WHEN THE SCALE GOES DIGITAL

AI IN CRIMINAL JUSTICE

APRIL 30, 2021

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Table of Contents

I. Introduction......................................................................................................................... 1

II. The Underlying Theory of Parole.................................................................................. 4
   A. Birth of Parole: Reform Theory Finds Opportunity in Overcrowding .............. 5
   B. Mechanics of Federal Parole...................................................................................... 8
   C. Criticism of Parole Systems..................................................................................... 10
   D. The Federal Phaseout of Parole .............................................................................. 11

III. Artificial Intelligence Lessons from Earlier Cases.................................................. 13

IV. PATTERN, A Product of Congressional Action...................................................... 19
   A. How PATTERN Works............................................................................................. 19
   B. Detractors Voice Their Concerns.......................................................................... 23

V. Analysis of PATTERN’s Role in Criminal Justice.................................................... 28
   A. PATTERN’s Impact on Behavior............................................................................ 29
   B. Potential Constitutional Concerns.......................................................................... 34
      1. Liberty, Property, and Due Process .................................................................. 34
      2. Equal Protection.................................................................................................. 45
      3. Transparency of AI in Criminal Justice............................................................ 51
      4. Privacy ................................................................................................................ 56

VI. Conclusion ..................................................................................................................... 59
I. Introduction

The early 1990s served as a transition period in cinematic history. While the 1980s saw the proliferation of the accessible blockbuster, replete with polyphonic music and easy-to-digest plots, the early 90s imported those themes to the big-budget sci-fi genre as Hollywood sought to adopt a greater idea of “mainstream” filmmaking.¹ Blending polyphonic music with an easy-to-digest plot, 1993’s Demolition Man presents a farcical sci-fi notion of futuristic policing. Set in the year 2032, a toilet paperless future where Taco Bell is the only remaining restaurant, the film alludes to the drawbacks of an ultra-refined but not-so-utopian society.² Unbridled optimism, unquestioned rationality, and technological dependency are portrayed as the faults of a castrated and naïve criminal justice system. Early in the film, a prison warden engages with Wesley Snipes’ antagonist for a parole hearing.³ Wielding a premonition of the modern iPad, the warden tells Snipes’ character, “29 years ago the parole system as you know it . . . was rendered obsolete.”⁴ While the viewer is not privy as to how parole has changed in this society, it is surely implied that the subjective review of an inmate’s liberty at the whim of the parole board is the relic of a bygone era.

In the decades following the film’s release, society has not evolved to usher in a Demolition Man dystopia. At the state-level, parole systems, while purported to be ripe for reform, have remained relatively stable for decades.⁵ Federal parole, however, has experienced a

³ DEMOLITION MAN (Warner Brothers 1993).
⁴ Id.
⁵ Emily Widra and Wendy Sawyer, When parole doesn’t mean release: The senseless “program requirements” keeping people behind bars during a pandemic, Prison Policy Initiative (May 21, 2020), https://www.prisonpolicy.org/blog/2020/05/21/program-requirements.
drawn out sunsetting process that was set into motion by congressional action in 1984, almost a decade before *Demolition Man*’s release. While federal parole still exists for the few inmates currently in the system who were sentenced prior to the Comprehensive Crime Reform Act of 1984, it can be argued that the parole system once known no longer exists; at least for federal crimes. As the world grapples with COVID-19, the criminal justice system writ large has entered the spotlight; and among the topics at issue is that of parole. As states seek to reduce prison populations to curb the spread of the virus, the philosophical approach to parole and the idea of parole itself have been called into question.

Shortly before COVID-19 emerged as the center of political discourse, the First Step Act was signed into law. At its core, the law sought to make various improvements to the criminal justice system and to implement certain reforms in the federal prison system. Among this was the charge that:

> [T]he Attorney General . . . shall develop and release publicly on the Department of Justice website a risk and needs assessment system . . . which shall be used to—

> (1) determine the recidivism risk of each prisoner as part of the intake process, and classify each prisoner as having minimum, low, medium, or high risk for recidivism;

> (2) assess and determine, to the extent practicable, the risk of violent or serious misconduct of each prisoner . . .

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7 Id.
Adhering to its statutory obligations, in 2019, the Department of Justice (“the Department”) released its tool, called the Prisoner Assessment Tool Targeting Estimated Risk and Needs. ¹¹ The tool is better known as by its abbreviation, PATTERN.

Though not as revolutionary as what likely existed in the high-tech world of *Demolition Man*, PATTERN’s usage in the criminal justice system represents a shift in the philosophy of early release. By seeking to provide a more objective assessment of inmates, PATTERN has the potential to add something new to the theoretical approaches to incarceration and is likely the first attempt to reduce the human element from ascertaining suitability for release. Whether PATTERN represents the finish line or a launching point for this shift in criminal justice remains to be seen.

This paper will explore whether the use of objective artificial intelligence is limited in its applicability to early release and parole programs. Using PATTERN as a case study for applying constitutional principles to algorithmic tools in the criminal justice system, the analysis alludes to a tension between pure analytical objectivism and the constitutional values we, as a society, hold dear. Ultimately, in its current form, PATTERN appears to avoid constitutional issues by remaining a rudimentary tool that is subject to human oversight and discretion, but nonetheless, it demonstrates that the Constitution imposes potential limitations on the use of objective decision-making tools in the criminal justice system.

II. The Underlying Theory of Parole

The idea of parole is inherently linked to the philosophies underlying punishment. While there remain several competing philosophical approaches to punishment, the idea of rehabilitation, or “reform theory,” was an outgrowth of 18th century enlightenment reform. Responding to the harshness of what was then the novel idea of a prison, at its core, reform theory sees punishment as a means of rehabilitating a criminal by sequestration from society. Foucault summarizes reform theory as that which “[relies upon] processes that effect a transformation of the individual as a whole – of his body and on his habits by the daily work that he is forced to perform, of his mind and his will by the spiritual attentions that are paid to him . . . .” Unlike other forms of punishment, reform theory seeks to rehabilitate the criminal through a program and regimen of intervention, believing that criminals are capable of the types of fundamental change that would prevent recidivism and future crime.

Reform theory and its reliance on the notion of rehabilitation saw its greatest transformative impact at the close of the 19th century and in the midpoint of the twentieth century. It was during this period of enlightened thought that rehabilitative alternatives to incarceration were debated, experimented with, and, in a few instances, implemented. In the United States, reform theory had its largest contribution to case law during the middle of the 20th century. In criminal cases, courts espoused the ideas of reform theory when it came to sentencing and alternatives to incarceration. The Supreme Court of Utah’s rationale in Cardisco v. Davis

14 Id.
15 See id. at 104-29 (discussion of the reform theory approach).
16 Steven Sverdlik, Punishment and Reform, PHILOSOPHY RESEARCH, 1-3 (2012).
epitomizes the philosophy of the era—“the ideas of ‘retributive justice and vindictive punishment’ have been modified. Rehabilitation and reformation have acquired greater emphasis.”17 The 1962 draft of the Model Penal Code also recognized the idea of reformation in stating “when reasonably feasible, sentencing serves to achieve offender rehabilitation . . . .”18

By the latter half of the century, however, the idea of reformation was met with less enthusiasm. The decline of reform theory’s influence is highlighted by the 1976 case United States v. Bergman. In imposing its sentence on the defendant, the Court stated:

The court agrees that this defendant should not be sent to prison for "rehabilitation." Apart from the patent inappositeness of the concept to this individual, this court shares the growing understanding that no one should ever be sent to prison for rehabilitation. That is to say, nobody who would not otherwise be locked up should suffer that fate on the incongruous premise that it will be good for him or her. Imprisonment is punishment.19

Eventually, Congress wrote out the ideas of rehabilitation and reform as a purpose of imprisonment entirely.20 This extrication of reform theory from the federal prison system coincides, or perhaps was codified with, with the Comprehensive Crime Reform Act of 1984. While reform theory does not carry the weight it once did, among the key reformative ideas, probation and parole remain in existence today.21

A. Birth of Parole: Reform Theory Finds Opportunity in Overcrowding

Prior to the mid-1800s, most convicted individuals faced determinate prison sentences, whereby the prisoner would be required to serve the full term handed down by the judge or other

17 Cardisco v. Davis, 91 Utah 323, 64 P.2d 216, 217 (1937).
21 See Punishment and Sentencing, supra Note 12.
representative of the sovereign. In an era that lacked any type of early release program, the lack of sentencing flexibility contributed to overcrowding. When conditions became untenable, the typical response was for a governor to issue a mass pardon or for wardens to selectively release offenders to make room for new inmates. Ultimately, there was no program for intentionally identifying prisoners for early release prior to the end of a determinate sentence.

By the mid-point of the 1800s, reform theory took aim at this aspect of the prison system. The first move towards a more flexible system is attributed to England and its penal colony of Australia. During the 19th century, many English prisoners who were destined for the penal colony found themselves on Norfolk Island, which was considered a sentence worse than death. In 1840, when Captain Alexander Maconochie was appointed governor of the island, his dissatisfaction with that view led him to end the determinative sentence structure and implement a "mark system" in its place. Under his system, a prisoner could earn "marks" based on their work, which could then be used to purchase goods, or ultimately, freedom.

As the English penal system continued to incarcerate more individuals in the mainland, it eventually reached a breaking point. By the mid-19th century, the number of prisoners in the system was almost unmanageable. In the midst of this crisis, Sir Walter Crofton sought to follow Maconochie’s blueprint for implementing a more flexible sentencing structure to ease the

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23 *Id.*
24 *Id.*
25 *Id.*
26 *Id.*
27 *Id.*
pressure. Specifically, in 1854, Crofton discarded the rigid system of determinate sentencing and replaced it with a class system having three types of incarceration: imprisonment, indeterminate sentences, and tickets-of-leave. Overall, Crofton’s approach was one of slowly transitioning and preparing an inmate for release back into society.

Within two decades, the idea of indeterminate sentencing reached the United States. In Michigan, Zebulon Brockway built upon the ideas of Maconochie and Crofton and took the logical next step of incorporating a “reforming” educational regimen. For Brockway, inmate education was a crucial component of early release. Brockway’s ideas were put into practice in 1876 when he was appointed as superintendent of Elmira Reformatory in New York. On the basis of their behavior and completion of educational programs, inmates became eligible for early release. Volunteer "guardians" then supervised the parolees and submitted written reports documenting their behavior in the community. Included in early release was a condition that the former inmate report to the guardian each month.

Brockway’s fundamental arguments for early release were that (1) indeterminate sentencing would “provide a release valve for managing prison populations,” and (2) “it would be valuable in reforming offenders because they would be earning release by demonstrating good behavior.” Later in his career, Brockway drafted New York’s Indeterminate Sentence Law,

29 Id.
30 Probation and Parole: History, Goals, and Decision-Making, LAW LIBRARY - AMERICAN LAW AND LEGAL INFORMATION, supra Note 22.
31 Dooley, supra Note 45 at 78.
33 Id. at 5; Probation and Parole: History, Goals, and Decision-Making, LAW LIBRARY - AMERICAN LAW AND LEGAL INFORMATION, supra Note 22.
34 Id.
35 Id.
36 Id.
which embodied many of his ideas and furthered these two arguments.\textsuperscript{37} With its focus on reforming an inmate in preparation for return to society, 78\% of those released granted parole under the law maintained “self-supported, orderly lives.”\textsuperscript{38}

By the start of the twentieth century, as reform theory gained traction, the ideas of indeterminate sentencing and parole spread widely across jurisdictions. By 1901, twenty states adopted parole statutes and in 1910, Congress established the federal parole system. By amendments to its earlier act, Congress also established the National Parole Board at the federal level in 1930, which set forth a uniform system.\textsuperscript{39} Ultimately, by 1944, every state had enacted a parole system.\textsuperscript{40}

B. Mechanics of Federal Parole

When the United States adopted a federal parole system, the law endowed individual prisons with significant flexibility and discretion. The 1910 statute contained three key provisions, which set forth the idea that parole was to be a largely discretionary and subjective tool:

(1) . . . [an inmate] whose record of conduct shows he has observed the rules of such institution, and who has served one-third of the total of the term or terms for which he was sentenced, may be released on parole as hereinafter provided.

