grant post-conviction DNA testing. In re Washpon, 625 N.Y.S. 2d 874, 878 (N.Y. Sup. Ct. 1995) (using the New York standard of reasonable probability and indicating that there were not multiple assailants and that DNA tests would be significant because the victim said she had not had sexual relations with anyone else the night of the rape); Sewell v. State, 592 N.E.2d 705, 708 (Ind. App. 1992) (declaring that DNA testing should be used “when the State’s proofs are weak, [and] when the record supports at least a reasonable doubt of guilt”) (citation omitted).”)

33 See McDonald Id.

34 See Christopher L. Blakesley, La Preuve Penale et Tests Genetiques United States Report, 46 AM. J. COMP. L. 605, 612-613 (“Although there are few published studies of actual error rate in forensic DNA testing, those which have been done seem to suggest an error rate of about one percent.”); See also, Richard A. Nakashima, DNA Evidence in Criminal Trials: A Defense Attorney’s Primer, 74 NEB. L. REV. 444, 463-464 (1995) (“Estimates of error rates in forensic DNA testing have varied widely, from as low as 9 in one million (0.001%) to as high as 4%”); Jonathon Koehler, One in Millions, Billions, and Trillions: Lessons from People v. Collins (1968) for People v. Simpson (1995), 47 J. LEGAL EDUC. 214, 221 (1997) (“One surprising find that emerges from studies of DNA proficiency tests is that laboratories’ false positive error rates appear to be on the order of 1 in 100. That is, when a laboratory reports a match, there is about 1 chance in 100 that the match report is in error… errors occur for a variety of reasons. Some errors are technical, others are human. The human errors – which appear to be more common – include such problems as contamination, mislabeling, misrecording, case mixups, interpretive errors, and misrepresentations.”); Jonathon Koehler, Error and Exaggeration in the Presentation of DNA Evidence at Trial, 34 JURIMETRICS J. 21 (1993-1994) (A survey of results of open proficiency tests suggest that false positive errors occur in one to four percent of the match reports); State v. Bible, 858 P.2d 1152, 1180 n.16 (Ariz. 1993), cert. denied, 114 S. Ct. 1578 (1994); State v. Ahl, 504 N.W.2d 38, 53 n.26 (Minn. Ct. App. 1993).
to the low cost of seeking testing under most legal regimes, every guilty petitioner has an
incentive to seek testing. Courts have recognized this danger and expressed concern that
they will be “inundated in habeas petitions each time a new form of testing became
available which might shed light on the defendant’s evidence.” 35 In Part III below, we
show formally why this is the case. Meanwhile, Figure 1 illustrates the problem
informally.

Figure 1: Density Distribution of DNA Test Results

Figure 1 is an approximate representation of the density distribution of post-
conviction DNA test results, as described above. Results cluster at the points “I,” for
Innocent, i.e. negative identification results, and “G,” for Guilty, i.e. positive
identification results. The bimodal distribution is tightly clustered at each of the two
focus points, representing the approximately 99% accuracy of DNA testing. But since
even DNA evidence is fallible in application, we still expect a distribution of results for
any given underlying factual scenario. That is, it is possible to have both false positives
and false negatives. The courts have recognized this fallibility in DNA testing:

DNA testing could produce a ‘false negative,’ where a DNA match is not
declared when one in fact exists. Contradictory expert testimony was offered
concerning whether a ‘false positive,’ could result where the wrong individual is
identified as the contributor of the DNA sample.36

35 Karen Christian, And the DNA Shall Set You Free: Issues Surrounding Post-conviction DNA Evidence and
The above quote suggests that Figure 1 may in fact overestimate the chances of a false positive relative to the chances of a false negative. There is evidence to support the court’s claim that false negatives are more likely than false positives. One expert claims that the “chances of an innocent person being implicated are next to nil, but the chance of a guilty person being falsely exonerated are reasonably high.”37 The high statistical standards for similarity contribute to this inequality, as they are designed to be very stringent and so minimize the risk of false positives. The higher the standard of what constitutes a DNA match is, the more the probability of a false positive becomes “vanishingly small;” this also necessarily translates to increasing the chance of a false negative.38

The same effect arises with the stringency of the burden of proof in the legal system. Even if errors in DNA testing occurred equally in either direction, it is necessary to set the cut-off for which results shall be interpreted as confirmations of guilt or adequately establishing innocence. A line must be drawn somewhere, and the courts have recognized that such line drawing cannot avoid the possibility of imprisonment of an innocent person.39 The criminal law system’s onus and burden of proof attempts to minimize this danger, by placing that cut-off line much closer to the point G than to the point I. If we take literally the adage that the criminal law aims to let 10 guilty men go free before it imprisons one innocent man, then the criminal law system’s cut off point closely resembles the scientific convention of 95% confidence equating to statistical significance (under a one-tailed test, since the preference is directional). Thus the criminal law system’s bias toward freeing the guilty over imprisoning the innocent is represented in Figure 1 by the cut off line, labeled with the shorthand “95%.”

37 William Tucker, DNA Fingerprinting Is Reliable and Accurate, in IS DNA FINGERPRINTING ACCURATE? 121, 126 (1996). However, one author argues that in an initial criminal investigation, this imbalance may be reversed, because when there is non-DNA evidence of a suspect’s guilt, and a DNA test exonerates the defendant, the evidence will probably be retested and the error corrected, whereas Nakashima claims that defendants’ attorneys do not generally challenge these tests. Nakashima, supra note 34, 463-464 (False negatives, of course, favor the criminal defendant. If there is other strong evidence linking the suspect to the crime, it is likely that the analysis will be repeated and any errors corrected. The problem for the defendant occurs when there is a ‘false positive.’ Because the majority of criminal defendants cannot afford independent DNA testing, it is unlikely that a false positive result will be detected by retesting the samples.”)

38 The University of Michigan, “Fathom: DNA Fingerprinting, Genetics and Crime: DNA Testing and the Courtroom”, available at http://www.fathom.com/course/21701758/session2.html (last visited September 24, 2006). (“Imagine that we just accept as matches, alleles that migrate exactly the same distance in the electrophoresis process. The possibility that we will mistakenly declare a match (false positive), when none exists, will be vanishingly small. However, we will mistakenly declare that there is no match (false negatives) frequently as the same alleles will show small variations in migration distance due to experimental error... Thus we can see the two types of errors are related. We cannot minimize one without adversely affecting the other. The use of many loci also minimizes the possibility of false positive error. To declare a match with 10 loci, all 20 alleles (two/locus) must match. If just one allele is different in the forensic sample and the defendant, then there is no match.”)

39 As Justice Scalia recognized recently, even in relation to the death penalty, “[o]ne cannot have a system of criminal punishment without accepting the possibility that someone will be punished mistakenly...” Kansas v. Marsh, 126 S. Ct. 2516 (2006).
As can be seen in Figure 1, positioning the cut-off point in a strongly rightward direction toward the point G and away from I can be expected to have the effect of including a large proportion of factually guilty petitioners within the realm of outcomes labeled negative results. In post-conviction DNA tests, the line is arguably less skewed toward G than it is in pre-conviction procedures, as the courts have developed categorizations of such outcomes, with the cases that are most likely to produce an inconclusive result able to be excluded as inappropriate for post-conviction DNA testing. However as is discussed in Part IV below, these categories are minimally useful and ultimately collapse down to one narrow exclusion rule, that testing should be avoided when crimes involving multiple perpetrators render it unclear whether the petitioner’s DNA was left at the scene of the crime.\(^4\) So apart from this narrow exception, the combination of the unavoidable possibility of false negatives (even from a system as accurate as DNA testing) and the strong bias of the criminal law system towards freeing the guilty over convicting the innocent, has the effect of systematically biasing the interpretation of test results as negative rather than positive identifications.

As such, in a cost free post-conviction DNA testing system, there is an overwhelming incentive for guilty prisoners to seek post-conviction DNA testing. Thus without imposing costs for petitioning, the system unavoidably overwhelms itself with a flood of pointless petitions for post-conviction DNA testing. Testing has a social welfare opportunity cost: pursuing a petition of an actually guilty petitioner reduces the chances of exonerating an actually innocent petitioner. Thus, without a cost-based system, the high threshold of proof, which aims to protect the innocent, actually encourages petitions by guilty parties and so the system renders itself unable to meet its aim of protecting the innocent. The following Part sets out our solution to this problem.

### III. A Proposal: Forced Self-Identification through Incarceration Penalties

This Part provides an economic model that illustrates that, by punishing prisoners with additional incarceration if DNA tests confirm their guilt, states can structure incentives such that innocent prisoners will seek post-conviction DNA testing and guilty prisoners will not.

As discussed in Part II, there is a possibility of the wrong result emerging from DNA testing, both false positives and false negatives. We represent the situation as:

\[
\Pr(t=i|G), \quad \Pr(t=g|I) > 0
\]

That is, the probability of a test result, \(t\), indicating innocence, \(i\), when in fact the party is guilty, \(G\), and the probability of a test result indicating guilt, \(g\), when in fact the party is innocent, \(I\), are both greater than zero. If, however, we can create a penalty, \(P\), that is a function of the probability of a test indicating guilt, then we can begin to

\(^4\) See infra Part IV.A.

