

**ALGORITHMIC INJUSTICE: HOW THE WISCONSIN SUPREME
COURT FAILED TO PROTECT DUE PROCESS RIGHTS IN STATE V.
LOOMIS**

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Risk assessment algorithms are equations designed to take large amounts of information about an offender's past criminal experience, as well as other biographical and psychological information, and use it to compute a score that ranks an offender at various risk levels. Depending on which body within the system is utilizing it, the score is then used to make parole decisions, rehabilitation program placements, and, problematically, sentencing decisions. In State v. Loomis, the Wisconsin Supreme Court ruled that the risk assessment algorithm, entitled Correctional Offender Management Profiling for Alternative Sanctions ("COMPAS"), could be used during sentencing, offering only a series of warning labels intended to prevent judges from relying too heavily on COMPAS results during sentencing. This Recent Development argues that the court misapplied the precedent and offered no actual protections of the due process clause and proposes more effective solutions to address the issues of COMPAS in the sentencing process.

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I. INTRODUCTION

Algorithms are so prevalent in today’s world that an individual would be hard-pressed to go a week without somehow interacting with one. A person’s credit score, their Google search results, and even the words that a character in a video game says to the player, are all decided by algorithms.¹ They can seem efficient and streamlined, a nice package of data that reduces all the time and painstaking labor involved when humans have to make similar calculations, but should algorithms actually play a role in the sentencing process, a process that necessarily affects an individual’s liberty?

To some, algorithms are the new go-to tools to use in order to propel the justice system into a new age. The algorithms that populate the criminal justice world are called risk assessment algorithms.² Parole boards and prisons have been using risk

¹ See Neha Sethi, *Algorithms in our daily life*, LIVEMINT (Aug. 27, 2013), <http://www.livemint.com/Specials/34LMe9rh17u4fVJPKPtJEN/Algorithms-in-our-daily-life.html>.

² See Maggie Koerth-Baker, *The Calculus of Criminal Risk: The Justice System Has Come to Rely Heavily on Quantitative Assessments of Criminal Risk. How Well They Work Is a Complicated Question*, UNDARK (June 17, 2016), <http://undark.org/article/of-algorithms-and-criminal-risk-a-critical->

assessment algorithms for some time to make decisions on whether or not to release an offender and what programs would best suit the offender's needs while he or she is in prison.³ Some police departments have even begun using risk assessment algorithms to predict which individuals are likely to be involved in violent crimes.⁴ Now, courts are beginning to look to algorithms as a source of aid during the sentencing process.⁵

Additional information provided during the sentencing process often results in a more nuanced understanding of each defendant, and algorithms present a convenient way to package a lot of information into one report. However, the efficiency provided by risk assessment algorithms comes with risks that threaten the Due Process Clause protections in place during the sentencing phase. While the Due Process Clause appears concretely in the Fifth Amendment of the Constitution, the Supreme Court incorporated the Due Process Clause of the Constitution against the states via the Fourteenth Amendment.⁶ The clause protects citizens against the divestment of "life, liberty, or property, without due process of law."⁷ The act of sentencing someone is the very definition of depriving them of liberty. Risk assessment algorithms used during sentencing threaten to strip that liberty from defendants for the sake of appearing technologically advancement and the ease of

review/ (citing Sonya Starr, the University of Michigan's co-director of the empirical legal studies center).

³ *Id.*

⁴ Monica Davie, *Chicago Police Try to Predict Who May Shoot or Be Shot*, N.Y. TIMES (May 23, 2016), <http://www.nytimes.com/2016/05/24/us/armed-with-data-chicago-police-try-to-predict-who-may-shoot-or-be-shot.html>.

⁵ See Anna Maria Berry-Jester et al., *The New Science of Sentencing: Should Prison Sentences Be Based on Crimes That Haven't Been Committed Yet?*, THE MARSHALL PROJECT (Aug. 4, 2015), <https://www.themarshallproject.org/2015/08/04/the-new-science-of-sentencing#.kmIWuDjLS> (discussing risk assessment algorithms used during sentencing, specifically the one being developed in Pennsylvania).

⁶ Milton R. Underwood, *Due Process Clause*, THE HERITAGE GUIDE TO THE CONSTITUTION, <http://www.heritage.org/constitution#!/amendments/14/essays/170/due-process-clause> (last visited Oct. 1, 2016).

⁷ *Id.*

compiling large amounts of information into one over-simplified score.

ProPublica examined one such algorithm, known as COMPAS, in-depth,⁸ and the results showed that the algorithm skewed towards labeling black defendants as high risk and white defendants as low risk.⁹ The Wisconsin Supreme Court recently approved that same algorithm in *State v. Loomis*, acknowledging the pitfalls of the program, but offering only a handful of warning labels to protect defendants.¹⁰

This Recent Development argues that the Wisconsin Supreme Court incorrectly assessed the impact of the COMPAS algorithm and that courts should not use risk assessment algorithms during the sentencing process without stronger due process protections in place, if courts are to use the algorithms at all. Part II provides background on risk assessment algorithms and due processing law as it relates to sentencing. Part III analyzes the Court's arguments and why its decision was incorrect. Part IV proposes more appropriate solutions to the issues presented in *State v. Loomis* in the form of stronger due process protections. Finally, Part V concludes by examining the potential future of COMPAS in the courtroom and stating the need for a moratorium on the use of COMPAS for sentencing.

⁸ ProPublica is a non-profit investigative journalism organization that focuses on public interest issues. They are a strictly non-partisan organization stating that they “won’t lobby” and “won’t ally with politicians or advocacy groups.” They create series for their investigative projects, compiling studies and articles into document groups on their website for issues such as drug overdose, debt, prosecutorial misconduct, and several other public interest focused topics. *About Us*, PROPUBLICA, <https://www.propublica.org/about/> (last visited Nov. 25, 2016).

⁹ Julia Angwin et al., *Machine Bias: There’s Software Used across the Country to Predict Future Criminals. And It’s Biased against Blacks*, PROPUBLICA (May 23, 2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

¹⁰ *State v. Loomis*, 881 N.W.2d 749, 770–71 (Wis. 2016).

II. BACKGROUND

This section examines the background science of risk assessment algorithms and the case law that *State v. Loomis* references. First, it examines the exact way in which risk assessment algorithms—specifically COMPAS—work, including the information that they ground their analysis in and the way in which the system assesses that information to generate a risk assessment score. Next, this section discusses general details of the case precedent that the Wisconsin Supreme Court cites in its analysis of the *State v. Loomis* case.

A. *The Technology of Risk Assessment Algorithms*

While the first risk assessment algorithms started out as simple tools, classifying defendants into often comically named categories like ‘The Ne’er-Do-Well’ and ‘The Ruffian,’ risk assessment technology has become increasingly refined and complex.¹¹ Offenders answer questions regarding their criminal and personal history. The factors are both static and dynamic because certain concrete facts like criminal history and family criminal history are assessed, but personal beliefs and thought processes about various things such as trust levels and whether certain scenarios are right or wrong are also considered.¹² The dynamic factors include a statement or question followed by a scale of answers including “strongly disagree,” “disagree,” “not sure,” “agree,” or “strongly agree” that an offender marks in response.¹³ In order to account for inaccurate answers from untruthful defendants, COMPAS has three validity tests that “‘flag’ the top 5% to 10% of the population whose answers are suspect.”¹⁴ The “defensiveness test” deals with

¹¹ See Koerth-Baker, *supra* note 2 (citing Sonya Starr, the University of Michigan’s co-director of the empirical legal studies center).

¹² See *id.*; Risk Assessment, NORTHPOINTE (2011), <https://www.documentcloud.org/documents/2702103-Sample-Risk-Assessment-COMPAS-CORE.html> [hereinafter Northpointe Risk Assessment].