(2) . . . each United States penitentiary shall constitute a board of parole for such prison, which shall establish rules and regulations for its procedure subject to the approval of the Attorney-General . . .

(3) That if it shall appear to said board of parole from a report by the proper officers of such prison or upon application by a prisoner for release on parole, that there is a reasonable probability that such applicant will live and remain at liberty without

\textsuperscript{37} Gehring, supra Note 32 at 4.
\textsuperscript{38} Id. at 5.
\textsuperscript{39} Pub. L. 61-259 (1910).
\textsuperscript{40} Probation and Parole: History, Goals, and Decision-Making, LAW LIBRARY - AMERICAN LAW AND LEGAL INFORMATION, supra Note 22.
violating the laws, and if in the opinion of the board such release is not incompatible with the welfare of society, then said board of parole may in its discretion authorize the release or such applicant on parole, and he shall be allowed to go on parole outside of said prison, and, in the discretion of the board, to return to his home, upon such terms and conditions, including personal reports from such paroled person . . . . (original section numbers omitted) 41

This early parole statute paralleled many of the key ideas of Brockway’s system—federal parole rested on a subjective assessment of the inmate and imposed conditions such as post-release reporting. As noted, in the 1930s, Congress standardized federal parole by implementing a single parole board within the Department of Justice, but otherwise left the basic requirements of parole intact.42 Ultimately, the only threshold requirement for federal parole was that the inmate complete one-third of his or her sentence before becoming eligible.43

The subjective nature of parole is highlighted by the Model Penal Code’s approach. As stated in §305.10, assessing whether an inmate was suitable for parole lacked any objective measure, and was instead based on a series of largely subjective factors, including:

(1) a report prepared by the institutional parole staff, relating to [the prisoner's] personality, social history and adjustment to authority, and including any recommendations which the institutional staff may make;

(2) all official reports of his prior criminal record, including reports and records of earlier probation and parole experiences;

(3) the pre-sentence investigation report of the sentencing court;

(4) recommendations regarding his parole made at the time of sentencing by the judge or the prosecutor;

(5) the reports of any physical, mental and psychiatric examination of the prisoner;

42 Id.
43 Id.
(6) any relevant information which may be submitted by the prisoner, his attorney, the victim of his crime, or by other persons;

(7) the prisoner's parole plan;

(8) such other relevant information concerning the prisoner as may reasonably be available.44

While parole is inherently designed to be subjective, as exemplified by the Model Penal Code’s provision, studies show that there are a handful of key factors that are routinely looked to when considering an inmate’s suitability for parole. Among these key factors are mental illness, victim input, the severity/type of crime, history of other crimes, sentence length, and behavior while incarcerated.45 Ultimately, however, none of these factors provides any type of objective measure of suitability for early release, ultimately resting on human subjectivity. The fundamental premise is that incarceration is capable of producing reform and rehabilitation and that through subjective assessments of an inmate, it can be determined whether such “reformation” occurred, thus warranting the early release of an inmate through parole.

C. Criticism of Parole Systems

Despite criticisms early on, the use of parole grew rapidly in the twentieth century.46 Almost as soon as parole became common, one of the core arguments against parole took shape—that parole was seemingly automatic and that few, if any inmates served a full sentence, regardless of the severity of the crimes.47 This argument was only furthered by the perceived high recidivism rate of parolees, which led to critics of the system and its underlying theory,

46 Id.
47 Id.
postulating that the data meant that criminals could not be rehabilitated writ large.\textsuperscript{48} In fact, despite the success of the first reformers (such as Brockway) a 2003 study by the Bureau of Justice Statistics found that only approximately 40\% of parolees successfully completed their term of supervision following early release.\textsuperscript{49}

Similarly, parole systems have faced relentless arguments that parole decisions are made by disinterested bureaucrats that seek to grant parole as soon as statutorily possible.\textsuperscript{50} While the parole system as it existed at the federal level and in most states is not automatic, federal data show that the vast majority of inmates who are eligible are eventually released on parole.\textsuperscript{51}

Ultimately as time went on from the start of the 19\textsuperscript{th} century, and parole became more widespread, the criticisms gained ground.

\textit{D. The Federal Phaseout of Parole}

In the end, the criticisms of parole and reform theory prevailed, at least at the federal level. In 1984, Congress passed the Comprehensive Crime Control Act, which ushered in an overhaul of criminal justice of the federal prison system. Among its many changes was that it explicitly eliminated the federal parole system and adopted supervised release in its place.\textsuperscript{52} This system of supervised release requires the sentencing court to set forth the period of supervised release, which by statute is unable to exceed five years in any case, at the time of sentencing.\textsuperscript{53}

\textsuperscript{53} 18 U.S.C. § 3583.
Thus, the notion of reforming an inmate and allowing for a subjective assessment of suitability for early release was extinguished—sentencing became purely objective based on the inmate’s completion of the court-imposed sentence; a return to a more ‘determinate’ sentencing structure. The Comprehensive Crime Control Act all but explicitly ended rehabilitation and reform as goals of the federal prison system.54

Although the Comprehensive Crime Control Act of 1984 abolished parole for new inmates, the federal system has been in the midst of a decades-long phase out. The U.S. Parole Commission and the system of parole itself has been extended by statute multiple times since 1984, primarily to serve those inmates who were grandfathered into parole (i.e., those sentenced prior to the enactment of the Comprehensive Crime Control Act).55 The most recent extension occurred in 2018, which extended the life of the federal parole system until 2021.56

The First Step Act of 2018 once again modified the sentencing structure by implementing a system of “earned time credits.” Under the statute, by completing certain “recidivism reduction programs,” an inmate can have a sentence reduced by up to 52 days per year.57 In doing so, the First Step Act, which will be discussed in greater detail in the following sections, appears to have reintroduced the subjective idea of rehabilitation, albeit it a more limited degree.

III. Artificial Intelligence Lessons from Earlier Cases

Separate from the foundations of parole, the goal of machines imitating human rationality and thought has been a popular objective since the early days of computing.\textsuperscript{58} While the idea of artificial intelligence (AI) is well-known, with such technologies scattered across popular culture and modern-day life, there is little agreement as to the actual definition of what actually constitutes “artificial intelligence.”\textsuperscript{59} One conceptual definition proposes that AI is “the ability of a machine to perceive and respond to its environment independently and perform tasks that would typically require human intelligence and decision-making processes, but without direct human intervention . . . ”\textsuperscript{60} In other words, under this definition, AI seeks to mimic human intelligence in reaching decisions and completing tasks.

Today, while the notion of a machine achieving parity with the intricacies of human behavior remains a dream, “artificial intelligence is everywhere.”\textsuperscript{61} In fact, AI is widely deployed across all fields for tasks that require pattern recognition and prediction.\textsuperscript{62} By removing the human element from processes, artificial intelligence promises efficiency, objectivity, and consistency.\textsuperscript{63} Essentially, artificial intelligence seeks to transform decisions that were previously

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subjective into those capable of objective resolution based on data and inputs in to various algorithms, with the goal being to eliminate inherent inaccuracy of subjectivity in the human decision-making process.\textsuperscript{64}

While AI has plenty of examples of success, there are perhaps the same number of examples of cases wherein AI implementation did not go as planned or led to negative results. Such cases often provide valuable insight to the potential pitfalls of reliance on AI with little or no human oversight. In industry, for example, recent AI issues involving Optum and Amazon highlight that race and sex discrimination can occur even when such factors are not expressly considered as inputs.\textsuperscript{65} Similarly, the quantitative data in the Optum case highlights that while discrimination in the AI could be reduced, it nonetheless remained, just to a much lesser degree. One consistent theme in the case of “AI failure” is that an AI that learns from humans or in a manner designed by humans can just as easily replicate the biases held by its creators and

\textsuperscript{64} See, for example, Christina Pazzanese, Ethical concerns mount as AI takes bigger decision-making role in more industries, The Harvard Gazette (Oct. 26, 202), https://news.harvard.edu/gazette/story/2020/10/ethical-concerns-mont-as-ai-takes-bigger-decision-making-role/ (discussing AI objectivity overcoming human subjectivity).

\textsuperscript{65} See Carolyn Johnson, Racial Bias in a Medical Algorithm Favors White Patients Over Sicker BlackPatients, WASHINGTON POST (Oct. 24, 2019, 2:00 PM, https://www.washingtonpost.com/health/2019/10/24/racial-bias-medical-algorithm-favors-white-patients-over-sicker-black-patients; see also Charlotte Jee, A Biased Medical Algorithm Favored White People for Health-care Programs, MIT TECHNOLOGY REVIEW, https://www.technologyreview.com/2019/10/25/132184/a-biased-medical-algorithm-favored-white-people-for-healthcare-programs/. (Optum, a subsidiary of United Health Group, developed an algorithm that, among other things, sought to identify patients who may need higher or more extensive care during hospital stays and procedures. Despite not considering race as a factor in the algorithm, a study conducted after the AI was implemented in real-life situations found that the AI underestimated the healthcare needs of black patients and overestimated the needs of white patients. Based on the racial bias in the algorithm, the tool encouraged the misallocation of scarce medical resources). See also Jeffrey Dastin, Amazon Scraps Secret AI Recruiting Tool that Showed Bias Against Women, REUTERS (Oct. 10, 2018), https://www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scrap-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G (In 2014, Amazon started to develop a recruiting algorithm, which it hoped would be able to review resumes and identify the best candidates. The team behind the project created a learning AI that was trained by reviewing patterns present in the company’s recruitment over the preceding ten-year period. One factor the team failed to consider, however, was the gender gap in the company’s workforce. Through its training, i.e., the algorithm’s review of previous employment decision data, the AI deciphered that men were more favorable to hire than women and thus eliminated qualified applicants from the pool solely based on gender).
societies and can mimic the pitfalls of human nature. As Optum’s statement in the wake of the criticism of its AI shows, those who put forth such tools are hesitant to claim that AI, at least today, is a viable substitute for human judgment and intuition. In fact, in that statement, Optum expressly cautioned against the removal of human oversight of AI:

> predictive algorithms that power these tools should be continually reviewed and refined, and supplemented by information such as socio-economic data, to help clinicians make the best-informed care decisions for each patient . . . As we advise our customers, these tools should never be viewed as a substitute for a doctor’s expertise and knowledge of their patients’ individual needs (emphasis added).

In response to concerns regarding the use of artificial intelligence in industry, governments are pressed to implement legislative protections. At the Federal level, the Trump Administration adopted a hands-off approach to regulating AI, opting rather, to minimize regulatory burdens and promote innovation. Nonetheless, states have started to act. Illinois, for example, implemented industry specific privacy, transparency, and consent requirements regarding the use of AI in hiring its citizens. Regardless of whether regulation occurs at the federal or state level, it will likely be outpaced by the advancement of this budding technology.

66 See, for example, Daniel Victor, Microsoft Created a Twitter Bot to Learn from Users. It Quickly Became a Racist Jerk., NEW YORK TIMES (Mar. 24, 2016), https://www.nytimes.com/2016/03/25/technology/microsoft-created-a-twitter-bot-to-learn-from-users-it-quickly-became-a-racist-jerk.html (discussing the Microsoft “Twitter bot,” which sought to replicate human conversation and was deactivated shortly after its unveiling).

67 Id.


69 See Stegmaier supra Note 68; See also, e.g., Artificial Intelligence Video Interview Act, 820 ILL. COMP. STAT. 42 (2020) (Illinois law regulating the use of artificial intelligence in employment decision making process); Rebecca Heilweil, Illinois says you should know if AI is grading your online job interviews, VOX (Jan. 1, 2020), https://www.vox.com/recode/2020/1/1/21043000/artificial-intelligence-job-applications-illinois-video-interview-act.
This leaves AI adopters with relatively little guidance in avoiding the constitutional implications of their technology.

