1. INTRODUCTION

Drawing on psychological insights to explain judicial decisionmaking goes back more than eighty years (Frank 1930). However, most of the progress in the application of insights and methodologies of judgment-and-decisionmaking research to judicial decisionmaking has been made in the past two decades. This chapter focuses on these recent studies.

The judicial system and the behavioral sciences interface at manifold points. It would thus be useful to begin our review by differentiating the behavioral perspective from other bodies of research. To begin with, behavioral analysis of judicial decisionmaking should be distinguished from forensic psychology, that is, the contribution of psychologists to the operation of the court system through the provision of expert testimonies in legal proceedings (see generally Cutler and Kovera 2011).Judicial decisionmaking is also to be distinguished from judges’ verbal and nonverbal communicative behavior in court (Blanck et al. 1990).

Behavioral analysis of judicial decisionmaking should likewise be differentiated from the empirical study of the relationships between judges’ decisions, their ideological inclinations, and law as a system of norms and an institution. This latter body of research, connected in part to rational choice theory, is primarily the province of political scientists. It focuses on higher court decisions regarding public and constitutional issues. The following quote nicely summarizes the different theories:

[w]hat are the considerations that drive justices? The answer depends on who you ask, and when. Legal model researchers would reply that justices’ considerations are rooted in the law, and that the law is essentially comprised of its plain meaning, the lawmaker’s intent, and precedent. Attitudinal model researchers would answer that the law camouflages the true main consideration: the judge’s attitude vis-à-vis the facts of the case. A rational choice model supporter would agree with the attitudinalists, yet add strategic considerations related to the odds of the judge’s opinions being accepted and ultimately realized. A neo-institutionalist would also claim that judges’ own attitudes are a main consideration. Such a researcher would also agree that strategic considerations, which often stem from various institutional arrangements and norms, influence judges’ decisions. Yet in the eyes of the neo-institutionalist, institutional variables also have their own

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influence on court decision making. A main institutional variable is “the law,” which is defined as a dynamic mindset instead of a formal definition as per the legal model. (Weinshall-Margel 2011, emphases added).¹

Notwithstanding their disparities, these camps share some basic assumptions, including the belief that judges’ decisions are driven only by their goals, the primary goal being to make good legal policy (whatever role “the law” plays in forming such a policy). These theories hardly take into account insights from cognitive and social psychology that cast doubt on these assumptions (Baum 2010; Martinek 2010). Furthermore, they are less relevant to the great majority of run-of-the-mill judicial decisions made by lower courts. Surveying this literature would thus exceed the boundaries of the present chapter.

Since judges are generally insulated from market incentives and since their decisions in particular cases do not directly affect their own well-being, standard economic analysis—which assumes that people are rational maximizers of their own utility—is not very helpful in explaining judicial behavior. In an attempt to meet this challenge, Richard Posner (1993) suggested drawing an analogy between judges’ decisions and those made by managers of non-profit enterprises (whose income does not depend on the profits of their enterprise), people who vote in political elections (despite the infinitesimal probability that their vote would affect election outcomes), and theatre spectators (who identify with the characters and form an opinion on their entitlements). Contrary to the attitudinal and rational choice models, Posner portrays judges as driven by a multitude of motives going beyond making good legal policy, including a preference for expanding less effort, yearnings for prestige and popularity, aversion to being reversed by higher courts, and the desire to move the docket (see also Epstein, Landes, and Posner 2013; Choi, Gulati, and Posner 2012).

Though insightful, Posner’s more complex depiction of judicial decisionmaking still disregards the behavioral perspective. It does not overcome the basic difficulty facing economic analysis, as it largely assumes that judges derive utility from “playing by the rules” of judicial decisionmaking, advancing the public interest, and so forth. While this analysis may explain why judges do not decide randomly, or why they exert effort in the absence of direct monetary incentives, it sheds little light on how judges make decisions (see also Siegel 1999).

Hence, unlike other spheres, in which behavioral law and economics has largely evolved as a reaction to standard economic analysis, in the absence of

¹ On the attitudinal model, see also Segal and Spaeth (1993, 2002); on strategic models: Epstein and Knight (1998); and on neo-institutionalism: Clayton and Gillman 1999; Richards and Kritzer 2002; Bailey and Maltzman 2011.
established economic analysis of judicial decisionmaking, the behavioral studies in this sphere do not relate to the economic perspective. In conformity with the general spirit of this volume, we nevertheless focus on those aspects of the behavioral research that are more closely connected to the main themes of behavioral law and economics. It would therefore be useful to describe the contribution of the behavioral studies of judicial decisionmaking by referring to the three primary contrasts between the economic and the behavioral perspectives described in the opening chapters of this volume. These are deviations from the assumption of cognitive rationality (the heuristics and biases literature), departures from the assumption of motivational rationality (other-regarding preferences), and divergences from consequentialist morality (see Baron, Heuristics and Biases, Gächter, and Baron, Moral Judgment, respectively).

Most behavioral studies of judicial decisionmaking belong to the heuristics and biases school of research. Hence, these studies constitute the lion’s share of this chapter. The chapter also discusses the contributions of social psychology to understanding decisionmaking in small groups, such as juries. Since almost no one argues that judges and juries make their decisions with a view to directly maximizing their own utility, the behavioral studies of human motivation are less relevant here. Finally, legal decisionmaking inevitably involves normative deliberation. In this respect, psychological studies of people’s normative convictions or “moral heuristics” are important for understanding judicial decisions. However, since these issues are discussed elsewhere in this volume (Zamir, loss aversion), they are not discussed here.

To keep the discussion manageable, we exclude a systematic analysis of the vast literature on jury instructions (see, e.g., Eisenberg and Wells 1993; Lieberman and Sales 1997; Vidmar and Hans 2007, pp. 158-168, 175-176, 236-40, 260-262). For the same reason, we only describe some of the contribution of behavioral studies to the large body of literature on the interactions between race and judicial decisionmaking (see, e.g., Mustard 2001; Mitchell et al. 2005).

A final note regarding the scope of this chapter is in place. To fully understand judges’ and juries’ decisionmaking, one must pay heed to the psychology of other key figures in the adjudication process: litigants, attorneys, and witnesses. However, delving into these issues would dramatically expand the scope of this chapter; we therefore exclude them as well. For an overview of behavioral analyses of litigation and settlement, see Robbennolt (this volume); for a recent synopsis of the literature on eyewitness identification see Brewer and Wells (2011); and for a critical review of the behavioral analysis of evidence law, see Vars (this volume).

This chapter thus dwells on studies highlighting the susceptibility of judicial decisionmakers to the various heuristics and biases identified by cognitive psychology. The chapter is structured as follows. Section 2 presents general
theories of the cognitive process of judicial decisionmaking. Sections 3 through 7 describe a series of well-known cognitive phenomena and their reflection in judicial decisionmaking. These include the compromise and contrast effects, the effect of legally irrelevant information, the hindsight bias, the omission bias and related phenomena, and the role of anchoring in converting qualitative into quantitative judgments. Section 8 then examines factfinders’ reluctance to impose liability based on certain types of evidence. Section 9 describes the contribution of behavioral studies to better understanding judicial prejudice. Section 10 describes experimental studies of quintessentially judicial decisions: the application of legal norms to facts, and specifically the effect of the choice between rules and standards on the predictability of judgments. Sections 11 and 12 provide an overview of two fundamental questions in the behavioral analysis of judicial decisionmaking, discussed in passim throughout this chapter: group decisionmaking and judges’ versus laypersons’ decisionmaking. Section 13 offers a general assessment of the behavioral research of judicial decisionmaking.

2. THE STORY MODEL AND COHERENCE-BASED REASONING

Before turning to the reflect on specific heuristics and biases in judicial decisions, this section briefly presents some general theories of the cognitive mechanisms through which judicial decisionmakers process complex information and reach their decisions. These theories set the framework for understanding cognitive phenomena such as priming in adjudication, disinclination to base liability on statistical evidence, and differentiating between quantitative and qualitative judicial decisions.

Primary contributions to this body of research include the work of Nancy Pennington and Reid Hastie on the Story Model (see Pennington and Hastie 1991), and the studies of Keith Holyoak, Stephen Read, and Dan Simon on constraint satisfaction and coherence-based reasoning (see Simon [1998, 2004]). While the story model focuses on factfinding, studies of coherence-based reasoning refer to decisions on legal issues as well. The latter studies rest on connectionist models of mental representations (for an overview see Simon 2004; Robbennolt, Darley, and MaCoun 2003; Read and Simon 2012).

