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Holistic Behavioral Jurisprudence: Unpacking the Complexity of Law and Behavior

Benjamin van Rooij*

Introduction

*The Behavioral Code*¹ seeks to contribute to a behavioral jurisprudence.² This is a theory and practice of law that recognizes that law plays a vital function in proactively shaping human and organizational conduct. It recognizes that the law does not just serve to deal with human conduct in an *ex post* fashion, in handling the disputes that arise out of misbehavior, but also to influence behavior *ex ante* to ensure that the damages from wrongful behavior never occur.³ This behavioral approach to law does not come to replace existing normative approaches to law, as questions of what is right and wrong should precede questions on how to best address wrongful conduct.

To truly develop a behavioral jurisprudence requires drawing on empirical work that can inform the law about its effects on behavior. In a prior essay, I focused on the challenges in matching tenets of current legal thinking (such as the focus on singular cases, the tendency to focus on issues of justice, and the focus on behavior from the past instead of the future) and how this may obstruct

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¹ BENJAMIN VAN ROOIJ & ADAM FINE, *THE BEHAVIORAL CODE, THE HIDDEN WAYS THE LAW MAKES US BETTER . . . OR WORSE* (2021).

² The book is discussed in the other essays in this special issue. This essay is not a direct response to these reviews but does touch indirectly on some of the points raised there. See the following papers: Adi Leibovitch & Doron Teichman, *Incentives Matter: On the Limits of Behaviorally Informed Policy Interventions*, 28 JERUSALEM REV. LEGAL STUD. 66 (2024); Yuval Feldman, *Can Democratic States Trust the “The Behavioral Code”*, 28 JERUSALEM REV. LEGAL STUD. 84 (2024); Michael Wolfowicz & Badi Hasisi, *Slowing Down at “Speed Bumps for Terrorists”*: A Commentary on “The Behavioral Code”, 28 JERUSALEM REV. LEGAL STUD. 48 (2024).

³ This is outlined in more detail in Benjamin Van Rooij, *Behavioral Jurisprudence: The Quest for Knowledge about the Ex-ante Function of Law and Behavior*, 22 JERUSALEM REV. LEGAL STUD. 57 (2020). It draws on prior ideas about the ex-ante function of law in John M Darley et al., *The Ex Ante Function of the Criminal Law*, 35 LAW & SOC’Y REV. 165 (2001).

the successful incorporation of empirical knowledge into the legal realm.⁴ The current essay will look deeper at how empirical knowledge from the social and behavioral sciences can best be integrated and transmitted to inform application in legal practice.

The law shapes behavior in myriad ways. *The Behavioral Code*⁵ attempts to capture law's influence on human and organizational conduct. It draws on empirical insights from the social and behavioral sciences to offer a comprehensive view of the behavioral mechanisms at play in offending and compliant behavior. Its core mission is to offer a holistic view of such science to a general audience.

The present state of empirical studies challenges a holistic and integrated understanding of law and behavior. Too much of the literature is focused on evidencing the validity of a particular theory or a particular type of mechanism or intervention. Yet the reality of law and behavior is that in any situation of offending or compliant behavior, the behavior at stake is the result of multiple behavioral mechanisms, which should not be studied or debated in isolation. Punishment is a good example. As will be discussed in more detail below, punishment activates many different behavioral mechanisms. Punishment certainly directly affects extrinsic motivation in that the expected pain and costs of punishment act as a disincentive to offend, but punishment also interacts with people's intrinsic motivation. For example, sending a deterrent message by communicating that many people have been punished for an offense may also activate a negative social norm in that it shows that offenses are common.⁶ Moreover, punishment by imprisonment may decrease opportunities to offend through incapacitation,⁷ but it may also reduce the capacity to lead a law-abiding life by blocking access to employment after prison release.⁸

The Behavioral Code calls for a holistic approach to law and behavior. It is a call for more integration and combining of knowledge. Such a holistic approach forces us to leave the academic barricades and discussions about whose theory is right and wrong. It also means we must move away from questions about whether a particular intervention works to understand how different interventions work in tandem to affect the different behavioral mechanisms at play and under what conditions they can or should be combined.

The holistic approach comes with a downside. It forces us to understand law and behavior in a complex manner. It forces us to move beyond simplistic

⁴ Van Rooij, *supra* note 3.

⁵ VAN ROOIJ & FINE, *supra* note 1.

⁶ P. Wesley Schultz et al., *The Constructive, Destructive, and Reconstructive Power of Social Norms*, 18 PSYCHOL. SCI. 429 (2007); Robert B. Cialdini, *Descriptive Social Norms as Underappreciated Sources of Social Control*, 72 PSYCHOMETRIKA 263 (2007); Robert B. Cialdini et al., *Managing Social Norms for Persuasive Impact*, 1 Soc. INFLUENCE 3 (2006).

⁷ Alex R. Piquero & Alfred Blumstein, *Does Incapacitation Reduce Crime?* 23 J. QUANTITATIVE CRIMINOLOGY 267 (2007); JEREMY TRAVIS ET AL., *THE GROWTH OF INCARCERATION IN THE UNITED STATES: EXPLORING CAUSES AND CONSEQUENCES* (2014).

⁸ MICHELLE ALEXANDER, *THE NEW JIM CROW: MASS INCARCERATION IN THE AGE OF COLORBLINDNESS* (2012).

notions that there is one theory or one intervention that can always be applied, as some of the earlier law and behavior work may have alleged.

The present essay draws on new research to elaborate on what such a holistic behavioral jurisprudence entails and how it can best be communicated toward practice. It seeks to show a path toward a holistic behavioral jurisprudence that is grounded in the complexity of multiple and interlocking mechanisms and offers insight into how these can be combined. Finally, it seeks to show how such complex science may be disseminated to become useful for policy. This essay is thus not a direct response to the other essays that have reviewed *The Behavioral Code* in this special issue, but it does indirectly address some of the points raised in these reviews.

The remainder of this essay is structured as follows. First, we shall briefly recap the law's four main types of behavioral mechanisms. Second, we shall unpack the different behavioral mechanisms that are at play in one type of legal intervention, punishment. Third, we shall look at what compliance looks like once we try to integrate relevant variables into one network. Finally, we shall look at ongoing research that seeks to understand how we can transmit nuanced science to inform policy-making and policy support better.

