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## STANDARDS FOR USING SOCIAL PSYCHOLOGICAL EVIDENCE IN EMPLOYMENT DISCRIMINATION CASES

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Psychological science has arrived in courtrooms across the country, analyzing behavioral phenomena from eyewitness testimony, to the invalidity of polygraphs, to pretrial publicity.<sup>1</sup> Attention to the psychology of witnesses, defendants, jurors, and even judges fits well with legal scholarship's growing emphasis on behavioral realism.<sup>2</sup>

The authors come to this enterprise as psychological scientists with experience in courtroom testimony and related scholarship. The first author testified in *Hopkins v. Price Waterhouse*,<sup>3</sup> the first case to use social science research on prejudice, stereotyping, and discrimination in a Title VII sex discrimination suit. The *Hopkins* testimony described some relevant, established social science that was potentially useful for the factfinder to understand the thinking of the defendants in the case. The testimony was unchallenged at the time and later cited by the Supreme Court on appeal.<sup>4</sup> A few subsequent roles as expert in gender discrimination cases followed.<sup>5</sup> The second author testified in *Jenson v. Eveleth Taconite Co.*<sup>6</sup> and has consulted on

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1. See generally BEYOND COMMON SENSE: PSYCHOLOGICAL SCIENCE IN THE COURTROOM (Eugene Borgida & Susan T. Fiske eds., 2008) [hereinafter BEYOND COMMON SENSE].

2. Behavioral realism is a term coined by Jerry Kang and colleagues. Jerry Kang, *The Trojan Horses of Race*, 118 HARV. L. REV. 1489, 1494 n.21 (2005) (discussing "ongoing collaboration of legal academics and social cognitionists that seeks to apply the best model of human behavior that science has made available to questions of law and policy"). For additional scholarship on the issue, see CRITICAL RACE REALISM: INTERSECTIONS OF PSYCHOLOGY, RACE, AND LAW (Gregory S. Parks, Shayne Jones & W. Jonathan Cardi eds., 2008); Gary Blasi & John T. Jost, *System Justification Theory and Research: Implications for Law, Legal Advocacy, and Social Justice*, 94 CALIF. L. REV. 1119 (2006); Anthony G. Greenwald & Linda Hamilton Krieger, *Implicit Bias: Scientific Foundations*, 94 CALIF. L. REV. 945 (2006); Jerry Kang, *Implicit Bias and the Pushback From the Left*, 54 ST. LOUIS U. L.J. 1139 (2010); Jerry Kang & Mahzarin R. Banaji, *Fair Measures: A Behavioral Realist Revision of "Affirmative Action,"* 94 CALIF. L. REV. 1063 (2006); Linda Hamilton Krieger & Susan T. Fiske, *Behavioral Realism in Employment Discrimination Law: Implicit Bias and Disparate Treatment*, 94 CALIF. L. REV. 997 (2006).

3. 618 F. Supp. 1109 (D.D.C. 1985).

4. See *Hopkins*, 618 F. Supp. at 1117-18; *Price Waterhouse v. Hopkins*, 490 U.S. 228, 235-36 (1989).

5. E.g., *Robinson v. Jacksonville Shipyards, Inc.*, 760 F. Supp. 1486, 1502-05 (M.D. Fla. 1991). Additionally, Dr. Fiske has been involved in other cases that settled before trial.

6. 824 F. Supp. 847, 864 n.34 (D. Minn. 1993). *Jenson* was later documented in a book, CLARA BINGHAM & LAURA LEEDY GANSLER, *CLASS ACTION: THE LOIS JENSEN AND THE LANDMARK CASE THAT*

both class action and single-plaintiff sex, motherhood, and pregnancy discrimination cases.

Both authors have contributed empirically and conceptually to the relevant scientific evidence base. From organizational, social, cognitive, and neuroscience perspectives, this Essay briefly discusses legitimacy criteria, quality control, and various controversies as they pertain to the application of psychological science in the employment discrimination context.