As risk assessment algorithms—rudimentary precursors to artificial intelligence—gain footing in the criminal justice system, similar pitfalls have sparked alarm. The few algorithms that have been implemented thus far, all at the state and local level, are intended to increase the objectivity and consistency of the judicial process thereby improving fairness; however, system-wide standardization comes at great risk of incorporating system-wide injustice. Such failures, ported to the criminal justice system, present the risk of serious harm to notions of liberty in the United States.

For examples, we look to the Correctional Offender Management Profiling for Alternative Sanctions (COMPAS) and the Public Safety Assessment (PSA). COMPAS is an aid for decision-making in the context of probation, parole, jail, pretrial and problem-solving courts. PSA is used in the context of bail to increase pretrial defendants’ attendance rates by helping judges decide whether an individual should be released and under what conditions. Both are algorithms which use an individual’s criminal history and other characteristics as inputs to produce a measure which impacts how they will be treated by the criminal justice system.

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71 See Michael Brenner et. al., Constitutional Dimensions of Predictive Algorithms in Criminal Justice, 55 HARV. CIV. RTS. CIV. LIBERTIES L. REV. 267, 270 (2020) (COMPAS has been adopted by numerous states, including Florida, Wisconsin, Michigan, as well as parts of New York and New Mexico). See also, About the Public Safety Assessment, ADVANCING PRETRIAL POLICY & RESEARCH, https://advancingpretrial.org/psa/about/ (last visited Jan. 3, 2021) (PSA is used statewide in Arizona, Kentucky, New Jersey, and Utah as well as in many counties and cities across the United States).


73 About the Public Safety Assessment, supra Note 71.

74 Id. (COMPAS classifies the subject in terms of general recidivism risk, violent recidivism risk and need of programming like employment, housing and substance abuse treatment. Brenner, supra Note 71 at 272. PSA
The first major critique of these algorithms is that because they are validated using police and arrest data, biased enforcement outcomes can negatively impact an individual’s treatment by identifying those who are more likely to be stopped by a police officer rather than those who are more likely to commit a crime.\textsuperscript{75} In one study of COMPAS, for example, researchers found that African Americans were nearly twice as likely as whites to be categorized as high risk but not actually re-offend.\textsuperscript{76} At the same time, the algorithm tended to be more likely to categorize white people as being lower risk who then go on to re-offend.\textsuperscript{77} Advocates of PSA respond to this challenge by arguing that the researched-based output of the tool is at least an improvement to judges basing pretrial release decisions on “where you live, what color skin you have, what your attitude is in court and who is in court to support you.”\textsuperscript{78}

In addition to bias concerns, critics also challenge the core efficacy of COMPAS in achieving its stated purpose. In fact, an independent study from Dartmouth College found that COMPAS is no better at predicting an individual’s risk of recidivism than random non-expert volunteers.\textsuperscript{79} To its credit, PSA, on the other hand, seems to have permitted the release of more defendants without seeing an increase in missed court dates or new charges while released.\textsuperscript{80}

\textsuperscript{77} Id.
\textsuperscript{78} Hammett, \textit{supra} Note 75.
\textsuperscript{79} Yong, \textit{supra} Note 76.
Due process concerns also arise where algorithms are perceived to deny criminal defendants the right to be tried as individuals by their own actions and characteristics, rather treating them as a statistic. The Wisconsin Supreme Court dodged a substantive ruling on this issue in *State v. Loomis*, where the defendant objected to a prison sentence based on an opaque COMPAS analysis. Rather than considering the due process implications, the Court held that the use of the algorithm was permissible because it was not dispositive in deciding his case but rather permitted individualized sentencing because it was merely one of many factors considered within the discretion of the judge.

Finally, is the separate due process concern that where an algorithm lacks transparency, it prevents criminal defendants from exercising their right to review and challenge the evidence used against them. COMPAS presents an especially worrisome scenario because it is proprietary model which has been closely guarded by its owner, a private company called Equivant. The COMPAS assessment is administered in the form of a 137-item questionnaire that is sent to Equivant for processing in what could be described as a black box. In stark contrast, PSA is appreciated by experts for its simplicity and public availability online. The transparency of PSA is enabled by its affiliation with the philanthropic organization, Arnold Ventures, which makes the tool freely available.

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81 *See* Brenner, *supra* Note 71 at 278; *See also* Hammett, *supra* Note 75.
82 Brenner, *supra* Note 71 at 283.
83 *State v. Loomis*, 881 N.W.2d 749, 753 (Wis. 2016).
84 Brenner, *supra* Note 71 at 278.
85 Id.
86 Id. at 279.
88 *About the Public Safety Assessment*, *supra* Note 71.
With these lessons in mind, we moved next to the criminal justice algorithm that is the subject of this paper, PATTERN.

IV. PATTERN, A Product of Congressional Action

As noted in Section I, supra, the First Step Act was bipartisan legislation enacted in December 2018, seeking to improve criminal justice outcomes and to reduce the federal prison population. Some commentators heralded the act as a step in righting the wrongs of past injustice in the racist war on drugs. In addition to sentencing reform, reauthorization of grants for rehabilitation programs and specific prohibitions on inhumane treatment of prisoners, the First Step Act required the Department of Justice to develop a risk and needs based system for assessing recidivism risk of all federal prisoners.

A. How PATTERN Works

In July 2019, a risk assessment tool called the Prisoner Assessment Tool Targeting Estimated Risk and Needs (PATTERN) was announced in satisfaction of the statutory requirement of the First Step Act. In meeting the deadline set by Congress for the development of this system for evaluating recidivism risk, the Department of Justice acknowledged the limitation of the available data and time for validation of the tool. The initial version of PATTERN was developed using seven years of federal prison data and was designed to be an

93 Id. at 70.
effective predictor of recidivism over the initial three year period post release of an inmate.\textsuperscript{94} Notably, the First Step Act requires re-validation of the tool annually to add to the initial dataset, estimate its predictive performance, and make modifications as necessary.\textsuperscript{95}

The release of PATTERN started a 180 day statutory clock for all federal inmates to be assessed for recidivism risk; with each inmate to be assigned a level of high, medium, or low risk.\textsuperscript{96} Upon assignment of a risk level, a needs assessment is created for each inmate which determines which programming would be beneficial to them.\textsuperscript{97} The risk level of each federal inmate is then required to be re-assessed PATTERN on a bi-annual basis.\textsuperscript{98} In the initial rollout of the PATTERN system, scores were manually calculated by prison officials with the longer term goal being to automate the process using the existing inmate management computer programs.\textsuperscript{99}

The PATTERN risk assessment considers static factors that cannot be changed by the inmate as well as dynamic factors that can alter the inmate’s recidivism risk level based on participation in prison programming and behavior while incarcerated.\textsuperscript{100} The dynamic factors are important opportunities for offenders to reduce their evaluated risk level.\textsuperscript{101}

In January 2020, the Department of Justice released an initial report detailing preliminary feedback from stakeholders based on the first few months of using PATTERN.\textsuperscript{102} Based on this

\textsuperscript{94}Id. at 84.
\textsuperscript{95}Id. at 84-85.
\textsuperscript{96}Id. at 71.
\textsuperscript{97}Id. at 75.
\textsuperscript{98}Id.
\textsuperscript{99}Id. at 81.
\textsuperscript{101}Id.
\textsuperscript{102}Id. at 1.
feedback, modifications to the algorithm were made in the interest of risk reduction opportunity, fairness, and accuracy. The current revision of the PATTERN algorithm includes the following dynamic factors, which are incorporated differently in the male and female implementations:

1. A count of the total number of infractions, resulting in a guilty finding, that the inmate incurred during the current incarceration. 

2. A count of the serious and violent infractions, resulting in a conviction, that the inmate has incurred during the current incarceration. A serious or violent infraction is defined to be in the top two severity levels of the Bureau of Prison’s Inmate Discipline Program. This includes, but is not limited to, such infractions as homicide, assault, escape, and fighting.

3. A score associated with the amount of time that the inmate has been infraction free during their current period of incarceration.

4. A score associated with the amount of time that the inmate has spent free of serious and violent infractions during their current period of incarceration.

5. A measure of the number of qualifying programs which have been completed by the inmate. These range from educational and vocational programs to drug treatment and parenting programs.

6. Participation by the inmate in work programming during their current incarceration.

7. A need-based factor for the inmate’s participation in a drug treatment program while incarcerated.

8. The inmate’s compliance with financial responsibility. For example, their willingness to use income earned during incarceration as payment toward victim restitution.

103 Id. at 7.
105 Id.
106 Id.
107 Id.
108 The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 37.
109 Id.
110 Id.; see also First Step Act Approved Programs Guide, DEPT. OF JUSTICE (Oct. 2020).
9. The inmate’s history of violence, factoring in the elapsed time since the violent behavior.\textsuperscript{111}

10. The inmate’s history of escapes, factoring in the elapsed time since the escape. This score is based on BRAVO.\textsuperscript{112}

11. An education score based on the inmate’s completion of High School education or a GED. This score is based on BRAVO.\textsuperscript{113}

In addition to these dynamic factors, the algorithm also uses a series of static factors, meaning they are outside of the person’s control. These factors are:

1. The age of the inmate at the time of assessment.

2. Whether the crime of conviction that resulted in the current incarceration was violent.

3. Whether the inmate is identified as a sex offender under the definition used by the Sex Offender Registration and Notification Act.

4. A criminal history score based on BRAVO.\textsuperscript{114}

Using these parameters, the PATTERN algorithm is off and running in evaluating the federal prison population for their recidivism risk. As noted above, the Department of Justice has acknowledged the importance of monitoring the performance of PATTERN and making refinements where necessary. To its credit, the Department held true to this goal in gathering feedback from stakeholders and applying their input towards improving PATTERN.\textsuperscript{115} The next

\textsuperscript{111} The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 38, 42 (This measure is borrowed from the Bureau Risk and Verification Observation (BRAVO), which is the bureau of prison’s current classification system for predicting serious misconduct and assigning inmates to the appropriate security level during their incarceration. This assessment was created in the 1970s and has been updated periodically).

\textsuperscript{112} This score is based on BRAVO which is discussed supra in footnote 111; See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 39.

\textsuperscript{113} This score is based on BRAVO which is discussed supra in footnote 111; See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 7.

\textsuperscript{114} This score is based on BRAVO which is discussed supra in footnote 111; See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 7.

\textsuperscript{115} The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 1.
section will explore some of the criticisms highlighted in the Department’s January 2020 report as well as other criticisms found in external sources.

B. Detractors Voice Their Concerns

In January 2020, the Department of Justice released a report detailing the results of an intensive period of review of the early implementation of the PATTERN algorithm.\textsuperscript{116} This review amassed feedback from an independent review committee, internal and external experts, as well as other external stakeholders to make improvements to the emergent tool.\textsuperscript{117} While the report paints a rosy picture of the Department’s dedication to the vision of the First Step Act reforms, there remained areas that were ripe for improvement.

