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Legal Scholarship, Humility, and the Scientific
Method

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Abstract

This essay responds to the question of “What next for law and behavioral biology?” by describing an approach to legal scholarship that relies on the scientific method. There are two steps involved in this approach to legal scholarship. First, the legal scholar must become familiar with an area of scientific research that is relevant to the development of law and policy. (This essay uses behavioral biology research as an example.) Second, the legal scholar must seek and form relationships across disciplines, becoming an active member of a scientific research team that conducts studies relevant to particular issues of law and policy.

This approach to legal scholarship does not conceive law as a science. It also does not place the legal scholar in the role of a scientist or empiricist. Instead, it places the legal scholar in a much more modest role – as a participating member of a scientific research team. In this role, the legal scholar contributes to a research endeavor that employs the scientific method to produce new knowledge mostly in small, incremental steps. This scholar strives for nothing more than to participate in the production of new knowledge and the effective communication of that knowledge to other scholars, legal decisionmakers, and policymakers. It is a role that requires humility and promises significant advances in knowledge relevant to law and policy.

LEGAL SCHOLARSHIP, HUMILITY, AND THE SCIENTIFIC METHOD

By David J. Herring*

This essay describes a new approach to legal scholarship in responding to the question of “what next for law and behavioral biology?”¹ In pursuing this approach, the legal scholar seeks to participate in the process of scientific inquiry. He or she does not draw on scientific theory and research in order to prescribe particular laws and policies. Instead, the legal scholar engages scientific theory in order to ask new questions and to work with scientific researchers in formulating and testing hypotheses that are relevant to law and policy.

Behavioral biology is one area of scientific inquiry that can support this type of scholarly endeavor, albeit one that is well-suited to enhancing discussions of law and policy. Owen Jones is a leading legal scholar in this area whose work provides a useful conceptual framework.² He has explained the law of law’s leverage, delineating the contribution behavioral biology can make to a detailed discussion of the possible benefits and costs related to particular legal rules and regimes.³ (It is important to note that he has done this without advocating for any particular legal result or regulatory scheme.) Jones has also explained

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1. This question raised one of the central issues addressed at an academic roundtable organized by Owen Jones, Professor of Law and Professor of Biological Sciences at Vanderbilt University, and attended by a group of leading legal scholars in April, 2006.

2. See, e.g., Owen D. Jones, *Evolutionary Analysis in Law: An Introduction and Application to Child Abuse*, 75 N.C. L. REV. 1117 (1997) [hereinafter Jones, *Evolutionary Analysis in Law*]; Owen D. Jones, *Time-Shifted Rationality and the Law of Law’s Leverage: Behavioral Economics Meets Behavioral Biology*, 95 NW. U. L. REV. 1141 (2001) [hereinafter Jones, *Law’s Leverage*]; Owen D. Jones, *Proprioception, Non-Law, and Biolegal History*, 53 FLA. L. REV. 831 (2001) [hereinafter Jones, *Biolegal History*]; Owen D. Jones & Timothy H. Goldsmith, *Law and Behavioral Biology*, 105 COLUM. L. REV. 405 (2005).

3. See Jones, *Law’s Leverage*, *supra* note 2.

the concept of time shifted rationality – a concept that may provide a useful theoretical component for behavioral economics.⁴ In addition, he has explained how consideration of behavioral biology can help identify likely areas for legal regulation across societies.⁵ In this last endeavor, Jones has made significant progress in developing a general theory of law, identifying which areas of human activity are likely to generate laws and gain the attention of lawmakers.⁶

More germane to this essay, Jones' work demonstrates the usefulness of specific findings from behavioral biology research to discussions of law and policy. For example, he has used research that identifies the dramatically higher risk of maltreatment faced by children in stepfamilies.⁷ Drawing from the concepts of inclusive fitness and parental investment, behavioral biologists Martin Daly and Margo Wilson hypothesized that children living with biologically unrelated adults would suffer a higher rate of maltreatment.⁸ Their examination of data on child deaths from several societies provided support for their hypothesis.⁹ Jones has used this research to question child protection policies that largely disregard stepfamily relationships in assessing the risk of child maltreatment and in determining the appropriate level of family support services.¹⁰ Child welfare policymakers may want to avoid stigmatizing stepfamily relationships by disregarding these relationships. However, Jones' work reveals a significant cost related to this policy goal and approach – an increased risk of child maltreatment.¹¹

Similarly, Jones has used behavioral biology research that

4. *Id.*

5. See Jones, *Biolegal History*, *supra* note 2.

6. *Id.*

7. See Jones, *Evolutionary Analysis in Law*, *supra* note 2. The stepfamily research used by Jones focuses on incidents of infanticide rather than on maltreatment generally. But it is important to note that the behavioral biology researchers in this area only used the occurrence of child death to test their broader hypothesis concerning a higher risk of maltreatment within stepfamilies because there is relatively good, detailed data on child deaths in comparison to that available on child maltreatment in general. See MARTIN DALY & MARGO WILSON, *HOMICIDE* (1988) (In other words, child death served as a proxy for or indicator of child maltreatment generally.). Because child maltreatment, as opposed to child death, is a pervasive problem, identifying and addressing a higher risk of child maltreatment adds a significant component to discussions of child welfare law and policy as they relate to stepfamilies. Jones' work explores this powerful finding in a way that should generate further discussion and research. Jones, *Evolutionary Analysis in Law*, *supra* note 2.