The story model contests previous theories of factfinding, such as Bayesian probability theory, algebraic models that attribute differential weights to pieces of evidence, and stochastic process models (Hastie 1993). Based on interviews and experimental studies (Pennington and Hastie [1986, 1988, 1992]), the story model appears to better describe the actual psychological process of factfinding in adjudication. According to the story model, story construction—the creation of a narrative that explains the diverse items of evidence that have been deemed reliable and relevant—is the core cognitive process determining the facts in adjudication relevant. Interviews and experiments have indicated that the mental representation of the evidence is not structured according to factors such
as the order of its presentation in court, the pertinent legal issues, or whether
the evidence supports or undermines the plaintiff’s version of the events.
Rather, factfinders structure the evidence to create a story. The story is
constructed from three types of knowledge: the evidence presented at trial,
knowledge about events similar to the one in dispute, and general notions of
what constitutes a complete story. Story constructing is an active process,
resulting in one or more interpretations of the evidence. When faced with
different interpretations, factfinders adopt the one that best explains the
evidence, that is, the story that is most coherent and provides broadest coverage
of the evidence. Coherence requires that the story contains no internal
contradictions or missing elements, and that it conforms to factfinders’ beliefs
about the physical world and people’s motivations and behavior.

Complex stories often comprise several episodes. They include motivations,
actions, and consequences, connected by physical and intentional causality.
Some of the events—or their elements—may not be supported by any direct
evidence and require the drawing of inferences (Pennington and Hastie 1991).
Hence, the same set of evidence often gives rise to more than one story, with
different factfinders finding different stories more or less compelling.
Pennington and Hastie (1988, 1991, 1992) found that the more complete and
coherent a story is, and the more it covers the available evidence, the more
confident are the factfinders about its accuracy. Factfinders’ confidence about a
story’s veracity is further enhanced by its uniqueness, that is, by the lack of
plausible alternative stories that could account for the evidence.

Pennington and Hastie (1988) also found that when the evidence supporting
a possible conclusion was presented in a chronological and causal story order,
while the evidence supporting rival conclusion presented in a non-story order
(e.g., according to the order of the testimonies), subjects tended to adopt the
former conclusion. Even more intriguingly, when, following hearing of the
evidence, subjects were presented with sentences allegedly describing the
evidence, including lure sentences referring to facts that had not been included
in the evidence, they were almost twice as likely to recognize lure sentences
supporting their adopted story as they were to recognize lure sentences
supporting the alternative one (id.). Factfinder thus use different techniques to
fill in gaps and strengthen their story.

The idea that factfinding involves a choice between possible narratives is
supported by an experimental study showing that evidence judged as only
weakly supporting one side’s version increased factfinders’ confidence in the
truthfulness of the opposite version (McKenzie, Lee, and Chen 2002).

According to the story model and coherence-based theories, while the
chosen story and legal conclusions may change during the trial and even
following the jury instructions, the coherent story and its legal implications are
not a post hoc justification of the decision. They are created during the trial and
the decisionmaking process (Pennington and Hastie 1991; Holyoak and Simon
This observation is closely connected to a central tenet of coherence-based theories of judicial decisionmaking, namely that the decision process is bidirectional (Holyoak and Simon 1999). The strength of evidence and arguments not only determines which story the decisionmaker will adopt and what decision she will make. The adopted story and decision concomitantly determine the assessed relevance, reliability, and importance of different pieces of evidence as well as the power of competing legal arguments. Subjects tend to attribute greater weight to evidence items and legal arguments that support their decision, and lesser weight to evidence and arguments opposing it (Pennington and Hasite 1988; Holyoak and Simon 1999; Simon, Snow, and Read 2004). As a corollary, a specific piece of evidence, or argument, can indirectly influence the assessed reliability or persuasiveness of other pieces of evidence and legal arguments, even absent any plausible relationship between the two.

Even if the evidence and legal arguments are initially confusing and incoherent, this bidirectional process tends to yield a conclusion that decisionmakers sincerely believe to be clear and conclusive. Decisionmakers are typically unaware of this coherence shift as they do not accurately recall their original assessment of the evidence and the legal argumentation (Holyoak and Simon 1999; Simon 2004). Thus, when Simon, Snow, and Read (2004) presented their subjects with a new piece of evidence that was sufficiently powerful to cause some of them to switch their initial verdict, the final verdict was accompanied by a corresponding (second) coherence shift; and switchers were no less confident in their final verdict than were those who did not switch.

The story model and coherence-based theories of judicial decisionmaking arguably have normative implications. Simon (2004), for instance, argued that to enhance the accuracy of juries’ factfinding, instructions about substantive law should be given prior to hearing the evidence, because subsequent instructions are unlikely to alter a coherent story formed on the basis of inaccurate assumptions about the law. Another possible implication pertains to the admissibility of prejudicial evidence. Given that a sufficiently strong piece of evidence can affect the entire mental model of the case by indirectly influencing other variables, the admission of prejudicial evidence may be more detrimental than assumed, for example, by a Bayesian theory of factfinding, because it affects the assessed reliability and relevance of pieces of evidence regarding substantively unrelated issues (id.).

After this introduction to general theories of judicial decisionmaking, we turn to a discussion of specific cognitive phenomena.

3. COMPROMISE AND CONTRAST EFFECTS

Rational choice theory assumes that the relative ranking of two options is context-independent. That is, the ranking of two options should not be influenced by the sheer availability of additional options. To illustrate, a
customer in a restaurant should not change her ranking of the steak and chicken options simply because a fish platter is added to the menu. And yet, empirical findings from the area of consumer choice have demonstrated that decisions are often context-dependent. Adding an additional, even irrelevant, option to the mix can in fact alter peoples’ decisions. Researchers have identified two primary mechanisms of context dependence: the compromise effect and the contrast effect.

The compromise effect alludes to peoples’ tendency to choose intermediate rather than extreme options. For example, when consumers were asked to choose between a medium-priced and a low-priced camera, each type was chosen by 50% of the participants. However, when asked to choose between those two cameras and an additional high-end camera, 72% chose the medium option (Simonson and Tversky 1992). Kelman and his colleagues (1996) demonstrated that the compromise effect can influence judicial decisions. Their experiment focused on conviction decisions with respect to different types of homicide offences: manslaughter, murder, and murder with aggravating circumstances. The results showed that much like the case of cameras, the introduction of an additional more-severe offence pulled factfinders towards the intermediate option. Facing a choice between manslaughter and murder, 47% of the subjects chose manslaughter while 53% chose murder. When the third option was added, only 19% of the subjects chose the manslaughter option whereas 39% chose murder and 42% chose murder with aggravating circumstances.

Another type of context dependence is the contrast effect. Adding an option that highlights the attributes of one of the products being evaluated can cause people to choose that product even though the added option itself is strictly inferior and therefore irrelevant to the decision. For instance, when facing a choice between a Cross pen and $6 in cash, only 36% of the subjects chose the pen. When a third irrelevant option was introduced: a pen that is clearly inferior to the Cross pen, 46% of the subjects preferred the Cross pen over the money. Apparently, the inferior pen altered the way in which people attached value to the Cross pen (Simonson and Tversky 1992). Kelman and his colleagues (1996) showed that the contrast effect can also influence legal choices. Participants in their study were asked to choose the sanction suitable for a criminal. When deliberating between jail and probation, the introduction of an inferior sanctioning option that highlighted the advantages of the probation option caused more people to choose it. Similar results were reported by Rachlinski and Jourden (2003) with respect to years of sentencing.

More work remains to be done before we acquire a good understanding of the way in which context dependence influences judicial decisionmaking. First, most studies have thus far focused on laypersons’ decisions (for an exception see Rachlinski et al. 2013). Arguably, decisionmakers more familiar with the legal decision environment will be less prone to influences from irrelevant
factors. Second, the handful of existing studies do not account for the many nuances associated with different legal questions. For example, while Rachlinski and Jourden (2003) identified a contrast effect with respect to years of imprisonment, they did not find such an effect with respect to the death penalty: “Death, it seems, is different after all” (id., p. 482).

4. IRRELEVANT INFORMATION

The courtroom provides a unique decisionmaking environment. Whereas the human mind is trained to incorporate all available information so as to render the best decision, this is not always the case in court. Both the rules of evidence and substantive legal rules sometimes dictate the exclusion of certain facts from the information set available to the decisionmaker. In addition, attorneys might willfully introduce legally irrelevant information in order to influence decisions. In this section we examine the degree to which such information affects judicial decisionmakers.

To begin with, exclusionary rules are premised on the assumption that the prejudicial effects of certain types of evidence outweigh their probative value. For example, information regarding the defendant’s past convictions might be relevant for the determination of liability in the case at hand but it may also skew decisions towards a finding of guilt. Other types of evidence, such as hearsay testimony, can be excluded due to their limited probative value. Finally, some exclusionary rules stem from policy considerations unrelated to the probative weight of the evidence. For example, evidence obtained through illegal police practices might be deemed inadmissible in order to incentivize police to behave appropriately in future cases and to protect the fairness of the judicial process.

During adjudication, however, factfinders are often exposed to evidence that is later determined to be inadmissible. This can occur when a witness exposes the inadmissible evidence in the courtroom. Inadmissibility can also characterize information coming from external sources, such as the media. The question of whether factfinders actually manage to ignore inadmissible information has long troubled legal scholars and courts. In the past couple of decades scholars have turned to examine this question empirically.