The Department noted that it received feedback that PATTERN should do more to encourage inmates to participate in programming and to incentivize positive change. In response, the Department added additional dynamic factors to measure the infraction free period of incarceration, as well as modifications to the measures already in place to award participation in programming.\textsuperscript{118} The Department also noted criticism that despite the inclusion of dynamic factors, the overall calculation resulted in a system in which it was very difficult to move from one risk tier to the next.\textsuperscript{119} This criticism claims that even though there are eleven dynamic factors and only four static factors, the algorithm weighs the static factors so heavily that an inmate is left virtually unable to affect their overall score via the dynamic factors.\textsuperscript{120} In response,

\begin{thebibliography}{120}
\item \textsuperscript{116} Id.
\item \textsuperscript{117} Id.
\item \textsuperscript{118} Id. at 7.
\item \textsuperscript{119} Id. at 11.
\item \textsuperscript{120} Comment Letter to Department of Justice on PATTERN First Step Act, THE LEADERSHIP CONFERENCE ON CIVIL AND HUMAN RIGHTS (Sept.3, 2019), https://civilrights.org/resource/comment-letter-to-department-of-justice-on-pattern-first-step-act/.
\end{thebibliography}
the Department cited its additions to the dynamic factors and maintained its stance as to the science-based, predictive power of the algorithm.\textsuperscript{121}

A concern that is typical of many algorithmic risk assessment tools is that because they are based on data that correlates to race, they will ultimately reflect and even exacerbate racial disparity despite not explicitly looking to race as a factor.\textsuperscript{122} To address these concerns of racial bias, the Department removed static factors which considered age of first arrest and whether or not the inmate voluntarily surrendered, which had been determined to correlate to race.\textsuperscript{123}

Although the removal of these factors reduces the predictive accuracy of the algorithm, the decrease was viewed as nominal compared to the risk of actual or perceived bias.\textsuperscript{124} While supervised release violations were noted by critics as source of similar bias, upon review by the Department of Justice, this concern did not match the data, and thus the factor was unchanged.\textsuperscript{125} In fact, as the Department determined, removing the factor would likely increase the racial disparity in the output of the algorithm.\textsuperscript{126}

Because the algorithm employs a separate model for men and women there has also been concern of unconstitutional gender classifications based on statistical generalizations.\textsuperscript{127} While some critics believed that the gendered algorithm is unfair, others contend that it is an appropriate reflection of scientific evidence that men and women face different pathways to crime. The Department determined that combining the algorithms would result in unfairly

\textsuperscript{121} See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, \textit{supra} Note 100 at 11 (The Department of Justice also noted that this mobility concern was based on an internet model of the PATTERN algorithm which contained some errors in its calculations).

\textsuperscript{122} See Comment Letter, \textit{supra} Note 120.

\textsuperscript{123} See The First Step Act of 2018: Risk and Needs Assessment System, \textit{supra} Note 100 at 9.

\textsuperscript{124} Id.

\textsuperscript{125} Id.

\textsuperscript{126} Id.

\textsuperscript{127} See Comment Letter, \textit{supra} Note 120.
elevating the risk score of women such that it would no longer align with their true recidivism risk. Because of this, the PATTERN algorithm remains gender specific. The specific concerns regarding potential Constitutional implications will be discussed in later sections of this paper.

The current definition of recidivism as it applies to PATTERN includes return to the Bureau of Prison’s custody, a re-arrest within three years of release, as well as DUI and DWI offenses. It is suggested by some critics that this definition is unfair in that it counts those who were arrested but never charged with a crime or who were acquitted. By using arrest as a measure of criminality, this definition assumes that arrest itself is an unbiased measure of criminality when in reality it is not. Rather, commenters argue, a fairer definition would be narrowed to include only convictions. This legitimate concern was met with an unfortunately lacking response from the Department of Justice. After a review of alternatives, it appears that the definition for recidivism used in PATTERN is the only definition for which there exists adequate data on which to base the algorithm. The Department essentially cites convenience to knowingly adopt a flawed standard as the keystone of its risk assessment. Although it leaves open the opportunity to obtain an improved dataset which would enable PATTERN to adopt a more fair definition of recidivism, the single sentence communicating this possibility does not convey a sense of priority for the matter.

Other noted concerns included the need for transparency and for independent review. Due to the sensitivity of the data used in the algorithm, extensive background checks are required.

128 See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 17.
129 Id. at 13-14.
130 See Comment Letter, supra Note 120.
132 Id.
133 Id.
before it can be shared with external reviewers for validation. This becomes cost prohibitive when multiple independent experts request the data. In response, the Department solicited proposals for a five-year contract which will be funded to review and revalidate the next iteration of PATTERN. Additionally, the Department of Justice has released its own annual review and validation report.  

Another transparency concern is the fact that many of the factors used in PATTERN are borrowed from the Bureau of Prison’s existing Bureau Risk and Verification Observation (BRAVO). BRAVO is a classification system for predicting serious misconduct and assigning inmates to the appropriate security level during their incarceration. Although it dates back to the 1970s and has been updated periodically, critics point out that very little information is available about the development, effectiveness or accuracy of the BRAVO tool.

Critics have pointed out that even if PATTERN permits inmates to earn an earlier release date by completing programs during their incarceration, this avenue is only available to inmates who have access to such programs. There is concern that capacity in prison programming is inadequate to provide the promised opportunity. Those with this concern claim that the programs are understaffed and underfunded, that a quarter of people spending more than a year in federal prison have completed no programs and that there are waitlists to participate. The

136 Id. at 42.
137 See Comment Letter, supra Note 120.
139 Id.
Bureau of Prisons, however, responded that such concerns are overblown and assures that while it is dedicated to providing such programming, its own data not only underrepresents the availability of programs but the participation rate as well. Furthermore, its data do not account for inmates who voluntarily opt out or are incarcerated for too short a period to complete a program. Regardless of the current state, the Bureau of Prisons is expanding programming and hiring staff to support it.

Even as programming becomes more widely available, there also exists concerns with its quality. A program’s effectiveness in rehabilitation and recidivism reduction is unique to each independent session and limited by the quality of its execution. A standardized algorithm across the prison system could be severely undermined by the disparate quality of the programming on which it bases its early release calculations.

There are other concerns that hidden in the definitions of the factors which power the PATTERN algorithm are exclusionary terms which disqualify inmates from earning credits to a larger extent than intended by Congress. Such criticisms serve as a reminder that the technical programming of an algorithm or artificial intelligence, when trusted with government functions, must be carefully scrutinized for its adherence to the legislative intent.

There have also been challenges that Department of Justice has inappropriately strayed from the original purpose of PATTERN in employing it to make decisions in transferring inmates to home confinement to reduce the federal prison population during the COVID-19

141 See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 19.
142 Id.
143 Id.
144 Grawert, supra Note 140.
145 Id.
pandemic.\textsuperscript{146} PATTERN was designed as a means for predicting recidivism, not for informing public health decisions in the context of a pandemic.\textsuperscript{147} In its early stage of implementation, the algorithm faced many challenges and its validity remains largely untested. Using PATTERN at this stage and for a novel purpose risks that any lurking bias could impact decisions such as who is transferred and who remains in the prisons, resulting in elevated risks of illness and even death.\textsuperscript{148}

PATTERN also faces the same criticisms as the system of parole that preceded it. Many viewed parole decisions as being made by disinterested bureaucrats seeking to grant parole as early as possible. As a result, few inmates serve a full sentence. PATTERN also has the power to award time credits affecting an inmate’s period of incarceration, and what discretion is removed from prison bureaucrats is given to an inanimate algorithm that is arguably even less interested than the bureaucrats. The Department of Justice has acknowledged the concerns of victims of crime and commits to considering their views as it continues to implement the First Step Act, however, it offers little in the way of a concrete response to this concern.\textsuperscript{149}

V. Analysis of PATTERN’s Role in Criminal Justice

Because of the novelty of artificial intelligence, especially in the legal field, the current body of literature is sparse. With PATTERN’s implementation, the tool provides one of the first opportunities to look at the impact of artificial intelligence in the federal criminal justice system.

\begin{flushleft}
\textsuperscript{146} Office of Attorney General, \textit{Prioritization of Home Confinement As Appropriate in Response to COVID-19 Pandemic} (Mar 26, 2020).
\textsuperscript{148} Id.
\textsuperscript{149} \textit{See The First Step Act of 2018: Risk and Needs Assessment System UPDATE}, supra Note 100 at 17.
\end{flushleft}
Thus, for the remainder of this paper, we will explore the potential impacts and concerns related to artificial intelligence’s implementation in the criminal justice system, using PATTERN as a case-study.

A. *PATTERN’s Impact on Behavior*

At the most basic level, PATTERN creates a system wherein an inmate’s potential for recidivism is calculated using fairly objective measures.\(^{150}\) While the section above notes the criticism that PATTERN is not sufficiently transparent and understandable, the general factors and data underpinning the tool are nonetheless accessible for review. Even a cursory review of information related to PATTERN will leave the reader with a basic understanding that, for example, completing inmate education programs is a positive factor, which can decrease an inmate’s score under the tool (thus rating the inmate less likely return to prison following release).\(^{151}\)

Given the notoriety of the First Step Act, the Department’s transparency in implementing PATTERN, and the routine nature of the risk assessments, inmates are likely aware that they are being measured by PATTERN. As a result, PATTERN’s impact on an inmate’s behavior can be viewed under the lens of the Hawthorne Effect. An outgrowth of early twentieth century organizational psychology, the Hawthorne Effect is defined as the “phenomenon in which subjects in behavioral studies change their performance in response to being observed.”\(^{152}\) Essentially, the theory posits that when a subject knows that she is under observation, she will modify behavior in a way that will reflect favorably on the observation. Related to PATTERN,

\(^{150}\) *Id.* at 7.
\(^{151}\) *Id.*
this translates to inmates adjusting behavior to boost scores under the tool, based purely on their knowledge of the tool’s existence and applicability to their incarceration. A recent survey of studies on the Hawthorne Effect generally supported the proposition that knowledge of observation or assessment modifies behavior. Extrapolating from these studies, we can infer that an inmate’s knowledge of PATTERN and its factors will be likely to adjust behavior during incarceration as to achieve a better score under the tool.

The conclusion that PATTERN will impact behavior can also be supported through the lens of goal setting. To begin, it appears to be a safe assumption that one of the primary goals of the average inmate is to be released from prison as soon as possible. While no studies on this proposition seem to exist, this assumption can be supported by looking at the system of plea bargaining.

Plea bargaining creates a system of conflicting goals. On the one hand, plea bargaining is a prosecutor’s tool, which seeks to ease the caseload of the prosecutor’s office and the courts by resolving cases quickly. On the other hand, however, plea bargaining provides defendants an opportunity to negotiate sentencing and thereby minimize incarceration (or other applicable sanction). Recent data indicates that 90% of cases, at both the state and federal levels, end in plea bargains, rather than in trial.

When plea-bargaining is viewed from a defendant’s perspective, the primary purpose in accepting a plea becomes that of reducing or eliminating sanctions for criminal behavior.¹⁵⁷ In other words, the defendant’s goal, whether during the plea-bargaining stage or anytime thereafter, is to reduce the period of incarceration (or other sanction) as much as possible. Thus, the existence of a means to early release, including that available under PATTERN, become a means for an inmate to achieve the goal of minimizing incarceration.

Research confirms the idea that goals drive behavior.¹⁵⁸ From workplaces to non-profit fundraising, goals are used to set objectives and thus align behavior towards the achievement of that objective.¹⁵⁹ By defining the ends, the goal-seeker is set on a path of seeking the goal by aligning behavior (the means) to the fulfillment of the goal. The very existence of a goal provides intrinsic motivation, which compels the seeker to take actions that help achieve the goal.¹⁶⁰ Thus, if release from incarceration is an inmate’s goal, a tool such as PATTERN provides the means of attaining that goal. Inherently, inmates will naturally seek to modify behaviors to earn better scores under the tools.

When one or more factors is subject to the control and discretion of the person being assessed, those factors will drive behavior. During a period of incarceration, an inmate subject to PATTERN, we posit, will naturally look to the tool and its factors to guide behavior and obtain an early release. By changing prisoner behavior, PATTERN may therefore impact its own

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¹⁶⁰ Id.
accuracy in predicting recidivism. When an assessment tool provides objective factors, the assessee can manipulate the performance of the tool.\textsuperscript{161} Specifically, in the case of PATTERN, this translates to an inmate seeking to boost performance on those factors that can be modified while incarcerated. When looking at the dynamic factors of PATTERN, many of these are largely within the realm of an inmate’s control, including: having no infractions during the current incarceration; completing work and educational programs; and undergoing drug treatment.\textsuperscript{162} Thus, knowing that these factors relate to a potential early release provides motivation for the inmate to complete such activities.