Law's behavioral mechanisms

At the heart of *The Behavioral Code* lies the understanding that human and organizational responses to rules are driven by different types of forces. These are the law's *behavioral mechanisms*. From a bird's-eye view, we can broadly recognize two kinds of such mechanisms, which each have two main types.

The first group of mechanisms is motivational mechanisms. These mechanisms shape behavior by influencing people's motivations to comply with or violate legal rules. Here, we can broadly distinguish between extrinsic and intrinsic motivations. Extrinsic motivation concerns those aspects of people's motivation that are shaped outside of their direct personal and social spheres. Regarding the law's influence on behavior, legal incentives, both positive and negative, are key. These include the deterrent effect of punishment⁹ and tort liability¹⁰ and the stimulating effect of rewards¹¹ and bonuses. Intrinsic motivation concerns the motivational influences that originate in people's personal or social spheres.

⁹ Dieter Dölling et al., *Is Deterrence Effective? Results of a Meta-Analysis of Punishment*, 15 EUR. J. CRIM. POL'Y & RES. 201 (2009); Natalie Schell-Busey et al., *What Works? A Systematic Review of Corporate Crime Deterrence*, 15 CRIMINOLOGY & PUB. POL'Y 387 (2016); Daniel S. Nagin, *Deterrence in the Twenty-First Century*, 42 CRIME & JUST. 199 (2013).

¹⁰ Benjamin Van Rooij & Megan Brownlee, *Does Tort Deter? Inconclusive Empirical Evidence about the Effect of Liability in Preventing Harmful Behavior*, in CAMBRIDGE HANDBOOK ON COMPLIANCE 311 (Benjamin Van Rooij & D. Daniel Sokol eds., 2021).

¹¹ Yuval Feldman & Orly Lobel, *The Incentives Matrix: The Comparative Effectiveness of Rewards, Liabilities, Duties, and Protections for Reporting Illegality*, 88 TEX. L. REV. 1151 (2009); Martin Fochmann & Eike B. Kroll, *The Effects of Rewards on Tax Compliance Decisions*, 52 J. ECON. PSYCHOL. 38 (2016); James Andreoni et al., *The Carrot or the Stick: Rewards, Punishments, and Cooperation*, 93 AM. ECON. REV. 893 (2003); Marco Fabbri et al., *Ride Your Luck! A Field Experiment on Lottery-Based Incentives for Compliance*, 65 MGMT. SCI. 4336 (2019).

Here, we can think of people's sense of morality¹² and their social norms.¹³ A particularly important aspect is people's sense of duty to obey the law, which is a key attitude toward the law people develop and which shapes their compliance.¹⁴

The second group of mechanisms is situational mechanisms. People's responses to the law are not just the product of their motivation but equally of the situation they are in, both in terms of who they are or the context they exist in.¹⁵ People's situation, context, or state may affect the capacity they have to follow the law. One crucial aspect here concerns whether people are able to know and understand the content of legal rules.¹⁶ Another example is whether people have sufficient self-control to refrain from deviant and rule-violating behavior.¹⁷ A second situational aspect of law and behavior is whether people have the opportunity to break legal rules. Here, we can think about whether motivated offenders have access to unguarded valuable targets.¹⁸ More broadly, the opportunity to offend may be lower because of practical barriers that make the act of offending more difficult, such as speed bumps, locks, or the eradication of high denomination bills used for criminal transactions.¹⁹ Figure 1 provides a simple overview of the law's behavioral mechanisms.

The Behavioral Code's core contribution is to offer an accessible account of the empirical knowledge of these four main types of behavioral mechanisms. Its core aim is not to show that one mechanism is more important than another. Instead, it tries to offer an integrated picture of these different mechanisms and how they are interlinked. In doing so, it seeks to offer an integrated view of law and behavior, where so far, it has remained fragmented in disciplinary and theoretical silos. As such, our book is not making a case against incentives or punishment, a refutation of rational choice, or a call for replacing incentives with other behavioral

¹² Tom R. Tyler, *Procedural Fairness and Compliance with the Law*, 133 SWISS J. ECON. & STAT. 219 (1997); TOM R. TYLER, *WHY PEOPLE OBEY THE LAW* (2006).

¹³ Jessica M. Nolan & Kenneth E. Wallen, *Social Norms and Persuasion*, in *CAMBRIDGE HANDBOOK ON COMPLIANCE* 404 (Benjamin Van Rooij & D. Daniel Sokol eds., 2021).

¹⁴ Glenn D. Walters & P. Colin Bolger, *Procedural Justice Perceptions, Legitimacy Beliefs, and Compliance with the Law: A Meta-Analysis*, 15 J. EXPERIMENTAL CRIMINOLOGY 341 (2019).

¹⁵ J. W. Coleman, *Toward an Integrated Theory of White-Collar Crime*, 93 AM. J. SOC. 406 (1987).

¹⁶ Pascoe Pleasence et al., *Wrong About Rights: Public Knowledge of Key Areas of Consumer, Housing and Employment Law in England and Wales*, 80 MOD. L. REV. 836 (2017); Pascoe Pleasence & Nigel J. Balmer, *Ignorance in Bliss: Modeling Knowledge of Rights in Marriage and Cohabitation*, 46 LAW & SOC'Y REV. 297 (2012); Darley et al., *LAW & SOC'Y REV.* 165 (2001); Benjamin Van Rooij, *Do People Know the Law? Empirical Evidence About Legal Knowledge and Its Implications for Compliance*, in *CAMBRIDGE HANDBOOK OF COMPLIANCE* 467 (Benjamin van Rooij & D. Daniel Sokol eds., 2021).

¹⁷ MICHAEL R. GOTTFREDSON & TRAVIS HIRSCHI, *A GENERAL THEORY OF CRIME* (1990); Harold G. Grasmick et al., *Testing the Core Empirical Implications of Gottfredson and Hirschi's General Theory of Crime*, 30 J. RES. CRIME & DELINQ. 5 (1993); Alexander T. Vazsonyi et al., *It's Time: A Meta-Analysis on the Self-Control-Deviance Link*, 48 J. CRIM. JUST. 48 (2017).

¹⁸ Lawrence E. Cohen & Marcus Felson, *Social Change and Crime Rate Trends: A Routine Activity Approach*, 44 AM. SOC. REV. 588 (1979).

¹⁹ Ronald V. G. Clarke, "Situational" Crime Prevention: Theory and Practice, 20 BRIT. J. CRIMINOLOGY 136 (1980); Ronald V. G. Clarke, "Situational" Crime Prevention, 1 CRIME: CRITICAL CONCEPTS SOC. 276 (2003); Nicholas Gilmour, *Preventing Money Laundering: A Test of Situational Crime Prevention Theory*, 19 J. MONEY LAUNDERING CONTROL 376 (2016).