¹³ Northpointe Risk Assessment, *supra* note 12.

¹⁴ *COMPAS Risk & Need Assessment System: Selected Questions Posed by Inquiring Agencies*, NORTHPOINTE (2012), http://www.northpointeinc.com/files/downloads/FAQ_Document.pdf.

offenders who are trying to avoid revealing things about themselves, the “random responding” tests “careless, inconsistent responding that may verge on sabotage[,]” and the “inconsistency test” examines the consistency between the criminal history of an offender and their high risk factors to determine if there are any anomalies.¹⁵ In order to receive answers to the questions needed to generate a COMPAS score, an agency can provide a survey form to an offender or they can have an interviewer complete the form while interviewing the offender.¹⁶ The particular path followed to gather the information—interview or form—depends on a particular agency’s preferences.¹⁷ All of the data gathered is processed by an algorithm which ranks the offender’s recidivism risk level as “‘low[,]’ ‘medium,’ or ‘high.’”¹⁸

Northpointe created COMPAS, the particular risk assessment algorithm at issue in this recent development.¹⁹ The algorithm uses information gleaned from a 137-question survey separated into several separate sections²⁰ and from an individual’s public criminal records.²¹ The separate sections of the survey are entitled: “Current Charges,” “Criminal History,” “Non-Compliance,” “Family Criminality,” “Peers,” “Substance Abuse,” “Residence/Stability,” “Social Environment,” “Education,” “Vocation,” “Leisure/Recreation,” “Social Isolation,” “Criminal Personality,” “Anger,” and “Criminal Attitudes.”²²

The program consists of risk scales and needs scales.²³ Northpointe designed the risk scales to predict which offenders will reoffend and which will not.²⁴ Need scales, on the other hand,

¹⁵ *Id.*

¹⁶ *Id.*

¹⁷ *Id.*

¹⁸ *Id.*

¹⁹ See NORTHPOINTE INC., PRACTITIONER’S GUIDE TO COMPAS CORE 1 (Northpointe Inc., 2015).

²⁰ Northpointe Risk Assessment, *supra* note 12.

²¹ NORTHPOINTE INC., *supra* note 19, at 27.

²² Northpointe Risk Assessment, *supra* note 12.

²³ NORTHPOINTE INC., *supra* note 19, at 4.

²⁴ *Id.* at 12.

are not predictive.²⁵ Instead, needs scales aim to describe defendant's deficits in areas such as employment, education, and cognition and are meant to establish target areas for intervention efforts.²⁶ The need scales are often used by parole officers and prison officials to match offenders with the best methods for rehabilitative and interventionist efforts.²⁷

When the scale scores are calculated, they are then converted into decile scores ranging from 1 (lowest) to 10 (highest).²⁸ According to Northpointe, the decile scores correlate with the normative group in that a score of 1 means that the offender's scale score is in the lowest 10% of the norm group, a score of 2 is above 10% and below 20%, and so on. As the COMPAS Practitioner's Guide explains, it is generally seen that a "1- 4: scale score is low relative to other offenders in norm group; [a] 5- 7: scale score is medium relative to other offenders in norm group; [and a] 8- 10: scale score is high relative to other offenders in norm group."²⁹ The algorithm links these scores, however, to norm groups consisting of information from assessments from prison and parole agencies, jails, and probation agencies.³⁰ There are currently eight norm subgroups in place: "(1) male prison/parole, (2) male jail, (3) male probation, (4) male composite, (5) female prison/parole, (6) female jail, (7) female probation, and (8) female composite."³¹ Northpointe assembled these groups from "over 30,000 COMPAS Core assessments conducted between January 2004 and November 2005 at prison, parole, jail and probation sites across the United States."³² When a particular agency uses COMPAS, Northpointe also adjusts the norm group to reflect the population within the particular state the agency is located in.

²⁵ *Id.* at 16.

²⁶ *Id.* at 16–17.

²⁷ *Id.*

²⁸ *Id.* at 9.

²⁹ NORTHPOINTE INC., *supra* note 19, at 9.

³⁰ *Id.* at 12.

³¹ *Id.* at 11.

³² *Id.*

The calculated decile scores rely on the composition of the norm group.³³ Therefore, the scores of offenders that compile the norm group will always affect the computation of the decile scores.³⁴ This means “if the norm group happens to consist mainly of offenders with low risk of violent recidivism, the decile scores for Violent Recidivism Risk would be biased in the other direction, and high scores could be associated with individuals who are actually not high risk for violent recidivism.”³⁵

Northpointe does cite to validation studies that researches have conducted on the accuracy of COMPAS.³⁶ These studies calculate the “area under the receiver operating characteristic curve (AUC)[,]” a scale for which scores from “0.70 to 0.75 indicate moderate to good predictive accuracy.”³⁷ The AUC, Northpointe notes, “is the most widely used measure of predictive accuracy in criminal justice, psychology, medicine, and related fields.” Northpointe cites to many validation studies, mostly conducted by their own employees, including a study of the “AUCS for the General Recidivism Risk Scale and the any arrest outcome for a Michigan reentry sample.”³⁸ This study showed AUCS ranging from .71-.78 and found general consistency among the risk scores for Hispanic, black, and white offenders.³⁹ The sample size for Hispanic offenders, however, was significantly smaller than the other two groups, and smaller sample sizes can make the computation of AUCS more difficult and less accurate.⁴⁰ Additionally, Northpointe conducted the study themselves, rather

³³ *Id.*

³⁴ *Id.*

³⁵ *Id.*

³⁶ NORTHPOINTE INC., *supra* note 19, at 13–25.

³⁷ *Id.* at 13.

³⁸ *Id.* at 16 (discussing the results of the Michigan study). Note that AUCS is the same as AUC. AUCS simply refers to the plural of AUC.

³⁹ *Id.* at 15 (showing figure 3.3, which is a table including the AUCs of the Michigan study).

⁴⁰ *See id.* at 14–15 (showing the results and discussing a different study that was unreliable due to its extremely limited sample size).

than an independent, impartial group examining the accuracy of COMPAS.⁴¹

B. Criticism of Risk Assessment Algorithms

When addressing individuals at the National Association of Criminal Defense Lawyers 57th Annual Meeting in 2014, then-Attorney General Eric Holder voiced his concerns about the use of risk assessment algorithms during the sentencing process declaring the following:

Although these measures were crafted with the best of intentions, I am concerned that they may inadvertently undermine our efforts to ensure individualized and equal justice. By basing sentencing decisions on static factors and immutable characteristics – like the defendant’s education level, socioeconomic background, or neighborhood – they may exacerbate unwarranted and unjust disparities that are already far too common in our criminal justice system and in our society.⁴²

Holder acknowledged that in areas such as probation, the algorithms often served to benefit defendants,⁴³ yet he urged that using the algorithms during sentencing would require a careful process involving a combination of tactics, rather than sole reliance on risk assessments.⁴⁴

⁴¹ *See id.* at 13 (referencing the studies conducted on the Michigan Department of Corrections, all of which Northpointe conducted via a combination of individuals including Brennan and Dietrich, two people consistently linked to Northpointe). Although Northpointe surely knows the intricacies of their technology, it would be best for an outside group to have conducted the study, because Northpointe is a for-profit company and its profits depend upon convincing states to purchase a contract to use COMPAS.

⁴² Eric Holder, U.S. Attorney Gen., Speech at the National Association of Criminal Defense Lawyers 57th Annual Meeting and 13th State Criminal Justice Network Conference (Aug. 1, 2014).

⁴³ *Id.* (noting, in particular, that algorithms used outside of the sentencing process can help with the allocation of police resources and have the potential to increase community resources for defendants and lead to better allocation of those resources for the defendants who most need them).