### I. LEGITIMACY CRITERIA IN THE LAW AND IN SCIENCE

Law and science operate within distinct evidentiary cultures, even when considering the same psychological phenomena.<sup>7</sup> Factfinders operate from commonsense psychological theories, analyzing the reactions of actors in a case, as any reasonable person would. These commonsense frameworks convert into legal theories that provide narratives to explain the events in a case.<sup>8</sup> And these lay theories then become legal paradigms. Over time and cases, settled precedent creates legitimacy. The problem, from a psychological science perspective, is that the underlying commonsense psychology is neither as common nor as sensible as it might seem, regardless of the factfinders' authority and expertise in other domains.

Theories in empirical psychology, by contrast, are subject to a different set of legitimacy criteria,<sup>9</sup> described in more detail herein. First, a scientific theory must meet conceptual standards (not wholly unfamiliar to legal thinkers): it must be causal, coherent, parsimonious, and falsifiable. That is, it must hypothesize variables that include a direction of causality, for example, from a situational feature (e.g., time pressure) to a measurable response (e.g., categorical thinking). The theory must be coherent, in that all its propositions must connect and fit logically together. Parsimony entails using as few variables as possible to account for a phenomenon. And falsifiability requires that empirical evidence could either strengthen the theory or undermine it, depending on the research outcome. A theory that can account for any result and its opposite is problematic.

Over time, psychological theories must explain accumulated scientific evidence, as a whole. The components of the relevant literature, individual studies, have to pass peer review to be published.<sup>10</sup> They must thus have internal validity, being precise in their measurement, accurate and unbiased in their operationalization, and publicly reproducible in their methods (e.g., a single person's introspection, being imprecise, biased, and private, would be disqualified on all counts). Rare exceptions in the

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CHANGED SEXUAL HARASSMENT LAW (2002), and a film, NORTH COUNTRY (Warner Bros. 2005). Other testimony involved cases that settled.

7. Krieger & Fiske, *supra* note 2, at 997–99.

8. See generally ANTHONY G. AMSTERDAM & JEROME BRUNER, MINDING THE LAW: HOW COURTS RELY ON STORYTELLING, AND HOW THEIR STORIES CHANGE THE WAYS WE UNDERSTAND THE LAW—AND OURSELVES (2000).

9. See, e.g., SUSAN T. FISKE, SOCIAL BEINGS: CORE MOTIVES IN SOCIAL PSYCHOLOGY 40–42 (2d ed. 2010).

10. For a discussion of peer review in this context, see Susan T Fiske & Eugene Borgida, *Best practices: How to Evaluate Psychological Science for Use by Organizations*, RES. IN ORGANIZATIONAL BEHAVIOR (forthcoming 2011).

empirical literature do not discredit overall patterns. Both narrative and quantitative summaries must also pass peer review.

The major discrepancy between legitimacy criteria in law and psychology is that in science, theories are made to fall away as more sophisticated theories replace them. As knowledge accumulates, new theories emerge to replace the older theories that accounted for the earlier knowledge base. Fundamental change in theoretical frameworks requires an accumulation of evidence; rarely does one pivotal experiment change the field, but in any thriving area of science, paradigms shift. In science, progress (change) creates legitimacy, whereas in law, precedent (stability) creates legitimacy.

Which has priority? For example, on one hand, most people's hunch is that laboratory studies are artificial, so doubtless their findings are unrealistically inflated, compared to the same phenomena in the real world outside the rarefied laboratory. Psychological science argues otherwise: lab-to-field generalizability, or "external validity," is an empirical question which emerges from the cumulative record.

In applicable research, such as studies that examine the dynamics of prejudice and stereotyping and their respective links to discriminatory actions, an impressive triangulation of lab and field evidence indicates a counterintuitive result: field studies often have larger effects than laboratory studies.<sup>11</sup> Possibly this occurs because the laboratory isolates a single key effect from correlated, confounding variables, whereas the real world typically entails several co-acting variables that may together overdetermine a given effect. The implication is that neither claim should have priority, neither that laboratory studies are artificially inflated nor that field studies are inflated by virtue of contamination from several confounding factors. In the end, the quality of evidence for generalizing from the lab to the field determines the relative validity.

