Our Informationally Disabled Courts

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Abstract: In order to carry out their functions of deciding particular cases and developing legal rules and principles, courts need information: not just information about the law, but also factual information about the particular matter in controversy and about the world in general. The way in which courts are structured, however, makes it more difficult for them to obtain the information they need than it is for most other public decision-making institutions. As the world becomes more complex, and as sophisticated scientific, technical, and financial information becomes more central to litigation and to the judicial function, the systemic disabilities of the courts in obtaining the information they need become more apparent and increasingly more problematic.

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What makes a court a court? The question is important, but it lacks an obvious answer. We might distinguish courts from other decision-making institutions in terms of being staffed principally by those with legal training. And thus insofar as lawyers and judges occupy a sociologically discrete segment of professional culture,[1] courts can be distinguished by virtue of their sociological differentiation. Or we might begin with the fact that courts make decisions with procedures unlike those of other decision-making environments. The modal number of parties in a court case is two; the modal outcome has a winner and loser; and decisions are typically made by judges or other arbiters with no interest in the outcome. In these and various other ways, courts' procedures differ from those of legislatures, administrative agencies, executive officials, the military, and private corporations. Additionally, or perhaps alternatively, law schools purport to train their students in the arcane art of thinking like a lawyer,[2] and so what differentiates courts may be the fact that they reach their decisions via methods of thinking and reasoning that differ from those we see in other environments.

Each of these ways of differentiating courts – sociological, procedural, and methodological – constitutes

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part of a complete account of how we should characterize and understand them, but my focus here will be on still another criterion, one we can call informational differentiation: the array of information courts use in making decisions. This essay will concern a particular dimension of informational differentiation – the methods by which courts obtain factual, scientific, and technical information, and the potential flaws inherent in those methods.

It is common to think of courts in terms of their outputs: the decisions they make and the opinions they write. But these decisions are based on inputs, which fall into two broad categories. The first of these is the law. For some lawyers, judges, and scholars, the category of law is (and should be) narrow, encompassing little more than statutes, constitutional provisions, reported court cases, and the conventional methods of legal reasoning and interpretation of standard legal materials.[3] Others understand the law as including not only the foregoing, but also a broad range of moral, political, and pragmatic factors.[4] And although the divisions between those holding broad and narrow conceptions of law are profoundly important, this should not obscure the equal or greater importance of the other broad category of court inputs: the world of fact.

The factual inputs to judicial decisions fall into two broad types. The one most familiar to the public – largely from television and other media, but sometimes from personal experience – is the simple question of what happened. Who was it that approached the bank teller with a gun and demanded money? Who started the fight? Did the Ford enter the intersection first, or was it the Toyota? And how fast was the Ford going at the time? If we spend too much of our time focusing only on Supreme Court cases, or even on appellate litigation more broadly, we may ignore factual issues of this variety, for often they have been stipulated or decided long before a case gets to the highest courts. But we ought not to forget, for reasons we will explore, that basic controversies of raw fact must be resolved before appellate decision-making can take place. Long before *Miranda v. Arizona* reached the Supreme Court and provided the platform for the Court's holding that suspects must be informed of certain constitutional rights prior to questioning, someone had to decide that it was Ernesto Miranda who had been arrested, that Mr. Miranda had made statements that were used against him to his disadvantage, and that he had not in fact been given the warnings that the Supreme Court held were constitutionally mandated.[5] Beneath virtually all appellate decisions, therefore, are seemingly mundane factual questions that comprise most of what the courts do: determining just who did what; and how, why, and when they did it.

Often the factual inputs to judicial decisions also include those matters of scientific and technical knowledge that enable judges and jurors to draw inferences from the more basic who-did-what kind of fact. Does exposure to certain substances cause cancer, and if so, in whom and under what circumstances? If a fingerprint resembling that of the defendant is found at the scene of a crime, how likely is it that the defendant was there when the crime was committed? Do certain external features of an automobile tire indicate defective manufacture and an increased likelihood of tire failure under normal driving conditions?[6]

It is profoundly important to ask whether courts as presently constituted – especially courts in common-law systems such as the United States – are the institutions best suited to make factual determinations of the two types just sketched, especially the determination of general scientific, technical, financial, and related fact.[7] This ques-

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tion is crucial in part because it raises issues of how to allocate social and public decision-making among institutions of various types; for example, is regulatory policy best made administratively or through litigation?[8] However, we cannot even begin to address such questions unless we can evaluate the respective competences of the various candidate institutions in making the factual, technical, and scientific determinations on which sound policy-making must rest.