8. See MARTIN DALY & MARGO WILSON, *HOMICIDE*, at 83-91 (1988).

9. *Id.*

10. See Jones, *Evolutionary Analysis in Law*, *supra* note 2.

11. *Id.*; see Jones & Goldsmith, *supra* note 2, at 435-36.

addresses rape.¹² The research supports a hypothesis that males sometimes employ rape as a sexual strategy, and thus, that a rapist may not be motivated solely by animus and violent tendencies toward women.¹³ More specifically, the researchers found that victims of rape are most often of reproductive age, with rape being relatively less prevalent for prepubescent girls and post-menopausal women.¹⁴ Also, rape is more likely to involve penile-vaginal intercourse, as opposed to other forms of sexual interaction, when the victim is within her reproductive years.¹⁵ In addition, rape victims in some studies appear to experience more severe trauma if they are within their reproductive years.¹⁶ As Jones explains, these findings may be relevant to discussions of how to prevent and punish rape.¹⁷

Noting the work of Jones and others in this area, Professor John Monahan asserts that behavioral biology has the heuristic power to raise interesting questions related to the law.¹⁸ For example, behavioral biologists have drawn on concepts and theories in their field to pose the question of whether infants are disproportionately killed by stepparents.¹⁹ The research generated by this question is relevant to discussions of child protection practices, policies and laws.

Professor Monahan also notes that behavioral biology has substantial breadth in that it possesses a set of core concepts that one can employ to answer the interesting questions that it raises.²⁰ Concepts such as inclusive fitness, kin altruism, discriminatory parental solicitude, and reciprocal altruism hold broad explanatory power. For example, these concepts provide guidance for thoughtful research that addresses stepparent/stepchild relationships.

12. See Owen D. Jones, *Sex, Culture, and the Biology of Rape: Toward Explanation and Prevention*, 87 CAL. L. REV. 827 (1999).

13. *Id.* at 853-72.

14. *Id.* at 866.

15. *Id.* at 868.

16. See Jones, *supra* note 12, at 868-69.

17. *Id.* at 909-33. Beyond his own theoretical and applied scholarship in this area, Jones has actively fostered other legal scholars' use of behavioral biology research. He is a frequent participant in programs at the Gruter Institute and he founded the Society for Evolutionary Analysis in Law ("SEAL"). He has organized conferences that provide for important and rich interactions among legal scholars, biologists and researchers from other disciplines. Jones has also been available to read numerous draft papers, providing invaluable comments and guidance. I and others have benefitted immensely from his contributions to our projects.

18. See John Monahan, *Could "Law and Evolution" Be the Next "Law and Economics"?*, 8 VA. J. SOC. POL'Y & L. 123, 124 (2000).

19. *Id.*

20. *Id.* at 124-25.

Finally, Professor Monahan discusses behavioral biology's depth.²¹ Namely, he asks whether behavioral biology can answer legal questions in the kind of specific detail necessary to guide both legal scholarship and the law in action.²² In addressing this question, he recognizes the high degree of specificity of modern evolutionary explanations.²³ He then points to the work of Daly and Wilson as a powerful example of how behavioral biology theory can generate specific predictions that subsequent empirical research confirms.²⁴ Professor Monahan concludes that the explanations of particular aspects of human behavior arising from behavioral biology provide legal scholars with powerful and useful insights.

In reaching his conclusion, Professor Monahan speculates that behavioral biology's impact on legal scholarship could be similar to that of economics.²⁵ In his view, economics has served as the "lodestone" for a substantial portion of recent legal scholarship.²⁶ Because of its heuristic power, breadth, and depth, Professor Monahan asserts that behavioral biology could be another lodestone for legal scholarship.²⁷

While I agree with Professor Monahan's basic conclusion, I do not embrace his speculation because I envision using behavioral biology research in a way that departs from my perception of how legal scholars use economic concepts. Namely, my proposed approach does not offer new theoretical paradigms or attempt to guide and assess broad approaches to law and policy. Instead, I seek to use behavioral biology research simply to raise questions and formulate hypotheses that enhance discussions of particular laws and policies. This is an approach that is much smaller in scope than the law and economics project. However, I believe that, if developed carefully and rigorously, this approach could eventually have a significant impact on legal scholarship. It has the potential to be both deep (yielding small, focused pieces) and broad (powerful and transformative when viewed as a whole). In the end, this approach has the potential to transform the legal

21. *Id.* at 125.

22. *See* Monahan, *supra* note 18, at 125.

23. *Id.*

24. *Id.*; Martin Daly & Margo Wilson, *Evolutionary Psychology and Marital Conflict: The Role of Stepchildren*, in *SEX, POWER, CONFLICT: EVOLUTIONARY AND FEMINIST PERSPECTIVES* 9, 16-18 (David Buss & Neil Malamuth eds., 1996); Martin Daly & Margo Wilson, *Crime and Conflict: Homicide in Evolutionary Psychological Perspective*, in *CRIME AND JUSTICE: A REVIEW OF RESEARCH* 66-69 (Michael Tonry ed., 1997).

25. *See* Monahan, *supra* note 18, at 126.

26. *Id.* at 123.

27. *Id.* at 126-28.

scholar from a mere consumer of scientific findings into a participant in the production of new knowledge.

The scientific method lies at the core of this approach to legal scholarship. This method is a process of inquiry used by researchers in the basic sciences and other fields.²⁸ Researchers initiate the process by developing a theory that recognizes and builds on others' work in the area of inquiry.²⁹ In this way, the scientific method is highly collaborative in nature, often generating long lines of inquiry that involve numerous researchers over a considerable period.³⁰

Closely related to the development of theory is the formulation of specific hypotheses that researchers can test in order to support the theory. If the theory is correct, certain conditions should exist and certain consequences should follow. Researchers can formulate research questions and methodologies to determine if, and to what degree, the predicted conditions and consequences actually exist and result.³¹

Once researchers complete a test of a particular hypothesis, they can consider additional tests of the hypothesis. If the test results either fail to fully verify the hypothesis or introduce new and unexpected elements, researchers can revise the hypothesis. The revised hypothesis will generate additional research questions and tests. If the research findings call the hypothesis into question in a fundamental way, researchers may conclude that the hypothesis is false. Such a conclusion may also call into question the overarching theory that generated the hypothesis. As a result, researchers might abandon the theory by formulating a new theory and paradigm in the area of inquiry.³²

This process of knowledge development has several important characteristics. First, it is collaborative. Groups of researchers often work in teams to design and conduct experiments.³³ More important, the process of questioning the results of experiments and conducting further experiments engages researchers in a collective endeavor. Although they may not be on the same research team, researchers pursuing a

28. See Thomas S. Ulen, *The Unexpected Guest: Law and Economics, Law and Other Cognate Disciplines, and the Future of Legal Scholarship*, 79 CHI.-KENT L. REV. 403, 406-09 (2004) (criticizing the law and social science movement for lacking a theoretical framework).