## II. QUALITY CONTROL: WHEN IS SOCIAL SCIENCE EVIDENCE USEFUL?

The law specifies the criteria that justify unsettling lay legal theory. The Federal Rules of Evidence specify that expert validity requires sufficient facts or data, reliable principles and methods, and reliable applicability to the facts of the case.<sup>12</sup> As interpreted by the Supreme Court in *Daubert v. Merrell Dow Pharmaceuticals, Inc.*,<sup>13</sup> this requires that expert evidence be empirically tested, peer-reviewed and published, represent scientific consensus, and have a known error rate.<sup>14</sup> Our focus here is on

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11. See Thomas M. Ostrom & Constantine Sedikides, *Out-Group Homogeneity Effects in Natural and Minimal Groups*, 112 PSYCHOL. BULL. 536, 550 (1992) (finding that outgroups are viewed as more homogenous ("they all look alike") than ingroups ("we are so varied"), with effect more pronounced in field than laboratory studies). See generally Brian Mullen et al., *Ingroup Bias as a Function of Salience, Relevance, and Status: An Integration*, 22 EUR. J. SOC. PSYCHOL. 103 (1992); Brian Mullen & Carolyn Copper, *The Relation Between Group Cohesiveness and Performance: An Integration*, 115 PSYCHOL. BULL. 210, 210 (1994); Brian Mullen & Li-tze Hu, *Perceptions of Ingroup and Outgroup Variability: A Meta-Analytic Integration*, 10 BASIC & APPLIED SOC. PSYCHOL. 233 (1989).

12. FED. R. EVID. 702.

13. 509 U.S. 579 (1993).

14. *Daubert*, 509 U.S. at 592-94. Subsequent cases have expanded on the *Daubert* standard. See *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 141 (1999) (holding that *Daubert* analysis governs admissibility of all expert testimony and that *Daubert* factors are flexible and "neither necessarily nor exclusively appli[cable]

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determining what is quality, peer-reviewed science and how to establish if a consensus exists.

A. *An Example of Quality, Peer-Reviewed Science*

The availability of peer-reviewed science is crucial to establishing quality control. Consider, for example, the following three established principles of social cognition—how people make sense of other people, including job candidates and employees. These principles, which have been applied via expert testimony in employment discrimination cases, move beyond commonsense understandings.<sup>15</sup> Hence, in discrimination cases, some typically unexamined thought processes may need consideration.

First, people react to other people along a continuum of processes from “automatic” to “controlled.” This means that some evaluations of other people result from processes that are not fully conscious, so people may be unaware of their own biases. Individual decisionmakers, including managers, can monitor patterns of decisionmaking with the goal of detecting unconscious bias, but the individual decisionmaker’s report is far from being the best evidence for the purity or the impermissible contamination of the process used to reach the decision.

Second, decisionmakers in organizations often multitask, work under time pressure, and cope with information overload. According to social cognition research, people manage these operational complexities by selectively channeling their thoughts along established grooves that often include stereotypes and categorical responses that neglect and underutilize individuating information specific to the person being evaluated. Motivation, information, and the opportunity to consider are required to move people out of their most convenient, ready-made schemas (stereotypes) for judging others.

Finally, people respond to the social environment as they *construe* it, not as it objectively exists. People’s naïve theory of their own perceptual processes is that they are more akin to a video camera than an impressionist painter, but the latter is a more apt analogy. Interpretation enters the earliest moments of perception, as indicated by increasingly fine-tuned scientific measurements of response time, subliminal presentation, and neural activations. Again, the implication is that individual perceivers are typically unaware of the role of their own construals. All these illustrative principles of social cognition represent current scientific consensus.