The question of fact-finding competence among institutions is also relevant to concerns about the shrinking number of trials in the United States and about the decreasing access to courts as venues for dispute resolution (concerns at the center of several other contributions to this volume). Trials serve many purposes,[9] most of which are predicated on the view that litigation in general, and trials in particular, have largely positive epistemic foundations: they get the facts right. But if the epistemic advantages of courts are smaller than is often supposed, the concerns about fewer trials and limited access need to be seen in a different light. And even though trials (especially civil trials[10]) are becoming fewer in number, they are increasingly used as the venue for making broad determinations of social policy,[11] especially regulatory policy. Thus, the quality of the informational base on which these determinations are made is a question that cannot be avoided. Moreover, the fact-finding function of the trial is to some extent being shifted to other venues and contexts, and the question whether this is a cause for concern is dependent on an assessment of just how good courts and trials are at serving this function. Insofar as other institutions are being created to meet the outsized demand for courts and trials, therefore, it is vital to know whether these alternative institutions should be designed to mimic courts or instead to compensate for what courts may do poorly.

For all of these reasons, therefore, it is essential to examine whether courts are well equipped to make the factual determinations that have important consequences for individual litigants and, increasingly, for social policy as well. There are several reasons to believe that courts may not be suited to the task of adequate factual determination; I will discuss five of them here.

First, courts – especially common-law courts operating with rules developed in the context of a system in which juries were prevalent[12] – make their factual determinations in accordance with rules of evidence that frequently make inadmissible that which in other contexts would be relevant information.[13] For example, while the exclusion of hearsay evidence ensures the opportunity to confront and cross-examine opposing witnesses and guards against the risk of overvaluation of potentially unreliable evidence, it nevertheless excludes a considerable amount of evidence that investigators in other contexts would find to be of at least some use. Similarly, the rules of evidence typically preclude evidence of character and evidence of past practices from being used to establish what someone may have done on a particular occasion. This exclusion protects against the risk of judges and juries being too heavily swayed by a defendant's incriminating past, but it also frequently results in the exclusion of evidence that most people would find at least somewhat helpful in determining the matter at hand. Indeed, Jeremy Bentham, one of history's great haters, had a particular hatred of the English law of evidence of his time and argued with considerable vitriol that the "artificial" exclusion of relevant evidence produced a far inferior method of factual inquiry than one that would admit almost all evidence, which the trier of fact would then assign the weight it deserved, no more and no less.[14]

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Such a system – now far more common in the civil-law world (which traditionally has made no use of juries) and often referred to these days as a system of "free proof" – more closely resembles the methods that ordinary people and many nonlegal professionals use in their factual inquiries. Indeed, Bentham referred to it as the "natural" method. But although the law of evidence in most common-law countries is moving toward fewer rules of exclusion, and although judges will often ignore or treat casually many of the rules of evidence when they are sitting without a jury, these movements have been slow and far from complete. As a result, the typical trial in the common-law world generally and the United States in particular (because of its continued greater reliance on juries than elsewhere) continues to exclude a large amount of information that historians, journalists, detectives, and anyone else trying to make a factual determination would likely consider relevant to their inquiries.