\(^4\) We argue that our proposal will further reduce the probability of a test result indicating guilt when in fact the party is innocent, potentially to zero. See infra Part III.A.
differentiate the innocent from the guilty on the basis of their utility functions. For convenience, let:

\[ x_1 = \text{pr}(t=g|I) \]
\[ x_2 = \text{pr}(t=i|G) \]

\[ B = \text{Benefit of freedom} \]
\[ C = \text{Cost of testing} \]
\[ P = \text{Penalty in days of incarceration} \]
\[ \delta = \text{The discount factor on future time served} \]

The two \( x \) terms, \( x_1 \) and \( x_2 \), are each the probabilities of failure of the respective tests; thus \( (1 - x_1) \) and \( (1 - x_2) \) are the probabilities of success of the respective tests. \( B \) is benefit to a prisoner of the freedom that results from a test establishing innocence. \( C \) is the cost to the state in terms of testing, which can be passed on to petitioners; we argue that this cost should only be transferred to petitioners if the test confirms their guilt. \( P \) it is the number of days of additional incarceration that constitutes the penalty. Importantly, the penalty \( P \) also only applies if the DNA test confirms guilt. \( \delta \) is the discount factor, by which future gains and losses, including time served, is discounted. This is a well recognized phenomenon in both the economics\(^{42}\) and psychology literature: individuals give greater salience to current costs and benefits than identical future costs and benefits.

We aim to achieve a separating equilibrium: that is, to structure incentives such that the innocent will seek testing and the guilty will not. To have a separating equilibrium, and thus to have a mechanism that forces petitioners to truthfully reveal their type, the expected utility of innocent petitioners must be greater than zero, and the expected utility of guilty petitioners must be less than zero. That is:

\[ E_{U_i} > 0 \]
\[ E_{U_g} < 0 \]

We can now define these expected utilities:

\[ E_{U_i} = (1 - x_1)B - x_1\delta P - x_1C > 0 \]  \hspace{1cm} (1)

\(^{42}\) See e.g. JEFFREY L. HARRISON, LAW AND ECONOMICS (2002), 29.

\(^{43}\) Psychologists typically refer to such discounting of value depending on the time frame as myopia. See Richard H. Thaler, Amos Tversky, Daniel Kahneman and Alan Schwartz, *The Effect of Myopia and Loss Aversion on Risk Taking: An Experimental Test*, 112 QUARTERLY J. ECON. 647 (1997).
The benefit to the innocent prisoner is multiplied by \((1 - \alpha_i)\), whereas the benefit to the guilty prisoner is multiplied by \(\alpha_i\), because the innocent prisoner gets the benefit if the test is correct, whereas the guilty party gets the benefit only when the test produces a false negative. Similarly, the innocent prisoner suffers the penalty \((P + C)\) when the test falsely shows them to be guilty, i.e. \(\alpha_i\), whereas the guilty prisoner suffers the penalty when the test is correct, \((1 - \alpha_i)\). \(P\) is discounted by \(\delta\), since that penalty is not borne until the end of the prisoner's sentence, whereas \(B\) and \(C\) are not, since they arise immediately.

From equation (1) we get:

\[
P < \frac{B(1 - \alpha_i) - \alpha_i C}{\delta \alpha_i}
\]

(3)

And from equation (2) we get:

\[
P > \frac{B \alpha_i - (1 - \alpha_i)C}{\delta (1 - \alpha_i)}
\]

(4)

We now establish three significant results: first, that petitioning must be costly to some extent, otherwise all prisoners will petition, including the guilty; second, that for a certain range of penalties, separating equilibria exist; and third, that there is only one condition for the existence of the range of equilibria, that \(\alpha_2 + \alpha_2 < 1\).

**Result 1:** Petitioning must be somewhat costly in order for states to avoid the situation described in Part II, whereby the system was overwhelmed by a flood of petitions, largely from guilty parties. We prove this by contradiction. If petitioning is costless, then:

\[P = 0 \text{ and } C = 0\]

Then, from equation (2):

\[EU_G = \alpha_i B\]

Since all probabilities range between one and zero, \(\alpha_2 \geq 0\); furthermore, as established in Part II, there is currently a positive probability of false negative results arising (the next section discusses what happens when this probability falls to zero). As such, \(\alpha_2 > 0\). Also, \(B > 0\), since \(B\) is the benefit to prisoners of gaining their freedom; presumably freedom is preferable to imprisonment, at least for prisoners petitioning for their freedom. So as long as the benefit of testing is an actual benefit (i.e. that prisoners seeking testing do not really want to remain in prison), and there is any chance of an error, guilty prisoners will always have an incentive to petition. That is:
Consequently, it is not possible to have a separating screening equilibrium if petitioning is costless. Petitioning must have a cost for there to be any chance that prisoners will self-identify; the next result shows that self-identification will occur under certain conditions.

**Result 2:** If petitioning is not costless, then we can define an interval in which $\text{EU}_1 > 0$ and $\text{EU}_G < 0$. From equations (3) and (4):

$$\frac{B\alpha_2 - (1 - \alpha_2)C}{\delta(1 - \alpha_2)} < P < \frac{B(1 - \alpha_1) - \alpha_1C}{\delta\alpha_1}$$

And so: $P \in \left[ \frac{B\alpha_2 - (1 - \alpha_2)C}{\delta(1 - \alpha_2)}, \frac{B(1 - \alpha_1) - \alpha_1C}{\delta\alpha_1} \right]$  

(6)

This defines the range of penalties for which prisoners will have the incentive to self-identify, under our scheme. Thus contingent on result 3, a range of penalties exist which result in separating equilibria; in the next section, we discuss which equilibrium penalty within this range is likely to be observed.

**Result 3:** In order for the separating equilibrium contained in equation (6) to be achievable, and thus to ensure that prisoners self-identify, the only condition is that:

$$\frac{B(1 - \alpha_1) - \alpha_1C}{\delta\alpha_1} > \frac{B\alpha_2 - (1 - \alpha_2)C}{\delta(1 - \alpha_2)}$$

(7)

By calculation, the sole condition for the equilibrium is:

$$1 > \alpha_1 + \alpha_2$$

(8)

Put another way, this means $1 - \alpha_1 > \alpha_2$, or $1 - \alpha_2 > \alpha_1$. That is, the probability that the test is accurate in determining innocence has to be greater than the probability that the test will be wrong in determining guilt, or vice versa. So as long as either $\alpha_1$ or $\alpha_2$, the probabilities of errors, are less than 50%, the condition is satisfied. In theory, this condition simply requires that the test for at least one of these groups, the guilty or the innocent, needs to work more than 50% of the time for screening to be induced. This is a very low threshold to satisfy; in fact, we know empirically that both error terms are approximately in the range 0.1% to 1%; thus in reality we know that this condition will always be satisfied.

What this means intuitively is that the only condition for the screening equilibrium to hold is that DNA testing is not meaningless – that there is a less than 50% probability of false positives and false negatives occurring. As we established in Part II, DNA testing is highly precise, just not infallible. As such this condition will be met, and by results (5), (6) and (8), we have established that post-conviction DNA
testing is a perfect candidate for this screening mechanism of using $P$, a penalty of added incarceration.

Our results show that by using the penalty mechanism of added incarceration, a range of perfect separating equilibria exist. As such, if $P$ is properly calibrated, the outcome we expect is that guilty prisoners should not petition for post-conviction DNA testing, and innocent prisoners should always petition for such testing. Thus as long as we properly set $P$ to within the equilibrium range, we will achieve the socially optimal outcome of creating the greatest likelihood of wrongfully convicted, actually innocent prisoners being exonerated, while guilty prisoners are left to serve out their prison terms.

The next section establishes how we can determine what is the requisite level of $P$ – the number of days of additional incarceration – necessary to achieve this socially optimal outcome.

III.A. Implications and the Achievability of Our Results

This section explores the implications of our three results: that petitioning must be costly to some extent, that for a certain range of penalties, separating equilibria exist, and that the only condition for the existence of these equilibria is that DNA testing is at least more than 50% effective. In doing so, we can estimate the minimum penalty – in terms of the number of days of additional incarceration – necessary to force petitioners to self-identify.

The first comparative static to emerge from an examination of our first and third results is that as the accuracy of DNA testing increases, it becomes easier to differentiate between the two types of petitioners. We see this in equation (6):

\[
P \in \left[ \frac{B \alpha_2 - (1 - \alpha_2)C}{\delta(1 - \alpha_2)}, \frac{B(1 - \alpha_1) - \alpha_1 C}{\delta \alpha_1} \right].
\]

As DNA accuracy increases, $\alpha_1$ and $\alpha_2$ will tend towards zero, so $(1 - \alpha_1)$ and $(1 - \alpha_2)$ will tend towards 1. Then, the requisite Penalty will approach the interval $P \in [0, \infty]$. This means that any non-negative penalty will suffice to induce self-identifying behavior. This makes sense: the closer we get to perfect testing, the less of an incentive there is for guilty parties to bother petitioning, and even a very trivial penalty will discourage petitioning when there is little to be gained from it.