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to all experts or in every case”); *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 139 (1997) (holding that trial court’s decision to admit or exclude expert testimony should be reviewed under abuse of discretion standard).

15. Susan T. Fiske & Eugene Borgida, *Providing Expert Knowledge in an Adversarial Context: Social Cognitive Science in Employment Discrimination Cases*, 4 ANN. REV. L. & SOC. SCI. 123, 125 (2008). For a related treatment that focuses on implicit social cognition, see Kristin A. Lane et al., *Implicit Social Cognition and Law*, 3 ANN. REV. L. & SOC. SCI. 427 (2007). For a longer review of the principles of social cognition, outside the legal domain, see SUSAN T. FISKE & SHELLEY E. TAYLOR, *SOCIAL COGNITION: FROM BRAINS TO CULTURE* (2008).

### B. Establishing Consensus

Psychological scientists measure consensus for their own purposes. Consensus is assessed in summaries of the current state of the literature, and also for supporting expert testimony. Several known methods can help measure the scientific consensus required by *Daubert* and its progeny.

For starters, one can survey a collection of experts. One survey of experts, for example, assessed the general acceptance of psychological research on eyewitness testimony.<sup>16</sup> Of the surveyed experts (people publishing in the relevant literature), at least eighty percent agreed that eyewitness testimony can be biased by “the wording of questions, lineup instructions, misleading post-event information, the accuracy-confidence correlation, attitudes and expectations, exposure time, unconscious transference, show-ups, and the forgetting curve.”<sup>17</sup> More than 70% also agreed about principles of lineup fairness, white witnesses’ cross-race identification bias, and witnesses’ tendency to overestimate event duration.<sup>18</sup> Although we are not aware of a similar survey on issues of employment decisionmaking, in principle such a survey would be feasible. In practice, however, expert surveys are rare.

A more common means of assessing scientific consensus is through a quantitative literature review, or meta-analysis. In a meta-analysis, the reviewer identifies a research question addressed independently in peer-reviewed publications by multiple investigators<sup>19</sup>—for example, prejudice against female leaders.<sup>20</sup> Then the reviewer isolates from each study some measures of the size (and direction) of the effect (e.g., negative or positive attitudes on standardized measurement units). Combining these independent effect sizes, if numerous enough to be reliable, provides an estimate of the actual effect across the research enterprise, as well as indicators of the robustness of the reported effects. Meta-analytic investigations must specify their samples, methods, and calculations in order to pass peer-review. The methods of meta-analysis have increased in sophistication, with increasingly frequent use in psychological and other sciences.

More qualitative reviews of research literature still serve an important function as well, especially to evaluate research from a more narrative perspective. Indeed, the *Annual Review of Psychology* consistently ranks as the most-cited journal in psychological science, generating spin-offs in clinical psychology, industrial-organizational psychology, as well as law and social science.<sup>21</sup> Annual Reviews, like the *Psychological Bulletin* published by the American Psychological Association, and other literature-review journals, are vetted by rigorous peer review. Such journals

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16. Saul M. Kassin et al., *The “General Acceptance” of Psychological Research on Eyewitness Testimony: A Survey of the Experts*, 44 AM. PSYCHOLOGIST 1089 (1989).

17. *Id.* at 1089.

18. *Id.*

19. Sometimes unpublished studies are included to counteract the “file-drawer” problem, but if so, the publication status of a study becomes a variable assessed in the meta-analysis.

20. For a collection and discussion of gender-prejudice research, see Alice H. Eagly & Anne M. Koenig, *Gender Prejudice: On the Risks of Occupying Incongruent Roles*, in BEYOND COMMON SENSE, *supra* note 1, at 63–82.

21. See generally ANNUAL REVIEWS: A NONPROFIT SCIENTIFIC PUBLISHER, <http://www.annualreviews.org> (last visited Oct. 27, 2011).

normally have a high (about eighty percent) rejection rate;<sup>22</sup> peer-review thus serves as a discerning scientific gatekeeper and is hardly *pro-forma*.