The Bureau of Prisons states that PATTERN seeks to determine “whether someone currently incarcerated is at high, medium, low, or minimum risk for reoffending based on several characteristics, or ‘risk factors.’”\textsuperscript{163} When those assessed by the tool can alter behavior to achieve “better scores” under the tool, the accuracy is potentially lessened. In using PATTERN, the Bureau of Prisons relies on the tool to accurately predict the risk of recidivism based on its factors – the granting of early release under PATTERN is predicated on the tool’s accuracy. The very existence of the tool, however, encourages inmates to alter behavior in order to achieve better scores under it, without necessarily striving towards or achieving the type of recidivism reduction that the tool contemplates. This stems from both the Hawthorne Effect, in that knowledge of assessment under the tool drives behavior, and the fact that temporarily behaving

\begin{footnotesize}
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\item See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 7.
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in a way that achieves a higher score helps an inmate achieve the goal of exiting prison as soon as possible.

Considering the public’s approach to criminal justice more broadly, PATTERN’s impact on behavior is likely limited to the period of incarceration. While the criminal justice system relies on the notion of *ignorantia juris non excusat*, research supports the idea that the average person lacks an understanding of the law and the legal system.\(^{164}\) In fact, a recent study indicated that 63% of adults agree that they do not understand the laws and regulations regarding the privacy of personal data.\(^{165}\) These types of studies show no reason to believe that the public’s awareness of PATTERN and its purpose would be any different than its knowledge of the law more generally. Given this, PATTERN is unlikely to have an impact on behavior outside of the incarceration context even though many of the static factors are impacted by pre-incarceration activities. The existence of the tool, at least presently, is likely to alter behavior within the confines of a prison, but not in situations prior to incarceration.

Within the incarceration context, whether PATTERN’s impact on behavior would render the tool a nullity remains an open question. If we accept that the existence of PATTERN as a means of obtaining early release drives behavior, then in order for PATTERN to be an accurate tool, or that accurately predicts recidivism, the activities that must be completed need to be tied to a reduction in recidivism (i.e., they must produce ‘reform’). Reflecting on Brockway’s approach to parole as discussed in Part II.A, *supra*, Brockway was a staunch believer that


education was a critical component of reformation. While it is unclear whether the First Step Act and its reliance on “recidivism reduction programming” is rooted in a reformation philosophy, it is clear that by seeking to reduce an inmate’s potential for recidivism through programming, to some extent, the underlying philosophy of the former parole system has been reintroduced to the federal prison system. If PATTERN’s emphasis on such programming is valid, it must be assumed that the completion of recidivism reduce programming actually produces some degree of reform and is more than just a checkbox that an inmate can complete on the path to obtain early release.

B. Potential Constitutional Concerns

At a fundamental level, PATTERN represents a shift in the criminal justice system’s approach to assessing an inmate’s suitability for release—while the Comprehensive Crime Reform Act sought to sharply reduce discretion and subjectivity, the First Step Act reintroduces these notions, albeit to a limited degree. In fact, it has been argued that a tool’s underlying algorithm represents a policy choice—that an algorithm’s specific data points represent policy choices of its creators. When a tool such as PATTERN is equated to a policy or regulation, the Constitutional tension becomes apparent.

1. Liberty, Property, and Due Process

Governance of the prison system is often a source of litigation, with such cases frequently reaching the Supreme Court. Historically, the Due Process clauses of the Fifth and Fourteenth Amendments had been interpreted in manner that equated liberty with the freedom from physical restraint and “unjustified intrusions on personal security,” in addition to its protections for life

and property. As American jurisprudence developed and expanded, especially in the criminal justice context, the idea of constitutionally-protected interests grew to encompass more than mere restrictions on physical freedom and the freedom of movement.

Today, Due Process has taken a far more expansive notion, but in many ways, the exact protections and contexts that trigger due process protections remain unclear. While the Supreme Court has set forth general rules as to the application of the Due Process clause, no exhaustive list of protected rights exists. Thus, to this day, courts grapple with the application of Due Process to novel and complex situations. As the basic principle, however, the Supreme Court has stated: “[t]o implicate the protections of the due process clause, the government's application of a rule, or the substance of the rule itself, must infringe upon an individual's life, liberty or property rights.”

The question that naturally stems from this principle is what constitutes liberty or property; or more aptly stated, what constitutes a liberty or property interest protected under the Constitution’s Due Process clauses? While the law provides no clear answer to this question, with rights being considered as they come before the Supreme Court, the Court has recognized that due process can be triggered by the creation of a statutory ‘right’ or entitlement (i.e., a form of property) under the notion liberty interests.

\[\text{\textsuperscript{167} The Liberty Interest, LEGAL INFORMATION INSTITUTE,} \text{https://www.law.cornell.edu/constitution-conan/amendment-14/section-1/the-liberty-interest (last visited Feb. 9, 2021); see also Ingraham v. Wright, 430 U.S. 651, 673 (1977).} \text{\textsuperscript{168} Id.} \text{\textsuperscript{169} See generally Nathan Chapman & Kenji Yoshino, The Fourteenth Amendment Due Process Clause, NATIONAL CONSTITUTION CENTER,} \text{https://constitutioncenter.org/interactive-constitution/interpretation/amendment-xiv/clauses/701 (last visited Feb. 9, 2021) (discussing how the Court’s approach to the Due Process Clause remains unclear and it is uncertain how it will be applied to future cases and situations).} \text{\textsuperscript{170} 19 S.C. Jur. Constitutional Law § 72.} \]
To begin, the Supreme Court established that certain statutory programs that confer “benefits” to inmates by positive law create interests that cannot be deprived without due process. The rationale for this approach was, in fact, developed in the parole context. In the relevant cases, the Court stated that parole, a mechanism for allowing inmates to be released prior to the completion of a sentence, was a statutorily created benefit and thus an interest of an inmate—i.e., a liberty interest. In one such case, the Supreme Court recognized that due process requirements applied to proceedings for the revocation of parole.\(^\text{171}\)

While the Fourteenth Amendment does not explicitly set forth the idea that parole is a protected right, the Supreme Court explained that “[w]hether any procedural protections are due depends on the extent to which an individual will be ‘condemned to suffer grievous loss.’”\(^\text{172}\) In deciding that the revocation of parole represented a protected liberty interest, the Court went on to explain that “[t]he parolee has been released from prison based on an evaluation that he shows reasonable promise of being able to return to society and function as a responsible, self-reliant person. Subject to the conditions of his parole, he can be gainfully employed and is free to be with family and friends and to form the other enduring attachments of normal life . . . The parolee has relied on at least an implicit promise that parole will be revoked only if he fails to live up to the parole conditions.”\(^\text{173}\) Thus, through statute, the state had created a liberty interested, premised on a promise of parole unless certain conditions were violated, and thus due process was triggered.

\(^{172}\) Id. at 481.
\(^{173}\) Id. at 482.
A mere two years later, the Court was again confronted with a due process question in the criminal justice context. In Wolff v. McDonnell, a Nebraska statute afforded inmates the ability to earn good time credits, which could only be revoked for misconduct by statute.\textsuperscript{174} Thus, the statute created a liberty interest through its conferring of a benefit; the deprivation which would constitute a significant loss to the inmate.\textsuperscript{175} Further, through of the creation of this interest, due process requirements attached to any action seeking to withdraw or revoke the credits. As the Court held, earned credits could not be revoked by other means not afforded in statute as the inmates were entitled to the application of the law as written and subject to due process.\textsuperscript{176}

In 1982, the Supreme Court clearly articulated its doctrine in this area in the case of Kentucky Dept. of Corrections v. Thompson, providing what was essentially a summation of earlier case law. In the case, the Court stated, “the most common manner in which a State creates a liberty interest is by establishing ‘substantive predicates’ to govern official decision-making . . . and, further, by mandating the outcome to be reached upon a finding that the relevant criteria have been met.”\textsuperscript{177} Thus, in reaching its holding, the Court set forth a two-part general test on when a liberty interest can be created in the prison context. In a separate case that same year, the Court also recognized that certain forms of proper can also trigger a liberty interest; specifically, property in the form of a governmental entitlement. As explained in Logan v. Zimmerman Brush Co., “[t]he hallmark of property . . . is an individual entitlement grounded in state law, which cannot be removed except ‘for cause.’”\textsuperscript{178} Thus, in the case of entitlements afforded by statute or

\begin{footnotesize}
\textsuperscript{175} Id.
\textsuperscript{176} Id.
\textsuperscript{177} Kentucky Dep't of Corr. v. Thompson, 490 U.S. 454, 462 (1989).
\end{footnotesize}
policy, due process requirements attach. *Logan*, coupled with its predecessors and its subsequent line of cases, explain the application of the liberty interest and due process to government entitlements. Ultimately, this is succinctly summarized as “a protected property or liberty interest might be found based on any positive governmental statute or governmental practice that gave rise to a legitimate expectation.”

Following the articulation of the standard, courts have consistently held that protected entitlements can be found across the breadth of statutory schemes. As stated in a civil rights era Supreme Court opinion:

> These interests—property interests—may take many forms. Thus, the Court has held that a person receiving welfare benefits under statutory and administrative standards defining eligibility for them has an interest in continued receipt of those benefits that is safeguarded by procedural due process. Similarly, in the area of public employment, the Court has held that a public college professor dismissed from an office held under tenure provisions, and college professors and staff members dismissed during the terms of their contracts have interests in continued employment that are safeguarded by due process. Only last year, the Court held that this principle ‘proscribing summary dismissal from public employment without hearing or inquiry required by due process' also applied to a teacher recently hired without tenure or a formal contract, but nonetheless with a clearly implied promise of continued employment. [Citations omitted]"\(^\text{180}\)

Stemming from these earlier cases and their progeny, the idea of a liberty interest has recently been summarized as the following:

. . . a prisoner may be deprived of a liberty interest based on a severe change in the conditions of confinement. ‘These interests will be generally limited to freedom from restraint which, while not exceeding the sentence in such an unexpected manner as to give rise to protection by the Due Process Clause of its own force nonetheless imposes atypical and significant hardship on the inmate in relation to the ordinary incidents of prison life.’ It has also found a liberty interest may be implicated when State laws and prison regulations grant inmates liberty interests to


which due process protections apply. In the first situation, the liberty interest exists apart from the state; in the second, the liberty interest is created by the state.\footnote{Schuyler v. Roberts 175 P.3d 781, 784 (Ct. App. Kan., 2008).}

This idea of a protected liberty interest correlates to that of the reliance doctrine. Summarized, the reliance doctrine is the idea that a person who acts in good faith upon an official’s statement that conduct is legal cannot be prosecuted for said action.\footnote{Com. V. Kratsas, 764 A.2d 20, 29-30 (Pa. 2001), citing U.S. v. Conley, 859 F.Supp. 909 (W.D. Pa. 1994).} As discussed in a recent case, the reliance doctrine extends further in that a person’s reliance on the current state of the law can trigger due process protections. As stated by the Court, “. . . an Act of Congress must . . . meet the requirements of due process—the justification for the Act “must take into account the possibility that the [plaintiffs] may not have known of the danger . . . and that even if they did know of the danger their conduct may have been taken in reliance upon the current state of the law.”\footnote{Schaeffler Grp. USA, Inc. v. United States, 786 F.3d 1354, 1362 (Fed. Cir. 2015).} While the inverse of the reliance doctrine has not been explicitly addressed by the courts, in the context of PATTERN, reliance on the government’s statements as to its usage and applications within the criminal justice system can induce the same type of reliance that directs behavior.