29. *Id.* at 408.

30. *Id.*

31. *Id.* 406-09.

32. See Ulen, *supra* note 28, at 406-09; THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* (3d ed. 1996).

33. This is apparent from an examination of scientific journals, with the majority of articles listing several co-authors who have worked together as a research team. See, e.g., issues of the journal *Evolution and Human Behavior*.

specific line of inquiry respond to and build on the work of others.³⁴ It is an on-going collective process that constantly produces additional hypotheses, experiments, and knowledge.³⁵

Second, this process is incremental.³⁶ It proceeds with small, careful steps. Each step or inquiry is focused, narrow, and small in scope. These small steps constitute the heavy lifting of the scientific method – work that does not commonly result in the discovery of comprehensive knowledge or the expression of grand theory. Taking these steps involves detailed work in the trenches of discovery and knowledge production. It is work that is humble in nature, placing the scholar within a collective and cumulative effort to discover the finest details of how the world works.³⁷

Third, this process is only useful in discovering and understanding what *is*. It does not contribute to the conception of what *ought to be*.³⁸ Researchers using this method are engaged in discovering detailed aspects of how the natural world operates. Discoveries about what is may be useful to individuals, groups, and societies who have previously formulated, through a separate and independent process of inquiry and analysis, what ought to be. But determining what ought to be is not the project of scientific scholars.³⁹ Their project is much more focused and modest.

This third characteristic of the scientific method raises the question of whether it can contribute anything to legal scholarship. Arguably, the law is almost exclusively about what a society determines ought to be. The law reflects, and at times constructs, social values. It does not simply accept what is. Therefore, one can strongly question the value of a process utilized only to discover what is. Such a process may be largely irrelevant to the social project of constructing, analyzing, and understanding law and legal regimes.⁴⁰

However, I believe that this process of scientific inquiry provides legal scholars with an opportunity to pursue projects that depart from

34. See Ulen, *supra* note 28, at 408.

35. *Id.*

36. *Id.*

37. *Id.*

38. See Jones, *Evolutionary Analysis in Law*, *supra* note 2, at 1163; Jones, *supra* note 12, at 893-95.

39. *Id.*

40. My colleague, Professor Thomas Ross, has pressed this point with me in discussions of my work, pointing me to Arthur Allen Leff, *Law and*, 87 *YALE L.J.* 989 (1978) and GRANT GILMORE, *THE AGES OF AMERICAN LAW* (1977), among others. See also Ulen, *supra* note 28, at 419-20.

those intended to examine and explicate what ought to be. Furthermore, I believe that these projects will not be irrelevant. Rather, they will contribute to our understanding of law, and even to the construction of law.

In describing this approach to legal scholarship that arises from the scientific method, it is useful to understand what this approach is not. It is not traditional doctrinal analysis. Arguably, doctrinal scholarship shares many of the characteristics of the scientific method. It is collaborative. The explication of legal doctrine involves numerous individuals who examine, analyze, and explain legislative and judicial decisions. Although these individuals may not often work in research teams, they do engage in dialogue and interchange. In addition, because doctrinal scholarship depends on the decisions of courts and legislatures, it is necessarily incremental. Finally, a significant portion of doctrinal scholarship is largely descriptive, and thus often entails an explication of what is rather than what ought to be.⁴¹

But doctrinal scholarship engages the legal scholar in a process of creation. The doctrinal scholar does not simply discover an aspect of the natural world. This scholar observes, organizes, and analyzes the law, and through this process, even if it is purportedly only descriptive in nature, participates in the human effort to construct the law and a particular society.⁴² She is not engaged only in the incremental discovery of what is. Rather, she is engaged in the incremental analysis of what is, and often the construction of what ought to be. By observing, explaining, analyzing and critiquing legal doctrine, the doctrinal scholar often attempts to channel, if not direct, the development of the law.⁴³ The doctrinal scholar's participation in the process of constructing what is being studied (the law) differs markedly from the scientific scholar's process of discovery. Consequently, the legal scholar dedicated to the scientific method engages in scholarly projects that differ in nature from those of the doctrinal scholar.

One can use this same distinction in addressing legal theory scholarship. The legal theorist frequently, if not always, strives to participate in the construction of legal regimes. Large theory pieces

41. See generally RICHARD A. POSNER, *OVERCOMING LAW* 83-91 (1995); NICHOLAS MERCURO & STEPHEN G. MEDEMA, *ECONOMICS AND THE LAW: FROM POSNER TO POSTMODERNISM AND BEYOND* 10-12 (2d ed. forthcoming) (manuscript at 10-12, first chapter available on SSRN); cf. Ulen, *supra* note 28, at 411.

42. See *id.*; POSNER, *supra* note 41; Carl E. Schneider & Lee E. Teitelbaum, *Life's Golden Tree: Empirical Scholarship and American Law*, 2006 UTAH L. REV. 53, 60-61.

43. See Ulen, *supra* note 28, at 411; Richard A. Posner, *Legal Scholarship Today*, 115 HARV. L. REV. 1314, 1314-16 (2002).

often prescribe the perception and development of law and society. The theorist typically engages not only in the discovery of what is. She also explores what ought to be.⁴⁴ The theorist often engages in ambitious scholarly projects that extend well beyond the characteristic limits of the scientific method.