A case in point is the influence of information on the defendant’s past convictions. Taking an experimental approach, Greene and Dodge (1995) exposed one group of mock jurors to the defendant’s past convictions while the other group of mock jurors was not exposed to such information. Those mock jurors informed about the past convictions were significantly more likely to reach a guilty verdict (see also Wissler and Saks 1985; Tanford and Cox 1988). More recently, Eisenberg and Hans (2009) took an observational approach to the topic. As part of their study, they assembled a unique data set documenting the behavior of defendants in criminal trials. As Eisenberg and Hans show, criminal records are often introduced into evidence when the defendant takes
the stand. When introduced at that stage of the trial, such records induced a significant rise in conviction rates in close cases, that is, cases where the evidence presented by the prosecution is not overwhelmingly strong. Notably, this increase is not driven by the effect of the past conviction on the defendant’s credibility (the reason for which past convictions are usually admitted). Rather, it is driven by the effect it has on the jury’s decision threshold.

Numerous studies have documented the effects of inadmissible evidence in other legal domains, such as hearsay evidence (e.g., Schuller 1995), pretrial media reports (e.g., Fein et al. 1997), and illegally obtained evidence (e.g., Kerwin and Shaffer 1994). These studies show that inadmissible evidence affects judicial decisionmaking in civil as well as criminal settings, irrespective of whether that evidence favors the prosecution or the defense. A recent meta-analysis concluded that “[i]nadmissible evidence produced a significant impact on guilty verdicts” (Steblay et al. 2006, p. 477). While this impact is relatively small, it is statistically significant (id., p. 486).

Researchers have also documented similar behavior among professional judges. In a study focusing on inadmissible evidence regarding remedial measures in a product liability case, Landsman and Rakos (1994) found that both judges and mock jurors were unable to disregard the facts they were required to disregard. The authors concluded that in the setting examined, “judges and jurors may not be very different in their reactions to potentially biasing material” (id., p. 125). In a later series of experiments, Wistrich, Guthrie, and Rachlinski (2005) reported somewhat more nuanced results. They found that judges could not ignore inadmissible evidence regarding settlement offers, privileged information, prior sexual history of a rape victim, prior criminal records of a plaintiff, and information that the government had agreed not to use in trial. At the same time, judges did manage to ignore a confession that was obtained in violation of a defendant’s right to counsel and the outcome of a search that was conducted without probable cause. The authors carefully acknowledge that the pattern of results they observed “defies easy explanation” and requires more data. Clearly, they are correct in their assessment of their results.

Finally, a question of significant practical importance is the extent to which admonitions made by courts to disregard inadmissible evidence do alter jurors’ decisions. Since the “human mind cannot simply forget information on

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2 That said, the vast majority of studies deal with incriminating evidence in criminal cases (Steblay et al. 2006, p. 476).

3 While the inability (or limited ability) to disregard information challenges the effectiveness of exclusionary rules, this inability may actually justify such rules. Guttel (2004) argued that unreliable evidence—evidence that is likely to be refuted by the other party, such as hearsay—should be excluded altogether, because its subsequent refutation may distort factfinders’ decisions due to the cognitive phenomenon of overcorrection.
command,” there is room for some skepticism as to the effectiveness of such instructions (Daftary-Kapur et al. 2010, p. 138). Indeed, the mentioned meta-analysis suggests that “judicial instruction did not return verdicts to the level generated by jurors never exposed to the inadmissible evidence” (Steblay et al. 2006, p. 478).

Aside from this general finding, two other findings related to admonitions merit closer attention. First, admonitions may draw greater attention to the inadmissible evidence in some cases and thus produce a backlash. Pickel (1995), for example, reported that mock jurors who were exposed to a detailed admonition exhibited a greater tendency to convict when compared to mock jurors who were only informed about the inadmissibility of the evidence (see also Cox and Tanford 1989; Lee, Krauss, and Lieberman 2005). Second, jurors are sensitive to the admonition's content. When jurors are required to disregard a certain piece of evidence due to a technicality, they are relatively reluctant to do so. In contrast, when jurors are asked to ignore evidence due to its limited probative weight, they exhibit a greater tendency to comply with instructions (Steblay et al. 2006, p. 487).

5. Hindsight Bias

Courts are frequently called upon to evaluate a decision in retrospect, after the decision's outcomes are known. In negligence cases, for example, the reasonableness of the precautions taken by the defendant are examined subsequent to materialization of the risk associated with a harm. Yet, the law often requires judicial decisionmakers to ignore the outcome information revealed ex post and evaluate the issues from a purely ex ante perspective. Behavioral findings suggest, however, that decisionmakers find it difficult to ignore such information.

Starting with Fischhoff (1975), a large body of work has documented the existence of hindsight bias (for a review and meta-analysis see Guilbault et al. 2004; Roese and Vohs 2012). Studies have shown that people tend to overestimate the probability of an event once they are aware of the fact that it has occurred. Researchers have provided cognitive as well as motivational explanations for the bias (Guilbault et al. 2004).

Hindsight bias has been examined in numerous legal contexts (see Teichman, this volume), including determination of negligence in tort cases (Kamin and Rachlinski 1995), analysis of novelty in patent law (Mandel 2006), and the finding of probable cause in search and seizure cases (Rachlinski, Guthrie, and Wistrich 2011). Studies have also demonstrated that professional judges are susceptible to such bias (Guthrie et al. 2001) although they may deal with it more appropriately than do laypersons (Hastie and Viscusi 1998). Finally, debiasing decisionmakers from the effects of hindsight bias has proven to be a thorny task (Kamin and Rachlinski 1995).
6. OMISSION BIAS AND RELATED PHENOMENA

Omission bias is the tendency to prefer inaction to action when facing risky alternatives. People are considered to bear greater moral responsibility for harmful outcomes they actively brought about than for those they brought about passively (Spranca, Minsk, and Baron 1991). People anticipate experiencing greater regret if their action would result in worse outcomes than inaction, compared to the regret they expect to feel if they would refrain from action and it turned out that action would have produced better outcomes (Kahneman and Tversky 1982a). People might therefore prefer harmful omissions to less harmful commissions (Ritov and Baron 1990).

Presumably, a judge called to decide a case cannot refrain from delivering a judgment; hence omission bias may seem irrelevant to judicial decisionmaking. However, there is experimental support for the claim that laypersons perceive accepting a claim as more active than dismissing it (Zamir and Ritov 2012). If this perception is shared by judges, omission bias may help explain why they are reluctant to accept claims even when the plaintiff’s version of the facts is slightly more persuasive than that of the defendant. The general standard of proof in civil litigation in Common Law systems is preponderance of the evidence. Plaintiffs have to establish their case as more probable than not in order to prevail. Notwithstanding this formal rule, in a series of experiments conducted with advanced-years law students and experienced lawyers, Zamir and Ritov (2012) found that the actual standard of proof is considerably higher. To accept a claim, the decisionmaker should rate the persuasiveness of the plaintiff’s version around 70 on a scale of 0 to 100 (where 0 indicates that there is no doubt that the plaintiff’s version is incorrect and 100 indicates that there is no doubt that it is correct). These experiments provide a prima facie evidence that judges exhibit an omission bias. Guthrie and George (2005) have similarly suggested that omission bias can explain the strong tendency of appellate courts to dismiss appeals.

Psychologists have also identified a closely related phenomenon, status quo bias. Other things being equal, people tend to stick to the state of affairs they perceive as the status quo rather than opt for an alternative (Samuelson and Zeckhouser 1988; Kahneman, Knetsch, and Thaler 1991). Ordinarily, changing the status quo requires some action, whereas retaining the status quo involves mere omission. Hence, the status quo bias is usually confounded with the omission bias although they can exist separately (Schweitzer 1994) and can pull in opposite directions (Ritov and Baron 1992).

Status quo bias has been mentioned as a possible explanation for court reluctance to issue preliminary injunctions that disrupt the status quo (Zamir 2012) as well as to appellate court aversion to reversing lower court decisions (Guthrie and George 2005). It has also been proposed as a possible explanation for court adherence to the doctrine of *stare decisis* (Prentice and Koehler 2003, p. 638; Jois 2009), and more generally to the great influence that the past exerts
on current law (Wistrich 2012). And yet, when Zamir and Ritov (2012) presented their subjects with a scenario in which dismissing a claim for a declaratory judgment would alter the status quo while accepting it would sustain the status quo, the omission bias seems to have had a greater impact on the decision.

Another related phenomenon is escalation of commitment. Expected utility theory posits that in choosing between different courses of action, only future costs and benefits should be taken into account because the past cannot be changed. This implies that unrecoverable, incurred costs that will not affect future costs or benefits should not influence current decisions. However, numerous laboratory and field experiments as well as empirical studies have established that people very often do consider sunk costs when making decisions. People thus tend to continue endeavors the more resources, time, or efforts have already been invested in them (Arkes and Bloomer 1985; Staw and Ross 1989).

Gely (1998) has suggested that the rich literature on escalation of commitment and its psychological, social, and institutional determinants can fruitfully contribute to better understanding the application of the concept of stare decisis, the binding force of precedents which is a cornerstone of the common law. There is much room for future research of judicial decisionmaking and the sunk costs effect. For example, under the doctrine of mootness, a court should halt adjudication and dismiss the case once the dispute has become academic because, for instance, the defendant agency has abandoned the policy challenged by the petitioner. It would be interesting to examine whether court receptiveness to mootness claims might depend on the amount of judicial resources already spent on the case.