In the case of PATTERN, the First Step Act established that the tool is to be used to “determine the type and amount of recidivism reduction programming that is appropriate for each prisoner and assign each prisoner to programming based on the prisoner’s specific criminogenic needs.”\footnote{The First Step Act of 2018: An Overview, CONGRESSIONAL RESEARCH SERVICE (March 4, 2019).} Under the statute, inmates are then able to earn “up to ten days of time credit for every 30 days of program participation.”\footnote{Id.} Additionally, as discussed in Part IV.B, \textit{supra}, with the emergence of COVID-19, PATTERN has been authorized for use in assessing
whether an inmate should be deemed eligible for early release.\footnote{See, supra Note 13.} These two uses of the tool present what appears to be a novel argument—that by using PATTERN to identify suitability or eligibility for select programming or early release, a liberty interest can therefore be created. The crux of both is that if PATTERN is used as a determinative factor in determining suitability for either participation in a program, the completion of which results in the earning of time credits, or even early release, the denial of these ‘benefits’ to an inmate identified by the tool for other reasons represents a deprivation of liberty that necessitates following due process requirements, including that of an impartial hearing.\footnote{See generally Mathews v. Eldrige, 424 U.S., 319 (1976) (discussing the requirement of an impartial hearing when due process protections are found based on a statutorily created interest).} For example, if an inmate is identified as suitable for a recidivism reduction program, but is then denied access to that program, the inmate has inherently lost the potential to accrue time credits. Whether a true liberty interest is created, following the test established in \textit{Thompson}, rests on whether PATTERN provides an objective assessment that, based on the algorithm’s output, must necessarily drive decision-making.

In its current form, PATTERN’s usage rests largely on the discretion of the Bureau of Prisons and other factors and input measures.\footnote{See \textit{The First Step Act of 2018: Risk and Needs Assessment System}, supra Note 92.} The First Step Act itself and the Department of Justice’s materials related to its development, implementation, and revisions of PATTERN all indicate that the tool is merely one data point in a larger approach to assessing inmate risks and need.\footnote{See, for example, \textit{The First Step Act of 2018: Risk and Needs Assessment System}, \textsc{DEPT. OF JUSTICE}, 9 (July 9, 2019) (discussing that “[a] prisoner’s risk classification level may affect the prisoner’s ability to receive certain rewards and incentives (emphasis added)); see also, NATHAN JAMES, \textsc{CONG. RSCH. SERV.}, R45558, \textit{THE FIRST STEP ACT OF 2018: AN OVERVIEW} 3 (2019) (discussing that PATTERN serves merely “to provide guidance on the type, amount, and intensity of recidivism reduction programming and productive activities to which each prisoner is assigned.”).} This high level discretion and absence of mandated results or action in response to
PATTERN’s output differentiates the tool from the aforementioned statutory schemes where a liberty interest was found. Neither the current law nor current Department guidance mandates any type of action to be taken based on an inmate’s score under PATTERN. Even in situations where an inmate has been identified as suitable for recidivism reduction programs that have the potential to result in the award of good time credits or other types of benefits, such as an increase in visitation time, at most, PATTERN merely affords an opportunity to be placed on a “waitlist” for such programs, and ultimate entry into such a program rests on the discretion and decision-making processes of local prisons. As such, PATTERN appears to operate more in lines with the Supreme Court’s holding in Sandin v. Connor rather than Wolff. However, in its most extreme form, wherein PATTERN is treated as a “true AI” and implemented as an autonomous tool that objectively and automatically awards credit or otherwise confers “benefits,” there is little doubt that the same type of interest is likely to be found as was the case in Wolff. While PATTERN’s authorizing legislation and the Department’s guidance indicate that the tool is merely discretionary, it is unclear as to how exactly it is being implemented at the local prison level. Thus, it is worth noting that, depending on its implementation in any given prison, PATTERN’s usage could actually cross the threshold into triggering a liberty interest. Following Thompson, framing a tool such as PATTERN insofar as it becomes the decision-maker, like a true AI, it becomes much easier for a liberty interest to be triggered. Aligning to this rationale, hypothetically, if PATTERN is used as a means to award a

190 See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 20.
191 See generally, Sandin v. Connor, 515 U.S. 472 (1995) (in which the Court declined to find a liberty interest in a prison policy that was subject to discretion and, while imposing hardship on the inmate within the prison context, did not further limit the inmate’s freedom from restraint, i.e., did not have a direct and immediate impact on the inmate’s sentence.).
benefit such as good time credits, then a liberty interest in those credits can be found. Once the credits have been earned, regardless if they are earned through PATTERN or through PATTERN’s usage as identifying inmates who can enter into programs that award such credits, an inmate will have a protected interest in the possession of the credits as the inmate will have a legitimate expectation in those credits being applied to the sentence at hand.

As discussed in Part V.A, supra, it is important to remember that PATTERN has the potential to alter inmate behavior. An inmate who has the legitimate expectation that he could be slated for an early release or could earn time credits based on the completion of algorithmic factors is likely to alter behavior in order to achieve those objectives; thus, an inmate will inherently rely on PATTERN at the time of incarceration. Because of this, how PATTERN is used in the federal criminal justice system is the driver of these potential constitutional issues. If PATTERN is treated like a true AI and used as an objective means to identify inmates to whom a ‘benefit’ is to be conferred, whether it be full early release or the opportunity to earn good time credits, an interest is likely to be created.

Relatedly, these two triggers of due process present a potential impediment to revising the tool. If an inmate is subject to PATTERN at the time of incarceration, changing the algorithm’s factors could be a separate mechanism of triggering due process concerns. Accepting as true the premise that PATTERN drives behavior, it is also true that an inmate would then rely on an act of government—the current iteration of the tool—during the period of incarceration. If the factors utilized by the tool then change, it could render portions of that behavior meaningless, or could, in theory actually decrease the score obtained under the tool. Essentially, a change in the tool mid-sentence could deprive an inmate of a satisfactory score that would otherwise have been obtained but for changes to the underlying algorithm, thus depriving the inmate of that
legitimate expectation. Following this argument to its logical conclusion, changing a tool such as PATTERN could resulted in a deprivation of the very same liberty interest discussed throughout this section, thereby triggering due process concerns. In many ways, this aligns to the broader idea of prohibitions on *ex post facto* lawmaking—law, regulations, and statutes are typically expected to apply prospectively rather than retroactively, especially in the criminal context. In fact, the Supreme Court addressed similar situations in *Weaver v. Graham* and *Lindsey v. Washington*.192 In the first case, the Supreme Court held that a law which reduced good time credits could not be retroactively applied to conduct that occurred before the statute’s enactment.193 In the second case, the Court held that the *ex post facto* rule “forbids the application of any new punitive measure to a crime already consummated.”194 If a tool, PATTERN or otherwise, is treated as the equivalent of a policy or regulation removed from human discretion (thus triggering a liberty interest) and changes to its algorithm result in a potential increased period of incarceration, there is a cognizable argument that due process is violated through the revision of the tool. For a tool such as PATTERN, in which revision in light of new data and stakeholder feedback is engrained in the text of the law, due process would provide an obvious and constitutional check on the requirement.195

Overall, the District Court of the Western District of Pennsylvania succinctly stated that the idea of due process is “founded upon the Constitutional notion of fundamental fairness . . .

192 The extent to which these two cases remain “good law” remains debatable in light of California Dep't of Corr. v. Morales, 514 U.S. 499, 509 (1995), which held that a law reducing the availability of parole hearings did not violate due process or the *ex post facto* rule.
While the legislation authorizing PATTERN did not set forth that the tool is to be used as an independent means of determining an inmate’s suitability for early release or in a manner that automates the award of benefits such as good time credits, the Attorney General’s April 2020 memo highlights the tool’s rapid mission-creep beyond its original statutory purpose of simply “determin[ing] the recidivism risk of each prisoner as part of the intake process . . . [and] determin[ing] the type and amount of evidence-based recidivism reduction programming that is appropriate for each prisoner . . . .” As has been repeatedly noted, PATTERN is among the first forays of AI into the criminal justice system—if PATTERN or tools like it, including those more automated or removed from human discretionary took root in the system, novel applications of due process are likely. The idea that an inmate could eventually be denied a benefit supposed to be conferred under PATTERN or otherwise not have access to such a benefit despite being identified under the tool can be seen as fundamentally unfair.

Similarly, if PATTERN is used to confer automatic benefits, changing how an inmate is assessed for such benefits after initial sentencing can also raise the same types of issues. Changing the inputs for PATTERN will inherently change behavior of those assessed under the tool, despite their reliance on a previous iteration. Today, however, PATTERN does not appear to have crossed this threshold, though based on the seemingly large degree of individual prison discretion regarding its usage, it is certainly possible that a local prison implements the tool in a less discretionary manner that could raise due process concerns. While PATTERN is required to be used for assessing the recidivism risk of inmates, as of now, the law has not mandated

outcomes related to sentencing and programming based on its output. Instead, at this time, PATTERN is largely a discretionary factor within a broader framework of assessing inmate needs as risks. While only limited information is available regarding the actual implementation of the tool at the inmate-level, it is clear that no outcomes based on its use are mandated.\textsuperscript{198}

2. Equal Protection

The right to “equal protection of the laws” is rooted in the Fourteenth Amendment of the U.S. Constitution,\textsuperscript{199} but has developed over time through a multitude of landmark judicial opinions. Modern equal protection doctrine establishes a framework for determining when the government’s disparate treatment of similarly situated people rises to the level of unconstitutionality.\textsuperscript{200} In practice, this analysis first categorizes the alleged violation and then applies the appropriate tier of review for determining the constitutionality of the policy at issue. In categorizing the allegation, the analysis considers whether the treatment is based on the individual’s membership in a protected class. Depending on which class is identified, the Court applies one of three established tiers of review: rational basis, intermediate, or strict scrutiny. While rational basis review is a permissive standard which largely defers to administrative judgment, strict scrutiny lies at the opposite end of the spectrum. When strict scrutiny is applied, the constitutional bar is passed only when the policy is shown to be a narrowly tailored measure that furthers a compelling governmental interest.\textsuperscript{201} While strict scrutiny does not constitute an

\textsuperscript{198} See, \textit{supra} Note 277.
\textsuperscript{199} U.S. Const. 14\textsuperscript{th} Amend.
\textsuperscript{200} Keevan v. Smith, 100 F.3d 644, 648 (1996).
effective ban on the subject policy, it is nonetheless an exceptionally difficult level of judicial review to survive.\textsuperscript{202}

The Supreme Court has recognized that prison is a context in which certain rights and privileges must necessarily be limited, but nonetheless, the rules, regulations, and practices of prison administration do not escape the reach of the Equal Protection Clause.\textsuperscript{203} In the context of PATTERN, we consider the equal protection doctrine as it applies to both race and gender.

Equal protection jurisprudence is especially sensitive to racial classifications,\textsuperscript{204} and the Supreme Court has consistently held that the right to live free from racial discrimination is not something that needs to be or should be diminished in the context of prison administration.\textsuperscript{205} Express racial classifications are considered to be “immediately suspect” and therefore, subject to strict scrutiny.\textsuperscript{206} An example of this playing out in the prison context is found in Johnson v. California, where the Supreme Court held that strict scrutiny must be applied in reviewing the unwritten policy of the California Department of Corrections to racially segregate newly arriving inmates as a means of preventing racial gang violence.\textsuperscript{207} While it may not be surprising that the


\textsuperscript{203} See O’Lone v. Estate of Shabazz, 482 U.S. 342, 348 (1987) quoting Price v. Johnston, 334 U.S. 266 (1948) (stating that “lawful incarceration brings about the necessary withdrawal or limitation of many privileges and rights, a retraction justified by the considerations underlying our penal system.”).

\textsuperscript{204} See Richmond v. J.A. Croson Co., 488 U.S. 469, 493 (1989 (discussing that because there is no way of determining “what classifications are in fact motivated by illegitimate notions of racial inferiority or simple racial politics,” strict scrutiny is applied to all racial classifications to “‘smoke out’ illegitimate uses of race by assuring that [government] is pursuing a goal important enough to warrant use of a highly suspect tool.”).