Yet another strategy for establishing consensus is adversarial collaboration. Adversarial collaboration brings together two researchers on opposing sides of a specific matter of scientific disagreement.<sup>23</sup> If each party can agree about the methods necessary to operationalize the competing perspectives on the phenomenon, then both parties supervise the proposed research and its analysis. A co-published report allows each to vet the other's conclusions. Inspired by these examples, the first author participated in an adversarial collaboration specifying the conditions for activating a portion of the brain's medial prefrontal cortex, whether specifically due to social cognition (people are intrinsically rewarding) or due to any kind of reward. The results appeared to fit both perspectives, especially when rewards were social in nature.<sup>24</sup>

Finally, professional societies commission consensus documents that explicitly bring together experts who represent distinct viewpoints, requiring them to craft a consensus position on the field analyzed. These scientific "white papers" come from venues as varied as *Law and Human Behavior*,<sup>25</sup> *Psychological Science in the Public Interest*, the journals of the Society for Psychological Study of Social Issues (e.g., *Social Issues and Policy Review*), and the reports of the prestigious National Research Council (an arm of the National Academy of Sciences, whose stated goal is to advise the government on matters of scientific consensus).

### C. Summary of Quality Control

So far, we have argued that social and behavioral science goes beyond common sense, as evident by the insights of the "behavioral realism" approach in law. Quality, peer-reviewed science can be useful at trial if it draws on established consensus, as indicated by various strategies. But how should this established, high-quality, peer-reviewed science be used in discrimination cases?

## III. SOCIAL FRAMEWORK ANALYSIS

Using what has come to be called "social framework analysis," expert testimony in employment discrimination litigation can explain relevant, general, social and behavioral science research, and then—depending on some but not all interpretations—

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22. See *Summary Report of Journal Operations, 2009*, 65 AM. PSYCHOLOGIST 524, 524 (2010) (reporting a rejection rate of seventy-seven percent for manuscripts submitted to *Psychological Bulletin*).

23. Daniel Kahneman, *Daniel Kahneman*, in 9 A HISTORY OF PSYCHOLOGY IN AUTOBIOGRAPHY 155, 167–70 (Gardner Lindzey & William M. Runyan eds., 2007) (discussing how adversarial collaboration produced for he and his partner "a joint mind that was better than our separate minds"); Barbara Mellers et al., *Do Frequency Representations Eliminate Conjunction Effects? An Exercise in Adversarial Collaboration*, 12 PSYCHOL. SCI. 269, 270 tbl.1 (2001) (providing suggestions for adversarial collaboration).

24. Wouter van den Bos et al., *Dissociating Affective Evaluation and Social Cognitive Processes in the Ventral Medial Prefrontal Cortex*, 7 COGNITIVE, AFFECTIVE & BEHAV. NEUROSCIENCE 337, 337 (2007); Lasana T. Harris et al., *Regions of the MPFC Differentially Tuned to Social and Nonsocial Affective Evaluation*, 7 COGNITIVE, AFFECTIVE & BEHAV. NEUROSCIENCE 309, 309 (2007).

25. E.g., Daniel L. Schacter et al., *Policy Forum: Studying Eyewitness Investigations in the Field*, 32 L. & HUM. BEHAV. 3 (2008).

illustrate its applicability to a particular case context.<sup>26</sup> According to John Monahan and Laurens Walker, “[b]y far the most significant development over the past 25 years in the use of research to provide contextual evidence has been in the area of employment discrimination.”<sup>27</sup> Dozens of social and behavioral science experts have offered social framework testimony that has been admitted at trial; but, while social framework analysis is often accepted and useful, it is not without controversy. As the following sections of this Essay indicate, controversies have arisen regarding the use of science in adversarial contexts; the potential for conflicts of interest; and, perhaps most important, issues about general-to-specific causation (i.e., extrapolating from general scientific data to specific factual matters in dispute).