7. CONVERTING QUALITATIVE INTO QUANTITATIVE JUDGMENTS AND THE ANCHORING EFFECT

7.1. Legal Numbers

A large body of literature is devoted to judicial decisions involving quantification, such as the award of monetary damages and the determination of criminal fines and length of imprisonment. Such numerical decisions are often described as variable and unpredictable. Some of this variability and unpredictability may be due to people’s limited proficiency with numbers, especially among lay jurors (Hans and Reyna 2011). Other sources of variability that are again likely to be more glaringly reflected in lay jurors’ decisions are related to misunderstandings regarding the relevant legal criteria, or with discrepancies between formal legal rules and people’s normative judgments. For example, when determining damages for a plaintiff’s economic losses, judicial decisionmakers may take the defendant’s wealth, malice, or gains from violating the plaintiff’s rights into account even if these factors are considered legally irrelevant.
These causes of variability apply to numerical decisions irrespective of whether conversion from one scale to another is required. In awarding monetary damages for economic losses, for example, both scales are monetary. When numerical judgments require conversion from one scale to another, such as conversion of the defendant’s culpability, into the length of imprisonment, difficulties can multiply. Much of the research centers on this particular difficulty.

While conversion from one scale to another inherently poses a challenge, the scope of this challenge can vary according to the respective legal norms and decisionmaker expertise. At one extreme we find cases where the law allows largely unfettered discretion, for example, when setting “reasonable” damages for pain and suffering. Such unfettered discretion is particularly troublesome when decisionmakers such as lay jurors lack the relevant experience and meaningful reference points. This situation persists in many jurisdictions in the United States (Chase 1995; Greene and Bornstein 2003, pp. 175-176). At the other pole we find no room for discretion, as when the law lays down precise sanctions or remedies. Between these two extremes, more-or-less specific guidelines for quantification can be set, as some legal systems have done regarding criminal sentencing.

This section surveys behavioral studies of quantitative judicial decisionmaking, focusing on the conversion of qualitative into quantitative judgments.

7.2. Qualitative and Quantitative Judgments: Empirical and Experimental Findings

When legal decisionmakers convert qualitative judgments into quantitative ones—as in the award of damages for non-pecuniary harms and the imposition of criminal sanctions—their decisions should ideally be consistent, predictable, and justifiable. The numbers should serve the law’s goals, such as just desert and deterrence. They should be predictable ex ante and justifiable ex post (Kahneman, Schkade, and Sunstein 1998; Hastie 2011).

Empirical and experimental studies reveal a remarkable degree of similarity and predictability in the qualitative judgments made by judges and jurors regarding issues such as the severity of the plaintiff’s injury (Wissler, Hart, and Saks 1999), the outrageousness of a defendant’s behavior, and the appropriate severity of punishment (Kahneman, Schkade, and Sunstein 1998). At the same time, considerable variability is exhibited when decisionmakers, judges and jurors alike, are asked to convert these qualitative, ordinal judgments into quantitative monetary awards (Saks et al. 1997; Diamond, Saks, and Landsman 1998; Kahneman, Schkade, and Sunstein 1998; Wissler, Hart, and Saks 1999). For instance, in a large-scale experiment involving more than one thousand jury-eligible participants who viewed a videotape of a product liability trial, the standard deviation of the damages awarded was 138% of the mean for
economic damages and 313% of the mean for pain and suffering damages. When analyzing trimmed values (where values above the 97th percentile were treated as if the jurors favored the award determined by jurors at the 97th percentile), the standard deviation was 75% for economic damages and 154% for pain and suffering damages (Diamond, Saks, and Landsman 1998).

The scope of this variability and whether it should be a cause of serious concern outside the laboratory are, however, debated. Commentators claim that damage awards, for example, are largely predictable and sensible, taking into account the subtle differences in the characteristics of seemingly similar cases (Greene and Bornstein 2003; Vidmar and Hans 2007, pp. 299-302). Judges’ power to review jury awards, appellate courts’ supervision of trial judges’ awards, and the fact that most claims are settled through negotiations managed by experienced attorneys—all significantly reduce the actual impact of the distorting factors observed in the laboratory (Eisenberg, Rachlinsky, and Wells 2002). Moreover, it may be argued that some apparently irrelevant anchors (see below), such as the effect of economic damages on punitive damages, are not normatively irrelevant (Eisenberg, Rachlinsky, and Wells 2002). And yet, the overall picture emerging from experimental and empirical research, supported by the common sentiment expressed in the legal community, is that jury-set monetary awards, especially for noneconomic and punitive damages, are unjustifiably variable and irregular.

### 7.3. Individual and Group Decisionmaking

While some judicial decisions are made by a single person, many are made by a panel of three or more judges, and all jury decisions are a product of group deliberation (see infra section 11). There is mixed evidence as to whether group deliberation increases the coherence and predictability of quantitative decisions. On the one hand, Diamond, Saks, and Landsman (1998) found that the standard deviation of total individual awards, prior to deliberation, was over $7,000,000. Following deliberation in groups of six, the standard deviation of total jury awards dramatically dropped to less than $1,000,000. The dramatic decrease in variability was exhibited in economic and noneconomic damages alike.

On the other hand, in a very large experimental study involving more than 3000 subjects, Schkade, Sunstein, and Kahneman (2000) found that at least in the context of punitive damages, jury deliberation actually reduced predictability. Due to the well-documented phenomenon of group polarization, jury dollar verdicts were systematically higher than median predeliberation judgments (see also Diamond and Casper 1992, pp. 553-557). Since this tendency was more pronounced when the median of jurors’ predeliberation judgments was high, the overall variability of the awards increased. Among juries that awarded punitive damages, 27% awarded sums that were as high as, or higher than, the highest predeliberation judgment of their individual
members (see also Sunstein et al. 2002). Further research is necessary for explaining the contradictions in these findings and delineating the opposite possible effects of jury deliberation.

7.4. Models of Quantitative Judicial Decisionmaking

Several models have been proposed to describe the cognitive process of deriving numerical values from qualitative assessments. Kahneman, Schkade, and Sunstein (1998) proposed a descriptive model of the process by which individual jurors set punitive damages, dubbed the “outrage model.” According to the model, outrage results from evaluation of the defendant’s behavior. Combined with the ensuing harm, outrage stimulates the intent to punish. Once intent to punish is formed, jurors express this attitude by transforming intent into a dollar scale. Since there is no obvious way how to conduct such a transformation, the process is prone to strong influence by various anchors (see below). Hastie (2011) proposed a more general, four-stage model—the “intention + anchor model”—that applies to determination of other numerical verdicts as well.

These and related models (such as the one proposed by Hans and Reyna 2011) leave open the question of the order of damage determination. Do decisionmakers first calculate damages for each category or sub-category of harms and losses separately, and then add up the numbers, or do they first determine a global award and then—if required to do so—break down the total into the different categories. The available empirical and experimental data appear to indicate that both mechanisms come into play. Decisionmakers engage in a certain amount of calculation, yet their intuition about the appropriate total award is important as well (Greene and Bornstein 2003, pp. 159-161).

7.5. Anchoring

Both the experimental findings and the theories explaining them point to the centrality of anchors. When people are presented with a salient number before they make a numerical judgment, they tend to make their judgment through adjustments from the initial number, which serves as an anchor. The adjustment, however, is often insufficient and therefore the judgment is biased towards the anchor (Chapman and Johnson 2002). In serially considering factors that may require adjusting the initial number, there is a tendency to underuse this information and to halt the adjustment process too early (Hastie 2011; see also Epley and Gilovich 2006). The anchor also biases information sampling. It draws people’s attention to information that is consistent with the initial anchor and away from information that would lead to greater adjustment (Hastie 2011). Furthermore, the closer a factor is to the initial anchor, the more the decisionmaker is likely to focus on the similarity between the two, and the further away a factor is from the initial anchor, the more the decisionmaker is
likely to focus on the dissimilarity, hence underweighting its relevance (Mussweiler 2003).

Studies have shown that numbers can serve as anchors even if they provide no meaningful information about the decision task, and even if decisionmakers are fully aware of their meaninglessness (e.g., Tversky and Kahneman 1974; Englich, Mussweiler, and Strack 2006). When a problem has a right answer, being knowledgeable about the pertinent issue reduces or even eliminates the anchoring effect (Wilson et al. 1996). At the same time, anchoring influences both laypersons and experts, including judges (Guthrie, Rachlinski, and Wistrich 2001; Englich, Mussweiler, and Strack 2006). Experiments have shown that it is difficult to overcome the anchoring effect even when forewarned, and that this bias is unlikely to be affected by monetary incentives to give the right answer when such an answer exists (Chapman and Johnson 2002; Englich, Mussweiler, and Strack 2006).