In a recent article, Professor Thomas Ulen discusses the potential for the scientific method in legal scholarship.⁴⁵ He describes how law and economics scholarship provides a robust example of the use of the scientific method and asserts that, while use of this method is not the only valid approach to legal scholarship, this approach holds the most promise for securing the larger academic community's recognition of legal scholarship as a fully legitimate intellectual endeavor.⁴⁶ Legal scholars' use of the scientific method allows them to pursue projects that resemble those of other disciplines within the academic community. To a degree unmatched by doctrinal scholarship and different types of legal theory scholarship such as legal realism and critical legal studies, the scientific approach provides a foundation for the development of universal, overarching theories and the testing of hypotheses generated by those theories.⁴⁷

Ulen encourages legal scholars to embrace the scientific method to test universal theories, such as economics' rational choice theory, in the context of legal systems.⁴⁸ Accordingly, he urges legal scholars to construct and participate in a creative, collective, widely collaborative, and cumulative process of inquiry and to engage fully in empirical research.⁴⁹

Professor Ulen's vision for the study of law as science is extremely ambitious. It entails an almost complete abandonment of traditional approaches to legal scholarship, seeking to engage many, if not all, legal scholars in a new scholarly endeavor.

The approach to legal scholarship described in this essay fits within Ulen's vision, but is less comprehensive. It is an approach that some legal scholars (although certainly not all or even a majority⁵⁰) may be

44. See POSNER, *supra* note 41, at 96-102; Schneider & Teitelbaum, *supra* note 42, at 61.

45. See Ulen, *supra* note 28.

46. *Id.* at 428-29.

47. See Ulen, *supra* note 28.

48. *Id.* at 424-25.

49. *Id.* at 429; see also Schneider & Teitelbaum, *supra* note 42.

50. The point of this essay is not that the scientific method provides the only legitimate approach to legal scholarship. There are certainly other valid approaches to discovering

interested in pursuing, not with the idea that it will transform the scholarly endeavor throughout the discipline or that it will grant them full status in the larger academic community, but with the modest goal of participation in the discovery of new knowledge that may be relevant to law and policy.

There are two steps involved in this approach to legal scholarship. First, the legal scholar must become familiar with an area of scientific research that is relevant to the development of law and policy. Behavioral biology is an especially rich area of scientific research in this regard. The research in this field provides useful information concerning many aspects of human behavior – the primary subject of law and policy.⁵¹ Of course, the legal scholar must become familiar not only with the general concepts and theories in the particular scientific field, but also with detailed findings from various research projects in the specific areas of interest to the legal scholar. Accordingly, the legal scholar must develop the habit of reading relevant scientific journals. For example, the journal *Evolution and Human Behavior* is a good source of behavioral biology research that may be relevant to particular areas of law and policy.

The second step requires the legal scholar to actively seek and form working relationships across disciplines. She would seek out researchers who conduct studies relevant to particular issues of law and policy and engage them in discussions of their work. Through these discussions, the legal scholar may have an opportunity to contribute to the scientific research endeavor, possibly influencing the questions that scientific researchers raise and address, increasing the likelihood that they will formulate and test hypotheses that provide useful knowledge for those working with the law.

Ultimately, the legal scholar would become a member of the scientific research team. Realization of this goal calls for an individual who is comfortable with a modest role in the production of scholarship. Such a legal scholar would be one member of a research team that would often include several researchers who have much more knowledge of the particular field of inquiry and of the scientific method. The legal scholar would not likely lead the research team. She would contribute to the

knowledge and to legal scholarship. This essay does not intend to preclude or discount these other approaches, but only to articulate a possible new approach.

51. See Jones & Goldsmith, *supra* note 2, at 407. That is not to say that the information provided by behavioral biology research is not contested or controversial. However, even many critics acknowledge the potential for useful behavioral biology research. See DAVID J. BULLER, *ADAPTING MINDS: EVOLUTIONARY PSYCHOLOGY AND THE PERSISTENT QUEST FOR HUMAN NATURE* (2005).

team's formulation of its research agenda, but not drive it. She would hope to have the team test hypotheses that relate to law and policy. She would then translate and communicate the knowledge produced by the research team to the legal and public policy communities, describing its possible relevance to particular legal and policy issues.

Some of my current work provides an example of the first step in this approach to legal scholarship. By attending academic conferences sponsored by the Gruter Institute, I became aware of the field of behavioral biology and its potential to contribute to legal scholarship.⁵² Speakers at the conference came from many disciplines, including biology, economics, cognitive psychology, anthropology, law, and medicine. They provided an excellent introduction to the field and a sense of the intellectual energy surrounding behavioral biology research.

The conferences piqued my interest and inspired me to read numerous books and articles describing evolutionary theory.⁵³ As I read this material, I became increasingly aware of its relevance to my work in child welfare law and policy. The concepts of inclusive fitness, kinship altruism, parental investment, parent-offspring conflict, and paternity uncertainty appeared especially germane.⁵⁴

This literature directed me to research conducted to test numerous hypotheses based on evolutionary concepts.⁵⁵ The articles reporting and discussing the results of scientific research differ dramatically from the typical law review article. These articles appear much smaller in scope and ambition. Rather than attempt to analyze an entire area or issue, reach a resolution, and provide suggestions for action, these articles often address only the findings drawn from a very narrow, focused experiment.⁵⁶ These findings usually constitute a small step in the

52. Gruter Institute, www.gruterinstitute.org (last visited May 18, 2007).

53. See, e.g., ROBERT TRIVERS, *SOCIAL EVOLUTION* (1985); MARTIN DALY & MARGO WILSON, *SEX, EVOLUTION, AND BEHAVIOR* (2d ed. 1983); MATT RIDLEY, *THE RED QUEEN: SEX AND THE EVOLUTION OF HUMAN BEHAVIOR* (1993); TIMOTHY H. GOLDSMITH & WILLIAM F. ZIMMERMAN, *BIOLOGY, EVOLUTION, AND HUMAN NATURE* (2001).