Second, we can ask whether the typical judicial adversary proceeding is actually the best way of evaluating contested factual questions. Consider, for example, the question whether the regular consumption of alcohol is a risk factor for heart disease. One way of determining this would be by conducting a trial-type adversary hearing, in which the opposing positions were advanced by the parties most interested and invested in the outcome – the Temperance League arguing for alcohol's danger and the wine and spirits trade association taking the opposite position, for example – after which one or more people with no prior exposure to the issue and with no scientific or medical background would decide who had made the stronger case. This scenario may be hypothetical and simplified, but it is hardly an inaccurate portrayal of the way in which courts resolve contested scientific or technical issues dramatically differently from the way in which scientific researchers attempt to answer them (in a laboratory, for example, or with a controlled clinical trial). Moreover, the concern about the possible defects of an adversary trial as a way of establishing fact is not solely about scientific and technical knowledge. When journalists, detectives, or historians set out to discern just what happened at some time in the past, they do so by attempting to investigate all angles, but not by conducting or presiding over anything even remotely resembling an adversary proceeding. Even more importantly, such non-judicial researchers engage in a continuous process that is vastly different from what typically takes place in a court. A journalist, detective, or historian has the ability to conduct what the great scholar of administrative law James Landis described as "persistent investigation": the ability to reexamine previously neglected matters as the investigation opens up emerging possibilities and new avenues of inquiry.[15] By contrast, courts tend to hear all the evidence available at one time and then make a decision. Only under exceptional circumstances – as when a court retains jurisdiction to monitor compliance with an environmental or (far less commonly these days) desegregation order – can a court do what most other institutions of factual inquiry do as a matter of course.[16]

Third, and closely related to the foregoing, is the fact that courts routinely trade in secondhand knowledge. At some level of philosophical sophistication, we might say that most of our knowledge is secondhand, since what we think of as direct observation involves possibly unreliable inferences from what philosophers call "sense data." Realistically speaking, however, we can consider much that we perceive with our vision, our hearing, our smell, and our touch to be, in some important sense, direct. And thus, by contrast, it is valuable to note that courts in their nor-

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mal operation do not investigate, observe, or experiment. Instead they listen to the accounts of others who have actually done the investigating, the observing, and the experimenting. And by relying so heavily – in fact, virtually exclusively – on secondhand knowledge, courts are routinely vulnerable to the misperception, misrecollection, misdescription, and downright lying of those conveying that knowledge.

Traditionally, secondhand knowledge was not treated as especially problematic. The perceptions and recollections of so-called eyewitnesses – those who had actually observed or perceived the matters about which they were testifying – were presumed to be accurate, and cross-examination was thought to be a reliable way of identifying dissemblance and deception. But now that science has exposed the persistent weaknesses of observation, memory, and description,[17] we have realized that cross-examination is a far less effective method of exposing error in real life than it is on television. We can thus recognize that a court proceeding in which the finders of fact are systematically prohibited from using their own (admittedly imperfect) investigative faculties to corroborate or controvert witnesses' testimonies may bring with it countless additional opportunities for factual error (even while it may also bring the potentially distortion-reducing advantages of disinterest on the part of the decision-maker).

Closely related to the problem of secondhand knowledge is the fourth defect in the way courts engage in fact-determination: the limited and at times artificially constrained domain of inquiry. With respect to matters of law, the issue is relatively familiar. Courts are expected to draw from a limited domain of legal materials (most obviously statutes, constitutions, and reported cases)[18] and are commonly understood to have behaved inappropriately if they draw from other sources not identified by what legal philosopher H. L. A. Hart labeled the "rule of recognition."[19]

Less obviously, much the same applies to the sources of fact in any given case. At a trial, the fact-finder, whether jury or judge, cannot go out and look for what may appear to be relevant information, but must instead rely on the evidence put forth by the parties. In theory, each party would have the incentive to provide information omitted by its adversary, but in practice, various other factors are likely to intrude. Issues of time and expense (to say nothing of attorney competence) may keep one side or the other from offering what seems to be important information; in addition, the parties may have various and conflicting goals that will cause them to withhold information that is in fact relevant to the matter at hand. Other factors come into play as well, but the basic problem is clear: the fact-finder is at the mercy of the parties in ways that less constrained fact-finders in science, journalism, police investigation, and history are not. Furthermore, legal fact-finders are expected to avoid relying on information that is not presented in open court and to avoid using any particular personal expertise they may happen to possess, however genuine or reliable it may be. At the dawning of the English jury system in the Middle Ages, the jury was drawn from the community precisely so that it would base its decision on what the jurors knew about the parties to a controversy and about the matter at hand. Now, however, we select juries substantially for the *absence* of the familiarity that was, centuries ago, considered one of the main reasons for having juries in the first place. The change has not necessarily been for the worse, as matters of fairness provide strong arguments for the disinterested and fact-ignorant jury, but one price of this change has been the unavailability to the decision-maker of information that might otherwise be helpful.