⁴⁴ *Id.*

ProPublica conducted a more recent study, specifically focusing on the validity of COMPAS.⁴⁵ The ProPublica study calculated data on over 7,000 offenders who received risk assessment scores following their arrests in 2013 and 2014 and examined whether they were charged with a new crime over the following two years.⁴⁶ The validity of the various COMPAS scales fluctuated.⁴⁷ The study found that violent recidivism scales were accurate only 20% of the time, while the scale deeming people likely to re-offend accurately predicted recidivism for 61% of the offenders.⁴⁸ Still, as ProPublica pointed out, that is only “somewhat more accurate than a coin flip.”⁴⁹ The overall lack of accuracy, however, was only the beginning of the issues ProPublica discovered in analyzing COMPAS.

The aspect most heavily highlighted by the study was the disparity between scores assigned to white defendants and those assigned to black defendants.⁵⁰ The study noted that “[w]hile Black defendants had higher recidivism rates overall, when adjusted for this difference and other factors, they were [45%] more likely to get a higher score than whites.”⁵¹ In terms of violent recidivism scales “[b]lack defendants were 77.3 percent more likely than white defendants to receive a higher score”⁵² In analyzing how many defendants were labeled high risk, yet did not go on to reoffend within those two years, ProPublica found that white defendants were incorrectly labeled 23.5% of the time, and black defendants were mislabeled 44.9% of the time.⁵³ Low risk scores were skewed towards white offenders.⁵⁴ Exactly 47.7% of white

⁴⁵ Angwin, et al., *supra* note 9.

⁴⁶ *Id.*

⁴⁷ *Id.*

⁴⁸ *Id.*

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ Jeff Larson, et al., *How We Analyzed the COMPAS Recidivism Algorithm*, PROPUBLICA (May 23, 2016), <https://www.propublica.org/article/how-we-analyzed-the-compas-recidivism-algorithm>.

⁵² *Id.*

⁵³ Angwin et al., *supra* note 9.

⁵⁴ *Id.*

offenders labeled low risk went on to re-offend, while only 28% of black offenders labeled low risk re-offended.⁵⁵ ProPublica's write up of the study addressed the fact that other studies have not found similar disparity in COMPAS results.⁵⁶ Many of the studies, however, have been completed in contingency with agencies already under contract with Northpointe, or by individuals employed by Northpointe themselves.⁵⁷ The ProPublica report explains that many of these studies also "did not examine whether different races were classified differently as low or high risk."⁵⁸ The studies instead focused on overall validity and whether the scores have generalized consistency without analyzing the particulars of low-risk or high-risk scores assigned to offenders of different races. Furthermore, ProPublica noted that Wisconsin has yet to conduct its own validation study of COMPAS and that officials did not comment to ProPublica on whether it would conduct one in the future.⁵⁹

Northpointe responded to ProPublica's study by criticizing the results and declaring that its software is unbiased.⁶⁰ ProPublica stood by its research, insisting that while Northpointe was technically correct, it framed its explanation in a way that avoided addressing the bias.⁶¹ It cited Andrew Gelman, a Columbia University statistics professor, in the following excerpt:

'This is a situation where even if the system could be calibrated correctly' – meaning, it's equally accurate

⁵⁵ *Id.*

⁵⁶ *Id.*

⁵⁷ *See id.* (discussing New York's evaluation of COMPAS, which was not conducted until years after New York had already been using the software and another validation study conducted by Tim Brennan, the founder of Northpointe).

⁵⁸ *Id.*

⁵⁹ Angwin et. al., *supra* note 9.

⁶⁰ NORTHPOINTE INC., COMPAS RISK SCALES: DEMONSTRATING ACCURACY EQUITY AND PREDICTIVE PARITY (Northpointe Inc. 2016).

⁶¹ Julia Angwin & Jeff Larson, *ProPublica Responds to Company's Critique of Machine Bias Story*, PROPUBLICA (July 29, 2016), <https://www.propublica.org/article/propublica-responds-to-companys-critique-of-machine-bias-story>.

between racial groups — ‘it can be unfair to different groups,’ Gelman said. ‘From the perspective of the sentencer it might be unbiased,’ he said. ‘But from the perspective of a criminal defendant it could be biased’.⁶²

As ProPublica and many individuals have pinpointed, the perspective of a criminal defendant is what matters in sentencing.⁶³ It is the defendant’s life that is being irrevocably changed by the sentencing process, and it is he or she who is protected by due process. The fact that a system, proven to be biased, is allowed to be used during the sentencing process without any validation study by the State approving its use completely ignores the foundational notions of sentencing due process.

C. Background Law

As this recent development focuses specifically on a case from Wisconsin, the law analyzing due process rights during the sentencing process comes mostly from Wisconsin cases. There are two particular lines of case law that present due process issues regarding the use of COMPAS during sentencing, one addressing the accuracy of sentencing and the other addressing the individualization of sentencing.⁶⁴

In 1977, the Supreme Court addressed the issue of accuracy during sentencing in *Gardner v. Florida*.⁶⁵ The case arose from the capital sentencing of Gardner, whom the court convicted of first-degree murder.⁶⁶ In sentencing Gardner, the judge referred to a pre-sentence investigation report, including a confidential portion containing information not disclosed to the defendant.⁶⁷ In drafting the opinion, Justice Stevens ruled that the due process clause protected sentencing and that withholding the information from the

⁶² *Id.*

⁶³ *Id.*

⁶⁴ See *State v. Loomis*, 881 N.W.2d 749, 757–74 (Wis. 2016) (citing to these lines of cases when addressing the defendant’s arguments and separating the defendant’s argument into these sections).

⁶⁵ *Gardner v. Fla.*, 430 U.S. 349, 351–52 (1977).

⁶⁶ *Id.* at 351.

⁶⁷ *Id.*

defendant constituted a violation of his due process rights.⁶⁸ The Court reasoned that “[t]he defendant ha[d] a legitimate interest in the character of the procedure which leads to the imposition of sentence even if he may have no right to object to a particular result of the sentencing process.”⁶⁹

Following *Gardner*, the Wisconsin Court of Appeals decided *State v. Skaff*, in which the lower court sentenced the defendant for delivery and possession of cocaine.⁷⁰ The pre-sentencing investigation (“PSI”) report was provided to the defendant’s counsel, however the attorney in the case was instructed not to allow the defendant to read the PSI.⁷¹ The court emphasized the defendant’s role in assessing the accuracy of sentencing, stating that “[t]o deny Skaff timely access to his PSI, pursuant to court policy, is to prejudicially deny him an essential factor of due process, i.e., a procedure conducive to sentencing based on correct information.”⁷² Any errors in the PSI, the court explained, could affect the sentence, thereby affecting a decision made about the defendant’s future based on information regarding the defendant himself.⁷³ Whether the defense counsel has access to the information contained in a PSI or not, the *Skaff* court made it clear that the defendant must have the means to examine the accuracy of his sentencing and the factors influencing it.⁷⁴ To prevent him from such means would be to violate the Due Process Clause.⁷⁵ Both *Skaff* and *Gardner* highlight the utmost importance of accuracy during sentencing and, even more importantly, the defendant’s right to assess that accuracy himself in the face of others attempting to shield the sentencing decisions from his scrutiny.

In addition to the right to accurate sentencing, another important due process right during sentencing that has developed

⁶⁸ *Id.* at 360–62.

⁶⁹ *Id.* at 358.

⁷⁰ *State v. Skaff*, 447 N.W.2d 84, 85 (Wis. Ct. App. 1989).

⁷¹ *Id.* at 86.

⁷² *Id.* at 88.

⁷³ *Id.* at 88–89.