54. See TRIVERS, *supra* note 53.

55. See, e.g., articles in *Evolution and Human Behavior*, *Journal of Personal and Social Psychology*, and *Evolutionary Social Psychology*.

56. The line of articles discussing the ratio of the lengths of the second to fourth manual digits as a predictor of the degree of sexually dimorphic traits and behaviors provide examples of these narrow, focused experiments. See, e.g., J. Coolican & Michael Peters, *Sexual Dimorphism in the 2D/4D Ratio and Its Relation to Mental Rotation Performance*, 24 *EVOLUTION & HUM. BEHAV.* 179 (2003); J.T. Manning, P.E. Bundred & F.M. Mather, *Second to Fourth Digit Ratio, Sexual Selection, and Skin Colour*, 25 *EVOLUTION & HUM. BEHAV.* 38 (2004); Bernhard Fink, John T. Manning, Nick Neave & Karl Grammer, *Second to Fourth Digit Ratio and Facial Asymmetry*, 25 *EVOLUTION & HUM. BEHAV.* 125 (2004);

development of knowledge related to a specific hypothesis.

But this appearance of smallness belies a larger, more ambitious endeavor. Read together, research articles addressing a particular hypothesis often reveal a substantial accretion of detailed knowledge.⁵⁷ They give rise to the sense of a collective research project that contrasts sharply with the individualistic nature of many projects published in law reviews.

This contrast eventually led me to question the standard approach to legal scholarship. But more immediately, the research articles led me to particular hypotheses and experiments that are relevant to child welfare law and policy. For example, the concepts of inclusive fitness and kinship altruism generate a set of hypotheses that are particularly relevant. One such hypothesis is that individuals favor other individuals whom they perceive as being biologically related to them, with the extent of favorable treatment varying in conjunction with the degree of biological relatedness (e.g. in general, a parent will provide more favorable treatment to his child than to his nephew; a brother will provide more favorable treatment to his full sister than to his half sister).⁵⁸ A series of research studies, some involving animals and some involving humans, provide substantial support for this hypothesis.⁵⁹

A related hypothesis addresses the ability of individuals to recognize others who are biologically related to them. In order for individuals to treat others more favorably based on the degree of biological relatedness, they would likely have to possess fairly sophisticated mechanisms for recognizing kin. The concept of kinship

Pamela S. Scarbrough & Victor S. Johnston, *Individual Differences in Women's Facial Preferences as a Function of Digit Ratio and Mental Rotation Ability*, 26 *EVOLUTION & HUM. BEHAV.* 509 (2005).

57. For an article that describes, tests, and questions the significant accretion of knowledge surrounding the ratio of the lengths of the second to fourth manual digits as a predictor of the degree of sexually dimorphic traits and behaviors as referenced *supra* note 56, see David A. Putz, Steven J.C. Gaulin, Robert J. Sporer & Donald H. McBurney, *Sex Hormones and Finger Length: What Does 2D:4D Indicate?*, 25 *EVOLUTION & HUM. BEHAV.* 182 (2004).

58. See TRIVERS, *supra* note 53, at 109-44; BULLER, *supra* note 51, at 351-55.

59. See DAVID J.C. FLETCHER & CHARLES D. MICHINER, *KIN RECOGNITION IN ANIMALS* (1987); Paul W. Sherman, *Nepotism and the Evolution of Alarm Calls*, 197 *SCI.* 1246 (1977); Eugene Burnstein, Christian Crandall & Shinobu Kitayama, *Some Neo-Darwinian Decision Rules for Altruism: Weighing Cues for Inclusive Fitness as a Function of the Biological Importance of the Decision*, 67 *J. PERSONALITY & SOC. PSYCHOL.* 773 (1994); MARTIN DALY, CATHERINE SALMON & MARGO WILSON, *KINSHIP: THE CONCEPTUAL HOLE IN PSYCHOLOGICAL STUDIES OF SOCIAL COGNITION AND CLOSE RELATIONSHIPS IN EVOLUTIONARY SOCIAL PSYCHOLOGY* 265 (Jeffrey A. Simpson & Douglas T. Kenrick eds., 1997); Daniel J. Kruger, *Evolution and Altruism: Combining Psychological Mediators with Naturally Selected Tendencies*, 24 *EVOLUTION & HUM. BEHAV.* 118 (2003).

cues constitutes one possibility for such mechanisms. Namely, behavioral biologists hypothesize that particular sensory cues give rise to finely tuned perceptions of kinship.⁶⁰

One such cue is facial resemblance. Researchers have theorized that facial resemblance evokes prosocial behavior because it serves as a kinship cue.⁶¹ (This theory derived from the concept of kinship altruism, with prior research indicating that individuals provide more benefits to kin than to non-kin.⁶²) Researchers have also theorized that facial resemblance evokes stronger prosocial behavior from men than from women.⁶³ (This theory derived from the concept of paternity uncertainty and the increased likelihood that a child who possesses similar facial features is a man's biological child. Because a woman does not confront the same uncertainty related to her biological child, facial similarity should have a less powerful effect.⁶⁴)

Drawing on these theories, a team of researchers hypothesized that an adult subject would respond favorably to a photo of a child who shares the adult's facial features.⁶⁵ (For example, the adult is likely to be comfortable spending the most time with the child who shares his facial features. The adult is also likely to want to provide more financial support to such a child. In addition, the adult is likely to discipline this child less severely than children whose facial features do not resemble his own.) In addition, the researchers hypothesized that the favorable response would be stronger for male subjects than for female subjects.⁶⁶

In order to test the hypotheses, the researchers morphed a photo of a child with a photo of the adult subject, thus creating a child photo that resembled the adult.⁶⁷ The adult subject then observed an array of child photos, one of which was the adult subject's self morph, and responded

60. See Justin H. Park & Mark Schaller, *Does Attitude Similarity Serve as a Heuristic Cue for Kinship? Evidence of an Implicit Cognitive Association*, 26 *EVOLUTION & HUM. BEHAV.* 158, 159-60 (2004).