#### IV. SCIENCE IN THE CONTEXT OF LITIGATION

Putting scientists on the stand as experts in the courtroom has a “tendency to polarize . . . and to induce us to behave like nonscientists, each accusing the other side of motivated imbalance.”<sup>28</sup> The court’s adversarial process “raises professional issues within the field if scientists attempt to destroy each other’s reputations or engage in ad hominem attacks because of differing opinions on the science or its introduction into court.”<sup>29</sup> Of course, scientists often disagree with each other in the usual conduct of their research programs, and disputes are resolved by peer-review for publication, replication by other teams, and the eventual weight of the evidence, ending in an eventual consensus of the field. But all too often in court, these normal science disagreements are misconstrued as an argument for dismissing all of the science, even when the weight of the evidence favors one side.

A particularly apt example of the adversarial process hijacking quality criteria is the debate over unconscious bias, especially as measured by the Implicit Association Test (IAT).<sup>30</sup> A volatile mix of science, political ideology, and consulting fees has

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26. Susan T. Fiske & Eugene Borgida, *Social Framework Analysis as Expert Testimony in Sexual Harassment Suits*, in *SEXUAL HARASSMENT IN THE WORKPLACE* 575, 577–83 (Samuel Estreicher ed., 2001) (discussing use of social framework analysis to make specific conclusions based on universal generalizations); Eugene Borgida et al., *On the Use of Gender Stereotyping Research in Sex Discrimination Litigation*, 13 *J.L. & POL’Y* 613, 626–28 (2005) (discussing use of social framework analysis to provide “a scientifically informed context for thinking about the matters in dispute”); David L. Faigman & John Monahan, *Psychological Evidence at the Dawn of the Law’s Scientific Age*, 56 *ANN. REV. PSYCHOL.* 631, 652–54 (2005) (discussing use of social framework analysis in relation to evidentiary principles); Susan T. Fiske et al., *Social Science Research on Trial: Use of Sex Stereotyping Research in Price Waterhouse v. Hopkins*, 46 *AM. PSYCHOLOGIST* 1049, 1056 (1991) (same). See generally JOHN MONAHAN & LAURENS WALKER, *SOCIAL SCIENCE IN LAW: CASES AND MATERIALS* (7th ed. 2009).

27. John Monahan & Laurens Walker, *Twenty-Five Years of Social Science in Law*, 35 *L. HUM. BEHAV.* 72, 79 (2010).

28. Fiske & Borgida, *supra* note 15, at 124–25.

29. *Id.* at 140.

30. See generally Anthony Greenwald et al., *Understanding and Using the Implicit Association Test: III. Meta-Analysis of Predictive Validity*, 97 *J. PERSONALITY & SOC. PSYCHOL.* 17, 18–19 (2009) (describing Implicit Association Test); PROJECT IMPLICIT, <http://www.implicit.harvard.edu> (last visited Oct. 27, 2011) (providing online demonstration of IAT).

mired the science of this controversy.<sup>31</sup> The constructs and measures of implicit and explicit prejudice are well-established concepts and methods based on a century of cognitive psychology.<sup>32</sup> The problems began when the IAT critiques were invoked as a tactic to question all peer-reviewed science pertinent to implicit prejudice and stereotyping research more generally.<sup>33</sup> Any given measure has strengths and weaknesses, but on balance, the converging patterns across alternative measures of implicit bias and between measures and relevant outcomes establishes the scientific validity of this research in the courtroom as in the original science.