This first implication has significance particularly when we consider how we expect DNA accuracy to change over time. We can expect that the costliness of DNA testing will decrease at the same time as the accuracy of the testing will increase, as DNA testing becomes more efficient and widely available. It can also be expected to become much more standard in pre-conviction procedures. As such, the need for a penalty of the type we are proposing can be expected to dissipate over time. However, back-capturing is always very costly: even if quality DNA testing becomes standard in pre-conviction procedures going forward, post-conviction DNA testing will still be a costly enterprise for the foreseeable future. With over two million prisoners incarcerated in
the U.S., post-conviction DNA testing will still be a highly demanded and costly enterprise for some time to come. As such, reducing the costs of post-conviction DNA testing is a laudable policy priority, and our proposal is worth pursuing for states seeking to reform their post-conviction DNA testing system, at least for the foreseeable future.

In the meantime, the same comparative statics from equation (6) yield further implications as to what happens when the probability of false positives and false negatives remains positive. Using estimates of our terms \[ \alpha_1, \alpha_2, B, C \text{ and } \delta \], we can make qualified predictions as to what the requisite penalty levels, \( P \), must be to create the self-identifying equilibrium policy-makers seek.

As discussed in Part II, \( \alpha_1 \) and \( \alpha_2 \) are estimated as between 1/100 and 1/1000.\footnote{45} For our calculations, we use a conservative estimate, assuming that \( \alpha_1 \) and \( \alpha_2 \) are each 1/1000. We can take similar estimates of \( \delta \), \( B \) and \( C \), and attempt to ascertain what actual level of \( P \) is required to force petitioners to self identify. We assume \( \delta \) is approximately 0.1, a reasonable expectation of the level of impatience we can expect from inmates facing lengthy prison terms.\footnote{46} This means that an additional day in prison today has 10 times the salience of an additional day in prison in 10 years time. As discussed in Part II, the current cost of conducting DNA tests is between $1000 and $5000; this ignores the non-financial costs mentioned, including victim trauma and prosecutorial time wasting. We assume here that \( C = $3000 \), as an approximate median of the cost of the tests; since this figure disregards non-financial elements, it is probably a conservative estimate. \( B \) is the years of incarceration prisoners can avoid if the DNA tests establishes their innocence. This will of course vary by prisoner; we consider here prisoners facing 5, 10, 20 and 40 year sentences, a selection that covers much of the range of sentences for rape and murder. Finally, we must convert days incarcerated into dollar value, or vice versa, since \( P \) is comprised of variables in dollar amounts and time amounts. We consider first the case if avoiding an additional day in prison is worth $2000. This element of our calculations is quite subjective,\footnote{47} and so we also consider the case where

\footnote{44} As of June 30, 2005, there were 2,186,230 prisoners held in federal or state prisons or in local jails. U.S. Department of Justice, Bureau of Justice Statistics: Prison Statistics, Summary findings. http://www.ojp.usdoj.gov/bjs/prisons.htm

\footnote{45} See infra, text accompanying n.32-34.

\footnote{46} This assumes that the discount rate is constant, which may not be the case: not only may time be valued less in the future, but the rate at which time is valued less in the future could also vary. As such, the appropriate discount rate may in fact be, for example, \( \delta^{\text{var}} \). See e.g. ANDREU MAS-COLELL, MICHAEL D. WHINSTON AND JERRY R. GREEN, MICROECONOMIC THEORY (1995) 733. Ultimately, the discounting rate of prisoners is an empirical question; we analyze here the more simple scenario where the discount rate is constant, but our analysis could easily be adapted.

\footnote{47} A brief examination of a range of legislative trade-offs between financial penalties and jail time reveals that the ratio between incarceration and monetary penalties is highly varied. For example, one Michigan statute prohibiting the transmission of child pornography over electronic networks punishes at a ratio of $10,000 per year, another in the same jurisdiction prohibiting possession of peyote punishes at a ratio of $2000 per year – compare Laura Dunlop, Don’t Send that E-Mail to a Minor: Compliance with State Child Protection Registry Statutes, 3 Shidler J. L. COM. & TECH. 4 (2006); Autumn Gray, Effects of The American Indian Religious Freedom Act Amendments on Criminal Law: Will Peyotism Eat Away at the Controlled Substances Act?, 22 AM. J. CRIM. L. 769, 787 (1995). There is a broad and deep law and economics literature on the related question of the relative costs and efficiency advantages of fines versus criminal punishment – for a
prisoners do not need to bear the cost $C$, thus avoiding the need to translate days of incarceration into dollar amounts.

The minimum penalty necessary to create separating equilibria for each of the prison terms, varying by whether prisoners have to bear the cost $C$, are set out in Table 1.

<table>
<thead>
<tr>
<th>Prison sentence</th>
<th>$P$ in days if prisoners pay $C$ and $P^{48}$</th>
<th>$P$ in days if prisoners pay only $P^{49}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 years</td>
<td>3</td>
<td>18</td>
</tr>
<tr>
<td>10 years</td>
<td>22</td>
<td>37</td>
</tr>
<tr>
<td>20 years</td>
<td>58</td>
<td>73</td>
</tr>
<tr>
<td>40 years</td>
<td>131</td>
<td>146</td>
</tr>
</tbody>
</table>

The first element to note about Table 1 is that it sets out only the minimum penalties required for the equilibria to work. $P$ is in fact an interval, but the upper bound on $P$ for the smallest range considered here, with a prison sentence of five years and where prisoners bear the cost of both $C$ and $P$ is 18,216,750 days; the upper bound when a prison sentence is 40 years and prisoners do not bear the cost $C$ is 145,854,000 days. These upper bounds are clearly absurd, but there is no reason why the upper bounds need to be meaningful. The purpose here is to determine how much we need to penalize petitioners in order to force self identification, and there is no reason why states need to set the penalty any higher than the minimum. As such, the answer to the question of which equilibrium should be observed is the minimum of the penalty interval.

The second point of interest about Table 2 is that the penalty must be higher if prisoners do not bear the cost $C$. We can also see this directly from equation (6):

$$ P < \frac{B(1 - \alpha_i) - \alpha_i C}{\delta \alpha_i} $$

As such, if $C$ equals zero, $P$ must be higher than if $C$ has positive value. Since $P$ is a function of $B - C$, as the cost increases, the minimum penalty necessarily increases. This has significance for our discussion in the next Part, where we argue that the imposing monetary costs of post-conviction DNA testing on prisoners is likely to be both ineffective and unfairly harm actually innocent petitioners. Our results

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48 $P = \frac{B(1 - \alpha_i) - \alpha_i C}{\delta \alpha_i}$

49 $P = \frac{B(1 - \alpha_i)}{\delta \alpha_i}$

here show that it is unnecessary to impose these imprecise and unfair monetary penalties, as long as incarceration penalties can be applied.

The third insight arising from our results is that, as is clear in Table 1, for any sentence over twenty and one half years when C is born by petitioners, or over sixteen years when C is not born by petitioners, a penalty of more than 60 days additional incarceration will be needed in order for petitioners to self identify. Given that most petitioners seeking post-conviction DNA testing are serving long sentences for rape and/or murder, Missouri’s legislation – which imposes a standard 60 days additional incarceration for guilt-confirming tests (discussed in more detail in the next Part below) – does not go far enough. 60 days additional incarceration will not be adequate to deter actually guilty prisoners from petitioning for post-conviction DNA testing, and so Missouri’s scheme, while sound in its conception, does not go far enough in application.

To craft a legislative scheme that perfectly captures our recommendations, policymakers have two options: first, they can create a mechanism that varies the applicable penalty according to the length of the sentence the prisoner would otherwise be serving. This will allow for perfect screening, and thus ensure that no guilty prisoners will petition for post-conviction DNA testing. The alternative is to set one standard, based on the anticipated distribution of prisoner sentences. If the standard penalty is based on, for example, the average prisoner sentence, every prisoner serving a longer sentence will still have an incentive to petition. As such, this approximation method will result in under-penalizing some guilty petitioners and will not result in perfect screening. Missouri’s scheme, then, will not fully discourage guilty prisoners from petitioning, because it uses a standard penalty that is lower than the disincentive needed for any petitioner serving more than a twenty year sentence: the worst offenders. However, policy-makers could still achieve a separating equilibrium if they set the standard penalty adequately high: as discussed, the upper bound on even a very short sentence is higher than the lower bound on a 40 year sentence.

Both options can create a perfect screening outcome. The relative advantages of the two solutions emerging from our model are as follows. A varying penalty system would be somewhat more administratively complex, since the penalty associated with seeking a petition that ultimately confirms guilt will be different for different prisoners. Nevertheless, we submit that a varying penalty would not be inordinately administratively difficult to pursue: there could be a pre-set standard determined, akin to sentencing guidelines, which lays out the penalty for tests confirming guilt, based on the sentence the prisoner would otherwise be serving. In contrast, the standard penalty option would be administratively straightforward, but would involve systematically penalizing all prisoners except those serving the longest sentences at a higher rate than would otherwise be necessary. At least in theory, this should not matter: in a screening equilibrium, the guilty should not seek testing, and thus erring on the side of a higher penalty decreases errors without unnecessarily additionally punishing.

Our aim is not to overly punish guilty prisoners who seek post-conviction DNA testing, but rather to create a workable system for administering post-conviction DNA testing that advantages actually innocent prisoners, who are currently suffering because of the abuse by actually guilty prisoners of the low cost petitioning system. Both the
varying and standard penalty models would achieve this aim. The constitutionality of both these proposals is discussed in Part V.