Experimental and empirical studies have highlighted the role of several anchors in the context of quantitative judicial decisionmaking. A common anchor is the amount of economic damage. Strong correlations have been found between economic and noneconomic damages and between compensatory and punitive damages (Eisenberg et al. 1997). These correlations may indicate that the former serve as an anchor when determining the latter (Sunstein et al. 2002; Hans and Reyna 2011). Since the severity of the harm is a relevant factor when determining economic, noneconomic, and punitive damages, this correlation may seem perfectly sensible; and even a direct inference from economic to noneconomic and punitive damages is not necessarily groundless (Sunstein et al. 2002; Eisenberg, Rachlinsky, and Wells 2002). At the same time, there is evidence that the amount of economic damages affects the amount of noneconomic damages more strongly among jurors than among judges (Hans and Reyna 2011). This finding arguably indicates that laypersons are overly influenced by the plaintiff’s economic loss when determining noneconomic and punitive damages.

A more troubling anchor is the amount of damages claimed by the plaintiff (Chapman and Bornstein 1996; Hastie, Schkade, and Payne 1999; Viscusi 2001b; Greene and Bornstein 2003, pp. 151-155). Despite the fact that plaintiffs asking for extremely large amounts of compensation were perceived less favorably by the subjects in an experiment conducted by Chapman and Bornstein(1996), the amount requested served as an anchor affecting the damages awarded. The effect was linear even for extreme amounts. McAuliff and Bornstein (2010) found that the way the figures are presented to the jury also influences the award. An empirical study of actual trials and jury deliberations (Diamond et al. 2011) revealed a more nuanced picture, in which plaintiffs’ very high claims, especially for nonmonetary harms, was sometimes perceived not only as irrelevant but also as outrageous and hence counterproductive. Some experimental studies have also noted the existence of
a boomerang effect (Marti and Wissler 2000; Greene and Bornstein 2003, p. 153).

While it may be argued that the compensation requested is an indication of the scope of the harm suffered by the plaintiff, inasmuch as it serves as an anchor, its obvious manipulability is a cause of concern. This is especially so if the linear effect of the damages claimed manifests itself even when the decisionmakers do not believe that the damages requested indicate the level of the plaintiff’s suffering or her medical expenses, as demonstrated in Chapman and Bornstein’s study (1996).⁴

Guthrie, Rachlinski, and Wistrich (2001) appear to have demonstrated the anchoring effect of another irrelevant factor: a meritless motion to dismiss a tort case because it did not meet the minimum threshold of damages required for jurisdiction. The meritless jurisdictional motion induced a significant decline in the damages awarded by the judges who were exposed to it.

A particularly intriguing anchoring effect has been observed in experiments that studied the impact of caps on damages. In one study, Hinsz and Indhal (1995) found that caps dramatically increased the median total award in a case referring to the death of two children. In another study, Saks et al. (1997) examined the influence of caps on damages for pain and suffering. As regards a high-severity injury, when subjects were informed about the cap, it dramatically reduced both the mean and the variability of the awards. Regarding a medium-severity injury, the introduction of the cap slightly increased the mean and decreased the variability of the awards, but none of these effects was statistically significant. For a low-severity injury, however, the cap greatly increased both the mean and the variability of the awards. Caps are thus able to prevent mega awards for pain and suffering, but to the extent that they are meant to increase the predictability of noneconomic damages, they likely produce the opposite outcome due to their anchoring effect in cases of low-severity injuries.⁵ Comparable results were obtained in an experimental study of caps on punitive damages (Robbennolt 1999). Not informing the jury about the existence of a cap (with the judge imposing it after the jury has set the damages) may ameliorate this concern (as well as the concern that the jury would evade the cap by increasing the damages for uncapped counts: Anderson and MacCoun 1999; Greene, Coon, and Bornstein 2001; Sharkey 2005). However, the likelihood that such caps will remain secret in the long run does not seem very high.

⁴ Even more surprisingly, the amount requested also affected the judgment of causality: the higher the amount, the higher the assessed probability that the defendant caused the plaintiff’s injury.

⁵ Moreover, inasmuch as there is a problem of undercompensation for high-severity injuries and overcompensation for low-severity injuries, caps exacerbate this problem (Saks et al. 1997).
7.6. Concluding Remarks and Normative Implications

As this section has shown, when it comes to translating qualitative judgments into quantitative decisions, the decisions predictability decreases, their variability increases, and considerable differences between judges and juries emerge (id.). These differences most probably result from jurors’ limited information regarding the customary awards and punishments as well as from the vagueness of the instructions they receive. In the absence of any reliable reference point, juries are forced to rely on questionable data, such as the amount of damages claimed by the plaintiff or the defendant’s profits.

One way to cope with the special difficulties that jurors face in this respect is not to entrust such decisions to juries, but to judges, who are presumably familiar with customary awards and sentences. This route has been taken by most legal systems around the world. Another way to circumvent the problem is to provide juries with clearer instructions, such as sentencing guidelines, the average and range of customary awards, and examples of verdicts handed down in similar cases (Chase 1995; Saks et al. 1997; Wissler, Hart, and Saks 1999).

The lack of clear jury instructions regarding quantitative decisions in many U.S. jurisdictions is rather puzzling, and the calls for reforms (e.g., Greene and Bornstein 2003, pp. 202-203) are quite convincing.

8. Attitudes Towards Probabilistic Evidence

Behavioral scholars have demonstrated that decisionmakers exhibit diverse attitudes towards probabilistic evidence. Whereas factfinders are reluctant at times to base liability on such evidence, they quickly deduce erroneous conclusions in other instances. This section briefly sketches some of the main findings in this area (see also Vars chapter in this volume).

One of the early findings of cognitive psychology is that people tend to undervalue probabilistic information (Tversky and Kahneman 1974). In the legal context, researchers have shown that people can easily be maneuvered to undervalue the probative power of scientific evidence that ties a person to an act. Because within a population of one million people, ten thousand people share a trait that is attributed to 1% of the population, many tend to think that this trait has no legal relevance. It has thus been argued that people underuse associative evidence (Thompson and Schumann 1987).

Empirical research nonetheless suggests that attitudes towards statistical evidence are driven by more than mere misunderstanding of probabilities. In a seminal study, Gary Wells (1992) experimentally studied people’s reluctance to assign liability based on naked statistical evidence. He hypothesized that “in order for evidence to have a significant impact on people’s verdict preferences, one’s hypothetical belief about the ultimate fact must affect one’s belief about the evidence” (id., p. 746). For instance, the fact that 80% of the buses in a certain town belong to the blue bus company and 20% to the grey bus company is insufficient to find the former liable for an accident caused by an unidentified
bus, because the determination of liability would not change one’s belief about the accuracy of the statistical data. The statistical data remains true whether or not a blue bus was involved in the accident. In contrast, when a weigh-station attendant testifies that according to his records, a blue bus was weighed in the nearby station just before the accident—thus tying that bus company to the accident—the determination of liability would more likely bear on the reliability of this testimony, even if the defendant had already established that those records were wrong 20% of the time. In this case, determining which bus was involved in the accident does bear on the accuracy of the weigh-station’s records and the reliability of the attendant’s testimony. Wells found that factfinders are much more likely to assign liability in the second setting. This preference did not stem from any difficulty in dealing with probabilities, as subjects in both conditions accurately assessed the probability that the accident was caused by a blue bus.

Wells’s hypothesis was challenged by subsequent studies which offered competing hypotheses and explanations for the “Wells Effect.” For example, building on Kahneman and Tversky’s (1982b) simulation heuristic, Niedermeier et al. (1999) argued that the willingness to ground liability on statistical evidence depends on how easily one can imagine an alternative scenario that would be compatible with the evidence. In their experiments, subjects read various vignettes describing a lawsuit relating to an accident similar to the one analyzed by Wells. Keeping the probability constant, they used vignettes that differed with respect to the ease in which one could imagine a counterfactual scenario in which the defendant was not responsible for the harm done. The results showed that while the assessed probability was similar under the two conditions, willingness to accept the claim declined considerably under conditions conducive to imagining an alternative scenario.

In a recent study, Zamir, Ritov, and Teichman (2014) identified a general disinclination to base liability on circumstantial evidence that goes beyond the statistical nature of some circumstantial evidence, what they called an “anti-inference bias.” In their experiments, subjects analyzed situations in which the probability of wrongdoing was held constant, yet the type of evidence was randomized between direct and circumstantial. For instance, people were more willing to assign liability for a speeding violation when it was detected by a single speed camera than when it was detected by a system of two cameras, located at two points on a toll road, which documented the precise time that the driver drove between them but not the actual speed.

Thus far we have focused on the reluctance of judicial decisionmakers to base liability on certain types of evidence. Yet, other aspects of human decisionmaking might cause people to assign liability even when it is unwarranted. Special attention in this regard has been given to the phenomenon of base-rate neglect.
Base-rate neglect refers to people’s tendency to discount information about the frequency with which the respective event occurs and focus instead on available individuating information. The following famous example from Kahneman and Tversky (1973) helps explain the phenomenon: Jack is a 45-year-old man. He is married with four children. He is generally conservative, careful, and ambitious. He shows no interest in political and social issues and spends most of his free time on his many hobbies, which include home carpentry, sailing, and mathematical puzzles. Subjects in one condition in this study were told that Jack was randomly drawn from a pool of people composed of 70 engineers and 30 lawyers, while subjects in the other group were told that the pool was composed of 30 engineers and 70 lawyers. When asked to estimate what Jack does for a living, the results showed that notwithstanding the base rate, approximately 90% of participants in both groups assumed that Jack is likely to be an engineer.