\textsuperscript{205} Johnson v. California, 543 U.S. 499, 510-11 (2005) (stating: “The right not to be discriminated against based on one’s race . . . is not a right that need necessarily be compromised for the sake of proper prison administration. On the contrary, compliance with the Fourteenth Amendment’s ban on racial discrimination is not only consistent with proper prison administration, but also bolsters the legitimacy of the entire criminal justice system.”).


\textsuperscript{207} Johnson v. California, 543 U.S. 499, 509 (2005).
racial segregation of prisoners is unfavored by the Court, it must be noted that even “benign” racial classifications such as affirmative action in university admissions policies are subject to the same strict scrutiny.\textsuperscript{208}

Considering that the First Step Act was heralded as a step in righting the wrongs of past injustice in the racist war on drugs\textsuperscript{209}, it would border on absurdity if the authors of the PATTERN algorithm did not have the values of equal protection in mind at its inception. As such, it is no coincidence that the PATTERN algorithm does not contain race in its factors for calculating recidivism risk; if it did, it would certainly face tough constitutional challenges.\textsuperscript{210} Relatedly, even if race were included as a factor in PATTERN in a manner designed to benefit a historically disadvantaged group (perhaps in an effort to remedy the injustices of the war on drugs) it would still face strict scrutiny in court. The omission of race as a factor, however, does not immunize PATTERN from review under equal protection doctrine because implicit racial discrimination can also be grounds for a constitutional violation.\textsuperscript{211}

Where a challenged policy is facially neutral, as is PATTERN, an equal protection claim based on racial discrimination becomes much more difficult to establish.\textsuperscript{212} In these cases, the party alleging violation of equal protection has the burden of demonstrating that the policy at issue not only purposefully discriminates but also has a discriminatory effect on them.\textsuperscript{213}

\textsuperscript{210} Crystal S Yang & Will Dobbie, \textit{Equal Protection Under Algorithms: A New Statistical and Legal Framework}, 119 Mich. L. Rev. 291, 298 (2020) (showing that one survey found that “all commonly used predictive algorithms exclude race as an input. The universal exclusion of race as an algorithmic input is unsurprising given the mainstream legal view that the direct use of race as an input would be unconstitutional.”).
\textsuperscript{211} Id. at 313.
\textsuperscript{212} Id.
Discriminatory purpose requires that “the decisionmaker... selected or reaffirmed a particular course of action at least in part ‘because of,’ not merely ‘in spite of,’ its adverse effects upon an identifiable group.”\textsuperscript{214} In \textit{McCleskey v. Kemp}, a death row inmate argued that the facially neutral capital punishment in Georgia statute violated the Equal Protection Clause because statistical data showed racial disparities in its application.\textsuperscript{215} Despite the statistics, the Court cited the “discretion... essential to the criminal justice process” in ruling that discriminatory purpose had not been adequately demonstrated.\textsuperscript{216} Like the statute in \textit{McCleskey}, PATTERN too is susceptible to arguments that although facially neutral, it yields an ultimately discriminatory outcome. Such an argument would be rooted in the idea that the facially neutral factors powering PATTERN act in effect as proxies for race.\textsuperscript{217} In fact, even in its infancy, PATTERN has already been subject to this criticism.\textsuperscript{218}

In contrast to \textit{McCleskey}, in which a third-party dataset gave rise to a constitutional question that traveled all the way to the Supreme Court\textsuperscript{219}, the legislation governing PATTERN puts the Department of Justice in control of the relevant data and its interpretation from the outset. From its inception, PATTERN’s factors and algorithm are based on statistical models which leverage historical federal prison data.\textsuperscript{220} Per the governing regulations, PATTERN is subject to periodic review and refinement as more data becomes available.\textsuperscript{221} This system of continuous improvement aligns with judiciary’s vigilance in acknowledging that “new insights

\textsuperscript{214} Personnel Administrator of Massachusetts v. Feeney, 442 U.S. 256, 279 (1979) (footnote and citation omitted).
\textsuperscript{215} \textit{McCleskey}, 481 U.S. at 291.
\textsuperscript{216} \textit{Id.} at 297.
\textsuperscript{218} See, \textit{supra}, Part IV.B.
\textsuperscript{219} \textit{McCleskey}, 481 U.S. at 286.
\textsuperscript{220} See, \textit{supra} Part IV.A.
\textsuperscript{221} \textit{Id.}
and societal understandings can reveal unjustified inequality within our most fundamental institutions that once passed unnoticed and unchallenged.” 222 In its short existence, PATTERN has already undergone one round of modifications as a result of this validation process. In response to stakeholder concerns that certain factors in the algorithm serve as proxies for race, the Department removed the static factors age at first arrest and whether the inmate voluntarily surrendered. 223 The Department noted that the reduction in algorithmic accuracy was outweighed by risk of actual or perceived bias which these factors posed. 224 To its credit, the DOJ has demonstrated a sincere commitment to the values embodied in the Equal Protection clause as they apply to race. Only the future will tell whether the Department holds true to this commitment.

Unlike its approach to race, PATTERN is more cavalier regarding gender. In its current form, PATTERN’s algorithm applies a separate and distinct model for men and for women and as a result has been subject to allegations of unconstitutionality. Unlike its response to feedback regarding potential racial bias, the Department held its ground on the algorithm’s gendered design when faced with similar criticism. 225 Citing statistical evidence and gender specific pathways to crime, the Department determined that applying the same algorithm to men and women would yield unfairly elevated results for women, inaccurately reflecting their recidivism risk. 226 The Department likely feels confident in this response because compared to the strict

223 See, supra Part IV.A.
224 See id.
225 See id.
226 See id.; see also The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 17.
scrutiny applied to racial classifications, modern equal protection jurisprudence applies only an intermediate level of scrutiny to gender based allegations.\(^{227}\)

To be constitutional, a government policy which expressly discriminates based on gender must be shown—by an exceedingly persuasive justification—to serve important governmental objectives and to employ a means which is substantially related to those objectives.\(^{228}\) Furthermore, any valid governmental objective must not be rooted in outdated misconceptions of gender norms or limitations.\(^{229}\) Under this standard, on the one hand, the alleviation of prison overcrowding near the District of Columbia was held as an adequate governmental objective for keeping female prisoners at a more remote facility than men.\(^{230}\) Economic efficiency, on the other hand, was not found to be adequate government objective for the comparably inferior facilities and treatment programs offered to women in Michigan prisons.\(^{231}\) As it relates to PATTERN, it appears that Department of Justice is betting that its interest in accurately predicting recidivism risk warrants the use of express gender classification.\(^{232}\)

In comparing PATTERN’s approaches to race and gender, the government interest at issue for both is to accurately predict recidivism risk for individual inmates within the federal prison population. The fact that the algorithm is born out of the First Step Act—a bipartisan, landmark piece of criminal justice reform legislation\(^ {233}\)—would suggest that it may meet the

\(^{228}\) Id.
\(^{229}\) Pitts v. Thornburgh, 866 F.2d 1450, 1455 (1989).
\(^{230}\) Id. at 1456.
\(^{232}\) See Comment Letter, supra Note 120 (discussing that although some argue that by citing “gender specific pathways to crime” the Department is inappropriately relying on outdated misconceptions of race, it would seem that a strong accompanying dataset coupled with an adequate governmental objective should meet the burden of Equal Protection.).
even strict scrutiny standard of compelling governmental interest. Where the analysis diverges, however, is in the level of targeting that the government must apply in meeting this objective. Any use of race requires narrow tailoring to a compelling governmental interest, while the use of gender must merely be substantially related to simply an important government objective. The arguments regarding this part of the analysis would surely center on the relative improvement in algorithmic accuracy that results from inclusion of the factors at issue. For this, the DOJ has the data in hand and plans to continue gathering and monitoring it throughout the life of the PATTERN algorithm.

By design, PATTERN is clearly intended to be a fair tool for prison administration which aligning to Constitutional values. Also by design, it is apparent that the regulations governing PATTERN force the DOJ to act conservatively in assembling documentation with which to rebut any potential Equal Protection challenge. As such, it appears that a viable case alleging a violation of the Equal Protection Clause in the use of PATTERN poses a tall task for any would-be plaintiff.

3. Transparency of AI in Criminal Justice

Although the federal approach to regulating general artificial intelligence has been hands-off, some states have led the way in adopting narrow regulations which require transparency in AI for certain uses.\textsuperscript{234} Many of the same concerns regarding the transparency of artificial intelligence in industry apply similarly to PATTERN, but as a decision-making tool in the context of criminal justice—where liberty is at stake—the need for transparency in the implementation of PATTERN is paramount.

\textsuperscript{234} See, supra Part III.
As a practical matter, it is important that the tools informing criminal justice are valid; that is, PATTERN must accurately perform its purpose in predicting recidivism risk. Just as important, however, is the public’s perception that the tool is valid. Criminal defense advocates demand transparency in algorithms like PATTERN to permit legal challenges to their validity. To the extent that an algorithm used in criminal justice is allowed to remain opaque, a critical feedback mechanism that is the foundational to the notion of representative government is placed at risk. Ultimately, the public must be permitted to identify the problems with a troubled system in order to influence government action to resolve those problems. In achieving the policy goal of transparency, the application of artificial intelligence to criminal justice faces many obstacles including intellectual property rights, the sheer complexity of the new technology, and concerns that transparency will result in gaming of the system. In its early formulation, PATTERN seems to overcome each of these obstacles in providing a transparent tool for the BOP to predict recidivism risk.

Where algorithms are owned by private entities, the societal interest for transparency can directly conflict with valuable intellectual property rights. This issue was seen in State v. Loomis, where the defendant argued that the COMPAS risk assessment violated his “right to be sentenced upon accurate information, in part because the proprietary nature of COMPAS prevent[ed] him from assessing its accuracy.” Northpointe, Inc., the developer of COMPAS, provided a score report presented in bar charts, but cited trade secrecy in refusing to disclose


236 \textit{Id.}


Acknowledging the due process right to be sentenced upon accurate information, the Supreme Court of Wisconsin ultimately disagreed with the defendant’s contention, finding no violation. The Court based its holding on the fact that the defendant had access to verify the accuracy of the questions and answers used as inputs for his assessment and provided a survey of evidence regarding validation studies both supportive and critical of the accuracy of COMPAS. In contrast to COMPAS, PATTERN was created by the Department of Justice and unlikely to be obscured by intellectual property rights.

Even if an algorithm is fully disclosed, its inner workings may be so complex as to effectively preclude a reasonable review. For example, a New Jersey defendant seeking to review the source code for a genetic analysis software faced an argument from the software’s maker that the program’s 170,000 lines of code would take approximately eight years to review at a rate of ten lines per hour. Although the New Jersey Court of Appeals ultimately ruled that the man was entitled to review the proprietary software to challenge the evidence against him, the case is illustrative of the challenges facing the accused in rebutting a technologically-based criminal justice decision. As more advanced technologies infiltrate decision-making in our criminal justice system, the expertise required to mount an effective defense could potentially become cost prohibitive. Fortunately, compared to a complex DNA analysis software, PATTERN is a rudimentary and crude algorithm. It is such a simple tool that in its initial rollout,

239 Id. at 258-59.
240 Id. at 257, 282.
241 Id. at 260-64.
243 Thomas Claburn, Accused murderer wins right to check source code of DNA testing kit used by police, THE REGISTER (Feb. 4, 2021) https://www.theregister.com/2021/02/04/dna_testing_software/.
244 Id.
prison administrators manually calculated the scores while the BOP worked toward a long-term goal of integrating PATTERN into its existing data management system.\textsuperscript{245} The fact that the PATTERN algorithm can be carried out by hand suggests a reasonable level of reviewability.