#### V. CONFLICTS OF INTEREST

Researchers tend to be ego-involved in advocating for their own theories.<sup>34</sup> Professional compensation also poses potential conflicts of interest.<sup>35</sup> Authors are not routinely required but could report a potential conflict of interest from their compensated or uncompensated engagements as expert witnesses and litigation consultants. As evident in the following ethical guideline on conflicts of interest from the APA, such disclosures are not currently required by psychology associations:

Psychologists *refrain from* taking on a professional role when personal, scientific, professional, legal, financial, or other interests or relationships could reasonably be expected to (1) impair their objectivity, competence, or effectiveness in performing their functions as psychologists or (2) expose the person or organization with whom the professional relationship exists to harm or exploitation.<sup>36</sup>

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31. Philip Tetlock and Gregory Mitchell, for example, argue that (a) there are unresolved questions about how IAT researchers have chosen to define and measure implicit prejudice; (b) there are serious questions as to whether or not the results can be generalized to outside the lab; and (c) the claims for widespread implicit prejudice and related discriminatory behavior are much shakier than reported. Philip E. Tetlock & Gregory Mitchell, *Implicit Bias and Accountability Systems: What Must Organizations Do to Prevent Discrimination?*, 29 RES. ORGANIZATIONAL BEHAV. 3, 4–5 (2009). By contrast, John Jost and colleagues argue that “researchers have identified the existence and consequences of implicit bias through well-established methods based upon principles of cognitive psychology that have been developed in nearly a century’s worth of work.” John T. Jost et al., *The Existence of Implicit Bias Is Beyond Reasonable Doubt: A Refutation of Ideological and Methodological Objections and Executive Summary of Ten Studies That No Manager Should Ignore*, 29 RES. ORGANIZATIONAL BEHAV. 39, 39 (2009). More bluntly, Jost and colleagues argue that “[t]o take Tetlock and Mitchell’s critique seriously, one would need to set aside so much of social and cognitive psychology that both disciplines would be rendered unrecognizable to contemporary students and scholars.” *Id.* at 45.

32. *E.g.*, Russell H. Fazio & Michael A. Olson, *Implicit Measures in Social Cognition Research: Their Meaning and Use*, 54 ANN. REV. PSYCHOL. 297 (2003) (reviewing substantial body of research on implicit bias).

33. *See* Fiske & Borgida, *supra* note 15, at 129 (“For some critics, as the IAT goes, so goes [all other] theory and research on hidden bias.”).

34. Anthony G. Greenwald, *The Resting Parrot, the Dessert Stomach, and Other Perfectly Defensible Theories*, in PERSPECTIVISM IN SOCIAL PSYCHOLOGY: THE YIN AND YANG OF SCIENTIFIC PROGRESS 275, 281 (John T. Jost et al., eds., 2004).

35. Anthony G. Greenwald, *What (and Where) Is the Ethical Code Concerning Researcher Conflict of Interest?*, 4 PERSP. PSYCHOL. SCI. 32, 34 (2009).

36. AM. PSYCHOL. ASS’N., ETHICAL PRINCIPLES OF PSYCHOLOGISTS AND CODE OF CONDUCT § 3.06 (2002) (emphasis added).



While not currently required by the APA and other professional associations in psychology, Greenwald has suggested that disclosure of potential conflicts of interest provides a useful context for evaluating scientific assessments in expert reports as well as published, peer-reviewed publications.<sup>37</sup>

## VI. GENERAL-TO-SPECIFIC CAUSATION

Another ongoing disagreement focuses on whether experts should be limited to presenting a general description of scientifically sound studies, *or* whether experts should also be allowed to link conclusions from a body of science to the specific facts of the case. When are such general principles informative regarding the establishment of specific causal findings? “Debates about relying on social science to create general contexts for resolving issues specific to a case have gone from *whether* to permit this procedure to *how best* to present empirical information to the factfinder.”<sup>38</sup> General causation describes whether causality between two factors exists at all. Specific causation specifies whether the phenomenon of interest occurred in a particular context. Applying the science that connects the *general* phenomenon to a *particular* case represents a key legal issue “endemic to the science and law connection.”<sup>39</sup>