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This problem exists at all trials, but it is exacerbated at the appellate level; for not only are appellate judges precluded from relying on most sources of information they may possess in their personal capacity, but they are expected, at least traditionally, to limit their consideration to information contained in the record they receive from the court below. Bringing up facts about the case at hand that are not part of the given record, however true and relevant those facts may be, is considered one of the cardinal errors of appellate advocacy. Although judges are permitted to depart from the record in their search for what are called legislative (as opposed to adjudicative) facts – facts about the world rather than about the particular case at hand – even these inquiries are suspect when they range too far beyond the uncontroverted facts that can be the subject of judicial notice. So although Judge Richard Posner proudly acknowledges that he uses Internet resources to inform him about issues of scientific and technical fact that he believes will help him understand the matter at hand, he admits that this practice has subjected him to criticism.[20] And when Justice Stephen Breyer, who does much the same thing with considerable frequency,[21] cited in a dissenting opinion a large number of social science studies on the question whether using violent video games affected minors' proclivities toward actual and not simulated violence, Justice Scalia in his majority opinion chastised Justice Breyer for relying on sources that were nowhere to be found in the record of the case.[22]

Justice Breyer's frequent willingness to engage in his own independent factual research stands in contrast to the traditional view that judges should rely only on those facts – whether adjudicative or legislative – that all parties have had the opportunity to address. Indeed, although the Supreme Court's use of psychological studies in *Brown v. Board of Education* to establish the detrimental educational effects of segregated schools is commonly taken as an example of extrajudicial research on appeal, the studies on which the Court relied had in fact been introduced as evidence at the trial stage of the litigation, and thus had been accompanied by safeguards of notice and the opportunity for cross-examination.[23] And, ironically, it was Thurgood Marshall, acting as lead counsel for the NAACP on behalf of the various parties challenging the segregation of schools, who had objected to the introduction of new facts on appeal. When John W. Davis, representing the various segregation-defending states and their boards of education, made reference in his briefs and in oral argument before the Supreme Court to various prominent individuals who had warned against the dangers of too-rapid school desegregation, it was Marshall who objected. In an especially memorable colloquy with Justice Frankfurter, Marshall insisted that factual information should be presented only at trial, where it could be subject to cross-examination.[24]

Although Justice Breyer has been at the forefront of the practice of going beyond the record, briefs, and oral argument to engage in what he sees as relevant and necessary factual research, his concerns about the limited fact-finding abilities of courts in general (and appellate courts in particular) are actually broader.[25] Worried that courts are increasingly being forced to confront issues of scientific and technical knowledge about which the typical judge is somewhere between ill-informed and simply ignorant, Justice Breyer has offered a number of suggestions for ways in which judicial procedures might be modified to ameliorate this informational deficit. He has, for example, encouraged a more extensive use of court-appointed expert witnesses than is now the rarely employed (but officially authorized) prac-

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tice, and he has suggested that it should be easier than it now is for appellate proceedings to be suspended in order to allow for additional development of scientific, technical, and factual matters whose importance has been revealed only in the course of the proceedings.