⁷⁴ *Id.*

⁷⁵ *Id.*

in the courts is a defendant's right to an individualized sentence, a right highlighted in the Wisconsin case *State v. Gallion*.⁷⁶ *Gallion* concerned a defendant who had plead guilty and was sentenced to twenty-one years in prison.⁷⁷ Subsequently, Gallion filed a motion for modification of his sentence.⁷⁸ The court approved the motion on direct appeal, allowing the Supreme Court of Wisconsin to review it.⁷⁹ Ultimately, the court found that there were no due process violations during the course of Gallion's sentencing, but the opinion established the fundamental nature of individualized sentencing.⁸⁰ The court addressed individualized sentencing in connection with sentencing guidelines, noting that while sentencing guidelines are intended to aid judges in their determinations, "that does not mean there is less of a need for the exercise of discretion. Individualized sentencing, after all, has long been a cornerstone of the Wisconsin criminal justice jurisprudence."⁸¹

Both the right to individualized sentencing and the right of a defendant to observe and assess the accuracy of information used during sentencing conflict with the very nature of the COMPAS algorithm. Proprietary algorithms do not speak to ease of access.⁸² Rather, they completely block individuals outside the company from examining their source code and the way the scores are

⁷⁶ *State v. Gallion*, 678 N.W.2d 197, 209 (Wis. 2004).

⁷⁷ *Id.* at 202.

⁷⁸ *Id.*

⁷⁹ *Id.*

⁸⁰ *Id.* at 209.

⁸¹ *Id.*

⁸² Erin E. Kenneally, *Gatekeeping Out Of The Box: Open Source Software As A Mechanism To Assess Reliability For Digital Evidence*, 6 VA. J.L. & TECH. 13, 11–15 (2001). While open source software allows individuals other than the software developer a program's code to, proprietary software is often described as a "black box" because of the way in which it prevents any outside individuals from viewing the source code. Blocking this code from outside view prevents anyone other than the developer and individuals within the software corporation from being able to understand exactly what occurs "between the [data] input and output stages." Essentially, outsiders can see the results of the software, but how that result was achieved is shrouded in secrecy. *Id.*

ultimately calculated.⁸³ Additionally, the fact that the algorithm calculates scores based on group data effectively shoehorns a defendant into a grouping score.⁸⁴ True individualization is thereby absent from COMPAS scores since the score is necessarily a calculation for a generalized group.⁸⁵ Ultimately, the case law leads to the question of whether sentencing algorithms can truly co-exist with the Due Process Clause.

III. ANALYSIS OF LOOMIS V. STATE—WHERE AND HOW THE COURT WENT WRONG

On July 13, 2016, the Wisconsin Supreme Court affirmed a state circuit court's use of COMPAS during sentencing in the face of constitutional challenges.⁸⁶ This decision was the first to address the constitutionality of using risk-assessment algorithms during sentencing.⁸⁷ While the court had the opportunity to take a progressive step towards protecting defendants' due process rights, they instead incorrectly applied precedent and issued flimsy warning labels that offer little to no protection against the use of COMPAS.⁸⁸

The case arose from the sentencing of Eric Loomis.⁸⁹ The prosecution accused Loomis of being the driver in a drive-by

⁸³ *Id.* at 14 (explaining that proprietary algorithms shield “what happens between the data input and output stages,” and saying that “[w]ithout access to these ‘blueprints’ a computer professional is left to infer, based on his knowledge and experience, the causes of and solutions to software problems[]”).

⁸⁴ *See* Northpointe, Inc., *Practitioner’s Guide to COMPAS Core*, 31 (Mar. 19, 2015), NORTHPOINTE, http://www.northpointeinc.com/files/technical_documents/Practitioners-Guide-COMPAS-Core-_031915.pdf (discussing the fact that COMPAS is not designed to calculate scores at an individual level because it relies on group data).

⁸⁵ *See id.*

⁸⁶ *State v. Loomis*, 881 N.W.2d 749, 753 (Wis. 2016).

⁸⁷ *Id.* (noting that while the Wisconsin Supreme Court had previously ruled on allowing COMPAS use during sentencing, the case did not deal with constitutional challenges).

⁸⁸ *Id.* at 770–71.

⁸⁹ *Id.* at 753.

shooting, and Loomis pled guilty to two lesser charges.⁹⁰ In order to aid in the determination of Loomis's sentence, the Court ordered a presentencing investigation that ultimately included a COMPAS risk assessment reporting that Loomis was a high risk for pretrial recidivism risk, general recidivism risk, and violent recidivism risk.⁹¹ In denying Loomis' probation, the circuit court specifically mentioned COMPAS stating:

You're identified, through the COMPAS assessment, as an individual who is at high risk to the community. In terms of weighing the various factors, I'm ruling out probation because of the seriousness of the crime and because your history, your history on supervision, and the risk assessment tools that have been utilized, suggest that you're extremely high risk to re-offend.⁹²

Following his sentencing, "Loomis filed a motion for post-conviction relief requesting a new sentencing hearing."⁹³ He challenged the court's use of COMPAS, arguing that using it during sentencing violated his due process rights.⁹⁴ To support his argument, he brought in testimony from an expert witness, Dr. David Thompson,⁹⁵ disputing COMPAS' accuracy and pointing out its lack of transparency.⁹⁶ Nevertheless, the district court denied the motion, arguing that it would have given Loomis' the

⁹⁰ *Id.* at 754.

⁹¹ *Id.* at 754–55.

⁹² *Loomis*, 881 N.W.2d at 755.

⁹³ *Id.* at 756.

⁹⁴ *Id.*

⁹⁵ Dr. Thompson is a board certified forensic psychologist with "extensive training in COMPAS, psychometrics, and statistics." Brief of Defendant-Appellant at 13–14, *State v. Loomis* 881 N.W.2d 749 (Wis. 2016) (No. 2015AP157-CR).

⁹⁶ *State v. Loomis*, 881 N.W.2d at 756–57 (Wis. 2016). Specifically, Dr. Thompson said, "The Court does not know how the COMPAS compares that individual's history with the population that it's comparing them with. The Court doesn't even know whether that population is a Wisconsin population, a New York population, a California population. . . . There's all kinds of information that the court doesn't have, and what we're doing is we're misinforming the court when we put these graphs in front of them and let them use it for sentence." *Id.*

same sentence with or without COMPAS.⁹⁷ Subsequently, Loomis filed an appeal, and the court of appeals sent the case to the Wisconsin Supreme Court for resolution of the due process issues.⁹⁸

On appeal, Loomis presented the following three due process arguments against the use of COMPAS during sentencing: (1) it violates a defendant's right to be sentenced based upon accurate information, in part because the proprietary nature of COMPAS prevents him from assessing its accuracy; (2) it violates a defendant's right to an individualized sentence; and (3) it improperly uses gendered assessments in sentencing.⁹⁹

The following subsections focus on Loomis' first two arguments and argue that the Court should have ruled in favor of Loomis. First, it examines Loomis' argument that COMPAS inhibits a defendant's right to accurate sentencing, and second, the subsection examines the argument that COMPAS interferes with a defendant's right to individualized sentencing.

A. The Ability to "Refute, Supplement, and Explain"

To support his argument that a defendant has a right to sentencing based on accurate information, Loomis pointed to *Skaff* and *Gardner* and analogized them to his case.¹⁰⁰ He argued that just as the defendants in *Skaff* and *Gardner* were precluded from accessing their sentencing decisions, he too was prevented from fully assessing the accuracy of his sentencing because of the proprietary nature of COMPAS.¹⁰¹ However, in response, the court reasoned that *Skaff* and *Gardner* were not similar to Loomis' case

⁹⁷ *Id.* at 757.

⁹⁸ State v. Loomis, 2015 Wisc. App. LEXIS 722, *8, 2015 WL 5446731 (Wis. Ct. App. Sept. 17, 2015).