Since in equilibrium, the guilty should not seek testing, our scheme (in either form) will help actually innocent prisoners by deterring actually guilty prisoners from petitioning, by both freeing up financial resources and reducing the petitioning queue. But we can go further in the aid we offer actually innocent prisoners. Because the guilty should not seek testing, then a test that confirms guilt will be a highly unusual result – it is ‘off the equilibrium path.’ With the resources freed up by not pursuing guilty prisoners’ petitions, these resources can instead be made available to retest any result that indicates guilt. As such, our scheme not only reduces the number of guilty petitions getting in the way of innocent petitions, it will also reduce the ultimate number of false positives. Thus our scheme does not face the trade-off between deterring guilty prisoners and possibly adding incarceration to the unlucky actually innocent prisoners whose test results show a false positive. By reducing both the backlog of petitions and the possibility of false positive conclusions, our proposal has the potential to radically improve the prospects of actually innocent prisoners being exonerated.

We can now compare our proposal to other legislative regimes that aim to reduce the problem of over-petitioning by guilty prisoners. The next Part outlines the inherent flaws in the response of most jurisdictions to the problem of guilty prisoners seeking post-conviction DNA testing – rigorous vetting and imposing monetary costs for post-conviction DNA testing.

IV. Other Solutions and their Flaws: Vetting and Monetary Penalties

Most states have responded to the problem – that by setting up a post-conviction DNA testing regime, they are potentially encouraging a flood of guilty prisoners to waste the resources of the courts by seeking tests – by setting up rigorous screening schemes. However these schemes are unavoidably subjective, and unlike our proposal, although they reduce the number of petitions, they do nothing to address the proportion of those petitions put forward by the innocent versus the guilty. That is, they discourage the innocent and guilty alike from seeking testing, rather than deterring the guilty and encouraging the innocent. Thirty-six states have also instituted monetary charges for post-conviction DNA testing. However these schemes are potentially unfair to innocent but poor prisoners and still fail to differentially deter the guilty from seeking testing. Three states – Maryland, Missouri and Utah – make those penalties contingent on a confirmation of guilt, which somewhat mitigates the unfairness of monetary penalties, but neither does so fully, nor fully discourages guilty petitioners. This Part

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50 There is a law and economics literature on this topic with two central camps: those who argue that monetary fines are preferable to prison terms because of their lower social costs – see e.g. A. Mitchell Polinsky and Steven Shavell, *The Optimal Use of Fines and Imprisonment*, 24 J. PUB. ECON. 89 (1984) – and those who argue both that fines are unfair as they sanction the poor more than they sanction the rich, and that fines are potentially ineffective, since they under-sanction the wealthy – see e.g. Richard A. Posner, *An Economic Theory of the Criminal Law*, 85 COLUM. L. REV. 1193, 1208 (1985). This debate is informative but not determinative, as consideration of factors such as probability of being detected have less weight in the current context since we are concerned here specifically with finding punishments that effectively sanction those already in prison.
briefly summarizes and critically assesses the alternative solutions that the states have established to combat the problem of guilty prisoners seeking post-conviction DNA testing, as well as Missouri’s scheme, which comes closest to our proposal, but is nonetheless inferior.

IV.A. Vetting Petitions

An extensive examination of the 39 states with post-conviction DNA testing statutes reveal that all 39 have some combination of five evidentiary criteria and five review criteria. The review criteria can be summarized as:

1. A reasonable probability exists that DNA testing will provide exculpatory evidence or that the petitioner’s verdict or sentence would have been more favorable if the results of the DNA testing had been available at the trial;
2. The testing requested employs a scientific method generally accepted within the relevant scientific community;
3. The testing has the scientific potential to produce non-cumulative evidence materially relevant to the defendant’s assertion of actual innocence;
4. The identity of the perpetrator of the crime was, or should have been, a significant issue in the case;
5. The motion is not made solely for the purpose of delay.

The problem with these criteria is that all involve some version of the “reasonable probability” requirement of criterion one – that the test is likely to have influenced the verdict or may now establish the petitioner’s actual innocence. Although the specific language of these requirements varies, ultimately they all require that a

51 For a more extensive analysis, see Carroll, supra note 10; Travis & Asplen, supra note 16; Justice for All Act of 2004, H.R. 5107, 108th Cong. (2004); Axelrad & Russo, supra note 17.

52 The evidentiary criteria are that: 1) The evidence is still in existence and is in a condition that allows DNA testing to be conducted; 2) The evidence was not previously subjected to DNA testing; 3) If the evidence was previously tested, the results of any previous DNA testing were inconclusive and subsequent scientific developments would likely produce a definitive result; 4) If the DNA evidence still exists, the results of testing would have been admissible at trial; 5) The evidence to be tested was subject to a chain of custody sufficient to establish that it has not been substituted, tampered with, replaced, or altered in any material respect.

53 Some states incorporate an extremely minimal version of these five review criteria; see, e.g., N.Y. Crim. Pro. § 440.30 (“Evidence containing DNA secured in connection with the trial resulting in the judgment may be tested.”) Whereas some states, such as Oregon, incorporate every criterion listed below, see Or. Rev. Stat. Tit. 14, Ch. 138, Prec. 138.005.

54 Similarly, the federal statute incorporates most of these criteria. Innocence Protection Act of 2001, S. 486, 107th Cong. §§ 2291(d)(1)(B)&(D) (2001).

55 Georgia, for example, has 8 requirements, three of which are direct corollaries of requirements 1, 3 and 4, with additional requirements as to identification of the evidence, people believed to be in possession of the evidence, and anyone who would otherwise testify for the petitioner. Ga. Code Ann. § 5-5-41. Whereas Michigan requires only that “[b]iological material identified during the investigation leading to the person’s conviction may be tested. A sample of identified biological material is available for DNA testing. The identified biological material was not previously subjected to DNA testing or, if previously tested, will be subject to DNA testing technology that was not available when the defendant was convicted.” Mich. Comp. Laws Ann. § 770.16
court make a determination of whether or not the test is likely to prove the petitioner innocent, an inherently subjective and time-intensive undertaking.

Although some states have attempted to establish multi-part tests to give this criterion greater traction,\(^{56}\) as the Kansas Court of Appeals in *Mebane v. Kansas*\(^{57}\) stated, “tests developed by the states share some similarities: testing is usually permitted where the crime involved only one perpetrator and the prosecution’s evidence was weak or at least open to reasonable doubt.”\(^{58}\) Essentially, the lone pragmatic guideline that emerges from the common law is that cases involving multiple perpetrators in which it is unclear that the petitioner’s DNA was deposited at the scene of the crime do not rise to the necessary standard of proof. However, the evaluation of the “weakness” of the state’s case and the reasonable probability of the petitioner’s guilt or innocence being established by the evidence are still left to the subjective determination of the trial court. Despite the attempts of national commissions, state courts, state statutes, Innocence Projects and state prosecutors to specify which cases are appropriate for post-conviction review, the determination of whether testing will be determinative of guilt often comes down to “gut instinct”\(^{59}\) or the judgment of courts, prosecutors or innocence project attorneys.

Due to concern over the subjectivity and the desire to maximize the value of forensic DNA evidence “as a tool of investigation and adjudication in criminal cases,”\(^{60}\) the National Commission on the Future of DNA Evidence established a five category system to attempt to standardize the treatment of post-conviction DNA testing,\(^{61}\) but each of the categories involve subjective determinations of such things as the likelihood that the test will be determinative of innocence or whether it will be inconclusive or

\(^{56}\) See e.g. Jenner v. Dooley, 590 N.W.2d 463, 472 (S.D. 1999).


\(^{58}\) See *Mebane v. State*, 21 Kan. App. 2d 533, 538 (Kan. Ct. App. 1995) (“First…each case involved a single perpetrator, which would make DNA testing determinative of the guilt or innocence of the defendant. Second, the State’s evidence in each case was weak or the defense was sufficient to support a reasonable doubt. This case involves multiple semen donors. Consequently, the results of DNA testing would probably be inconclusive, and it is highly unlikely that a positive determination of defendant’s guilt or innocence could be made from the results of such test.”; see also People v. Henderson, 343 Ill. 3d 1108, 1119 (Ill. App. Ct. 2003) (“While it may be much more difficult to successfully analyze ‘mixed samples’ (those containing genetic material from more than one person), it is not impossible.”). *Jenner*, 590 N.W.2d at 472 (stating that post-conviction testing is “most suitable” where “the identity of a single perpetrator is at issue”); *In re Washpon*, 625 N.Y.S.2d 874, 878 (N.Y. Sup. Ct. 1995) (using the New York standard of reasonable probability and indicating that there were not multiple assailants and that DNA tests would be significant because the victim said she had not had sexual relations with anyone else the night of the rape); *Sewell v. State*, 592 N.E.2d 705, 708 (Ind. App. 1992) (declaring that DNA testing should be used “when the State’s proofs are weak, [and] when the record supports at least a reasonable doubt of guilt”) (citation omitted).

\(^{59}\) Medwed *supra* note 19 at 1126 (”it is the amount of detail in the inmate’s correspondence, the credibility displayed during the prison interview, and a sense of “smell” that often convinces him that a particular case warrants our services.”)


\(^{61}\) Travis & Asplen, *supra* note 16.
impossible to conduct. Thus this categorization system adds little certainty to the process, and simply adds another level of scrutiny. But lack of scrutiny is not the problem. Even states that adopt relatively few of the above criteria, such as Illinois and Kansas, have more specific requirements in state court interpretations of the statutes. Additionally, Innocence Projects often impose more levels of scrutiny than mandated by the statute. Any additional vetting simply increases the number of difficult determinations courts must make, and so increases the already large burden on the courts, rather than lessening it.