Fifth and finally, consider the factual and informational dimensions of courts and litigation when they serve as institutions of policy-making. Of course, courts do make law and policy. Although we expect our judicial nominees to deny this in their confirmation hearings, they and most of the rest of us know that in a common-law system judicial law-making and policy-making are inevitable, although plainly there are debates about their desirability and the degree of their proliferation. Still, insofar as courts do make policy about such salient issues as products liability, affirmative action, environmental harm, and insider trading, among many others, it is appropriate to ask about the processes that courts use to obtain the information they employ in making these decisions. More particularly, policies are by definition applicable to a wide range of activities engaged in by an even wider range of actors. Courts, however, establish these policies in the context of particular cases with particular facts. Yet it is far from clear that the cases that provide the platform for more general policy-making are representative of the range of events that the policies will cover. We know that the psychological phenomenon called the "availability heuristic" will lead people, including judges, to assume that the events immediately in front of them are more representative of a larger category than they in fact are.[26] Just as people will assess the likelihood of airplane crashes as greater than it actually is just after hearing about a plane crash, so too will judges, for example, imagine that the complete array of lawnmower accidents to which some policy will apply will be similar to the particular lawnmower accident involved in the case before them. Yet because of the various incentives that lead some cases to be brought and others not, and that lead some decisions to be appealed and others not,[27] there is much reason to believe that a particular case coming before a law-making appellate court will not be representative of the larger field to which the court's judgment will apply in the future.[28] Just as one could not accurately assess human health by talking only to forensic pathologists, courts cannot obtain an accurate image of the events to which their policies will apply if they focus too much on the potentially pathological case before them – a focus that it may be hard for even self-aware judges to avoid.[29]

Courts thus appear to be informationally disabled in at least these five different ways. The law of evidence excludes not only irrelevant facts, but many relevant ones that would otherwise be important; the adversary system bars the fact-finder from engaging in "persistent investigation" or initiating inquiries, leaving fact-finding at the mercy of the variable talents and incentives of the competing parties; the reliance on witnesses produces a system in which actual firsthand knowledge on the part of the fact-finder is rare; the rules and traditions of the closed record make inquiry into matters outside the limited domain of accepted materials difficult; and the vagaries of case selection may encourage judicial policy-making to take place in the context of highly unrepresentative facts and events. Alleviating some of these disabilities, to the extent that it is possible, is of course no panacea for the kinds of epistemic and cognitive failings that plague all decision-making, whether judicial or otherwise. For example, as the literature on motivated cognition and motivated reasoning has long demonstrated, decision-makers with outcome preferences

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will often distort their factual understandings and reasoning processes to justify their preferred outcomes.[30] Additionally, psychologists have for many years been exploring the ways in which human perception may be less reliable than conventional wisdom assumes. But these are problems with *all* decision-making, whether public or private, judicial or otherwise. The central issue here, however, is whether certain epistemic flaws inhere in the particular design of courts and their procedures, or of court-like decision-making institutions and *their* procedures. The methodological issues I discuss here, therefore, are not to be understood as the sole impediments to accuracy in judicial factual determination. Rather, they provide reason to think that courts may be plagued with special informational disabilities beyond those they share with other decision-making institutions and processes.

Each of the restrictions on the access to and evaluation of information that I have discussed here has its justifications, some better than others. And thus because these informational disabilities often bring advantages in terms of fairness, transparency, and legitimacy, the fact that the courts are systemically informationally disabled is thus not necessarily or always to be lamented. But often the informational disabilities of the courts, and the informational deficits those disabilities produce, are not outweighed by the procedural benefits that a largely closed and highly structured approach to factual inquiry has traditionally been thought to bring. Thus, Judge Posner, Justice Breyer, and many others can be seen as standing at the forefront of a movement that is attempting to remedy at least some of the traditional informational disabilities of the judicial system.[31] It is much too soon to predict how far this movement will go, and space does not permit considering the full range of its costs and benefits. But if we are to consider the role of courts in decision-making and policy-making, we must take into account the way in which courts (when compared to individuals, institutions, and other decision-making bodies) operate under procedures and traditions that produce a systematically and predictably information-poor decision-making environment.

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ENDNOTES

1 See Niklas Luhmann, *Law as a Social System*, ed. Fatima Kastner and Richard Nobles, trans. Klaus Ziegert (New York: Oxford University Press, 2008); and Niklas Luhmann, *A Sociological Theory of Law*, trans. Martin Albrow and Elizabeth King-Utz (London: Routledge & Kegan Paul, 1985).