⁹⁹ State v. Loomis, 881 N.W.2d at 757 (Wis. 2016). In analyzing the court's decision, this recent develop focuses on Loomis' first two arguments and proposes that COMPAS does, in fact, bar defendants' due process rights to sentencing accuracy and individualization.

¹⁰⁰ *Id.* at 760–64.

¹⁰¹ *Id.* at 761.

because Loomis had an opportunity to “refute, supplement, and explain” the COMPAS risk assessment score since the score itself and the report that accompanied it were not hidden from him.¹⁰² In issuing this ruling, however, the court misapplied the precedent and failed to account for the realities of for-profit businesses and the advances in technology that had occurred since *Skaff* and *Gardner* had been decided.¹⁰³

The court reasoned that Loomis had the opportunity to “refute, supplement, and explain” the COMPAS assessment by pointing out that “Northpointe’s 2015 Practitioner’s Guide to COMPAS explains that the risk scores are based largely on static information (criminal history), with limited use of some dynamic variables (i.e. criminal associates, substance abuse).”¹⁰⁴ In pointing to the practitioner’s guide as a defendant’s tool for assessing the accuracy of the score, the court blatantly ignored the fact that Northpointe is a for-profit company with a \$1,765,334 contract at stake in Wisconsin’s use of their services.¹⁰⁵ With that amount of money tied to the use of COMPAS, Northpointe is thereby a biased party that cannot be relied upon to determine the accuracy of the risk assessment score.¹⁰⁶ By directing the defendant to assess the score

¹⁰² *Id.*

¹⁰³ *Gardner* and *Skaff* were decided in 1977 and 1989 respectively. Between the 1970s and the 1980s the first computers were invented and the World Wide Web followed in 1989, the same year *Skaff* was decided. It is obvious, therefore, that the courts in *Skaff* and *Gardner* did not have to grapple with technology anywhere close to COMPAS. See Chris Woodford, Technology Timeline, EXPLAIN THAT STUFF (October 13, 2016), <http://www.explainthatstuff.com/timeline.html>.

¹⁰⁴ *Loomis*, 881 N.W.2d at 761.

¹⁰⁵ *Statement of Work: Wisconsin Department of Services FY 2016 Services, NORTHPOINTE* (Apr. 20, 2015), <https://epic.org/algorithmic-transparency/crim-justice/EPIC-16-06-23-WI-FOIA-201600805-FY16Contract.pdf> [hereinafter *Statement of Work*]. There are several other states who are also in contracts with Northpointe to use COMPAS. In addition to Wisconsin, Florida, Michigan, New Mexico, and Wyoming all use COMPAS at some point in the criminal justice process. See *Algorithms in the Criminal Justice System*, EPIC (last visited on Oct. 25, 2015), <https://epic.org/algorithmic-transparency/crim-justice/>.

¹⁰⁶ Consider the Volkswagen emissions scandal where the company’s software for its “pollution-control equipment” was considered proprietary and,

with the help of the practitioner's guide, the court ignored the realities of the for-profit business world and the lengths that businesses will go to maintain their profits.

The court went on to say that “to the extent that Loomis’s risk assessment is based upon his answers to questions and publicly available data about his criminal history[,]”¹⁰⁷ he can verify the accuracy of the report by looking at the survey to assess if the answers were in deed accurate. In its own words, however, the court pinpoints the main issue at hand without realizing it.¹⁰⁸ Neither Loomis nor the courts know to what “extent” Northpointe based the risk assessment off of those factors. While the guide may be a neatly packaged way for Northpointe to explain the sociological theories backing their program and the research supporting the validity of it—research that is often conducted by their own employees¹⁰⁹—it does not explain the value given to each factor, nor does it include a specific breakdown of every factor used in the algorithm.¹¹⁰ Rather, the company hides the details of

therefore, protected from “outside scrutiny.” Since no outside group could examine the software code, Volkswagen was able to defraud customers for years. They did so in an effort to make a profit, as is the natural inclination of a corporation. Left to its own devices it would be easy for Northpointe to do something similar and to use the proprietary nature of COMPAS to shield its actions. See David Bollier, *Volkswagen Scandal Confirms the Dangers of Proprietary Code*, DAVID BOLLIER: NEWS AND PERSPECTIVES ON THE COMMONS (Sept. 25, 2015), <http://bollier.org/blog/volkswagen-scandal-confirms-dangers-proprietary-code>.

¹⁰⁷ *Loomis*, 881 N.W.2d at 761.

¹⁰⁸ See *id.*

¹⁰⁹ Tim Brennan et al., *Evaluating the Predictive Validity of the COMPAS Risk and Needs Assessment System*, 36 *Criminal Justice and Behavior* 21, 21-40 (2009); William Dietrich et al., *Predictive Validity of the COMPAS Reentry Risk Scales*, 1-45 (2013).

¹¹⁰ “The amount of the value is determined by the strength of the item’s relationship to person offense recidivism that we observed in our study data. The weighted items are then added together to calculate the risk score: Violent Recidivism Risk Score = (age*w)+(age-at-arrest*w)+(history of violence*w) + (vocation education*w) + (history of noncompliance*w).” Northpointe, Inc., *Practitioner’s Guide to COMPAS Core*, 31 (Mar. 19, 2015), http://www.northpointeinc.com/files/technical_documents/Practitioners-Guide-COMPAS-Core-_031915.pdf.

their algorithm by declaring that it is a “core piece of [their] business”¹¹¹ and, as such, the company maintains it must shield the code from examination because of its proprietary nature.¹¹²

While the Wisconsin Supreme Court and the practitioner’s guide point to many validation studies to support the accuracy of the program,¹¹³ the court in *Skaff* emphasized that the core of their ruling was not whether the information was accurate or not.¹¹⁴ Rather, the point was that the defendant was denied the “means to ascertain whether there was any misinformation.”¹¹⁵ Without access to the source code of the algorithm, neither Loomis nor any other defendant truly has the “means” to investigate any potential misinformation. Since neither the court nor the defendants are certain of what goes into the calculation of risk scores, defendants can only present a superficial argument against the elements that may or may not be included in the algorithm.

While the court is correct in arguing that *Skaff* and *Gardner* dealt with situations where the lower courts completely barred the defendants from seeing information included in their PSI that the judges were able to examine, both decisions establish the importance of the accuracy of sentencing and the fundamental role that a defendant plays in assessing that accuracy.¹¹⁶ The state argued in *Gardner* that secrecy was required to convince certain individuals to come forward and that revealing the PSI to a defendant could jeopardize the availability of such evidence.¹¹⁷ In response, the court stated that “the interest in reliability plainly outweighs the State’s interest in preserving the availability of

¹¹¹ Mitch Smith, *In Wisconsin, a Backlash Against Using Data to Foretell Defendants’ Futures*, N.Y. TIMES (June 22, 2016), http://www.nytimes.com/2016/06/23/us/backlash-in-wisconsin-against-using-data-to-foretell-defendants-futures.html?_r=0.

¹¹² *Id.*

¹¹³ Again, many of the studies that the court points to have been conducted by individuals connected to Northpointe.

¹¹⁴ *State v. Skaff*, 447 N.W.2d 84, 88–89 (Wis. Ct. App. 1989).

¹¹⁵ *Id.*

¹¹⁶ See *Gardner v. Fla.*, 430 U.S. 349, 351–52 (1977); *Skaff*, 447 N.W.2d at 85 (Wis. Ct. App. 1989).

¹¹⁷ *Gardner*, 430 U.S. at 352.

comparable information in other cases.”¹¹⁸ In that moment, the *Gardner* court prioritized the defendant’s due process rights over the State’s desire to maintain secrecy. Here, the court has chosen to rank business above justice.