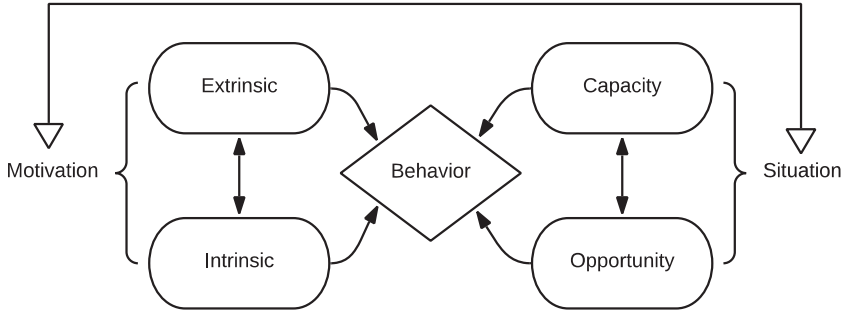


Figure 1. The Law's Behavioral Mechanisms.

interventions. This is a fundamental misreading, but a misreading that is not surprising given how much of the academic understanding and debates have developed along theories and concepts that compete instead of integrate.

The behavioral mechanisms of punishment

A key insight in the *Behavioral Code* is that a range of different motivational and behavioral mechanisms come to shape the effect law has on human and organizational conduct. The law may develop interventions to activate such behavioral mechanisms. Punishment is perhaps the best-known legal intervention to shape conduct. A simple understanding of punishment sees that it operates by activating a fear of the pain or costs the punishment inflicts to deter offenders who have been caught and punished or potential offenders. The holistic approach to law and behavior shows that punishment operates through a much broader range of behavioral mechanisms. *The Behavioral Code* discusses several of these punishment-induced mechanisms in different chapters. It shows that punishment does not operate merely through deterrence but also activates other behavioral mechanisms such as social norms, opportunities for offending, and the capacity to desist from crime.

In ongoing research conducted together with Malouke Kuiper, we have set out to systematically map the different ways in which punishment affects offending. We have tried to summarize diverse strands of empirical studies about the different direct and indirect behavioral mechanisms through which punishment affects illegal behavior. For each of these mechanisms, we have tried to review the state of the empirical literature. While this is still a work in progress that we are currently finalizing for submission, I will report briefly on our initial results.

Some of punishment's behavioral mechanisms are well known and form part of the traditional functions of punishment, recognized in many different legal

systems. These are general deterrence,²⁰ specific deterrence,²¹ incapacitation,²² and rehabilitation.²³ Our research demonstrates, however, that when offenders are punished, other mechanisms are activated as well. We see that punishment can activate four types of socialization mechanisms: setting a norm (by ending impunity),²⁴ criminogenic effects (where offenders are socialized into more offending during the punishment),²⁵ crowding out effects (where the punishment undermines law-abiding social norms),²⁶ and the activation of negative social norms (where the punishment shows that offending is normal).²⁷ Furthermore, punishment, if conducted in a manner that is perceived to be procedurally unfair, may undermine the legitimacy of the law and thereby negatively affect compliance.²⁸ A different strand of research shows that punishment may also reduce offenders' access to employment, education, and housing,²⁹ which

²⁰ Dölling et al., *supra* note 9; Daniel S. Nagin, *Deterrence: A Review of the Evidence by a Criminologist for Economists*, 5 ANN. REV. ECON. 83 (2013).

²¹ See, for instance, these reviews on the effect of custodial sanctions on recidivism: Damon M. Petrich et al., *Custodial Sanctions and Reoffending: A Meta-Analytic Review*, 50 CRIME & JUST. 353 (2021); Francis T. Cullen et al., *Prisons Do Not Reduce Recidivism: The High Cost of Ignoring Science*, 91 PRISON J. 48 (2011); Charles E. Loeffler & Daniel S. Nagin, *The Impact of Incarceration on Recidivism*, 5 ANN. REV. CRIMINOLOGY 133 (2022); Patrice Villettaz et al., *The Effects on Re-offending of Custodial vs. Non-custodial Sanctions: An Updated Systematic Review of the State of Knowledge*, 20 PSICOHEMA 29 (2008).

²² TRAVIS ET AL. *supra* note 7; Piquero & Blumstein, *supra* note 7; Thomas J. Miles & Jens Ludwig, *The Silence of the Lambdas: Detering Incapacitation Research*, 23 J. QUANTITATIVE CRIMINOLOGY 287 (2007).

²³ Mark W. Lipsey & Francis T. Cullen, *The Effectiveness of Correctional Rehabilitation: A Review of Systematic Reviews*, 3 ANN. REV. L. SOC. SCI. 297 (2007); David Weisburd et al., *What Works in Crime Prevention and Rehabilitation: An Assessment of Systematic Reviews*, 16 CRIMINOLOGY & PUBLIC POL'Y 415 (2017); David B. Wilson, *Correctional programs*, in WHAT WORKS IN CRIME PREVENTION AND REHABILITATION: LESSONS FROM SYSTEMATIC REVIEWS (David Weisburd et al. eds., 2016); LEAM A. CRAIG ET AL., WHAT WORKS IN OFFENDER REHABILITATION: AN EVIDENCE-BASED APPROACH TO ASSESSMENT AND TREATMENT (2013); James McGuire, 'What works' to Reduce Re-Offending: 18 Years On, in WHAT WORKS IN OFFENDER REHABILITATION: AN EVIDENCE-BASED APPROACH TO ASSESSMENT AND TREATMENT 1 Leam A. Craig et al. eds., 2013).

²⁴ We could not find empirical work on the effects of punishment in ending impunity and setting a norm. The idea is discussed more theoretically in different literature. One body of work is international law: Karen Engle, *Anti-impunity and the Turn to Criminal Law in Human Rights*, 100 CORNELL L. REV. 1069 (2014); Chris Jochnick, *Confronting the Impunity of Non-state Actors: New Fields for the Promotion of Human Rights*, 21 HUM. RTS. Q. 56 (1999); Christopher C. Joyner, *Redressing Impunity for Human Rights Violations: The Universal Declaration and the Search for Accountability*, 26 DENV. J. INT'L L. & POL'Y 591 (1997). Another strand of literature discussing the problem of impunity is white collar crime: Henry N. Pontell et al., *Too Big to Fail, Too Powerful to Jail? On the Absence of Criminal Prosecutions After the 2008 Financial Meltdown*, 61 CRIME, L. & SOC. CHANGE 1 (2014); RENA STEINZOR, WHY NOT JAIL? INDUSTRIAL CATASTROPHES, CORPORATE MALFEASANCE, AND GOVERNMENT INACTION (2014); BRANDON L. GARRETT, TOO BIG TO JAIL: HOW PROSECUTORS COMPROMISE WITH CORPORATIONS (2014).