2 As far back as 1607, Lord Chief Justice Sir Edward Coke celebrated the "artificial reason and judgment" of the law (*Prohibitions del Roy*, 12 Co. Rep. 64 [1607], EWHC KB J23, 77 ER 1342). See also Edward Coke, *The First Part of the Institutes of the Laws of England; or, A Commentary Upon Littleton*, ed. Charles Butler (1628; London: E. Brooke, 1809). For sympathetic commentary, see Charles Fried, "The Artificial Reason of the Law or: What Lawyers Know," *Texas Law Review* 60 (1981): 35–58. And more generally, see Frederick Schauer, *Thinking Like a Lawyer: A New Introduction to Legal Reasoning* (Cambridge, Mass.: Harvard University Press, 2009).

3 See Antonin Scalia, "The Rule of Law as the Law of Rules," *University of Chicago Law Review* 56 (1989): 1175–1188.

4 Two very different but equally broad conceptions of the range of permissible judicial inputs are Ronald Dworkin, *Law's Empire* (Cambridge, Mass.: Harvard University Press, 1986); and Richard Posner, *How Judges Think* (Cambridge, Mass.: Harvard University Press, 2008).

5 *Miranda v. Arizona*, 384 U.S. 436 (1966).

[6] On the automobile question, see *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137 (1999).

[7] See Linda Greenhouse, "How Do Judges Know What They Know?" *Proceedings of the American Philosophical Society* 154 (2010): 287.

[8] See the various contributions in *Litigation versus Regulation*, ed. Daniel Kessler (Chicago: University of Chicago Press for the National Bureau of Economic Research, 2011).

[9] See Judith Resnik, "Bring Back Bentham: 'Open Courts,' 'Terror Trials,' and Public Sphere(s)," *Law & Ethics of Human Rights* 5 (2011): 2, which explores the role of courts as forums for public democratic deliberation and contestation (a role that may be less epistemically dependent than the role of courts as resolvers of disputes and makers of public policy).

[10] See John H. Langbein, "The Disappearance of Civil Trial in the United States," *Yale Law Journal* 122 (2012): 522.

[11] The importance of trials is not solely a function of how many of them there are; this is especially apparent once we comprehend the extent to which pervasive policy decisions are in effect made in the context of trials, especially civil trials involving the environment, products liability, and financial regulation. For example, there may have been only a small number of trials dealing with the liability of tobacco companies for tobacco-related health consequences, but those trials and the size of the verdicts they produced profoundly and permanently changed the face of tobacco policy in the United States.

[12] Juries are largely a creature of the common law, and thus of the legal systems of Great Britain and its former colonies, including the United States, Australia, New Zealand, India, Canada (with the exception of Quebec), and significant parts of Africa and the Caribbean. The civil-law world, which includes much of Asia and the Middle East and most countries whose legal systems are derived from those of France, Germany, Spain, Portugal, and the Netherlands, has traditionally not employed the jury, although in some civil-law countries the judges sit with lay assessors when making decisions. It is worth noting that most common-law countries (with the exception of the United States) have eliminated the jury in all but criminal cases, and that some countries with civil-law traditions, including Japan and South Korea, have begun experimenting with a jury system in a limited number of criminal cases.

[13] See Frederick Schauer, "On the Supposed Jury-Dependence of Evidence Law," *University of Pennsylvania Law Review* 155 (2006): 165–202.

[14] Jeremy Bentham, *Rationale of Judicial Evidence*, ed. John Stuart Mill (London: Hunt & Clarke, 1827).

[15] James M. Landis, *The Administrative Process* (New Haven, Conn.: Yale University Press, 1938), 37–38.

[16] See Abram Chayes, "The Role of the Judge in Public Law Litigation," *Harvard Law Review* 89 (1976): 1281–1316.

[17] Much of the research is collected and described in Elizabeth F. Loftus, James M. Doyle, and Jennifer Dysart, *Eyewitness Testimony: Civil and Criminal*, 4th ed. (New York: LexisNexis, 2007).

[18] Frederick Schauer, "The Limited Domain of the Law," *Virginia Law Review* 90 (2004): 1909–1956.