Clearly additional vetting actually increases the burden on courts; meanwhile, while it may reduce the raw number of petitions granted, it does nothing to reduce the flood of petitions the prosecutors must sort through, since it does not deter guilty prisoners from petitioning in the first place. And by simply increasing the evidentiary burden on prisoners, it risks excluding those whose cases may not fit the guidelines, but are nevertheless actually innocent. Ultimately, additional vetting guidelines do little to discourage petitions from guilty prisoners or free up resources for innocent applicants.

IV.B. Monetary Penalties

The second response states have made to the problem of over-petitioning is to make the petitioner liable for the monetary costs incurred in conducting the DNA test. Most states now require petitioners to pay the costs of their tests.

The obvious concern here is that innocent indigent petitioners could be deterred from seeking testing. Most states, though not all, make the requirement of payment dependent on solvency. But the opposite problem also arises under such a scheme: monetary penalties may not be sufficient to deter guilty petitioners from seeking testing. A wealthy or simply liquid prisoner is likely to be willing to pay a high monetary fee for even a small chance at freedom, and so any monetary penalty that is likely to be constitutional is also unlikely to deter any prisoner facing a lengthy sentence.

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62 For more details, see id. at 3-6; and Carroll supra note 10.

63 725 Ill. Comp. Stat. Ann. 5/116-3 (“The trial court shall allow the testing upon a determination that: (1) The result of the testing has the scientific potential to produce new, non-cumulative evidence materially relevant to the defendant’s assertion of actual innocence even though the results may not completely exonerate the defendant (2) The testing requested employs a scientific method generally accepted within the relevant scientific community.”)

64 Kan. Stat. Ann. § 21-2512. (“The court shall order DNA testing upon a determination that testing may produce noncumulative, exculpatory evidence relevant to the claim of the petitioner that the petitioner was wrongfully convicted or sentenced.”)


67 Axelrad and Russo supra note 17.

68 This may even be unconstitutional, if courts take the view that the right to prove one’s innocence is analogous to the right to legal advice, psychiatric expertise and other such mandatorily state-funded protections – see Carroll supra note 10.
Thirty-six states impose the monetary cost of petitioning on prisoners regardless of whether the result establishes their guilt. As such, the cost is a pre-testing requirement, rather than a penalty, which is an even more perverse incentive scheme, as it punishes the guilty and innocent alike. Three states – Maryland, Missouri and Utah – have attempted to properly shape incentives by making the cost contingent on a confirmation of guilt.\textsuperscript{69} Once again, this solution goes some way toward lifting the burden on poor, actually innocent prisoners, but it can also be expected to often not provide an adequate disincentive for guilty petitioners to try their luck. Given that post-conviction DNA testing is most often used for murder and rape convictions, the length of time that petitioners will spend incarcerated without the test is usually very high. Making petitioners cover the full cost of each test – from $2500 to $5,000 – is trivial when compared to the value of avoiding years in prison, even when discounted for the probability of a confirmation of guilt.

This is particularly a problem given that petitioners cannot be forced to bear the full cost of DNA testing. As discussed, many of the costs of post-conviction DNA testing – such as victim trauma and wasting prosecutors’ time – are less easily quantifiable. Also, many poor or indigent prisoners will not be able to bear these costs. Quite simply, monetary penalties cannot reasonably be expected to properly discourage a petitioner serving life in prison if there is a small possibility, even if only due to a technical error in testing, of a chance at freedom. The state cannot put an accurate dollar amount on the value of liberty, and can never account for all of the non-monetary costs involved in post-conviction DNA testing. As such, the only realistic way to discourage guilty petitioners from seeking such tests is to impose penalties in the same currency of the benefit they seek from the testing: liberty.

IV. C. Missouri’s Scheme: Additional Incarceration and Good Time Credit Revocation

Missouri provides a contrasting statutory scheme, whereby when petitioners seek post-conviction DNA testing and that test confirms their guilt, they are subject to mandatory penalties. These penalties take the form of both monetary liability for the cost of the test,\textsuperscript{70} and 60 days incarceration being added to the sentence they are serving.\textsuperscript{71} Missouri does this by making use of its system of “good time credits.” Good time credits are a mechanism of reducing the length of a prisoner’s sentence in response to various forms of good behavior, including following the rules or undertaking educational, substance abuse or counseling programs.\textsuperscript{72} The Supreme Court has

\begin{itemize}
  \item \textsuperscript{69} Md. Criminal Procedure Code Ann. § 8-201 (2005); § 547.035 R.S.Mo. (2005); Utah Code Ann. § 78-35a-301 (2005).
  \item \textsuperscript{70} § 650.055 R.S.Mo.
  \item \textsuperscript{71} § 217.262 R.S.Mo.
  \item \textsuperscript{72} \textit{See e.g.}, CAL. PENAL CODE § 2931 (West 1982), amended, 1982 Cal. Adv. Legis. Serv. ch. 1234, at 307. The new California sentencing law provides one month’s credit every eight months “for participation in work, educational, vocational, therapeutic or other prison activities” \textit{see also} N.Y. CORRECT. LAW § 804(1) (McKinney 1968 & Supp. 1982-1983) (“Persons performing a work assignment . . . shall receive wages or good conduct credit . . . or both under the rules and regulations of
recognized the value of the allocation or revocation of good time credit as an effective disciplinary tool in *Wolff v. McDonnell*, saying that “The deprivation of good time is unquestionably a matter of considerable importance. The State reserves it as a sanction for serious misconduct, and we should not unrealistically discount its significance.”

Every state that has a post-conviction DNA testing regime also has a statutory good time credits scheme, and all provide mechanisms not only for the granting of good time credits, but also for their revocation for poor behavior, such as escape attempts, assaults, or failing to complete a program. Twelve states other than Missouri include in their forfeiture schemes provisions for penalizing prisoners who file frivolous law lawsuits. Only Missouri, however, specifically incorporates punishment for post-conviction DNA testing that confirms guilt within the application of the frivolous suits forfeiture scheme. It deems that if the results of a DNA test confirm a person’s guilt, that person shall:

1. Be liable for any reasonable costs incurred when conducting the DNA test, including but not limited to the cost of the test. Such costs shall be determined by the court and shall be included in the findings of fact and conclusions of law made by the court; and
2. Be sanctioned under the provisions of section 217.262, RSMo [statute punishing frivolous suits].

Thus Missouri imposes a penalty that is in the currency that is relevant to petitioners seeking post-conviction DNA testing: it imposes incarceration costs on those who seek to lessen their incarceration, and thus avoids the difficulty of putting a monetary price on the chance of freedom. It also avoids the problem of overly punishing poor or indigent prisoners, or under-sanctioning wealthy prisoners, as all prisoners are equally subject to good credit reward and punishment. Finally, and most

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75 650.055 R.S.Mo.(10)(1-2).

76 There is little merit to the criticism that this proposal would have minimal incentive effect on petitioners who have not accumulated good time credit, because in most states good time credits have become automatically provided, often as a lump sum at the beginning of a prisoner sentence, and so revocation, not reward, is the incentive structure of most good time credit systems. See Jacobs supra note 72, 225 (1982), who claims that states that do not have automatic allocation of credits, such as New York,
significantly, it functions as a deterrent to guilty prisoners seeking post-conviction DNA testing, and thus lessens the burden on courts, prosecutors, and innocence projects, freeing up time and money to aid in the exoneration of the actually innocent seeking release.

The failings of the Missouri scheme are twofold. First and most importantly, it imposes a standard 60 day penalty when tests confirm guilt, regardless of the length of sentence that the prisoner would otherwise be facing (but for the chance of freedom offered by the post-conviction procedure). As established in Part III, it is only possible to achieve perfect screening between guilty and innocent prisoners if the punishment – additional incarceration – is proportional to the benefit – which is an avoidance of prison time, and varies by prisoner. Thus a 60 day penalty will overly punish some prisoners and under-deter others; ironically, the prisoners who will be under-deterred are those guilty of the most heinous crimes: those serving the longest sentences.

The second failing of the Missouri scheme is that it uses both monetary and incarceration penalties. As established in Part III, monetary penalties are unnecessary if the state can impose incarceration penalties. Missouri may well impose the secondary penalty out of a recognition that the 60 day standard penalty will often be inadequate in deterring guilty petitioners. However, given the unfairness associated with monetary penalties, discussed above, and the perfect screening able to be accomplished by a varying incarceration penalty, Missouri would be better served by a higher standard penalty or a varying incarceration penalty of the kind proposed herein than by a combined monetary-incarceration penalty.