²⁵ Loeffler & Nagin, *supra* note 21; Villettaz et al., *supra* note 21; Daniel S. Nagin et al., *Imprisonment and Reoffending*, 38 CRIME & JUST. 115 (2009); Patrice Villettaz et al., *The Effects of Custodial vs. Non-Custodial Sentences on Re-Offending: A Systematic Review of the State of Knowledge*, 2 CAMPBELL SYSTEMATIC REVIEWS 1 (2006); Damon M. Petrich et al., *Custodial Sanctions and Reoffending: A Meta-Analytic Review*, 50 CRIME & JUST. 353 (2021); David Roodman, *The Impacts of Incarceration on Crime*, OPEN PHILANTHR. (2017), available at <https://arxiv.org/pdf/2007.10268.pdf>.

²⁶ Christopher P. Reinders Folmer, *Crowding-out Effects of Laws, Policies and Incentives on Compliant Behavior*, in CAMBRIDGE HANDBOOK OF COMPLIANCE 326–340 (Benjamin Van Rooij & D. Daniel Sokol eds., 2021).

²⁷ Schultz et al., *supra* note 6; Nolan & Wallen, *supra* note 13; ROBERT B. CIALDINI & MELANIE R. TROST, SOCIAL INFLUENCE: SOCIAL NORMS, CONFORMITY AND COMPLIANCE (1998); Robert B. Cialdini & Noah J. Goldstein, *Social Influence: Compliance and Conformity*, 55 ANNU. REV. PSYCHOL. 591 (2004); Cialdini, *supra* note 6.

²⁸ Walters & Bolger, *supra* note 14; Tom Tyler, *Procedural Justice and Policing: A Rush to Judgment?*, 13 ANN. REV. L. & SOC. SCI. 29 (2017); Daniel Nagin & Cody W. Telep, *Procedural Justice and Legal Compliance*, in CAMBRIDGE HANDBOOK ON COMPLIANCE 385–450 (Benjamin van Rooij & Daniel Sokol eds., 2021).

²⁹ David S. Kirk & Robert J. Sampson, *Juvenile Arrest and Collateral Educational Damage in the Transition to Adulthood*, 86 SOC. EDUCATION 36 (2013); David S. Kirk, *The Collateral Consequences of Incarceration for Housing*, HANDBOOK ON THE CONSEQUENCES OF SENTENCING AND PUNISHMENT DECISIONS (2018); David S. Kirk & Sara

in turn can undermine their ability to desist from crime.³⁰ Finally, punishment may cause criminal adaptation, either by enhancing evasion,³¹ or through replacement³² or dispersion effects.³³

These bodies of research show that punishment may directly or indirectly activate at least twelve different behavioral mechanisms. Furthermore, it shows that these mechanisms may work in opposing ways; some may help to reduce offending behavior, while others may stimulate it. This means that punishment may generate opposing effects. Consider, for instance, what happened when law enforcement authorities in the Netherlands announced that they had caught and punished nearly 200,000 people using their phones illegally while driving a car or riding a bike.³⁴ On the one hand, this sends a deterrent message of the risks of breaking the rules, while on the other it also shows how widespread and thus how normal such rule-breaking is. Another example is how deterrence affects offender treatment therapies. While in theory, both deterrence and treatment should help to reduce crime, research finds that treatment programs that include deterrent elements (such as the so-called Scared Straight educational programs) do not have clear positive effects in reducing crime and may even have net negative effects in enhancing it.³⁵

Once we adopt a holistic view of the behavioral effects of punishment, we must seek to understand which potential behavioral mechanisms may be activated by the particular sanction at hand and for the type of offense and offender. We could do so by mapping out the different ways a particular punishment

Wakefield, *Collateral Consequences of Punishment: A Critical Review and Path Forward*, 1 ANN. REV. CRIMINOLOGY 171 (2018); ALEXANDER, *supra* note 8.

³⁰ Travis C. Pratt & Francis T. Cullen, *Assessing Macro-Level Predictors and Theories of Crime: A Meta-Analysis*, 32 CRIME & JUST. 373 (2005); Lance Lochner & Enrico Moretti, *The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self-Reports*, 94 AM. ECON. REV. 155 (2004); Paul-Philippe Pare & Richard Felson, *Income Inequality, Poverty and Crime Across Nations*, 65 BRIT. J. SOC. 434 (2014); Bill McCarthy & John Hagan, *Homelessness: A Criminogenic Situation?*, 31 BRIT. J. CRIMINOLOGY 393 (1991); Michael C. Lens, *The Impact of Housing Vouchers on Crime in US Cities and Suburbs*, 51 URB. STUD. 1274 (2014); Michael C. Lens, *Subsidized Housing and Crime: Theory, Mechanisms, and Evidence*, 28 J. PLANNING LITERATURE 352 (2013).

³¹ Erica L. Plambeck & Terry A. Taylor, *Supplier Evasion of a Buyer's Audit: Implications for Motivating Supplier Social and Environmental Responsibility*, 18 MANUFACTURING & SERVICE OPERATIONS MANAGEMENT 177 (2016); Daniel Dupuis et al., *Money Laundering in a CBDC World: A Game of Cats and Mice*, J. OF FINANCIAL CRIME 171 (2021); WILLIAM GORNALL, *FINANCIAL FRAUD: A GAME OF CAT AND MOUSE* (2010); Nicholas Ryder, *The Financial Services Authority and Money Laundering: A Game of Cat and Mouse*, 67 CAMBRIDGE L. J. 635 (2008); Susan K. Sell, *Cat and mouse: Forum-Shifting in the Battle Over Intellectual Property Enforcement*, IPGOVERNANCE.EU (September 3, 2009), https://ipgovernance.eu/conferences/2009APSAToronto/Sell_APSA2009_Cat_and_Mouse.pdf; Susan K. Sell, *Cat and Mouse: Industries', States' and NGOs' Forum-Shifting in the Battle Over Intellectual Property Enforcement*, SSRN (September 1, 2009), <http://dx.doi.org/10.2139/ssrn.1466156>; Elaine Jing Zhao, *Beyond the Game of Cat and Mouse: Challenges of Discoverability and Piracy in the Mobile Gaming Market*, in GLOBAL GAME INDUSTRIES AND CULTURAL POLICY 253-270 (Anthony Fung ed., 2016).