[19] H. L. A. Hart, *The Concept of Law*, ed. Penelope A. Bulloch, Joseph Raz, and Leslie Green, 3rd ed. (1961; Oxford: Clarendon Press, 2012).

[20] Richard A. Posner, "Judicial Opinions and Advocacy in Federal Courts," *Duquesne Law Review* 51 (2013): 3–39.

[21] See *Brown v. Entertainment Merchants Ass'n*, 131 S. Ct. 2729, 2767–2779 (2011) (Breyer, J., dissenting); *Parents Involved in Community Schools v. Seattle School District No. 1*, 551 U.S. 701, 803–819 (2007) (Breyer, J., dissenting); *Kumho Tire Co., Ltd. v. Carmichael*, 526 U.S. 137, 142–143 (1999) (Breyer, J., for the Court); and *United States v. Lopez*, 514 U.S. 549, 619–623, 631–644 (1995)

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(Breyer, J., dissenting). On Justice Breyer's commitment to the Enlightenment ideal of using fact, reason, and scientific expertise to make decisions, see Linda Greenhouse, "Supreme Court Preview: The Breyer Project: 'Why Couldn't You Work This Thing Out?'" *Charleston Law Review* 4 (2009): 37.

22 *Brown v. Entertainment Merchants Ass'n*, 2729, 2739 n.8 (Scalia, J., for the Court).

23 *Brown v. Board of Education of Topeka, Kansas*, 347 U.S. 483 (1954).

24 Leon Friedman, ed., *Argument: The Oral Argument Before the Supreme Court in Brown v. Board of Education of Topeka* (New York: Chelsea House, 1969), 63.

25 See *General Electric Co. v. Joiner*, 522 U.S. 136, 147 (1997) (Breyer, J., concurring); Stephen Breyer, "Closing Address," Conference on DNA and the Criminal Justice System, John F. Kennedy School of Government, Harvard University, November 21, 2000; and Stephen Breyer, "The Interdependence of Science and Law," *Judicature* 82 (1998): 24–31.

26 Amos Tversky and Daniel Kahneman, "Availability: A Heuristic for Judging Frequency and Probability," *Cognitive Psychology* 5 (1973): 207–232.

27 On the selection effect generally, see George Priest and Benjamin Klein, "The Selection of Disputes for Litigation," *Journal of Legal Studies* 13 (1984): 1–56. A good overview of much of the research that the Priest-Klein hypothesis has spawned is Leandra Lederman, "Which Cases Go to Trial: An Empirical Study of Predictors of Failure to Settle," *Case Western Reserve Law Review* 49 (1999): 315–362.

28 If we assume that policy-makers and the general public glean some of their understanding of scientific and technical issues from the way in which those issues are treated in litigation, the consequences of the unusual way in which courts make those decisions are even more broad-ranging. See Sheila Jasanoff, *Science at the Bar: Law, Science, and Technology in America* (Cambridge, Mass.: Harvard University Press, 1997).

29 See Frederick Schauer, "Do Cases Make Bad Law?" *University of Chicago Law Review* 73 (2006): 883–918; and Frederick Schauer and Richard Zeckhauser, "The Trouble with Cases," in *Litigation versus Regulation*, ed. Daniel Kessler (Chicago: National Bureau of Economic Research/University of Chicago Press, 2011), 45–70.

30 See Ziva Kunda, "The Case for Motivated Reasoning," *Psychological Bulletin* 108 (1990): 480; and Shelley E. Taylor and Curtis Hardin, "Motivated Cognition: Phenomena in Search of Theory," *Psychological Inquiry* 10 (1999): 75.

31 This movement might be understood to challenge much of the traditional understanding of the nature of law itself, and of the processes it has so traditionally and centrally employed. See Frederick Schauer, "The Decline of 'The Record': A Comment on Posner," *Duquesne Law Review* 51 (2013): 51–66; and Frederick Schauer and Virginia J. Wise, "Nonlegal Information and the Delegalization of Law," *Journal of Legal Studies* 29 (2000): 495–515.

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