V. Constitutional Issues

This Part briefly considers some constitutional objections that could be raised against our scheme. Potential constitutional objections fall under two broad categories: whether imposing additional incarceration as a penalty for seeking post-conviction DNA testing when such tests confirm guilt constitutes cruel and unusual punishment, contrary to the Eighth Amendment; and whether the imposition of such penalties violates prisoners’ due process rights under the Fifth and Fourteenth Amendments. Subject to some minor limits, we conclude that there are no serious constitutional objections to structuring prisoner incentives in seeking post-conviction DNA testing with additional incarceration penalties.

nonetheless will probably ultimately function like an automatic allocation system, due to the administrative limits of individual periodic recalculation. Given this, our scheme may be even more effective, given the consistent evidence in psychological studies that loss aversion causes people to value avoidance of losses considerably higher than equivalent gains. See Daniel Kahneman, Jack L. Knetsch and Richard H. Thaler, Experimental Tests of the Endowment Effect and the Coase Theorem 98 J. POLITICAL ECONOMY 1325 (1990). As such, revocation of good time credits can be expected to be more effective at structuring incentives than provision of good time credits for good behavior. Additionally, under Missouri law, the 60 day penalty can either be deducted from a prisoner’s good time credit or it can simply be added to the existing sentence. 217.262 R.S.Mo.(1). As discussed in the conclusion, the one limit to this scheme is that it will have no effect on prisoners serving life without parole; however, arguably similar analysis could be applied to other revocation of privileges. See conclusion, infra.
The most obvious constitutional issue raised by our scheme is whether punishing the mere seeking of a review process, in this case a petition for post-conviction DNA testing and review, with an incarceration penalty of up to 146 days is so disproportionate as to constitute cruel and unusual punishment. This objection is unlikely to be effective since, in contrast to the close scrutiny given to the proportionality of capital punishment, the Supreme Court has given the states a high level of deference in determining the proportionality of punishments to non-capital crimes.

In holding specific forms of non-capital punishments unconstitutional, two key cases suggested some sort of proportionality requirement for non-capital punishment cases. *Weems v. U.S.* held that a lengthy punishment including hard labor in stocks, combined with the loss of basic rights, including over property and voting, was excessive for the crime of falsifying records. *Trop v. Dulles* held that denationalization for military desertion was cruel and unusual. The Supreme Court has gone back and forth as to whether these cases constituted a general requirement of proportionality in non-death penalty sentences. In 1980, in *Rummel v. Estelle*, the Court concluded that there is no proportionality test: the punishment in *Weems* was considered excessive because of the combination of punishments. However, in 1983, in *Solem v. Helm*, the Supreme Court interpreted the Eighth Amendment to include a test for proportionality. Finally, in 1991, *Harmelin v. Michigan* overruled *Solem*, holding that a determination of whether a punishment is cruel and unusual such that it violates the Eighth Amendment does not include a proportionality test: the Eighth Amendment limit concerns the mode rather than the proportionality of punishment. Nonetheless,

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77 In addition to evidence that evolving standards of decency render the infliction of capital punishment cruel and unusual in the following cases, the Court has also argued that the requirement of proportionality prevents: imposition of capital punishment for the rape of an adult woman, in the absence of her murder – *Coker v. Georgia*, 433 U.S. 584, 597 (1977); the execution of mentally retarded defendants – *Atkins v. Virginia*, 536 U.S. 304, 311-312 (2002); and the execution of juveniles – *Roper v. Simmons*, 125 S. Ct. 1183, 1192 (2005). However Chief Justice Rehnquist, along with Justices Scalia and Thomas, have argued there is no proportionality requirement, separate from an enquiry as to whether a punishment is contrary to evolving standards of decency – *Atkins v. Virginia*, 536 U.S. 304, 324 (2002) (Rehnquist, C.J., dissenting); see also *Penry v. Lynaugh*, 492 U.S. at 302, 351 (Scalia, J., concurring in part and dissenting in part) (joining the Court’s opinion as to both the principle of using state legislation to establish a national consensus and its application in this case, and questioning only whether the Court should then undertake an additional analysis of whether there is a lack of proportionality).

78 217 U.S. 349, 381 (1910) (Such physical punishment is contrary to “the spirit of constitutional limitations formed to establish justice”).

79 356 U.S. 86, 101-102 (1958) (Use of denationalization as a punishment is barred by the Eighth Amendment and is “offensive to cardinal principles for which the Constitution stands.”).

80 445 U.S. 263, 273 (1980) (It was not the length of *Weems*’ imprisonment itself that was the basis for its unconstitutionality, but rather the “accessories” or “accompaniments” of the sentence).

81 463 U.S. 277, 284 (1983) (The term “cruel and unusual punishments” “prohibits not only barbaric punishments, but also sentences that are disproportionate to the crime committed.”).

82 501 U.S. 957, 965 (1991) (concluding *Solem* was “simply wrong” and the Eighth Amendment contains no proportionality guarantee).
in *Harmelin*, Justice Kennedy suggested a “grossly disproportionate” test exists. Gross proportionality, however, in Justice Kennedy’s concurring opinion, did not prohibit a life sentence for a drug possession conviction. This notion of gross proportionality has since been adopted by the Supreme Court in *Lockyer v. Andrade*, although the Court stressed it was only applicable in extreme and rare cases.

Two factors prevent this ruling from providing any obstacle to our scheme. First, the ruling in *Lockyer* was that a “gross disproportionality principle is applicable to sentences for terms of years,” whereas even the highest of our proposed punishments is approximated at only 146 days, and so should not trigger this gross proportionality requirement. Second, even if the requirement is triggered, in recognizing this principle of gross proportionality, the Court in *Lockyer* nonetheless upheld the imposition of two consecutive terms of 25 years to life for stealing approximately $150 in videotapes. As such, exceptionally long punishments, including multiple life sentences, can be imposed even for relatively minor offences if defendants have prior felony convictions. Given the Court’s emphasis that gross disproportionality will only be satisfied in extreme cases, and not by life sentences for relatively minor offences, we can confidently conclude that the imposition of even our maximum proposed punishment does not approach the gross proportionality limit as applied by the court in *Lockyer*. In fact, when applied to the closely analogous question of revocation of good time credits for filing frivolous lawsuits, the Iowa Supreme Court ruled that a loss of 2000 days credit was not disproportionate to the offence of filing a frivolous suit.

A second potential cruel and unusual punishment objection to our proposal is the argument that varying a penalty according to the characteristics of a pre-existing sentence is arbitrary. This argument suggests that varying the amount of the additional incarceration a petitioner would face is cruel and unusual because it varies the punishment that applies to prisoners for the same wrong: namely, petitioning for testing when the test confirms guilt.

The principle that a punishment cannot be “arbitrary, capricious or barbaric” comes from the famous 1972 case of *Furman v. Georgia* in which the Court imposed a

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83 *Id.*, 1001 (“The Eighth Amendment does not require strict proportionality between crime and sentence. Rather, it forbids only extreme sentences that are “grossly disproportionate” to the crime.”).

84 538 U.S. 63, 73 (2003) (“the only relevant clearly established law… is the gross disproportionality principle, the precise contours of which are unclear, applicable only in the “exceedingly rare” and “extreme” case.”).

85 *Lockyer* v. *Andrade*, 538 U.S. 63, 72 (2003), emphasis added. (“Through this thicket of Eighth Amendment jurisprudence, one governing legal principle emerges as “clearly established”… A gross disproportionality principle is applicable to sentences for terms of years.”).

86 *Id*, 77 (A sentence of two consecutive terms of 25 years to life in prison was not unconstitutional, given that “the gross disproportionality principle reserves a constitutional violation for only the extraordinary case.”).

87 *Maghee* v. *Reade*, 712 N.W.2d 687, 695 (Iowa 2006) (Since the Statute gave the District Court discretion to revoke “some or all” of a prisoner’s accrued good time credits to sanction a frivolous suit, and there was no evidence of abuse of that discretion, the decision was affirmed).
national moratorium on the death penalty. In Furman, the Supreme Court ruled that the death penalty as it was then implemented was unconstitutional because of its discretionary nature and its indeterminate and haphazard application, which rendered it arbitrary, and thus cruel and unusual; essentially the problem was that the death penalty was applied in some cases and not in other, highly similar cases. Subsequently, the Supreme Court lifted the moratorium when, in Gregg v. Georgia, Georgia’s capital punishment legislation satisfied the Court that its process was not arbitrary, since it provided a list of aggravating and mitigating circumstances that could be found by a jury or a judge, in a trial with separate stages for guilt and sentencing determinations, and provided for the possibility of higher court review.

The weakness of the argument that our varying penalty proposal is arbitrary is that, while it is true that the proposal imposes different penalties for the same immediate conduct, it differentiates on the basis of prior conduct. Penalty differentiation on the basis of prior conduct has strong precedent. It is standard in statutory guidelines, for instance, for sentences to depend on the presence or absence of a defendant’s prior convictions. As long as these guidelines are advisory, and not mandatory, taking account of prior convictions in this way has been recognized by the Supreme Court as constitutional. Similarly, these guidelines typically account for the severity or seriousness of the prior offences. Thus, just as in our varying penalty proposal, it is legitimate for convicted defendants to face greater punishment in one context due to having been convicted of more serious prior offences, and facing longer prior prison terms.

So well-established is the notion that later punishments can and should vary with prior offences, that the inverse of the above objection can plausibly be made: that not varying punishment according to the length of a prisoner’s initial sentence is unconstitutional. An argument of this type could be made that if, instead of the varying penalty proposal, states chose to implement our alternative fixed penalty proposal – under which all petitioners face the highest minimum required to establish a separating equilibrium – then the state would be effectively penalizing some offenders due to the long sentences being served by other petitioners. This argument might suggest that to do so is equivalent to punishing all prisoners present in a room where a crime was committed, knowing only that at least one prisoner was guilty of the crime. However this argument

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89 Id. 309-310, (Stewart, J., concurring) (“These death sentences are cruel and unusual in the same way that being struck by lightning is cruel and unusual. For, of all the people convicted of rapes and murders in 1967 and 1968, many just as reprehensible as these, the petitioners are among a capriciously selected random handful upon whom the sentence of death has in fact been imposed.”).