³² Miles & Ludwig, *supra* note 22; Mark A. R. Kleiman, *The Problem of Replacement and the Logic of Drug Law Enforcement*, 3 DRUG POL'Y ANALYSIS BULL. 8 (1997).

³³ Kevin F. Ryan, *Clinging to Failure: The Rise and Continued Life of US Drug Policy*, 32 LAW & SOC'Y REV. 221 (1998); James M. Moneymaker, *The Infliction of Punishment: A Deterrent or Hydra?* 7 DEVIANT BEHAVIOR 371 (1986).

³⁴ RTL Nieuws, *Fors Meer Boetes voor Telefoongebruik in Auto of Op Fiets (Stark Increase of Fines for Mobile Phone Usage While Driving a Car or Riding a Bicycle)*, RTL NIEUWS (May 1, 2023), <https://www.rtlnieuws.nl/nieuws/nederland/artikel/5381075/boetes-appen-bellen-telefoongebruik-auto-fiets-2022>.

³⁵ Lipsley & Cullen, *supra* note 23; McGuire, *supra* note 23.

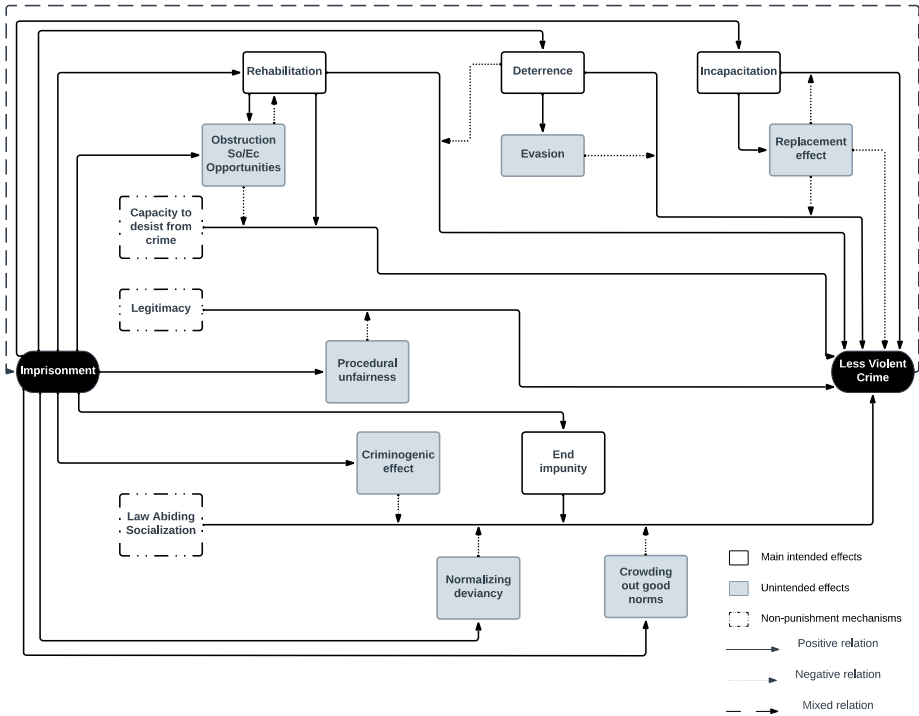


Figure 2. Schematic model of the behavioral effects of incarceration on violent offending. Copied directly from Benjamin Van Rooij & Malouke Kuiper, *The Behavioral Mechanisms of Punishment: An Integrated Understanding of How Punishment Affects Offending Behaviors* (working paper in progress) (forthcoming 2023) (on file with author).

potentially affects a particular sort of crime. See, for instance, Figure 2, which sketches the potential effects prison sentences may have on violent crime. The white boxes with solid lines show the main intended effects of such punishment: deterrence, rehabilitation, incapacitation, and ending impunity. The gray boxes show the unintended collateral effects of such punishment. The white boxes with dots and stripes show other major behavioral mechanisms shaping criminal behavior that is affected by the intended and unintended effects of punishment: capacity to desist from crime, legitimacy of the legal system, and socialization processes that enhance compliance. The solid and dotted lines show positive and negative relations where one variable enhances or reduces (the effect of) another, while the striped line shows a mixed relation.

A scheme like this offers us a model that captures the different potential positive and negative effects of punishment. This model does not directly predict the effect of a particular form of punishment on offending behavior. For this, at

present, we lack sufficient empirical data (especially in terms of causality and generalizability). Developing a model like this offers policymakers a way to consider the different potential effects of punishment. It allows them to look beyond the potential deterrent and incapacitative effects and take unintended negative effects, such as criminogenic, isolating, and delegitimizing effects, into account. It allows policymakers to look for negative consequences of punishment that undermine its positive effects and try to reduce such negative aspects.

This is one example of a holistic behavioral jurisprudence. It offers us a way to move beyond implicitly assuming that a legal intervention will have a particular effect on human conduct. Instead, it shows us that we can draw on the existing empirical literature, even with all its inherent limitations, to develop heuristic models that systematically map the different potential effects of legal interventions to strengthen the positive and reduce the negative consequences of such interventions. As a next step in our research, we are currently developing these initial ideas into a series of policy-oriented stock and flow models³⁶ that allow policymakers to test their assumptions about how punishment shapes criminal conduct, starting with simple models that include only a basic form of deterrence, then moving to more complex models that simulate more complex forms of deterrence where punishment only deters when there is sufficient certainty³⁷ and take into account the unintended effects of punishment, such as the criminogenic effects of incarceration³⁸ and the obstruction of offenders' crime desisting capacities.³⁹ Such stock and flow models allow policymakers to compare simulations of how changes in punishment regimes affect crime rates between simple deterrence models and models that also capture more of the empirical complexity of deterrence itself and other countervailing variables. We hope these models can help them better incorporate the broader range of punishment's behavioral mechanisms into their policy decisions and communicate these into the political discourse.