61. See Steven M. Platek et al., *Reactions to Children's Faces: Resemblance Affects Males More than Females*, 23 *EVOLUTION & HUM. BEHAV.* 159 (2002); Lisa M. De Bruine, *Resemblance to Self-Increases the Appeal of Child Faces to Both Men and Women*, 25 *EVOLUTION & HUM. BEHAV.* 142 (2004).

62. See TRIVERS, *supra* note 53, at 143; DALY, SALMON & WILSON, *supra* note 59; Park & Schaller, *supra* note 60, at 159.

63. See Platek et al., *supra* note 61; Steven M. Platek et al., *Reactions to Children's Faces: Males Are More Affected By Resemblance Than Females Are, and So Are Their Brains*, 25 *EVOLUTION & HUM. BEHAV.* 394 (2004). *But see* De Bruine, *supra* note 61.

64. See Platek et al., *supra* note 63, at 395; De Bruine, *supra* note 61, at 143.

65. See Platek et al., *supra* note 61.

66. *Id.*

67. *Id.* at 161.

to a series of questions about how he or she would treat the children.⁶⁸ The experiment confirmed both of the hypotheses.⁶⁹

After the research team published the results of their experiment, an independent researcher questioned the study's methodology.⁷⁰ She designed and conducted a study that used enhanced technology and procedures for morphing photos.⁷¹ This researcher's findings supported the hypothesis that adult individuals favor children who resemble them.⁷² However, her findings did not support the hypothesis that facial resemblance evokes a stronger favorable response from men than from women.⁷³

The original research team responded to this second set of findings by conducting an additional experiment.⁷⁴ They improved their morphing technique, borrowing many of the methods used by the independent researcher.⁷⁵ The third experiment yielded findings that provide support for both hypotheses.⁷⁶ (It is interesting to note that members of this research team had conducted an earlier experiment that allowed them to suggest that the favorable treatment effects of facial resemblance become insignificant at a point where the resemblance in facial appearance is less than 25%.⁷⁷ This degree of resemblance corresponds to the degree of relatedness between grandparents and grandchildren.⁷⁸ Based on these findings, the researchers speculated that once a kinship relationship is more distant than grandparent/grandchild, facial resemblance is unlikely to evoke a significant degree of differential favorable treatment.⁷⁹)

Although this line of research is not complete,⁸⁰ it provides opportunities to apply new knowledge to the development of law and

68. *Id.* at 161-62.

69. *See* Platek et al., *supra* note 61, at 162-64.

70. *See* De Bruine, *supra* note 61.

71. *Id.* at 147.

72. *Id.* at 150.

73. *Id.*

74. *See* Platek et al., *supra* note 63.

75. *Id.* at 396-97.

76. *Id.* at 402-03.

77. *See* Steven M. Platek et al., *How Much Paternal Resemblance Is Enough? Sex Differences in Hypothetical Investment Decisions But Not In the Detection of Resemblance*, 24 *EVOLUTION & HUM. BEHAV.* 81 (2002).

78. *Id.* at 86-87.

79. *Id.*

80. This line of research provides a good example of the process of inquiry pursuant to the scientific method. The third experiment is unlikely to be the last word in this line of investigation. Researchers are likely to develop further experiments to test and refine the two hypotheses related to facial resemblance as a kinship cue.

policy. For example, the researchers' findings may be relevant to foster care placement policies. The public has established several normative goals for foster care placements – one of which is that public actors should work to ensure child safety.⁸¹ The research indicates that public child welfare agencies and juvenile courts may be able to secure safer foster care placements by matching a child's facial features with those of her foster parent.⁸² As a result of such a matching process, the foster parent may be more likely to perceive the foster child as kin and provide relatively favorable treatment. Because the incidence of maltreatment of children by foster parents is significantly higher than that for children in the general population,⁸³ attempting to evoke favorable treatment through face matching may provide significant benefits in terms of child safety.⁸⁴

This is an example of applied behavioral biology that embraces the scientific method and generates a testable hypothesis. Namely, a research team could propose that a public agency implement a facial resemblance policy, collect data concerning child safety in this experimental jurisdiction, and compare it to foster child safety data from a control jurisdiction. If the rate of maltreatment is lower in the experimental jurisdiction than in the control jurisdiction, such a study may support the hypothesis that facial resemblance evokes favorable treatment that provides benefits in terms of securing foster child safety.

Recently, I have expanded on my work in this area by examining additional research on kinship cues. The research related to the kinship cue of proximity during the first three to six years of age has implications for foster care placement policy and the prevention of sibling incest.⁸⁵ And the research related to the kinship cue of attitude similarity has implications for foster care placement policy that are similar to those of facial resemblance.⁸⁶

All my work in this area during the past three years constitutes only the first step in my proposed approach to legal scholarship – acquiring a

81. See Adoption and Safe Families Act of 1997, Pub. L. No. 105-89, 111 Stat. 2115 (1997); 42 U.S.C. § 671(a)(15)(A) (1994); David J. Herring, *Foster Care Safety and the Kinship Cue of Attitude Similarity*, 7 MINN. J. L. SCI. & TECH. 355, 359-60 (2006).

82. See David J. Herring, *Child Placement Decisions: The Relevance of Facial Resemblance and Biological Relationships*, 43 JURIMETRICS J. 387 (2003).