In an early study documenting decisions across a wide array of fields, Bar-Hillel (1980) demonstrated that base-rate neglect can cause errors in the judicial context. The subjects in her study were told that a hit-and-run accident involving a taxicab occurred at night, with 85% of the city’s cabs being blue and the remaining 15% green. In court, an eyewitness testified that the cab involved in the accident was green. The court examined the witness’s capabilities and reached the conclusion that he was correct 80% of the time (and wrong 20% of the time). Subjects were then asked to evaluate the probability that a green cab was in fact involved in the accident. The results showed that they focused solely on the witness’s credibility rate: Their mode and median estimates of the probability that a green cab was the culprit were 80%. Calculating the actual probability, however, requires taking the underlying probability that the cab is green into account, and is thus only 41% (approximately 10% of the participants roughly approximated this answer).

In a later experimental study conducted with acting judges, Guthrie et al. (2001) used a tort case in which a warehouse barrel inadvertently harmed a passerby. The legal question was whether the warehouse workers’ negligence caused the accident, or whether another factor was involved. Participants in the study were informed that: “(1) when barrels are negligently secured, there is a 90% chance that they will break loose; (2) when barrels are safely secured, they break loose only 1% of the time; (3) workers negligently secure barrels only 1 in 1,000 times” (id., p 808). Based on this information, participants were asked to estimate the probability of negligence, and were offered four probability ranges: 0%-25%; 26%-50%; 51%-75%; 76%-100%. While the precise answer is 8.3%, most participants did not choose the lowest option. That being said, 40% of participants did choose this option, a result that is better than those achieved by other populations in comparable studies (see Guthrie et al. 2007, pp. 22-24).
9. Priming and Prejudice

Priming refers to “the incidental activation of knowledge structures, such as trait concepts and stereotypes, by the current situational context,” leading to a particular cognitive or affective response (Bargh, Chen, and Burrows 1996, p. 230). Priming, by definition, occurs in implicit memory, which is accessible only indirectly (Bargh and Chamrand 2000). Retention of prior experiences within a knowledge structure can be revealed by measuring variance in the performance of certain tasks after exposure to a prime (the stimulus) relative to performance in the absence of such exposure. For example, in a classic study, Bargh, Chen, and Burrows (1996) primed half of their subjects with stereotypical traits of elderly people (by asking them to construct sentences with words such as old, grey, forgetful, and wrinkle), while the other half of their subjects was not primed (they were asked to construct sentences with neutral words such as clean and private). The study’s dependent variable was the time it took participants to walk down a hall once they had completed writing their first set of sentences. Interestingly, participants exposed to the stereotypical prime walked more slowly than did participants who received the neutral treatment. For a general overview of the phenomenon, see Moskowitz (2005).

Priming can have various implications for judicial decisionmaking, ranging from lawyers’ litigation tactics and their ability to prime jurors and judges (Stanchi 2010), to the influence of religious and national symbols that are incorporated into the interior design of courtrooms (Hassin et al. 2007; Mazar, Amir, and Ariely 2008). This section does not discuss these implications, but rather focuses on the use of priming as an effective experimental procedure to determine whether subjects possess implicit racial biases—an issue of the utmost theoretical and normative importance.

Researchers have demonstrated that racially charged primes (e.g., rap versus pop music) can cause people to judge the behavior of Blacks as more hostile when compared to other groups (Rudman and Lee 2002). More generally, scholars have employed the Implicit Association Test (IAT) to examine attitudes towards marginalized groups such as Blacks, Asians, and homosexuals. These studies have demonstrated that people hold many implicit biases towards different social groups and that these biases often predict behavior better than do explicit biases (id.).

Implicit bias research has been slowly trickling into legal analysis, including judicial decisionmaking (for a collection of studies, see Levinson and Smith 2012). In the interest of brevity, we focus our discussion exclusively on the

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6 The IAT documents peoples’ implicit associations by measuring their response time in a computerized task. For a detailed description of the methodology and a meta-analysis, see Greenwald et al. (2009).

7 The use of the IAT to measure implicit bias is not a matter of consensus. For a discussion see Arkes and Tetlock (2004); Banaji et al. (2004).
issue of race and the adverse effects of implicit bias on Black litigants in the United States.

Eberhardt et al. (2004) documented an implicit bidirectional association between Blacks and criminality. When subliminally primed with black male faces, subjects were quicker to recognize blurred images of items associated with crime (e.g., guns). Perhaps more surprisingly, when subliminally primed with images of items associated with crime, participants were more attentive to black male faces. Thus, as the authors note, “[n]ot only are Blacks thought of as criminal, but also crime is thought of as Black” (id., p. 883). Related findings demonstrating an implicit association between Black males and guns have been reported in numerous studies that examined peoples’ tendency to shoot in a video simulation involving armed and unarmed Whites and Blacks (Correll et al. 2002; Plant and Peruche 2005). However, while all these findings suggest that people tend to draw a connection between race and crime, a connection that might well carry into the courtroom, they were not conducted in the concrete context of judicial decisionmaking.

Several other studies have examined more directly the role of implicit racial bias in judicial contexts. Graham and Lowery (2004) asked a sample of police officers and juvenile probation officers to analyze vignettes describing a crime-related scenario. Unbeknownst to the participants, half were subliminally primed with words associated with Blacks while the other half were primed with words lacking a common theme. Immediately afterwards, the officers read two ambiguous criminal scenarios and were asked to rate the hypothetical offender on several traits (e.g., hostility and maturity) and to assess the culpability, expected recidivism, and deserved punishment of offenders whose race remained unspecified. Finally, the officers completed a general attitudes and beliefs questionnaire about race. The results suggest that an implicit bias rather than explicit attitudes channeled participants’ decisions. Participants in the race-primed group viewed the offender more negatively and were willing to punish him more harshly.

Levinson, Cai, and Young (2010) have introduced a new IAT that measured the association between Whites/Blacks and Guilty/Not Guilty judgments. They discovered an implicit association between Black and Guilty. Furthermore, this association was indicative of the way their subjects analyzed the evidence in ambiguous cases. More recently, Levinson, Smith, and Young (in press) presented several troubling findings in the context of the death penalty. They showed that when examining willingness to impose the death penalty during the screening of capital juries, the process stacks those juries with people exhibiting a relatively strong implicit racial bias. They also found a connection between people’s IAT score and their willingness to impose the death penalty. That is, people who exhibited a greater implicit bias were more willing to convict a Black defendant relative to a White defendant.
A more nuanced analysis of this point was offered by Rachlinski et al. (2009). This study, which involved presiding judges, employed a two-stage design. In the first stage, judges performed a standard IAT to determine their racial preferences. The results showed the existence of a White preference among White judges but no racial preference among Black judges. In the second stage, judges were asked to evaluate three vignettes describing ambiguous criminal cases. Prior to the first two vignettes, where the culprits’ race remained blurred, half of the judges were subliminally subjected to a racial prime. In the third vignette, the race of the defendant was overtly manipulated (African American or Caucasian). In contrast to Graham and Lowery (2004), Rachlinski and his colleagues did not identify a main effect associated with the racial prime. The evaluations of judges who were primed did not differ significantly from the evaluations of judges who were not primed. That said, the researchers did identify a marginally significant effect of judges’ IAT scores on their sentencing decisions. Judges with a White preference on the IAT gave harsher sentences to defendants when primed with Black-associated words rather than with neutral words. Judges with a Black preference on the IAT, on the other hand, gave lower sentences when primed with Black-associated words rather than with neutral words. With respect to the third vignette in which race was explicitly operationalized, the authors could not identify any effect when analyzing the group of judges as a whole. However, further analysis did reveal a three-way interaction between IAT scores, the judge’s race, and the defendant’s race. Specifically, IAT scores were unconnected to the outcomes reached by White judges whereas Black judges with a Black preference tended to acquit more often. While it is difficult to generalize these results, one conclusion does seem to stand out: the explicitness of race matters. As the authors note, “when judges are aware of a need to monitor their own responses for the influence of implicit racial biases, and are motivated to suppress that bias, they appear able to do so” (id., p. 1221). Arguably, decisions in the courtroom more closely resemble the scenario depicted in the third vignette; hence, the extent to which implicit biases actually influence real-world decisions remains unclear.

Implicit bias is an emerging field in the judicial decisionmaking context, and much work will have to be done before we fully understand the phenomenon’s impact. Additional research should explore the precise way in which implicit bias operates (if at all) in actual courtrooms where people are more likely to attempt to overcome their predispositions. As Kang et al. (2012) acknowledge, “because of the incredible difficulties in research design, we do not have studies that evaluate implicit bias in real criminal trials” (id., p. 1146). Moreover, we currently have very little information on the way in which racial bias functions in the domain of civil litigation. After thoroughly examining implicit bias in this context, Kang and his colleagues did “concede that [their] claims about implicit bias influencing jury decisionmaking in civil cases are
somewhat speculative and not well quantified” (id., p. 1168). Finally, identification of effective interventions capable of ameliorating the effects of the bias is probably the ultimate goal of this research project and should be addressed (on potential policies see Roberts 2012; Wilkins 2012).