Networked compliance

A second aspect of holistic behavioral jurisprudence starts from the perspective of the behavior itself. Rather than focusing on the potential effects of legal intervention, as we have just analyzed, this analysis tries to develop a comprehensive view of the driving forces of the behavior the law seeks to address. Such a comprehensive analysis of the driving behavioral mechanisms allows for the

³⁶ JOHN STERMAN, *BUSINESS DYNAMICS, SYSTEMS THINKING AND MODELING FOR A COMPLEX WORLD* (2010).

³⁷ Don W. Brown, *Arrest Rates and Crime Rates: When Does a Tipping Effect Occur?* 57 *SOC. FORCES* 671 (1978); Mitchell B. Chamlin, *A Longitudinal Analysis of the Arrest-Crime Relationship: A Further Examination of the Tipping Effect*, 8 *JUST. Q.* 187 (1991).

³⁸ Loeffler & Nagin, *supra* note 21; Villettaz et al., *supra* note 21; Nagin et al., *supra* note 25; Villettaz et al., *supra* note 25; Petrich et al., *supra* note 25; Roodman, *supra* note 25.

³⁹ Kirk & Sampson, *supra* note 29; Kirk, *supra* note 29; Kirk & Wakefield, *supra* note 29; ALEXANDER, *supra* note 8.

development of a legal response to drive such behavior that is best aligned with the true root causes of such conduct instead of the assumed causes that best fit the most popular interventions.

The COVID-19 pandemic has shown the importance of applying holistic behavioral jurisprudence. At the start of the pandemic, in the spring of 2020, many jurisdictions rapidly developed rules to mitigate the spread of the disease. Core rules during this period included stay-at-home orders (as part of lockdowns) and social distancing mandates. These rules sought to bring about a fundamental behavioral change by asking citizens to refrain from normal social interactions outside of their households. Compliance was a core challenge, as these rules could only mitigate the pandemic if citizens adhered to them.

Soon, researchers across the globe sought to understand what drove compliance with the initial COVID-19 lockdown and social distancing rules. Emmeke Kooistra and I conducted a review of social distancing compliance studies in the immediate aftermath of the first COVID-19 legal responses.⁴⁰ We found that most researchers operationalized this research through a particular disciplinary perspective with a focus on a small subset of potentially influencing variables. Most of the forty-five articles we reviewed focused on particular types of variables, such as the perceived threat of the virus, psychosocial factors (such as negative emotions, self-efficacy, or impulsivity), or institutional variables (like attitudes toward the measures or conspiracy theories). Only three studies, other than those conducted by our collaborators, included a comprehensive set of variables akin to the broad behavioral mechanisms sketched in the introduction. None of these three studies included measures for key potential variables such as the deterrent effect of sanctions or the perceived procedural fairness of the rules and their enforcement. Most researchers had thus focused on analyzing the functioning of a particular set of variables that were within their theoretical or disciplinary field rather than trying to assess how a broader set of potentially influential variables might be at play.

Our research team tried to develop a comprehensive understanding of COVID-19 lockdown and social distancing compliance. We drew from different strands of literature to operationalize different relevant aspects of extrinsic and intrinsic motivations, as well as situational factors such as the capacity to follow the rules and the opportunity to break the rules. In total, our surveys, which we conducted in the United States,⁴¹ the UK,⁴² Israel,⁴³ the

⁴⁰ Emmeke B. Kooistra & Benjamin Van Rooij, *Pandemic Compliance: A Systematic Review about Influences on Social Distancing Behaviour During the First Wave of the COVID-19 Outbreak* (Amsterdam L. Sch., Working Paper No. 2022-29, 2020), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3738047.

⁴¹ Benjamin Van Rooij et al., *Compliance with COVID-19 Mitigation Measures in the United States* (PsyArXiv Working Paper, 2020), <https://psyarxiv.com/qymu3>.

⁴² Emmeke Kooistra et al., *Mitigating COVID-19 in a Nationally Representative UK Sample: Personal Abilities and Obligation to Obey the Law Shape Compliance with Mitigation Measures* (PsyArXiv Working Paper, 2020), <https://psyarxiv.com/zuc23/>.

⁴³ Anne Leonore de Bruijn et al., *Cross-Theoretical Compliance: An Integrative Compliance Analysis of COVID-19 Mitigation Responses in Israel*, ADMIN. & SOC'Y 635 (2022).

Netherlands,⁴⁴ and China,⁴⁵ included between fifteen and seventeen variables from different theoretical and disciplinary domains. In contrast, all other research about COVID-19 compliance we reviewed had at most eight variables, many with just one, two, or three variables, typically focusing on a limited subset of mechanisms.⁴⁶ Although the study had limitations (much in line with most other similar studies) with its self-reported measure of compliance and its lack of a true experimental design, it did offer us information about what variables were associated with self-reported compliance. Through a multivariate regression analysis, we could see which variables were associated with compliance while controlling for other variables. As reported in the conclusion of *The Behavioral Code*, we found that in all contexts, a combination of variables was associated with pandemic rule compliance. We saw that intrinsic motivations were at play: for instance, in the Netherlands, fear of the disease; in the United States, moral support for the measures; and in Israel, a perceived duty to obey the rules. We also saw that situational variables mattered. People were more likely to report compliance if they had fewer opportunities to break the rules (for instance, by still being able to go to work) and if they had a larger capacity for compliance (for instance, by being able to work from home or refrain from being in crowds). Across our studies, these types of analyses showed again and again that the latter, the capacity to follow the rules, had the strongest association with self-reported compliance with the largest effect size. This was extra noteworthy since most other studies did not include these.

All of this shows a first insight into a holistic approach to compliance. A narrow analysis of the effect of law and behavior, with a focus on just a few variables from a particular field of theory, may give a false picture of what truly drives the effect of law. By including a broad range of variables, we may get a more comprehensive picture and, as in the case of early COVID-19 compliance, find that an easily overlooked variable with little to no theoretical value, the capacity to comply, may be the most important.

While our approach to studying COVID-19 compliance sought to be comprehensive and holistic, its analysis did not offer us a realistic picture of the complexity of how the different variables we studied came to be associated with self-reported compliance. Multivariate regression analyses are attractive because they allow us to understand the relative association between different independent variables and a dependent variable while controlling for these independent variables. However, such analysis does not offer insight into how all the variables interact. As such, while it may show that one independent variable, like capacity in this case, has the strongest association with the dependent variable, it does

⁴⁴ Malouke Esra Kuiper et al., *A Network Approach to Compliance: A Complexity Science Understanding of How Rules Shape Behavior*, 184 J. BUS. ETHICS 479 (2023).