Ultimately, the court did acknowledge that defendants have a right to due process and expressed some hesitation about the use of COMPAS during sentencing.¹¹⁹ Their solution, however, was to issue mere warning labels to other courts by stating the following:

[A]ny PSI containing a COMPAS risk assessment must inform the sentencing court about the following cautions regarding a COMPAS risk assessment’s accuracy: (1) the proprietary nature of COMPAS has been invoked to prevent disclosure of information relating to how factors are weighed or how risk scores are to be determined; (2) risk assessment compares defendants to a national sample, but no cross-validation study for a Wisconsin population has yet been completed; (3) some studies of COMPAS risk assessment scores have raised questions about whether they disproportionately classify minority offenders as having a higher risk of recidivism; and (4) risk assessment tools must be constantly monitored and re-normed for accuracy due to changing populations and subpopulations. Providing information to sentencing courts on the limitations and cautions attendant with the use of COMPAS risk assessments will enable courts to better assess the accuracy of the assessment and the appropriate weight to be given to the risk score.¹²⁰

It is promising that the court did not ignore the issues regarding COMPAS’ validity. However, its solution does not address the fact that defendants do not have the resources at their disposal to effectively investigate the accuracy of COMPAS to the extent that due process requires. As can be seen in the next subsection, the Wisconsin Supreme Court continued to fall short of providing an

¹¹⁸ *Id.* at 359.

¹¹⁹ *State v. Loomis*, 881 N.W.2d 749, 763–64 (Wis. 2016).

¹²⁰ *Id.*

actual solution when it narrowly interpreted case precedent and suggested more warning labels for Loomis' second argument that COMPAS use compromises individualized sentencing.

B. Individualized Sentencing

In addition to arguing that COMPAS risk assessment scores do not provide defendants an opportunity to investigate their accuracy, Loomis also argued that using COMPAS during sentencing violates a defendant's right to an individualized sentencing process.¹²¹ The court recognized that defendants did have a right to such sentencing and that COMPAS did generate data based on group statistics.¹²² However, it ruled that its use during sentencing did not violate due process because the COMPAS score is just one factor among several that are included in a pre-sentence investigation report.¹²³ The court, however, failed to consider the amount of weight that individuals in today's society place on technology and, again, issued a warning that does little to protect against violations of a defendant's due process rights.¹²⁴ To acknowledge these risks might mean removing algorithms from the sentencing process all together until extensive training takes place and more safety measures are arranged, but losing the efficiency of the algorithms is a low cost to bear when due process rights are at stake.¹²⁵

When addressing Loomis' argument, the court pointed to *Gallion*, noting that the court in that case acknowledged that "[i]ndividualized sentencing, after all, has long been a cornerstone to Wisconsin's criminal justice jurisprudence."¹²⁶ The court goes

¹²¹ *Id.* at 764.

¹²² *Id.* at 765.

¹²³ *Id.*

¹²⁴ *See id.* ("[T]he due process implications compel us to caution circuit courts that because COMPAS risk assessment scores are based on group data, they are able to identify groups of high-risk offenders—not a particular high-risk individual."); *see also infra* pp. 22–24 (discussing how the court's solution does not actually protect due process).

¹²⁵ *See infra* Part IV.

¹²⁶ *State v. Loomis*, 881 N.W.2d 749, 764 (Wis. 2016) (citing *State v. Gallion*, 678 N.W.2d 197, 216 (Wis. 2004)).

on to admit Northpointe itself had stated that the methodology behind COMPAS “is not about prediction at the individual level.”¹²⁷ However, the court qualified the continued use of COMPAS during sentencing by saying there would be a lack of individualized sentencing only “[i]f a COMPAS risk assessment were the determinative factor considered at sentencing.”¹²⁸ The court argued that it is not a determinative factor because there are other details included in the pre-sentencing investigation report.¹²⁹ The court went on to reason that “[j]ust as corrections staff should disregard risk scores that are inconsistent with other factors, we expect that circuit courts will exercise discretion when assessing a COMPAS risk score with respect to each individual defendant.”¹³⁰ Rather than placing any actual restraint on the use of COMPAS and potentially upsetting Northpointe—who had already locked the state of Wisconsin into a contract for the 2016-17 year before the court issued its decision¹³¹—the court chose to place its entire faith in a circuit court’s ability to refrain from being swayed too heavily by COMPAS results.

The particular problem with the court’s reasoning is that it places its trust in judges to consider the warnings and evaluate COMPAS risk assessment scores accordingly during an age where society is heavily affected by the “technology effect.”¹³² While it may be common practice to express deference to a judge’s discretion, the influence of the “technology effect” deteriorates the

¹²⁷ *Id.* (citing NORTHPOINTE INC., PRACTITIONER’S GUIDE TO COMPAS CORE 31 (Northpointe Inc., 2015), http://www.northpointeinc.com/files/technical_documents/Practitioners-Guide-COMPAS-Core-_031915.pdf).

¹²⁸ *Id.*

¹²⁹ *Id.* at 765.

¹³⁰ *Id.* at 764–65.

¹³¹ *Statement of Work, supra* note 105.

¹³² Univ. of Missouri-Columbia, *Overconfidence in New Technologies Can Influence Decision-making*, SCIENCE DAILY (Apr. 8, 2015), <https://www.sciencedaily.com/releases/2015/04/150408100742.html>.

trustworthiness of judiciary discretion.¹³³ With or without a warning label, judges consistently give technology and forensic-based evidence heavier weight than other factors, whether the judges giving such weight realize that they are doing so or not.¹³⁴ Studies have shown that people have “automation bias” and, therefore, place their trust in computer-generated assessments even when faced with evidence of the systems’ inaccuracies.¹³⁵ As Danielle Citron¹³⁶ phrased the issue in her discussion of technological due process, “[a]utomation bias effectively turns a computer program’s suggested answer into a trusted final decision.”¹³⁷

While automated decision-making tools may eliminate particular errors associated with human decision-making, they merely replace these eliminated errors with new forms of mistakes.¹³⁸ According to Linda J. Sitka, a professor of psychology at the University of Illinois at Chicago, “most people will take the road of least cognitive effort, and rather than systematically analyze each decision, will use decision rules of thumb or

¹³³ *Id.*; see also Danielle Citron, *Technological Due Process*, 85 WASH. U. L. REV. 1249, 1271 (2008) (arguing that automation bias can affect a judge’s decision-making process).

¹³⁴ Anna Green, *Humans May Put Too Much Trust in Robots, Study Finds*, MENTAL FLOSS (Mar. 2, 2016), <http://mentalfloss.com/article/76387/humans-may-put-too-much-trust-robots-study-finds> (observing that even when a robot clearly led individuals away from marked exits in a fire-drill study and broke down while leading them, people still followed a robot, trusting it to lead them to safety).

¹³⁵ Citron, *supra* note 133 (discussing such studies and why the presence of automation bias calls for technological due process).

¹³⁶ Professor Danielle Citron is a law professor at the University of Maryland Francis King Carey School of Law whose research focuses on “information privacy, cyber law, automated systems, and civil rights.” Danielle Citron, *Faculty Profiles*, UNIVERSITY OF MARYLAND FRANCIS KING CAREY SCHOOL OF LAW <http://www.law.umaryland.edu/faculty/profiles/faculty.html?facultyid=028> (last visited Oct. 25, 2016).

¹³⁷ Citron, *supra* note 133, at 1272.