10. Rules vs. Standards: Certainty and Predictability

Legal norms are conventionally classified into rules and standards. Rules typically condition legal outcomes on the existence of easily ascertainable, limited number of facts. Determination of legal capacity solely by reference to age, and punishment of drivers who exceed a certain speed limit by a fixed fine are paradigmatic rules. Standards, in contrast, embody substantive objectives and values, such as reasonableness, good faith, and unconscionability. Judgments based on standards require examination of the entire set of circumstances and their assessment in light of the values the standard embodies (Kennedy 1976).

For centuries, it has been recognized that the primary virtue of rules, as opposed to standards, is their ability to curtail people’s discretion and enhance the law’s certainty and predictability. This common wisdom has been challenged by the American legal realists and Critical Legal Studies scholars, who doubted that general legal norms, detailed as they might be, can dictate the judicial outcome in any particular case (e.g. Llewellyn 1940; Singer 1988). One reason for this incredulity was that even a system of detailed rules allows the court to choose which rule will apply to any set of facts. Paradoxically, the more elaborate the system of rules, the broader is the judge’s discretion when determining which rule to apply in any specific case (see also Schlag 1985).

It took more than fifty years before experimental and empirical findings were brought to bear on this debate. In experiments conducted with law students and recent law school graduates, Sheppard (2012) and Sheppard and Moshirnia (forthcoming) demonstrated that a simple, bright-line rule requiring some action to be performed within a specific time limit constrains decisionmakers’ discretion more than a vague standard of “reasonable time” (see also Feldman and Harel 2008).

While these studies compared judicial decisions according to a standard to decisions under a single, simple rule, the real choice is very often between vague standards and an elaborate system of rules consisting of various distinctions, provisos, and exceptions. Two experimental studies examined the predictability of judgments under either a set of detailed rules or a few general standards. Specifically, in a series of large-scale experiments conducted with advanced-years law students, Ellinghaus, Wright, and Karras (2005) compared

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8 Sheppard and Moshirnia (forthcoming) also demonstrated that legal argumentation had a greater effect on decisions made according to a rule than according to a standard. When deciding according to a vague standard, decisionmakers can opt for the outcome they ideologically prefer with or without legal arguments. Legal arguments assist decisionmakers reach their desired outcome when this outcome is in tension with the straightforward meaning of the rule.
different models of legal norms: detailed rules, slightly less detailed rules, and very general, vague standards. Subjects read a description of a legal dispute and made a decision according to one of the models of legal norms. The certainty and predictability of the legal norms were measured by the degree of consensus among the separate verdicts, that is, the broader the consensus, the more certain and predictable the legal norms.

The main conclusion invited by these experiments was that systems of elaborate legal rules do not yield more certain and predictable outcomes than do systems of vague standards. Moreover, while standards produced more predictable outcomes in easy cases, the application of rules to relatively easy cases did not increase predictability (id., pp. 38-41).

In another experiment, Ellinghaus and his co-authors asked responders to rate the fairness of the outcome and the extent to which the judgment took the important facts of the case into account. It turned out that in easy cases decided according to standards, a positive correlation was found between the rated fairness of the judgment and the extent to which the responders believed that the judgment considered all the pertinent circumstances. No such correlation was found regarding judgments based on detailed rules. It thus appears that standards are superior for drawing decisionmakers’ attention to the more important aspects of a case.

In a follow-up study, Wright et al. (2012) examined how the scope of data considered by the judge affected the judgment’s certainty and predictability. In addition to making a judicial decision, the subjects in this experiment were asked to assess the importance of fifteen factual circumstances that, according to the experimenters’ judgment, belonged to one of three categories in terms of their importance. The participants were asked to provide this assessment four times during the experiment: after reading the factual description, after reading the description of the applicable legal norms, after writing the arguments favoring each side’s position, and after writing their reasoned judgment. In this experiment the predictability and certainty of the legal norms were likewise determined by the degree of consensus regarding the decision.

The participants generally shared the experimenters’ judgment as to the relative importance of the different circumstances. As the subjects progressed along the decision process, they ranked the important facts as more important and the unimportant facts as less important. However, contrary to the subjects deciding according to standards, who attributed increasing importance to the circumstances in the middle category, the subjects deciding according to specific rules attributed decreasing importance to intermediate circumstances. This finding supports the contention that the greater predictability and certainty of decisions under a regime of standards is due to decisionmakers’ increased attention to a larger set of circumstances. Wright and his colleagues also constructed a connectionist model of mental representations of the data presented to their subjects—the type of model underlying the coherence-based theories of legal decisionmakers discussed in section 2. They showed that the phenomenon of coherence shift neatly explains their findings.
Considerably more experimental work is required to determine the generality of these findings. Strong support for the results can be found in a large comparative, empirical study of the certainty and consistency of enforcement mechanisms, under either legal rules or standards, conducted in the context of nursing-home regulation (Braithwaite and Braithwaite 1995). The study found much greater consistency among assessments made by supervisors under a system of standards than those based on a very detailed, intricate set of rules. It turned out that a multiplicity of technical rules give supervisors greater discretion in employing them and in choosing how much emphasis to put on each one.

11. **GROUP DECISIONMAKING**

Thus far we have focused mainly on judicial decisionmaking at the individual level. However, many judicial decisions are reached by a group. In this section we examine how group dynamics influence the outcomes of the judicial process.

A large body of psychological research has been dedicated to the question of whether group decisionmaking can overcome the errors associated with individual decisionmaking. As these studies show, group dynamics can elicit a wide variety of outcomes (for a review see Kerr et al. 1996). The move from individual to group decisionmaking sometimes mitigates deviations from expected utility theory, sometimes has no effect on such deviations, and sometimes intensifies them. The diverse effects of group deliberation should be unsurprising given the variety of group characteristics, decision procedures, and decision objects.

The effect of group deliberation also depends on the nature of the pertinent heuristic. When the issue is computational and the correct answer is easily demonstrable (and group members aware of the error have sufficient incentives to correct other members’ error), collective decision-making can help overcome individual biases. In contrast, when the issue is complex or involves a value judgment, as is often the case with judicial decisionmaking, the deliberation process can drive the group towards extreme outcomes that do not reflect members’ predeliberation preferences—a phenomenon known as group polarization.

Group polarization occurs when an initial tendency of individual group members in one direction is strengthened following group discussion (Isenberg 1986; Myers and Lamm 1976; Sunstein 2000). The two primary explanations for this phenomenon are social comparison and informational influences. According to the former, people strive to perceive themselves and to be perceived by others favorably. When observing the general tendency within the group, they adopt a position that is in the same direction but somewhat more extreme. According to the latter explanation, when group members are initially inclined in one direction, the number and persuasiveness of the arguments
articulated in that direction during deliberation are greater than in the opposite direction, thus strengthening the initial tendency.

Researchers have documented the ways in which group polarization affects judicial decisionmaking. As the existing studies show, the phenomenon can lead to opposing outcomes, depending on the specific context. With respect to a jury’s decision of to convict or acquit, MacCoun and Kerr (1988) conducted a meta-analysis of the existing studies that point towards what they term a bias towards leniency. When there is no clear majority within the jury, deliberation process becomes skewed towards acquittal. Based on two additional experiments, the authors suggest that this result may stem from the unique standard of proof applied to this decision-setting: beyond a reasonable doubt. To the extent that this standard reflects a well-entrenched social and legal norm, jury members advocating acquittal may have an asymmetric advantage during deliberations, which helps them swing the other members towards their view.

Yet group polarization not only mitigates legal outcomes. As described in subsection 7.3., in a large-scale experiment, Schkade, Sunstein and Kahneman (2000) examined the effect of group deliberations on decisions relating to punitive damages by comparing juror’s predeliberation and postdeliberation determinations. The jury’s dollar verdicts were typically higher, or even far higher, than the median predeliberation judgment of the individual jurors.

Although the normative implications of this finding are ambiguous given that the setting did not generate a clear benchmark as to what the appropriate amount of punitive damages might be, the study’s findings relating to the uncertainty generated by group discussion raises a clear concern. As explained in subsection 7.3., the deliberation process that brought the group to extremes also significantly increased the uncertainty of its outcomes. Based on this result, the authors conclude that “deliberation is a significantly poorer way of aggregating opinions than is statistical pooling at least if the goal is to decrease the arbitrary unpredictability of awards” (id., p. 1160).