90 Gregg v. Georgia, 428 U.S. 153, 194 (1976) (Such factors “provide guidance to the sentencing authority and thereby reduce the likelihood that it will impose a sentence that fairly can be called capricious or arbitrary.”).

91 Prior convictions can in fact even extend a sentence beyond its statutory maximum – see Apprendi v. New Jersey, 530 U.S. 466, 490; Blakely v. Washington, 542 U.S. 296 (2004); discussed infra at text accompanying n. 87.

is also flawed. It is not equivalent to punishing prisoners for other prisoners’ wrongs; rather, every person petitioning for post-conviction DNA testing has necessarily already been convicted of a crime. The question is whether the minimum across the board separating equilibrium penalty imposed under our scheme — approximately 146 days — can constitutionally be applied to each prisoner; the fact that the 146 days level is arrived at with reference to deterring the actions of others does not render a punishment that would otherwise satisfy the Eighth Amendment unconstitutional. As long as the punishment for the conviction in question is not grossly disproportionate, it is not cruel and unusual.

A final concern relating to the length of the penalty is whether the penalty would be unconstitutional if, when added to the petitioner’s original sentence, the total incarceration exceeded the maximum penalty applicable for the offence the petitioner was convicted of. It is established that, “[o]ther than the fact of a prior conviction, any fact that increases the penalty for a crime beyond the prescribed statutory maximum must be submitted to a jury, and proved beyond a reasonable doubt.” 93 Clearly this constitutes a constitutional limit on the amount of additional incarceration that can be added to a petitioner’s sentence. This does not mean, however, that the effectiveness of our proposal will be radically limited for prisoners already sentenced to a maximum or close to the maximum allowable sentence for their given crime. Read literally, Missouri’s statute imposes additional incarceration for post-conviction DNA tests confirming guilt, 94 and this is typical of the legislation of the twelve states that impose incarceration penalties for frivolous litigation which, as described above, can be easily amended to include prisoners seeking post-conviction DNA tests confirming guilt. But in application, all of these schemes rely on the provision and revocation of good time credits as their means of adding or subtracting incarceration as punishment and reward. As such, it is not necessary for our proposal to actually add incarceration to prisoners’ sentences, it is enough to revoke good time credits that would otherwise reduce prisoners’ sentences. As such, our proposal provides incentives even for prisoners serving the maximum possible sentence, and the constitutional limit against exceeding that maximum does not undermine the effectiveness of our scheme. 95

94 Mo. Ann. Stat. § 217.262 R.S.Mo. (“An additional sixty days shall be added to the time that an offender is first eligible for parole consideration hearing or a sum of up to fifty percent of the average balance of the offender’s account for any portion of the preceding twelve months during which the offender’s account had a positive balance, shall be deducted from an offender’s account for each instance that a court finds that the offender has done any of the following while in the custody of the department: (1) Filed a false, frivolous or malicious action or claim with the court…).”
95 Similarly, there is little merit to the objection that the effectiveness of our proposal would be undermined for petitioners who have accumulated no good time credit. Although good time credit may have originally been conceived as a system of reward, due to bureaucratic time and resource constraints, “time credits have become automatic; individual decision-making goes only to the question of forfeiture...Like many incentives for good behavior inside and outside of prison, rewards come to be seen as entitlements and their denial as punishment. Good time, therefore, has come to be administered as a system of punishment” —Jacobs, supra note 72, 218 (“[States’] power to reduce a sentence mirrors their power to lengthen it; in practice, good time is usually administered as a system of punishment rather than reward.”). As discussed, most prisons dole out good time credit in a lump sum at the beginning of prisoner’s sentence, and so revocation, not reward, is the incentive structure of the good time credit system – Id. at 225.
The second broad means of constitutionally challenging our proposal is on the basis of due process. As a general matter, the rights associated with seeking exoneration through post-conviction DNA testing are limited, for many reasons. There is no constitutional requirement for a state to provide a post-conviction DNA procedure; as a general matter, convicted inmates do not have a "cognizable liberty or property interest" in the possibility of early release, only "a hope that is not protected by due process," unless the government creates a statutory liberty interest. By nature of being a post-conviction process and a discretionary procedure, the rights associated with post-conviction DNA testing petitioning are more limited than other criminal rights. This is not, however, to deny that any due process interest arises. Two key elements of due process still apply: the requirement of a hearing and the requirement of notice.

Two Supreme Court cases shed light on the general question of the due process requirements involved in revocation of good time credits. Wolff v. McDonnell held that good time credits could not be revoked without any formal procedure whatsoever, since the state's good time credit statute created a liberty interest in avoiding additional prison time. In that case, the state statute provided that inmates could only forfeit good time credits when found guilty of serious misconduct. On this basis, the Supreme Court ruled that due process requirements arose involving notice and a hearing. However, the due process safeguards that applied were far less stringent than usually required, given the context of occurring as part of a prison disciplinary process. The Court required written notice of the charges be given to the defendant to enable him to prepare a defense, but as little as 24 hours could be allowed for the preparation of that defense. The defendant must be given an opportunity to call witnesses and present a defense, but subject to the institutional safety and correctional goals of the prison environment. Finally, a written statement by the fact finder of the evidence relied on and the reasons for the disciplinary action must be provided, however a subsequent case, Superintendent, Massachusetts Correctional Institution v. Hill, determined that the record need only provide "some evidence." The "some evidence" standard required by the Court mandated only that there be "any evidence in the record that could support the conclusion reached by the disciplinary board" and that the decision have "some basis in fact."

These cases do not address the exact question of whether good time credits can be revoked specifically for petitioning for post-conviction DNA testing when that testing subsequently establishes the petitioner's guilt; no court has yet held there is any due process violation generated by such sanctions. However, these cases address the more general question of the revocation of good time credits for actions where the

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98 Id, 563-564.
99 Id, 566.
100 Id, 564-565.
102 Id, 455.
prisoner seeks his or her freedom – through the appeals process or filing related suit petitions. These cases make clear the general point that revocation of good time credits itself does not deny due process, merely that normal due process requirements of hearings and notice, albeit at a less stringent standard, apply to this process. Thus our proposal need only be subject to the ordinary due process requirements of post-conviction good time credit revocation procedures.

It should be unsurprising that court precedent strongly suggests that there is no serious constitutional problem with imposing incarceration penalties for prisoners seeking post-conviction DNA testing when the results of that testing confirm the prisoners’ guilt. Despite being a literal interference with the process of seeking exoneration, it is common for the criminal justice system to impose the risk of additional incarceration when defendants or prisoners seek to pursue a potentially exonerating process. Plea bargains, upon which the efficacy of the criminal justice system relies, necessarily involves offering defendants a guaranteed lower sentence in return for not pursuing their full rights to a trial; the trial process, in contrast, offers defendants potential freedom, through acquittal, but also poses the danger of a higher sentence being imposed, due to conviction of a more serious crime. Similarly, a defendant who successfully appeals his or her sentence or conviction and gains a retrial can face a higher sentence if convicted again. So once again, in seeking a further process for exoneration, defendants subject themselves to the risk of a higher sentence, a risk that must be weighed against the possibility of freedom. Finally, under many sentencing guidelines, prisoners’ ongoing insistence on their innocence can be held against them in sentencing: that is, continuing to seek exoneration through claiming one is innocent can lead to a higher sentence. Our proposal involves the same trade-off inherent in so many aspects of the criminal justice system: prisoners can seek post-conviction DNA testing and the possibility of exoneration it offers, but face additional incarceration if that process confirms their guilt. The difference here is that the confidence that the courts can have in the basis for imposing that higher sentence – DNA testing – is more reliable than the factors usually relied on: pursuing a trial, seeking an appeal, or an insistence of innocence.

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103 This phenomenon is not unique to the criminal justice system: the National Football League, for example, allows two opportunities in a game for a coach to challenge a ruling by throwing a red flag onto the field; if the challenge is vindicated, the ruling is reversed, but if the initial ruling was correct, the challenging team loses a timeout. Additionally, if both prior challenges were successful, the coach is permitted a third challenge in the game. Our proposal involves a similar incentive-shaping technique: punishing review appeals that do not vindicate the petitioner, but not punishing review appeals that do vindicate the petitioner, so as to discourage meritless petitions but not meritorious petitions.

104 Santobello v. New York, 404 U.S. 257, 260 (U.S. 1971) (Noting that plea bargaining “is an essential component of the administration of justice. Properly administered, it is to be encouraged. If every criminal charge were subjected to a full-scale trial, the States and the Federal Government would need to multiply by many times the number of judges and court facilities,” while acknowledging that breaches occasionally occur in prosecutorial procedure, and can result in unfairness.).