¹³⁸ Linda J. Sitka, *Does Automation Bias Decision-making?*, 51 INT. J. HUMAN-COMPUTER STUDIES 991, 992 (1999).

heuristics Automated decision aids may act as one of these decision-making heuristics, and be used as a replacement for more vigilant system monitoring or decision making.”¹³⁹ Furthermore, since individuals and agencies often employ algorithms to reduce human error, they can be seen as authoritative figures with more knowledge than the humans interpreting them and, therefore, the human users, such as judges, will adhere to what the algorithms decide despite the fact that such adherence might harm others.¹⁴⁰ This is because of the general power that authority figures hold and “people’s willingness to conform to the demands of an authority.”¹⁴¹ The court’s issuance of a cautionary statement to circuit courts, therefore, does little to protect defendants’ due process rights because automation bias renders such statements inane.

Outside of the presence of automation bias, courts have repeatedly recognized that cautionary statements do little to prevent judges from considering certain factors once they have already been exposed to an individual’s conscious.¹⁴² In describing the concept of “un-ringing the bell” when issuing instructions to a jury to disregard a personal opinion expressed by a prosecutor, the court in *United States v. Rodriguez* explained that jury instructions are not as effective as they should be for three reasons: “one ‘cannot unring a bell;’ ‘after the thrust of the saber it is difficult to

¹³⁹ *Id.*

¹⁴⁰ *See id.*

¹⁴¹ *Id.* at 992-93.

¹⁴² *See* Cynthia Dizikes & Stacy St. Clair, *Jury Is out on Whether Barred Statements in Peterson Trial Will Be Ignored*, CHICAGO TRIBUNE (Aug. 8, 2012), http://articles.chicagotribune.com/2012-08-18/news/ct-met-drew-peterson-trial-0819-20120819_1_stephen-wlodek-jurors-kathleen-savio (discussing a particular murder case where defense attorneys argued that a prosecutor had brought irrelevant evidence up at trial and that it should be dismissed and also citing to a previous case where such instructions to disregard a statement served to confuse the jurors and bring the statement to the forefront of their thoughts); Barry Popkik, *Unring the Bell (Impossibility of Taking Back a Statement or Action)* BARRY POPKIK (May 26, 2011), http://www.barrypopik.com/index.php/new_york_city/entry/unring_the_bell (listing several cases and other materials that have mentioned the difficulty of “un-ringing the bell”).

say forget the wound;’ and finally, ‘if you throw a skunk into the jury box, you can’t instruct the jury not to smell it.’¹⁴³ As shown by the Rodriguez court and the general principal of un-ringing the bell, a mere statement made by a court does not have the amount of sway that the Wisconsin Supreme Court assumes it holds when deciding to issue cautionary statements in the place of actual reformations of COMPAS’ use in the courtroom.

With the ingrained trust that individuals in the twenty-first century place in technology and the proven ineffectiveness of court’s cautionary statements, the Wisconsin Supreme Court’s proposed solution will offer little actual help to preserve sentencing due process rights. Instead, the fact that “COMPAS risk assessment scores are based on group data”¹⁴⁴ and “are able to identify groups of high-risk offenders—not a particular high-risk individual”¹⁴⁵ will ultimately lead to a deterioration of individualized sentencing because of the existence of automation bias and the Wisconsin Supreme Court’s failure to recognize the sway such bias has over people’s decisions.

IV. ALTERNATIVE SOLUTION PROPOSAL

While the court did not completely ignore the concerns surrounding the use of COMPAS during sentencing, it provided solutions that do not address the actual issues presented in the case. In place of actual restraints on COMPAS’ use or any measure that would have forced Northpointe to compromise the proprietary nature of their algorithm, the court offered mere warning labels to protect against any potential inaccuracies or lack of individualized decision-making.¹⁴⁶ Certainly COMPAS does have its advantages, and in other areas of criminal justice, it can be extremely useful in aiding offenders and those in charge of them to make the best

¹⁴³ United States v. Rodriguez, 585 F.2d 1234, 1244 (5th Cir. 1978).

¹⁴⁴ State v. Loomis, 881 N.W.2d 749, 765 (Wis. 2016).

¹⁴⁵ *Id.*

¹⁴⁶ *Id.* at 767–70.

decisions for everyone involved;¹⁴⁷ however, it is a flawed tool, and in its current state it does not belong in the world of sentencing. If courts are to use COMPAS during the sentencing process at all, they must put more extensive protections in place. There are two potential plans to safeguard due process. The first is working with Northpointe to switch COMPAS from a proprietary algorithm to an open-source algorithm that defendants can investigate and vet for themselves. This would necessarily conflict with Northpointe's claim of proprietary interest, sacrificing proprietariness and business protection in exchange for ensuring the protection of the defendants whom the court system is actually affecting. The second is to arrange an auditing process where an overseer from outside the company would perform consistent validation checks on the system to ensure its accuracy and appropriate use.

The main problem that COMPAS poses to a defendant's right to investigate the accuracy of their PSI report and the information used within it is that Northpointe has declared COMPAS' source code proprietary.¹⁴⁸ This ultimately blocks a defendant's access to the source code, the only thing that a defendant and their attorney can truly count on to break down exactly how a risk assessment algorithm works.¹⁴⁹ While Northpointe asserts that the code must be proprietary¹⁵⁰ in order to protect their business, there are similar

¹⁴⁷ See generally NORTHPOINTE INC., *supra* note 19 (discussing the way COMPAS is used and how the different sections assessed can help practitioners address offenders' needs).

¹⁴⁸ See Mitch Smith, *In Wisconsin, a Backlash Against Using Data to Foretell Defendants' Futures*, N.Y. TIMES (June 22, 2016), http://www.nytimes.com/2016/06/23/us/backlash-in-wisconsin-against-using-data-to-foretell-defendants-futures.html?_r=0 (citing Jeffrey Harmon, Northpointe's general manager, who explains that the codes are proprietary and why).

¹⁴⁹ See generally *id.* (discussing Loomis' argument and why the source code is integral to understanding COMPAS).

¹⁵⁰ Proprietary information is information that businesses wish to keep secret because they claim that revealing such information could detrimentally effect their business operations. In particular, businesses shield proprietary information because they fear that competitors will steal the information and use it for their own benefit. See *Proprietary Information*, INC., <http://www.inc.com/encyclopedia/proprietary-information.html> (last visited on

risk assessment algorithms whose source codes are open to the public.¹⁵¹ Pennsylvania, in fact, is developing a similar algorithm, but is conducting the development in an almost completely transparent way, making reports and documents related to the algorithms process available to the public.¹⁵² Having complete access to the COMPAS source code would allow defense attorneys to employ their own experts to evaluate the scores so that they could better attack the results during cross-examination. Furthermore, several cases regarding open source codes for forensic technology such as DNA algorithms and breathalyzers have shown that a defense attorney's extensive cross-examination of such technology can aid in finding errors within the technology, and thereby it increases the accuracy and reliability of such technology.¹⁵³ Outside of the courtroom, public access to open source codes also facilitates further investigation and validation of technology.¹⁵⁴ To deny a defendant access to the source code,

Oct. 25, 2016) (defining proprietary information and describing its legal definitions and protections).

¹⁵¹ See Anna Maria Berry-Jester, et al., *The New Science of Sentencing: Should Prison Sentences Be Based on Crimes That Haven't Been Committed Yet?*, THE MARSHALL PROJECT (Aug. 4, 2015), <https://www.themarshallproject.org/2015/08/04/the-new-science-of-sentencing#.kmlWuDjLS> (mentioning Pennsylvania's risk assessment algorithm and its transparency).

¹⁵² *Id.*

¹⁵³ See FED. R. EVID. art, VIII advisory committee's introductory note ("The belief, or perhaps hope, that cross-examination is effective in exposing imperfections of perception, memory, and narration is fundamental."); Rebecca Wexler, *Convicted by Code*, SLATE (Oct. 6, 2015), http://www.slate.com/blogs/future_tense/2015/10/06/defendants_should_be_able_to_inspect_software_code_used_in_forensics.html (arguing that defendants should be able to inspect source codes of forensic technology because of the benefits of cross-examination).