As noted above, this behavioral phenomenon depends on the background norms governing the group. As Schkade and his colleagues acknowledge, their findings cannot be automatically generalized. For example, the defendant in all their studies was a corporation, and it is unclear whether similar attitudes would have been expressed with respect to individual defendants. Furthermore, different societies hold distinct views towards legal issues such as punishment (Mayhew and Kesteren 2002). Hence, whereas in some societies the lenient approach may have an advantage, in other societies the punitive argument may have the upper hand. In addition, one should be cautious with respect to these findings when norms change over time. For instance, in a more recent study, Devine et al. (2004) observed a severity rather than leniency effect among jurors. As the authors noted, this finding “could reflect an attitudinal shift on the part of jurors since the 1970s,” when most of the groundbreaking work in
this area was conducted (id., p. 2089). Apparently, the subtleties attached to group decision-making provide endless room for further research.

12. JUDGES VS. LAYPERSONS

A general question regarding cognitive biases pertains to the extent to which expertise diminishes the effect of those biases on decisionmaking. In legal contexts, the question should be rephrased as to whether professional judges make the same mistakes that people lacking legal training are likely to make. In responding to this issue, we here review some of the main findings on judges’ susceptibility to cognitive biases while focusing our discussion on controlled experimental studies that sought to isolate this issue.9

The psychological research on expertise is somewhat ambiguous. In general, judgments can reflect true expertise if they are reached within a decisionmaking environment that: (1) is regular and predictable; and (2) offers people an opportunity to learn these regularities (Kahneman and Klein 2009). It is therefore important that decisionmakers receive in a timely fashion feedback as to the quality of their choices. Empirical studies have shown that while some experts exhibit resilience to various biases (e.g., Korobkin and Guthrie 1997; Guthrie 2003), others do not (e.g., Anderson et al. 1993; Northcraft and Neale 1987).

The broadest body of work dealing with the cognitive aspects of professional judges’ decisions was presented by Chris Guthrie, Jeffrey Rachlinski, and Andrew Wistrich (GRW). The major contributions in this literature include Guthrie, Rachlinski, and Wistrich (2001, 2007, 2009), Rachlinski, Guthrie, and Wistrich (2007, 2011), and Wistrich, Guthrie, and Rachlinski (2005). Throughout this chapter, we cited many of their findings. At this point we would like to briefly highlight the “big picture” emerging from their studies of judicial behavior. According to GRW, judges are “generally susceptible to the heuristics and biases that tend to induce intuitive and impressionistic judgments” (Guthrie, Rachlinski, and Wistrich 2009, p. 1521). Like most people, judges exhibit a tendency to base decisions on quick intuitions rather than on more-complex deliberation. Judges’ results on the Cognitive Reflection Test mirrored those of other well-educated individuals (Guthrie, Rachlinski, and Wistrich 2009, pp. 1495–1500). In numerous studies conducted with different groups of judges, GRW demonstrated that anchoring, hindsight, framing, and other documented biases influence the way in which judges analyze legal vignettes (e.g., Guthrie, Rachlinski, and Wistrich 2001). These results were replicated with generalist as well as with judges who specialize in a specific area of law (Rachlinski, Guthrie, and Wistrich 2007; Guthrie, Rachlinski, and Wistrich 2009).

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9 For field studies documenting the similarities and differences between jurors and judges in the area of punitive damages, see Eisenberg et al. (2006); Hersch and Viscusi (2004).
GRW did, however, document the aptitude of judges to overcome some of the pitfalls of human decisionmaking. For example, while judges usually found it difficult to ignore inadmissible evidence (Wistrich, Guthrie, and Rachlinski 2005), they did succeed in doing so at times (id.; Guthrie, Rachlinski, and Wistrich 2009). Specifically, a substantial body of work has demonstrated that judges can successfully deal with the challenge of ignoring inadmissible evidence can be found in the context of the determination of probable cause. Judges in the United States must examine whether a probable cause for a search exists either in foresight (for search warrant purposes) or in hindsight, when the outcome of the search is already known (for evidentiary purposes). In a study involving 900 state and federal judges, GRW showed that their subjects made similar rulings in both contexts (Rachlinski, Guthrie, and Wistrich 2011; see also Wistrich, Guthrie, and Rachlinski 2005; Guthrie, Rachlinski, and Wistrich 2007).

Although GRW clearly show that judges are influenced by cognitive biases, this finding still leaves open the question of how judges fair on this front when compared to jurors. Several studies have attempted to examine this question directly by using the same survey instruments with judges and mock jurors. Hastie and Viscusi (1998), for example (see also Anderson et al. 1995; Viscusi 1999), compared the extent to which the hindsight bias influenced the decisions of both groups. They found that while mock jurors exhibited a clear hindsight bias, judges only exhibited trends towards hindsight (that were mostly statistically insignificant). In another study, Viscusi (2001a) compared judges and jurors along numerous dimensions of tort litigation and again found “fewer biases by judges in their treatment of risk” (id., p. 110). Judges were more open to conducting unbiased cost-benefit analyses of precautions and tended to perceive risk more accurately. In contrast, jurors more strongly exhibited a “zero-risk mentality” (id., p. 130), perhaps the product of a certainty effect (see Williams’s chapter in this volume), and were more willing to spend unlimited amounts of money to eliminate small risks.

13. A GENERAL ASSESSMENT OF BEHAVIORAL RESEARCH OF JUDICIAL DECISIONMAKING

The behavioral study of judicial decisionmaking faces unique challenges. Judges are, of course, human beings. But they are also trained jurists and professional adjudicators. A fundamental task of behavioral research is to examine how, if at all, legal training and judicial experience affect how judges make decisions. Making claims about judicial decisionmaking based on the findings of experiments conducted with lay persons is intrinsically problematic.

In this context, Schauer (2010) has claimed that a distinction should be drawn between tasks that both judges and other people (including lay jurors) perform, such as factfinding and verdict-rendering, and tasks that lie within judges’ exclusive province: selecting, interpreting, applying, and developing
legal norms. Even if judges’ decisionmaking is not fundamentally different from others’ when performing nonexclusive tasks, there is special interest in examining how judges perform their uniquely designated tasks. Possibly, judges’ legal training and experience, self-selection to become judges, and the institutional environment in which they operate, make a difference in this regard. In fact, so argues Schauer, if there is no significant difference between “thinking as a lawyer” or “reasoning as a judge,” and thinking and reasoning as a layperson, then there is no reason to investigate judicial decisionmaking more than there is to investigate mechanics’ or dentists’ decisionmaking. Schauer further claims that current behavioral research of judicial decisionmaking leaves much to be desired.

While behavioral research of judicial decisionmaking is indeed in a relatively early stage of its development, Shauer’s critique appears overstated for several reasons. First, as detailed in section 12, a considerable number of studies have used professional judges as subjects. There have also been some experimental studies of the “exclusive” judicial task of applying rules and standards to given sets of facts (see section 10). At the same time, we should concede that even laboratory experiments using professional judges as subjects differ strikingly from the real-world performance of judges; hence, any inference drawn from the former to the latter must be considered with caution (Vidmar 2011).

Inasmuch as judicial functions are fulfilled by juries, a huge body of empirical and experimental research has dwelt on jury decisionmaking, using jury-eligible people as subjects and observing actual jury deliberations (for an overview see Vidmar and Hans 2007; see also Greene and Borenstein 2003; Bornstein et al. 2008). Moreover, inasmuch as the hypothesized difference between judges and lay persons rests on the former’s legal training, experiments conducted with advanced-year law students and experienced advocates provide additional, relevant insights (see, e.g., Ellinghaus, Wright, and Karras 2005; Zamir and Ritov 2012; Zamir, Ritov, and Teichman 2014).

A considerable number of studies have also directly compared judges and laypersons. As discussed in section 12, some of these studies found certain differences between professional judges and the general population (e.g., Wistrich, Guthrie, and Rachlinski 2005), while others found no divergence (e.g., Landsman and Rakos 1994). Even if no significant differences between judges’ and other people’s decisionmaking exist, there is much to be gained from examining how general psychological phenomena interact with the unique procedural and institutional characteristics of judicial decisionmaking (Sherwin 2010). Such an examination could lead to reforms in institutional design, court procedures, and even substantive legal rules. For instance, if judges are reluctant to impose liability based on circumstantial evidence, the law should perhaps redefine the constitutive elements of liability in a way that would obviate the need to make inferences from this type of evidence (Zamir, Ritov,
and Teichman 2014). Just as the large corpus of behavioral research on physicians’ decisionmaking informs the operation of health systems, there is a need for similar research in the judicial sphere, irrespective of whether or not judges differ from other decisionmakers.

Finally, there is often additional support for the external validity of laboratory experiments of judicial decisionmaking. This includes studies conducted with experienced professionals in other domains, judges’ self-reported descriptions of judging, and analyses of actual judgments (Simon 2010).

At the end of the day, one should concede that further research is necessary to establish the validity and generality of behavioral claims about judicial decisionmaking. This need is particularly conspicuous regarding judges’ unique tasks of interpreting, developing, and applying legal norms. There is also room for qualitative research of judges’ actual behavior in court as a method for ascertaining the external validity of some laboratory findings (Vidmar 2011). At the same time, much has already been achieved in this sphere. Furthermore, behaviorally informed theories and policy recommendations, resting on imperfect experimental and empirical data, are generally preferable to theories and recommendations resting on no such data.

REFERENCES