Others may disagree. Addressing the analogous practice of revoking good time credits for filing frivolous lawsuits, Branaham, for example, argues that this practice constitutes an unconstitutional interference with the right to access to the courts, and the associated issue of First Amendment constraints.\(^\text{106}\) Branaham recognizes that “[i]t is evident that the right to have access to the courts does not mean that a litigant is immune from sanctions for litigation-related activity. Otherwise, states would be powerless to prosecute a litigant for perjurious testimony.”\(^\text{107}\) Further, she admits that consciously pursuing a groundless claim “would generally comport with the First Amendment. The requisite sincere and honest belief in a claim is also lacking when a prisoner knew the claim was frivolous.”

But what if a prisoner recklessly files a baseless claim? In other words, what if the prisoner is aware that there is a substantial risk that the claim is groundless, but files it anyway? In that situation, does revoking the prisoner’s good-time credits fall outside the penumbral protections of the First Amendment? The answer to that question is not readily evident.\(^\text{108}\)

So Branaham seems reasonably unconcerned with imposing incarceration penalties when prisoners knowingly pursue post-conviction procedures that they know to be baseless. This suggests that Branaham would support our proposal, conditional on the prisoner knowing that the DNA test he or she seeks will confirm their guilt. Is there any basis for her concern about reckless petitions in the context of post-conviction DNA testing?

To apply to post-conviction DNA testing petitions, the petitioner would have to be uncertain as to his or her guilt of the crime. Post-conviction DNA testing overwhelmingly applies to rape and murder convictions, since these crimes involve forensic samples being deposited at the crime scene, which can then be tested using DNA techniques. In a rape case, a defendant could potentially be uncertain whether he raped the victim because consent was unclear, but the purpose of DNA testing would be to ascertain whether sex occurred between the defendant and the victim, it tells us little to nothing of consent. Thus for the recklessness concern to arise, the defendant would have to not know if he had sex with the victim, consensual or otherwise – an unlikely scenario. More likely is the problem that the defendant may be uncertain whether he deposited a DNA sample during the rape, and thus whether the test will confirm guilt. This is most likely to occur in a situation with multiple offenders, in which case the screening mechanisms discussed above would typically determine the petition inappropriate for testing. Similarly, in a murder case, the only conceivable way a defendant could be unsure whether a DNA test would confirm guilt would be if the DNA test is unlikely to lead to exoneration even if the test is negative, for example if the


\(^{107}\) Id., 1059.

\(^{108}\) Id., 1074-1075.
defendant’s presence at the scene is otherwise explicable. Once again, such a case would likely be excluded under the screening procedures.

Even if such a petition did get through the screening process, the Supreme Court ruled in Wolff v. McDonnell that the revocation of good time credits for punishment generally is not a breach of due process, saying that such revocation is a legitimate sanction used by the states against prisoner misconduct. Additionally, the Supreme Court of Delaware, in finding a prisoner’s suits to be frivolous, ruled that if the prisoner filed another suit found to be “factually or legally frivolous, this Court may order the Department of Correction to forfeit a portion of [his] accumulated good time credits.”

Thus the Supreme Court has ruled that there is no due process problem with the revocation of good time credits in general, and the Delaware Supreme Court has deemed it can be appropriate for the filing of frivolous petitions. As such, the approach adopted by the Missouri State legislature and endorsed here of including post-conviction DNA testing petitions that confirm guilt within the realm of frivolous petitions that can be punished by the revocation of good time credits, resulting in additional incarceration, is also likely to be found to not constitute any breach of due process.

As such, the only constitutional limits on our proposal are: that the additional incarceration penalty must not render the overall sentence above the maximum sentence permissible for the given offence; and that hearing and notice requirements of due process are met, including that the determination be based on “some evidence.” If these requirements are met, given the Supreme Court’s position on the use and revocation of good time credits for sanctioning misbehavior, and other precedent supporting the revocation of good time credits for sanctioning filing lawsuits in particular, no other constitutional problems with our scheme should arise.

VI. Conclusion

This Article established that imposing incarceration costs on prisoners seeking post-conviction DNA testing when those tests confirm a prisoner’s guilt is the most efficient and effective means of structuring an administrative penal system so as to force prisoners to self-identify as either innocent or guilty. This has the potential to greatly reduce the costs of the post-conviction DNA testing system – in terms of financial burdens, time wasting and victim trauma – and so ultimately improve the chances of exonerating actually innocent prisoners.

It would not be onerous for states to implement such a scheme, as the necessary infrastructure already exists: every state that provides a scheme for post-conviction DNA testing also has a system for allocating and revoking good time credits. Missouri’s system is innovative purely in combining the two, and making its penalties conditional on a test confirming guilt. All that is required to fix the limitations of Missouri’s post-conviction petitioning incentive scheme is either: to create a sliding scale of the number of days additional incarceration that applies, given the sentence the prisoner is currently

serving; or to increase the current penalty. Either solution is constitutionally sound, reasonably administratively simple and will create perfect screening. As such, both variants of our proposal solve the problem of the administration of the penal system currently being flooded by petitions from guilty parties seeking post-conviction DNA testing.

Two limitations should be noted. First, for prisoners serving life in prison without parole, the penalty of additional incarceration provides no disincentive to seek post-conviction DNA testing. However, no other solution provides much disincentive for these cases. When prisoners have little to lose, it is difficult to discourage poor behavior. Nevertheless, our analysis could potentially be applied to these prisoners through similar forms of disincentives, such as taking away the privileges of petitioners whose guilt is confirmed by DNA testing, subject to constitutional constraints. For all other prisoners – including those serving extremely long sentences for the most serious crimes, in relation to whom discouragement from seeking DNA testing on the off chance of a false negative is most pressing – our scheme provides incentives so as to create perfect screening between the actually innocent and the actually guilty.

Second, as discussed, the problem of costly DNA testing is likely to dissipate over time, as DNA testing becomes more efficient and widely available, and so more standard in pre-conviction procedures. However, since back-capturing is costly, and with over two million prisoners incarcerated in the U.S., our proposal is worth pursuing for states seeking to reform their post-conviction DNA testing system, at least for the foreseeable future.

The penalties must be conditional on confirmations of guilt; states that impose monetary costs on prisoners regardless of the result of their tests may be offsetting some of the monetary costs of post-conviction DNA testing, but they do nothing to target guilty prisoners specifically, and so will not reduce the non-monetary costs. In contrast, our proposal only punishes the actually guilty who seek to profit from errors, while at the same time aiding the actually guilty by both freeing up resources for testing, and potentially making the testing process more reliable.

Given these advantages, our conclusion begs the question of whether our proposal could be applied to other areas where verification is costly and defendants or prisoners have private information. This category of private information scenarios includes: in trials of first instance, such matters as introduction of evidence and the very fact of pursuing a trial rather than taking a guilty plea; and in any sentence revisiting mechanism made on factual grounds, such as habeas corpus claims, appeals, or motions to reconsider. We submit that, although each of these examples are cases where prisoners or defendants have private information, the application of a similar incentive scheme to create screening is far less appropriate than in the context of post-conviction DNA testing.

Post-conviction DNA testing is a special case, where screening through increased penalties is particularly appropriate, for a number of reasons. First, although there are errors in DNA testing, and it is these errors that drives many petitioners to seek post-conviction testing that only confirms their guilt, DNA testing is nevertheless
unusually precise. But for human error, the probability of false positives and false negatives in DNA testing is infinitesimal in small; even accounting for human error, DNA testing is still accurate in about 99% of cases. As such, we can be unusually confident in our reliance on the indicia of guilt. Only with such confidence can we propose imposing additional incarceration for seeking a criminal review process.

Second, the evidence sought through DNA testing is unusually clear-cut, particularly given the application of the various screening mechanisms discussed above. Many criminal review procedures involve relatively subjective judgments, be they factual – such as determinations of intent or consent – or legal – such as determinations of whether a punishment is cruel and unusual. In contrast, DNA testing ascertains the simple fact of whether a DNA deposit was left by the given individual. These determinations do not always provide an unambiguous determination: for example, sample sizes may be too small for testing, multiple offenders may be involved, or samples may have degraded. But to the extent that DNA tests can produce a result, we can have a high level of confidence in the interpretation of those results.

Third, by its nature, our post-conviction DNA testing proposal poses less dangers of a denial of due process than many of the other private information scenarios suggested as potential extensions. This is because the process applies to a discretionary, post-conviction procedure, and also because the penalty system we exploit – revoking good time credits – is one that prisoners are not automatically, constitutionally entitled to, as they are, for instance, to a trial and to adduce evidence in their defenses.

Fourth, the use of the good time credits scheme also provides a particularly simple administrative procedure for activating our proposal. Even if utilizing the varying-penalty option, states would simply have to create a pre-determined range of penalties that varied by the length of the sentence the prisoner would otherwise serve. The standard-penalty option would not even require such a process; states would need only to choose the penalty they wish to impose, within the range we have outlined that would create perfect screening.

Ultimately, then, while we do not deny the possibility of the application of our ideas to other areas, the application of our proposal at least to the aspects of the criminal justice system discussed above would be inappropriate. To a large extent, post-conviction DNA testing is special, if not unique, in the range of penalties that exist that will create perfect screening between the actually guilty and the actually innocent, the ease with which such a screening mechanism can be administered, the lower level of unfairness created by such a system, and the few constitutional concerns raised by such a proposal. Given the current overwhelmed state of post-conviction DNA testing systems in the states, we conclude that the use of incarceration penalties to force self-identification among prisoners petitioning for post-conviction DNA testing is uniquely ripe and adapted to our screening proposal.