¹⁵⁴ See Wexler, *supra* note 153 (discussing how open-source codes have led to the discovery of flaws in forensic technology); Mark Hinkle, *Open Source: A Platform for Innovation*, WIRED, <https://www.wired.com/insights/2013/11/open-source-a-platform-for-innovation/> (last visited Oct. 25, 2016) ("The programs that have been developed in the open source software community are enablers for researchers to more effectively analyze the data in their endeavors regardless of their application.").

therefore, not only inhibits the defendant's ability to protect themselves against flawed technology, but also prevents the technology from potentially advancing.¹⁵⁵

Short of undertaking a long and arduous process of creating new legislation to compel businesses working with the criminal justice system to allow defendant's access to the source code, the solution is for Wisconsin courts to arrange a compromise with Northpointe. Essentially, if Northpointe wishes to continue contracting with the Wisconsin courts, they must make their source code available to defendants and, thereby, to any experts necessary for the defendant to analyze the accuracy of their risk assessment scores.

Unfortunately, even complete source code transparency does not solve all the issues surrounding risk assessment algorithms. For instance, knowing the source code of COMPAS would not eliminate the fact that algorithms often skew risk score levels depending on the race of the offender.¹⁵⁶ Controversy still surrounds the algorithm in Pennsylvania because of the factors that the algorithm analyzes to compute risk scores, despite the fact that it is open-sourced.¹⁵⁷ Ultimately, no measure of openness and public access to a source code can effectively solve the issues of a biased algorithm. At most, the open-source code would allow for defense experts and the public to pinpoint particular weaknesses of the code and to argue either against its use or for its improvement. Such suggestions, however, would need to be utilized by Northpointe itself to ultimately improve the algorithm or would

¹⁵⁵ See Jed S. Rakoff, *Full Text: Judge's Protest Resignation Letter*, WASH. POST (Jan. 29, 2015), https://www.washingtonpost.com/local/full-text-judges-protest-resignation-letter/2015/01/29/41659da6-a7e1-11e4-a2b2-776095f393b2_story.html ("A primary way in which forensic science interacts with the courtroom is through discovery, for if an adversary does not know in advance sufficient information about the forensic expert and the methodological and evidentiary bases for that expert's opinions, the testimony of the expert is nothing more than trial by ambush.").

¹⁵⁶ Berry-Jester, *supra* note 151 (discussing how, despite its transparency, there are elements of Pennsylvania's algorithm that make it biased, like the factors used to assess offenders).

¹⁵⁷ *Id.*

need to be acknowledged by judges as revealing damaging weaknesses that would prevent COMPAS from being relied upon in sentencing.

A different potential solution, as Danielle Citron suggested, could be to arrange for an extensive training and auditing program.¹⁵⁸ In order to use COMPAS during sentencing, judges would have to attend trainings that would assist them in understanding the benefits as well as the limitations of COMPAS.¹⁵⁹ Currently, as seen by the lower court's decision in *Loomis*, judges seem to have little to no knowledge about how COMPAS works.¹⁶⁰ The criminal justice system entrusts judges with making incredibly important decisions about technology and science within the courtroom, and for judges to make such decisions without any actual understanding of the technology they are ruling on can lead to damaging mistakes in judgment.¹⁶¹

In addition to the training, however, Wisconsin would need to arrange for a validation program which would continue to work with Northpointe in assessing and monitoring the validity of the program. This program would be most effective if combined with the previous proposed solution of an open-source code, although Northpointe could potentially exercise more protection of its proprietary interest in the source code by allowing only the impartial auditing agency access to the code. So far, Wisconsin has

¹⁵⁸ See Danielle Citron, *(Un)Fairness of Risk Scores in Criminal Sentencing*, FORBES (July 13, 2016), <http://www.forbes.com/sites/daniellecitron/2016/07/13/unfairness-of-risk-scores-in-criminal-sentencing/#704438c64479> (discussing the Wisconsin Supreme Court's proposed solution and the need for further due process protections).

¹⁵⁹ *Id.*

¹⁶⁰ See Certification by Wisconsin Court of Appeals, *State v. Loomis*, No. 2015AP157-CR, 2015 Wisc. App. LEXIS 722 (Ct. App. Sept. 17, 2015).

¹⁶¹ See Stephen Breyer, *Science in the Courtroom*, 16 ISSUES IN SCI. & TECH. 52–56 (2000) (discussing how a judge's knowledge or lack thereof can affect their decisions in cases dealing with scientific issues such as “statistical estimation techniques” used in census sampling).

not yet conducted a single COMPAS validation study of its own.¹⁶² To ensure maximum accuracy, it would be best to place a moratorium on the use of COMPAS during sentencing until extensive studying is completed and solutions are sought for ways to account for the bias that occurs in COMPAS computations.

Ultimately, making COMPAS open-source or creating an auditing and training program are still compromised solutions. They allow the court system to continue to use COMPAS at sentencing, but, at this time, courts should not use systems like COMPAS for sentencing purposes. While some may argue that algorithms provide more information for sentencing and increases the objectivity of sentencing decisions, those aspects are outweighed by the blatant bias perpetuated by the COMPAS risk assessment survey and algorithm.¹⁶³ Furthermore, as ProPublica pointed out, COMPAS is hardly the most accurate predictor.¹⁶⁴ The heavy sway of a streamlined, technologically advanced program whose accuracy is hardly better than “a coin-flip”¹⁶⁵ should not replace or taint the individualized sentencing process based on a judge’s full-scope review.¹⁶⁶

V. CONCLUSION

Today’s society needs algorithms to operate many of the machines people have come to rely on. Without them, society would have to return to the process of searching through encyclopedias and books page by page to find an answer to even the simplest question. Still, no matter how useful and efficient

¹⁶² Julia Angwin, et al., *Machine Bias: There’s Software Used across the Country to Predict Future Criminals. And It’s Biased against Blacks*, PROPUBLICA (May 23, 2016), <https://www.propublica.org/article/machine-bias-risk-assessments-in-criminal-sentencing>.

¹⁶³ *Infra* pp. 129–34.

¹⁶⁴ Angwin, et al., *supra* note 159.

¹⁶⁵ *Id.*

¹⁶⁶ Arguably, a judge’s bias is certain to taint the sentencing process as well, but judges are human beings whose decisions can easily be analyzed, unlike COMPAS. Even if COMPAS were open-sourced, defendants would still have to employ experts to understand the algorithmic process and effectively investigate COMPAS.

algorithms are for Google searches, they are not yet, nor may they ever be, appropriate for sentencing. The Due Process Clause protects sentencing to ensure the accuracy and individualization of every defendant's sentence. Allowing judges to rely on risk assessment algorithms like COMPAS while making sentencing decisions effectuates the deterioration of those due process rights. Although the Wisconsin Supreme Court ruled that COMPAS did not violate due process rights, they narrowed their view too far when evaluating the precedent and gave little thought to society's unshakeable trust in technology.

While requiring COMPAS to be open-sourced and for an auditing and training regime to be enacted to oversee the use of COMPAS during sentencing could alleviate some of the issues presented, there is something to be said for sentencing performed by judiciary discretion without the aid of algorithms. Ultimately, judges are humans who do not carry the air of mystique and grandeur that technology bears. Therefore, it is easier to challenge and analyze their decisions when they allow bias to sway them one way or another. Perhaps in the future, when companies can fine-tune algorithms to where they have fewer elements of discrimination tied into their formulas, and a system of oversight is in place to ensure that private companies do not seize the opportunity of wealth without regard for a defendant's constitutional rights, COMPAS will find a welcome home in a pre-sentencing investigation report. For now, however, it would be best to prevent courts from using COMPAS to decide an individual's fate.