Finally, there is a concern that open knowledge of the inner workings of an algorithm could permit bad actors to somehow game the system to produce maligned outcomes.\textsuperscript{246} This too is no concern for PATTERN. As discussed above in Part V.A, the First Step Act intended for PATTERN to be used as a driver of inmate behavior.\textsuperscript{247} It purposefully includes dynamic factors that are designed to encourage inmates to adopt behaviors that the BOP believes will reduce recidivism.\textsuperscript{248} Such behaviors include participation in drug treatment, vocational programs, or other educational activities.\textsuperscript{249} Transparency is not a byproduct of PATTERN’s implementation, but rather a core principle. The Bureau of Prisons wants inmates to understand PATTERN—its vision is for every inmate to be motivated and empowered to play the game, earn time credits, and engage in reducing their own risk of recidivism.\textsuperscript{250}

Although BOP’s implementation of the PATTERN algorithm avoids the pitfalls of transparency noted above, trusting an algorithm requires not only faith in its calculations, but also the data from which they were divined.\textsuperscript{251} In a 2019 letter addressed to the National Institute of Justice, a group of players, including the American Civil Liberties Union and the Leadership Conference of Civil and Human Rights, raised a valid concern to this very point. Many of the

\begin{itemize}
\item \textsuperscript{245} See The First Step Act of 2018: Risk and Needs Assessment System, supra Note 92 at 81.
\item \textsuperscript{246} Levey, supra Note 237.
\item \textsuperscript{247} NATHAN JAMES, CONG. RSCH. SERV., R45558, THE FIRST STEP ACT OF 2018: AN OVERVIEW 1-2 (2019).
\item \textsuperscript{248} See The First Step Act of 2018: Risk and Needs Assessment System UPDATE, supra Note 100 at 7.
\item \textsuperscript{249} Id.
\item \textsuperscript{250} See James, supra Note 247 at 1-2.
\item \textsuperscript{251} Cynthia Rudin and Joanna Radin, Why Are We Using Black Box Models in AI When We Don’t Need To? A Lesson From An Explainable AI Competition, HARVARD DATA SCIENCE REVIEW (Fall 2019).
\end{itemize}
factors used in PATTERN are borrowed from the Bureau of Prison’s existing Bureau Risk and Verification Observation (BRAVO).\textsuperscript{252} As discussed previously, BRAVO is a prior generation system for predicting serious misconduct and assigning inmates to the appropriate security level during incarceration.\textsuperscript{253}

Although this system dates to the 1970s, a notably small amount of information is available about its development, effectiveness, and accuracy.\textsuperscript{254} The BOP used seven years of federal prison data to create PATTERN.\textsuperscript{255} Absent transparency into the foundational BRAVO system and the data it provided to PATTERN’s conception, it is argued that PATTERN itself cannot be truly and transparently vetted by the public.\textsuperscript{256} To be fair, while this concern is heightened in the early years of PATTERN, it diminishes with time as new data becomes available to support the periodic validation, review and refinement mandated by the First Step Act.\textsuperscript{257}

PATTERN seems to steer clear of many common transparency concerns to which artificial intelligence is susceptible, but this may not always be the case. Over time it is conceivable that what began as a reasonably transparent tool for predicting recidivism drifts into a state that defies independent review. A future BOP could attempt cut costs by outsourcing the maintenance of the risk assessment system to a company with intellectual property interests. By incorporating the existing algorithm into a larger automated data management system, the life altering calculations could be hidden behind either intellectual property rights or even just

\textsuperscript{252} See The First Step Act of 2018: Risk and Needs Assessment System, supra Note 92 at 45.
\textsuperscript{253} Id. at 42.
\textsuperscript{254} See Comment Letter, supra Note 120.
\textsuperscript{255} See The First Step Act of 2018: Risk and Needs Assessment System, supra Note 92 at 84.
\textsuperscript{256} See Comment Letter, supra Note 120.
\textsuperscript{257} See The First Step Act of 2018: Risk and Needs Assessment System, supra Note 92 at 84-85.
complex programming.\textsuperscript{258} As PATTERN becomes an integrated part of the federal prison system, we must remain vigilant to ensure that it maintains its transparency.

4. Privacy

The last issue raised by PATTERN’s foray into the criminal justice system is that of privacy. Algorithmic tools, including artificial intelligence, inherently utilize vast amounts of data. In fact, AI can be summarized as a means of not only “crunching the numbers,” but also as a means of “chewing on them” to figure out what they mean.\textsuperscript{259} Ultimately, that data must be derived from somewhere and it must have been produced by someone—thus AI usage, especially in the criminal justice context, raises potential questions regarding privacy and the ownership of data.

The privacy aspect of artificially intelligence is largely dependent on the sources of a respective tool’s data used in its algorithms. To begin, there are two large categories of data where an individual would be unable to claim that an AI violates privacy by coopting and using an individual’s data. First, in the United States, there are currently no limitations on what can be done with public information, i.e., that which is either public by its very nature or is entered into the public domain.\textsuperscript{260} Information that is in the public domain or is public knowledge is free to be used by anyone. Such data can even be repackaged and sold despite being freely available.\textsuperscript{261}

\begin{flushleft}
\textsuperscript{258} See The First Step Act of 2018: Risk and Needs Assessment System, supra Note 92 at 81, discussing that the Department of Justice has a long term goal of incorporating PATTERN into its existing data management system.  
\textsuperscript{259} Danny Bradbury, Your machine used to crunch numbers. Now it can chew over what they mean, too, THE REGISTER (April 6, 2027), https://www.theregister.com/2017/04/06/your_machine_used_to_crunch_numbers_now_it_can_chew_over_what_they_mean_too/.  
\textsuperscript{261} See id.  
\end{flushleft}
This approach to the free and unencumbered use of public information is a cornerstone of U.S. policy. As stated by the Federal Reserve Board before a Congressional hearing in 1997, “[i]t is the freedom to speak, supported by the availability of information and the free-flow of data, that is the cornerstone of a democratic society and market economy.” 262

Subsumed in this public body of general is, for the most part, information related to an individual’s criminal history. The legal system, including its process and its dispositions, are public and transparent by decision—“public court proceedings are meant to hold the justice system accountable by allowing the public and media to see and report justice at work.” 263 In pursuit of this open system of justice, various pieces of an individual’s criminal history are typically open to public inspection, including, but not limited to: previous convictions (including the originally charged offense and the final sentenced offense and when charges were filed and the case concluded), the conditions of any sentence imposed (including the terms of any fine, prison sentence, or period of probation), and even the fees assessed by the court. 264

The only caveat to the general rule is if records have been sealed or expunged, as to remove the offense from public access. 265 What is often forgotten, however, is that the sealing of a record, rather than expungement, does not delete the existence of the record. 266 If a criminal

264 Id.
266 Id.
conviction is sealed, it remains in existence, albeit outside of the public’s view, but can still be accessed in limitation situations. Generally, a sealed record will be made available to:

- ‘Qualified agencies’, including courts and corrections departments, for law enforcement purposes (defined in Exec. Law § 835(9)) (including for “the purpose of sentence enhancement or for establishing the elements of a subsequent crime”)
- Federal and state law enforcement for law enforcement purposes
- State entities responsible for issuing firearm licenses
- Employers when [an applicant] appl[ies] for a peace officer or police officer job
- [the] FBI for background checks related to firearms.  

For a tool such as PATTERN, in which an inmate’s criminal history is an important factor, there is no cognizable argument that using such data infringes upon a person’s privacy. Generally, this conclusion will also hold true for other tools, even those not developed and operated by a governmental entity.

The issue, however, becomes more complex when the data utilized does not come from a public source or is data that is inherently considered private. As an example, an individual’s credit score could arguably be a useful data point in various tools, including even something like PATTERN—a credit score, initially designed to assess whether a financial institution should lend money to a prospective borrower, is now equated with an individual’s traits such as “responsibility,” “laziness,” “reliability,” “trustworthiness.” The access and use of a person’s credit score is governed by the Fair Credit Reporting Act, which sets forth clear limitations on this data. In fact, federal law provides an enumerated list of the situations in which a credit

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score can be obtained and used. As explained in a recent federal case, 15 U.S.C. § 1681b is an exhaustive list of the permissible uses of a credit score and that §1681b(f) “prohibits a person from using or obtaining a consumer report for any purpose other than those specifically authorized under the statute (emphasis original).” Thus, even if in review of PATTERN, for example, it was found that including credit score would be a viable factor, such a usage would violate the right to privacy codified in the Fair Credit Reporting Act.

Ultimately, PATTERN’s algorithm currently consists of data points based solely on information that would be considered “public” or owned by the government. However, this is simply another aspect that must be in the forefront of the development, implementation, and revision of any such tools in the criminal justice system. While PATTERN is the first such tool to be implemented, it is a relatively straightforward algorithm based on easily accessible pieces of data. However, as AI continues to proliferate and spread into new areas, compliance with data privacy laws and regulations is likely to become a more prominent issue. While certain potential data points, such as a credit score, are protected, the emergence of a tool such as PATTERN could raise the question of whether statutory protection of other types of measures is needed.

VI. Conclusion

The criminal justice system continues to evolve based on new information and the changing attitudes of society. As the notions of prison as a factory for reformation and rehabilitation were removed from the pillars of the federal prison system, parole, at least of the federal level, was placed on a path towards the sunset. Separately and simultaneously, the rise

272 It naturally follows that an inmate’s record produced during incarceration is a government record and can be used by the government in accordance with applicable laws.
and proliferation of complex computing has led to the implementation of artificial intelligence across various aspects of modern life. Computers and complex algorithms touch all facets of day-to-day life, ranging from medical equipment to the tools that determine the advertisements that will be shown to a particular user of social media.

While at first glance, the criminal justice system and the rise of artificial intelligence appear unrelated, there is no doubt that as the latter continues to expand, it will begin to encroach upon the former. PATTERN, a creation of the First Step Act, represents among the first codifications of an, albeit rudimentary, algorithmic tool in the criminal justice system and may serve as a hint for what is to come in the future. By focusing, in part, on recidivism reduction programs, it can be argued that the First Step Act and PATTERN have reintroduced reform theory into the federal criminal justice system, just to a far more limited extent than what existed prior to the Comprehensive Crime Reform Act of 1984. Similarly, PATTERN, through its input factors, introduces a limited degree of subjectivity and discretion. Taken together, PATTERN represents a potential shift back in favor of reform theory and the idea of reformation and rehabilitation. In fact, the idea of using educational programs to produce reform was a key pillar of the early parole systems. While PATTERN is clearly not a parole system, it is possible that its usage places the criminal justice system on a path where the notion that “the parole system as [we] know it . . . [is] rendered obsolete” may yet come into fruition.273

As has been discussed throughout this paper, because of its novelty, PATTERN represents one of the first opportunities to discuss the potential concerns of artificial intelligence weaving its way into the criminal justice system. Overall, PATTERN avoids many of the

273 DEMOLITION MAN (Warner Brothers 1993).
potential pitfalls of AI. including constitutional concerns, by simply being a rudimentary tool that produces an output that is but one small, discretionary factor within a larger framework and is entirely subject to human oversight in its usage. This analysis, despite its outcome, produces a series of cautionary lessons for any future tool that seeks to operate as more of a true AI. As can be gleaned from prior jurisprudence, a future, more powerful tool, which removes human oversight or imposes mandatory action in response to its output, is likely to give rise to due process concerns under the idea of liberty interests. A more rigid tool would also give rise to reliance concerns—if a tool mandates a particular outcome based on its assessment, a constraint is imposed on the ability to revise and recalibrate the tool based on new data. Further, as algorithms become more complex and incapable of understanding by the average person, there remains a sensitivity towards the notions of Equal Protection, transparency and privacy although such arguments would likely be difficult to sustain in the artificial intelligence context.

Ultimately, an AI is only as effective as its underlying algorithm and data points. As the creation of human ingenuity and effort, the quality of an AI and its algorithm reflects its creators—it is unlikely that an AI could truly be perfect in carrying out its purpose as humans, by nature, are imperfect. From this one issue remains; whether society will accept the use of an AI in the criminal justice system knowing that, despite best efforts, the tool is merely accurate, rather than perfect, when it could have serious ramifications on an individual’s freedom. Thus far, it appears that even when a more ‘objective’ approach is proclaimed, subjectivity and human discretion remain critical pieces of the equation.