There is little dispute about apprising factfinders of general causation via expert testimony, but there is a lively debate about specific causation. On the con-side is the view that experts cannot draw conclusions about the application of general scientific principles to a particular case at hand; only attorneys can do this, in the context of their arguments.<sup>40</sup> On the pro-side is the view that expert testimony about the potential application of general principles to a specific case is entirely consistent with the Federal Rules of Evidence.<sup>41</sup> Experts can offer research knowledge and identify “characteristics of policies challenged in the particular workplace that research has linked with higher likelihood of bias and stereotype or lower likelihood of correction for bias.”<sup>42</sup>

It is also important to consider that scientists view general versus specific causation as being on a continuum. A sharp distinction between general and specific

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37. See Greenwald, *supra* note 35, at 34.

38. Monahan & Walker, *supra* note 27, at 80.

39. David L. Faigman, *The Limits of Science in the Courtroom*, in BEYOND COMMON SENSE, *supra* note 1, at 304; see also David L. Faigman, *Evidentiary Incommensurability: A Preliminary Exploration of the Problem of Reasoning from General Scientific Data to Individualized Legal Decision-Making*, 75 BROOK. L. REV. 1115, 1115–16 (2010) (“[W]hile science attempts to discover the universals hiding among the particulars, trial courts attempt to discover the particulars hiding among the universals. . . . [T]his phenomenon is endemic to virtually every context in which law and science meet.” (internal quotation marks omitted)).

40. Eugene Borgida et al., *Stereotyping Research and Employment Discrimination: Time to See the Forest for the Trees*, 14 INDUS. & ORGANIZATIONAL PSYCHOL. 405, 406 (2008); David L. Faigman et al., *A Matter of Fit: The Law of Discrimination and the Science of Implicit Bias*, 59 HASTINGS L.J. 1389, 1432 (2008); John Monahan et al., *The Limits of Social Framework Evidence*, 8 L. PROBABILITY & RISK 307, 308 (2009); John Monahan et al., *Contextual Evidence of Gender Discrimination: The Ascendance of “Social Frameworks”*, 94 VA. L. REV. 1715, 1718 (2008); Laurens Walker & John Monahan, *Social Frameworks: A New Use of Social Science in Law*, 73 VA. L. REV. 559, 584–86 (1987).

41. See FED. R. EVID. 702. See also *supra* notes 12–14 and accompanying text.

42. Melissa Hart & Paul M. Secunda, *A Matter of Context: Social Framework Evidence in Employment Discrimination Class Actions*, 78 FORDHAM L. REV. 37, 45 (2009).

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causation is alien to psychologists and most scientists. The ability to generalize to specific circumstances is probabilistic, and applying knowledge in court is not different in principle from applying scientific evidence in other contexts. However, the confidence with which experts can generalize varies, depending on the state of available, relevant science. Like physicians' ability to diagnose a patient's physical symptoms, scientists' ability to link general and specific causation for the individual case crucially depends on the quality of available scientific evidence and the scientist's relevant expertise.<sup>43</sup> Qualified social scientists who provide general, relevant knowledge and apply ordinary scientific reasoning may offer informed opinion about the individual case, but *probabilistically*. None of this usurps the triers of fact of their role, as they are capable of drawing their own conclusions, with scientific judgments as one input.

#### VII. CONCLUSION

This Essay has compared legitimacy criteria respected by the law and by the sciences. It is the authors' hope that the behavioral realism approach, which highlights the importance of quality, peer-reviewed scientific research, will influence legal theory and practice. Despite a differing emphasis on precedent versus change, law and science should be able to find common ground in order to agree on certain standards of quality control, including peer-review and overall consensus. Controversies arise from the adversarial context, conflicts of interest, and the move from general-to-specific causation, all of which raise issues of theory, practice, and ethics. We would suggest that one moral and ethical obligation of social scientists is to make the best possible use of their scientific knowledge to further justice.

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43. See Borgida et al., *supra* note 40, at 407 (“[I]n at least some domains, social scientists are well equipped to offer, probabilistically, opinions about the specific case with some degree of confidence.”).