⁴⁵ Ning Liu et al., *Situational Voluntary Compliance: Adherence to COVID-19 Social Distancing Guidelines in the 2020 Local Outbreak in Beijing*, 23 CHINA REV. 31-69 (2023).

⁴⁶ Emmeke Kooistra & Benjamin Van Rooij, *supra* note 40.

between the nodes, the edges, denote a positive (solid line) or negative (dotted line) relationship between the variables. Compliance here is located as one of the nodes in the lower middle of the network. As can be seen, it is directly related to seven different variables. Two have a negative influence: opportunity to violate and impulsivity. Six have a positive influence, such as the capacity to comply, knowledge of the measures, perceived threat of the measures, moral support for the measures, and gender (females were more compliant). The network analysis shows, however, that such associations do not exist in a vacuum. On the one hand, compliance itself interacts with all these several variables and thus shapes the variables that shape itself. Moreover, each of the seven directly associated variables is itself associated with another set of variables, which are again associated with other variables.

While the resultant picture may not be easy to read for the untrained eye, it has large implications. A truly holistic behavioral jurisprudence tries to develop a comprehensive picture of what shapes compliance. Here it does not merely seek to include a broad selection of potential variables but also to understand how these variables interact with each other and with compliance itself. The network analysis we carried out showed that there is a complex network of variables that directly and indirectly shape compliance. If we went by just the multivariate analysis, we would come to assume that the most important intervention to improve compliance should enhance the capacity to follow the COVID-19 measures, as this variable had by far the largest effect size when controlling for others. The network analysis, however, shows that many variables exist in interaction with each other. An intervention on one variable, such as capacity, may therefore have unforeseen ripple effects. Moreover, the interactions between the nodes in the network may make the network as a whole resistant to change through just one of these nodes, rendering such intervention ineffective.⁴⁹

Our present analysis does not yet allow us to understand the effects of interventions within this network. However, we see an agenda for future research that analyses the longitudinal changes within these networks and studies that seek to simulate the effects interventions on one variable may have within the network.⁵⁰

Toward Evidence-Based Policy

A holistic behavioral jurisprudence shows how law comes to shape behavior. It clarifies how different behavioral mechanisms are at play in legal interventions, and it helps to analyze the root causes behind wrongful conduct to best develop

⁴⁹ *id.*

⁵⁰ Teague R. Henry et al., *On the Control of Psychological Networks*, 87 *PSYCHOMETRIKA* 188 (2022); Gabriela Lunansky et al., *Intervening on Psychopathology Networks: Evaluating Intervention Targets Through Simulations*, 204 *METHODS* 29 (2022); Donald J. Robinaugh et al., *Identifying Highly Influential Nodes in the Complicated Grief Network*, 125 *J. ABNORMAL PSYCHOLOGY* 747 (2016).

the most effective interventions to address these. To truly develop such a behavioral jurisprudence requires a successful transmission from empirical science into the realm of policy practice. Together with a team of collaborators, I have sought to understand how such science can best be transmitted. This is very much a work in progress, but the preliminary results do offer such hopeful guidance.

In two projects, Malouke Kuiper⁵¹ and Shuyu Huang⁵² interviewed key practitioners in the Netherlands (prosecutors and compliance officers) and China (prosecutors, police, and compliance officers⁵³) who play a key role in implementing legal rules to reduce wrongful conduct. Their in-depth semi-structured interviews sought to understand how these practitioners themselves thought that the law could come to curb wrongful conduct. Most of these practitioners have no formal training in the social and behavioral sciences. The studies sought to understand to what extent the practitioners' ideas are aligned with those in the science. At the moment of writing, the investigators have finished analyzing the data from the prosecutors (Netherlands and China) and police (China). It is striking that in both contexts, these key criminal justice operatives collectively draw a quite holistic picture of how law can address criminal behavior. While most mention punishment as a key mechanism, many also mention other approaches that mirror those we find in the literature, including treatment and ensuring socio-economic opportunities. Moreover, respondents' answers, when viewed together, also show a nuanced understanding that punishment has different behavioral effects, and not just deterrence, and that such effects can be both positive and negative. Finally, the criminal justice actors interviewed in both countries viewed that deterrence, which many saw as a key behavioral mechanism of punishment, was conditional upon aspects such as the certainty of getting caught, the proper communication of the sanction, and the type of offender.

While the holistic approach to law and behavior requires a complex and nuanced understanding that integrates across diverse disciplinary divides, such understanding is not unlike the perspectives that already exist amongst key operators in the two highly diverse criminal justice systems these two projects studied. This offers hope that behavioral jurisprudence can find a fertile reception in practice despite its inherent complexity.

To further understand how empirical science about law and behavior can best be transmitted toward policy, we have also started a series of experiments⁵⁴ led

⁵¹ Malouke Kuiper, *The Psychology of Law and Social Science: The (Mis)Alignment between the Behavioral Function of Law and Social Scientific Research*. (Ph.D. dissertation in progress, University of Amsterdam) (forthcoming 2024) (on file with author).

⁵² Shuyu Huang, *A Holistic Approach to Crime Prevention: Insider Insights from the Chinese Criminal Justice System* (Ph.D. dissertation in progress) (forthcoming 2024) (on file with author).

⁵³ Shuyu Huang's thesis does not analyze the data from the interviews with the compliance officers in China.

⁵⁴ A first paper is currently under review, a second paper is ready in draft form, and a third study has been conducted and analyzed. We report the initial results of these three studies here. More information can be obtained by contacting the author of the present essay.

by Malouke Kuiper⁵⁵ and Brendan Rose.⁵⁶ These studies seek to understand how providing study participants with scientific evidence about the effects of punishment on crime would shape their criminal justice policy decisions. We asked study participants to imagine that they were policy decision-makers working in a jurisdiction with an uptick in a particular kind of crime. We informed them that there were no resources to invest in extra policing and thus enhance the certainty of punishment. We then asked them whether they would decide to increase the overall severity of the sanctions for the crimes in their jurisdiction in order to effectively reduce the crimes. The study was designed in such a way that it would not involve explicit political context and would really focus on how individuals from the general population would come to make policy decisions.