83. See Herring, *supra* note 81, at 363.

84. See Herring, *supra* note 82.

85. See David J. Herring, *Foster Care Placement: Reducing the Risk of Sibling Incest*, 37 MICH. J. L. REFORM 1145 (2004).

86. See Herring, *supra* note 81.

familiarity with a particular area of scientific research that is relevant to law and policy. This first step itself is not new.⁸⁷ It requires the legal scholar to engage research literature from a scientific discipline. It also involves the legal scholar in an examination of the possible relevance of specific research findings to particular areas of law and policy. However, this first step does not involve the legal scholar in the process of scientific research. That is the subject of the second step, the step that makes this approach to legal scholarship new.

It is important to note at the outset that the second step in this approach stands apart from Professor Ulen's (and others') call for legal scholars to engage in empirical research.⁸⁸ Ulen urges legal scholars to conduct empirical research concerning the operation of the law.⁸⁹ His examples present the legal scholar as a self-directed, independent empirical researcher.⁹⁰ This scholar may work with others (e.g. economists, statisticians), but she designs and conducts the empirical studies. Ulen's is the ambitious vision of law as science and the legal scholar as social scientist.

In contrast, the second step in my proposed approach calls for the legal scholar to become a member of a scientific research team. For example, in conducting my work on the kinship cue of attitude similarity I had an occasion to e-mail Justin Park, the lead researcher in one important study.⁹¹ I asked him for the complete list of attitudes they had included in their research instrument. He responded not only with the list, but with a welcoming message. He was pleased to learn that someone is exploring the practical implications of their research. He asked for my article on facial resemblance and opened the door to further discussion.⁹² We have since shared several draft papers and engaged in discussions of kinship cue research.

By engaging a scientific researcher in this type of substantive

87. See, e.g., Jones, *Evolutionary Analysis in Law*, *supra* note 2; Jones, *supra* note 12; Lu-in Wang, *The Transforming Power of "Hate": Social Cognition Theory and the Harms of Bias-Related Crime*, 71 S. CAL. L. REV. 47 (1997) (using social cognition research to analyze hate crimes).

88. See Ulen, *supra* note 28, at 418-23; Schneider & Teitelbaum, *supra* note 42; Michael Heise, *The Past, Present and Future of Empirical Legal Scholarship: Judicial Decision Making and the New Empiricism*, 2002 U. ILL. L. REV. 819; Frank Cross, Michael Heise & Gregory C. Sisk, *Above the Rules: A Response to Epstein and King*, 69 U. CHI. L. REV. 135 (2002); Shari Seidman Diamond, *Empirical Marine Life in Legal Waters: Clams, Dolphins, and Plankton*, 2002 U. ILL. L. REV. 803.

89. See Ulen, *supra* note 28, at 418-23.

90. *Id.* at 415-23.

91. See Herring, *supra* note 81, at 375 n.112.

92. See e-mail from Justin H. Park (Sept. 6, 2005) (on file with author).

discussion, a legal scholar may eventually be invited to join a research team. As a member of the research team, the legal scholar may be able to make substantial contributions such as the identification of appropriate contexts for studies and experiments.⁹³ In my case, I could stress the potential of foster care systems to provide a natural setting for testing hypotheses addressing the likely impact of various kinship cues on biologically unrelated individuals. Because foster care requires adults to provide care for unrelated children, the research team may be able to use this setting to explore how various kinship cues affect the treatment of foster children.

More commonly, the legal scholar may be able to raise interesting and fruitful research inquiries.⁹⁴ For example, in my work using kinship cues I have regularly referenced the federal Multiethnic Placement Act (“MEPA”).⁹⁵ This law prohibits public child welfare agencies from systematically using race as a factor in deciding whether to place a child in a particular foster home.⁹⁶ The law is controversial. It fuels intense public debate concerning basic social values surrounding race. Namely, it pits a public goal of a color-blind society against the possible social

93. To illustrate this possible contribution, consider that I met legal scholar John Lanou at an April, 2006 conference sponsored by the Society for Evolutionary Analysis in Law. He has engaged in research with behavioral biologist Debra Lieberman of the University of Hawaii. Together, they have hypothesized that judges who grew up in close proximity to an opposite sex sibling would find incest especially repugnant and impose harsher sentences in incest cases than judges who did not have this type of experience with a sibling. They are attempting to test this hypothesis which is based on the kinship cue of proximity during childhood. John Lanou, as a legal scholar, was able to recognize this possible impact on criminal sentencing and to assist in designing a study to test the hypothesis in an appropriate context.

94. To illustrate this possible contribution, consider Owen Jones’ recent collaboration with primatologist Sarah Brosnan, investigating the endowment effect from an evolutionary perspective. The endowment effect is evident when individuals immediately value an item they have just come to own at a higher dollar amount than the maximum amount they would have paid to acquire the item an instant ago. The phenomenon has implications for law, because it can impede efficient trading of goods and services in the marketplace. And Jones, as well as Jones and Goldsmith, had argued that the phenomenon may reflect the effects of evolutionary processes on human predispositions, possibly resulting in patterns only recognizable and predictable in light of evolutionary analysis. See Jones, *Law’s Leverage*, *supra* note 2, at 1154-55, 1183-85; Jones & Goldsmith, *supra* note 2, at 452-54. Jones has consequently partnered with a primatologist to begin testing specific hypotheses in chimpanzees which may indicate a long evolutionary history to the phenomenon in both humans and other primates.

95. Pub. L. No. 103-382 § 551.108 Stat. 4056 (1994) (codified as amended at 42 U.S.C. § 1996b (2000) and 42 U.S.C. § 5115a (1994) (repealed 1996)). See Herring, *supra* note 81; Herring, *supra* note 82.