To test the effect of science, we had one randomly assigned group of participants read a summary about the deterrent effect of punishment. In the initial study, we gave them a summary based on the broad understanding in the criminological literature that there is no conclusive evidence that stricter punishment on its own deters crime; that for effective deterrence, the certainty of punishment is more important than its severity; and below a certain threshold level of certainty, punishment will not deter.⁵⁷ We then compared whether participants who read the science came to different policy decisions from those who had not. The first study found a clear effect of science in that participants who read the science were less likely to decide to raise the severity of punishment than those who did not. Simply providing participants with scientific information about the deterrent effect of punishment made these participants come to decisions that became more aligned with such science.

We sought to further understand whether science could also affect these hypothetical policy decisions under more complex conditions. In the first study, we sought to understand whether a more salient discussion of the effects of the crime on victims (without changing the facts of the crimes themselves) would affect the effects of science in shaping policy decisions. In the second study, we sought to understand whether science would still shape policy decisions when we made the crimes more serious (all the way to murder). In the third study, we sought to understand what would happen if we compared the effects of coherent science (as we had originally used) with a summary of science that is more complex and multifaceted (adding a key insight derived from a large meta-analysis)⁵⁸

⁵⁵ Malouke Kuiper et al., *How Criminology Affects Punishment: Analyzing Conditions Under Which Scientific Information Affects Sanction Policy Decisions* (working paper in progress) (forthcoming 2023) (on file with authors).

⁵⁶ Brendan Rose et al., *Exploring the Role of Evidence, Crime Type and Cognition in Criminal Justice Policy Decision-Making* (working paper in progress) (forthcoming 2023) (on file with authors).

⁵⁷ Based on Eric Helland & Alexander Tabarrok, *Does Three Strikes Deter? A Nonparametric Estimation*, 42 J. HUM. RESOURCES 309 (2007); Brown, *supra* note 37; Franklin E. Zimring & Sam Kamin, *Facts, Fallacies, and California's Three Strikes*, 40 DUQ. L. REV. 605 (2001); Daniel S. Nagin, *Deterrence: A Review of the Evidence by a Criminologist for Economists*, 5 ANNU. REV. ECON. 83 (2013); Nagin, *supra* note 9; Chamlin, *supra* note 37; Joanna M. Shepherd, *Fear of the First Strike: The Full Deterrent Effect of California's Two-and Three-Strikes Legislation*, 31 THE J. OF LEGAL STUDIES 159 (2002); Mike Males & Dan Macallair, *Striking out: The Failure of California's Three Strikes and You're Out Law*, 11 STAN. L. & POL'Y REV. 65 (1999).

⁵⁸ Dölling et al., *supra* note 9.

that there is significant evidence that punishment can have a deterrent effect on non-violent crime) on hypothetical policy decision-making. All three studies yielded the same result. Participants were less likely to raise punishment when they had read the science, regardless of victim saliency, the seriousness of the crime, or the coherence of the science.

While these experiments are works in progress and they can only inform us about hypothetical policy decisions made by general population participants, they show promise that the science of law and behavior can be successfully transmitted toward policy. While the participant sample, taken from the general population, does not reflect actual policymakers, it does inform us that ordinary citizens can come to read science and reflect it in their decisions about punishment. Our study analyses even showed that, in this case, it did not matter whether these were conservatives or liberals. We are currently developing this into a further set of studies that look at whether science can also affect how the general public supports criminal justice policies.

The studies discussed here show promise that the nuanced science of a holistic behavioral jurisprudence can be transmitted successfully toward policy and public support. Even though it may seem that the public demands simple tough-on-crime approaches that divert strongly from a holistic, evidence-based approach, our research, partly in line with prior studies on penal populism,⁵⁹ shows that there may be space for policies rooted in comprehensive empirical knowledge.

Conclusion

Law has great potential to improve human and organizational conduct. For this to happen, legal rules must somehow come to affect behavior. Improving the law's behavioral function requires a fundamental rethinking of how the law addresses behavioral problems. The predominant approach to law and behavior is rooted in a set of legal interventions that have developed in legal history. These include classic forms of criminal punishment such as fines and prison sentences. Moreover, they include civil actions such as tort liability and remedies for breach of contract, and for corporations, they include compliance management systems, ethics training, and whistle-blower protection systems. It is assumed that these legal interventions will help to improve behavior.

The present essay has shown that a holistic behavioral jurisprudence provides two new perspectives on the law's traditional reliance on these types of interventions. First, it shows that we should not assume that a particular legal intervention (such as punishment) will operate through a narrow set of behavioral

⁵⁹ Justin T. Pickett, *Public Opinion and Criminal Justice Policy: Theory and Research*, 2 ANN. REV. CRIMINOLOGY 405 (2019); Angela J. Thielo et al., *Rehabilitation in a Red State: Public Support for Correctional Reform in Texas*, 15 CRIMINOLOGY & PUBLIC POL'Y 137 (2016); Angela J. Thielo et al., *Prisons or Problem-Solving: Does the Public Support Specialty Courts?*, 14 VICTIMS & OFFENDERS 267 (2019); Brian K. Payne et al., *What Drives Punitive Beliefs?: Demographic Characteristics and Justifications for Sentencing*, 32 J. CRIM. JUST. 195 (2004).

mechanisms (like deterrence and incapacitation) or have a mono-directional effect. A true behavioral view of the law will seek to operationalize what different behavioral mechanisms could be at play through the intervention and how best to enhance the positive over the negative effects.

Second, a holistic behavioral jurisprudence urges a rethinking of how the law should address behavioral problems. It asks for a change of perspective. Instead of starting from the existing legal interventions, it suggests analyzing the root causes of the behavioral problem at hand and developing a proper understanding of what these causes are and how they are interrelated. Such analysis may then serve to develop the most effective set of legal interventions.

Empirical science is a core tenet of a holistic behavioral jurisprudence. To truly support law in its behavioral function requires that such science is integrated beyond its disciplinary, theoretical, and methodological boundaries and competition. Insights from complexity science, including, for instance, the use of network analysis and stock and flow models, form key analytical tools here that help integrate theories and offer accessible guidance toward practice. Through this, the field will move away from relying on quick fixes based on a small set of studies using simple one-variable-oriented interventions that fail to generalize to the complex challenges of behavioral problems in the real world.

In the end, a holistic behavioral jurisprudence can only succeed if it has support in practice and in the broader popular political realm. Laws are not made or operated in a vacuum, and the interaction between practitioners, politicians, and the general public determines what rules are adopted and how they are implemented. Our studies show that both practitioners and citizens at large are receptive to an empirical scientific approach to law and behavior, even a holistic one with more nuance and complexity.