96. See 42 U.S.C. § 1996b (2000).

benefits of maintaining children within their racial communities, being raised by adults who can fully appreciate and educate them about their racial identity.⁹⁷

To date, the debate has not addressed MEPA's impact on child safety to any significant degree. However, if race is a characteristic that is likely to affect an adult's perception of a child as kin, a prohibition on race matching may have negative consequences for child safety in foster care. In other words, a practice of matching a foster child's race with that of his foster parent may help achieve a public goal of child safety.⁹⁸

In addressing this issue, it would be useful to know about the relationship between race and kinship cues (or superficial similarities⁹⁹) that evoke favorable treatment. Therefore, this inquiry identifies possible avenues for useful behavioral biology research. For example, researchers could test the hypothesis that a child who shares facial features including race with an unrelated adult evokes more favorable treatment than a child who shares facial features but not race. Researchers could test this hypothesis through photo morphing experiments in the laboratory. They could also attempt to test this hypothesis in the foster care setting.

In relation to the latter possibility, the legal scholar could make additional substantial contributions to the research team. She could help the research team identify and measure forms of favorable treatment within foster care settings. She could also assist the team in gaining access to necessary data from foster care systems. As a legal professional, she would likely have a degree of credibility with judges and agency officials that would facilitate access to detailed information.

Once the research team completes its test of the hypothesis, the legal scholar would work with team members to communicate the results

97. See ELIZABETH BARTHOLET, *NOBODY'S CHILDREN: ABUSE AND NEGLECT, FOSTER DRIFT, AND THE ADOPTION ALTERNATIVE* (1999); RANDALL KENNEDY, *INTRARRACIAL INTIMACIES: SEX, MARRIAGE, IDENTITY, AND ADOPTION* (2003); Twila L. Perry, *The Transracial Adoption Controversy: An Analysis of Discourse and Subordination*, 21 N.Y.U. REV. L. & SOC. CHANGE 33 (1993-94); Ruth-Arlene W. Howe, *Transracial Adoption (TRA): Old Prejudices and Discrimination Float Under a New Halo*, 6 B.U. PUB. INT. L.J. 409 (1997).

98. See Herring, *supra* note 81; Herring, *supra* note 82.

99. In my discussions with behavioral biologist Debra Lieberman I have come to realize that race is unlikely to be an actual kinship cue. Distinctive racial features developed too late in human evolutionary history to operate as a cue for kinship. However, race may operate as a superficial similarity signal that evokes favorable treatment from others much as a kinship cue would. See Jerry M. Burger, Nicole Messian, Shebani Patel, Alicia del Prado & Carmen Anderson, *What a Coincidence! The Effects of Incidental Similarity on Compliance*, 30 PERSONALITY & SOC. PSYCHOL. BULL. 35 (2004).

to legal decisionmakers and public policymakers. This new information would not dictate any particular legal or policy outcomes, but it might be worthy of consideration. For example, if researchers find that race matching would likely enhance child safety to some degree, public officials may want to use this information to pursue a color-blind foster care system with care and sophistication.¹⁰⁰

The legal scholar's goal is not only to learn from scientific researchers or to engage them in discussions of law and policy, but also to form partnerships with scientific researchers – to actually join the research team. This goal presents a substantial challenge to a legal scholar inclined to pursue this approach. It requires the scholar to reach outside her area of expertise and comfort in order to build working relationships with researchers in fields other than law.

Pursuing full participation in scientific research provides part of the answer to the question of what is next for law and behavioral biology. As a member of a behavioral biology research team, the legal scholar can actively participate in the creation and dissemination of new knowledge that serves some of the important functions identified by Owen Jones and Timothy Goldsmith in their *Columbia Law Review* article.¹⁰¹ For example, new knowledge could contribute substantially to a fuller awareness of conflicts among various social and public policy goals.¹⁰² It could also provide a fuller identification and understanding of the costs and benefits related to current or proposed laws and policies.¹⁰³ And as Owen Jones and I have discussed, knowledge produced by behavioral biology research could serve to fortify current

100. As a member of a research team examining kinship cues the legal scholar could raise many other questions related to foster care. For example, does the practice of placing foster children with biologically related adults enhance safety? Does the magnitude of the safety effect vary by degree of relatedness, with more distantly related kin providing little or no increase in safety compared to unrelated foster parents? Does an agency practice of including close family friends or neighbors as kin yield safety benefits? As an example of another line of possible inquiry, researchers may want to examine the relevance of kinship cues in pursuing the dominant public goal of achieving timely, stable permanent placements for foster children. Namely, would the consideration of kinship cues in the placement process possibly result in more and/or quicker adoption outcomes for foster children with their foster parents? Also, does the consideration of kinship cues in making adoption placements result in more stability and a reduced likelihood of adoption disruption in the future? By participating as a member of a scientific research team, the legal scholar could raise these types of questions and identify appropriate contexts for scientific research.

101. See Jones & Goldsmith, *supra* note 2.

102. *Id.* at 435-36.

103. *Id.* at 436.

legal and policy approaches.¹⁰⁴

In conclusion, my proposed approach to legal scholarship does not conceive of law as a science. It also does not place the legal scholar in the role of a scientist or empiricist. Instead, the legal scholar plays a more modest role – as a participating member of a scientific research team. In this role, the legal scholar contributes to a research endeavor that employs the scientific method to produce new knowledge mostly in small, incremental steps. She strives for nothing more than to participate in the production of new knowledge and the effective communication of that knowledge to other legal scholars, legal decisionmakers, and policymakers. It is a role that both requires humility and promises significant advances in knowledge relevant to law and policy.

104. For an example of this function, consider my article addressing sibling incest. Herring, *supra* note 81. Behavioral biology research indicates that opposite sex siblings who live together during the first four to six years of life develop a sexual aversion to each other. Separation of opposite sex siblings during this period increases the risk of subsequent sibling incest. I use this research to assert the importance of placing young opposite sex siblings together in the same foster home if foster care is required. This assertion fortifies and strengthens the existing policy to place siblings together. *See id.*