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Debiasing Strategies and Judicial Decision-Making: Exploring a Duty to Improve Judges' Capabilities

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ABSTRACT

Judicial decision-making carries profound consequences for individuals and society, with expectations that judges act with objectivity and neutrality. However, traditional legal frameworks assume a rationalist model of reasoning that inadequately addresses implicit biases. While existing legal safeguards target explicit instances of bias, they fail to account for biases that subtly influence judicial perceptions and judgments. This article explores how current legal norms, grounded in a syllogistic model of judicial reasoning, are insufficient to address implicit biases. Drawing on Behavioural Realism, the analysis demonstrates how judges remain susceptible to implicit biases despite their training and commitment to impartiality. The article proposes integrating debiasing interventions into judicial practice, including habit modification, environmental changes, and decision-support tools. It argues that such interventions should be encompassed within judges' professional duties, making their adoption mandatory under certain conditions.

Keywords: judicial decision-making, legal reasoning, implicit biases, judicial biases, debiasing

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1. Introduction

Every day, judges are tasked with rendering decisions that carry profound consequences both for the individuals directly affected by them and for society as a whole. For instance, they can decide whether a person should be sent to prison and for how long, as well as whether she can await her trial in freedom or have an early release. At the highest levels, judges have the power to interpret constitutional principles and to determine important social disputes involving fundamental rights. These decisions not only affect present cases, but can also reverberate to the future through the doctrine of precedent. Overall, judges hold great power in our society, and in wielding this power, we expect them to act with objectivity and neutrality. We expect judges to reach and justify their decisions based on authoritative legal sources, and to not be influenced by external factors that are irrelevant to the dispute.

There are many elements of substantive and procedural law that serve to fulfil these expectations, aiming to avoid legal decisions that are arbitrary, partial or ill reasoned. Examples include the right to appeal and the right to counsel, the right to reasoned verdicts, and the inadmissibility of evidence deemed prejudicial. While all of these aims to ensure accuracy and objectivity in judicial decision-making, they assume a normative model of legal reasoning that does not entirely reflect the reality of adjudication. According to this normative model, judicial decision-making follows a syllogistic and linear pattern: the judge begins with a specific set of facts, looks at the law that applies to those facts, and then reaches a verdict – all in a step-by-step, conscious, intentional and controllable process.

However, as representatives of the Legal Realism movement noted already a century ago, this model often fails to correspond to the reality of judicial practice, with extraneous factors such as judges' emotions, idiosyncrasies and preferences of various kinds having an impact on case outcomes. More

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recently, some scholars started to advocate for a new type of Legal Realism, namely Behavioural Realism – a school of thought that asks the law to take into account more accurate models of human cognition and behaviour (Kang 2023, 5). This behaviourist strand of realism examines the extent to which factors that operate under the level of consciousness, such as implicit biases, influence the decision-making process. Judges, despite their training and commitment to impartiality, are not immune to the pervasive influence of implicit biases, and a growing body of research investigates how these can subtly shape their perceptions, judgments, and decision-making processes throughout various stages of legal proceedings.

This article explores how, by assuming a rationalist model of reasoning, the norms that govern the judicial process and judges' behaviour end up only addressing explicit instances of biased decision-making and are therefore insufficient to address the influence of implicit biases on judges' decisions. It argues that, in light of this limitation, alternative solutions to mitigate implicit bias in judicial decision-making are necessary. Here, it is proposed that judges' decision-making capabilities can be improved by certain interventions that alter their habits, modify the environment within which they interact, or provide tools to support decision-making. To the extent that these interventions seek to ameliorate bias, they are collectively referred to as debiasing interventions. Given the significance of judicial decision-making for litigants and society, the article explores the possibility of encompassing such debiasing interventions within the scope of the judicial professional duty of competence and diligence, thereby making their adoption mandatory under certain conditions.

Section 2 briefly presents the literature on implicit bias and the various ways in which judges are prone to various cognitive and social biases. It also addresses the different environmental and personal conditions that are conducive to biased reasoning. Section 3 explores how some strategies aimed at mitigating biased and ill-reasoned judicial decisions are already incorporated to a certain extent into procedural and substantial law, to ensure

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its fair and impartial application. Notwithstanding, it argues that these measures are limited to explicit instances of bias and thereby do not fully prevent implicit biases from creeping into judicial decision-making. This is because they are aligned with a syllogistic normative model of judicial reasoning. Section 4 describes such model as well as the criticisms that have been addressed to it by the Legal Realism movement. It then explores a particular strand within this movement, namely, Behavioural Realism, along with its impact on the understanding of judicial decision-making. Section 5 further explores the concept of debiasing, presenting its main features and the different ways in which debiasing strategies can be classified. Consistent with the objectives of the Behavioural Realism movement, it discusses some commonly proposed debiasing strategies in light of their effectiveness in legal contexts, including the promotion of general bias awareness, training in rules and representations, the adoption of checklists, consider-the-opposite, exposure to stereotype-incongruent models and auditing. Finally, Section 6 provides general recommendations aiming at mitigating judicial implicit biases, framing them as part of judges' professional duty of competence and diligence. Section 7 concludes this article by summarising its main findings.

2. The Influence of Implicit Biases on Judicial Decision-Making

Before exploring the ways in which biases can affect judicial reasoning and decision-making, it is necessary to lend some precision to terms that are frequently encountered in the literature and to clarify the terminology that will be employed throughout this article. The first clarification relates to the broader distinction, commonly found in the cognitive and social psychology literature, between implicit and explicit biases (or, equivalently, unconscious and conscious biases). The first type is deemed implicit because it is generally considered to be latent, meaning that subjects tend to be unaware of them. The opposite is true for explicit biases, meaning that they are consciously accessible through introspection and endorsed by the individual. This

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distinction is relevant because while there is a terminological conflation between the notion of explicit bias and prejudice, these fundamentally differ from implicit or unconscious bias – and this distinction is further reflected in the ways in which substantive and procedural law deal with judicial bias. In emphasising the impact of implicit bias, however, it is not suggested that explicit biases are unimportant or less significant to judicial decision-making. But the focus on implicit biases is justified in it being a category of bias that cannot be easily relegated to a few 'bad apples' or extremists, but that is highly pervasive even to individuals who are committed to ideals of justice and fairness. As Jerry Kang (2021, 81) rightly emphasizes, "implicit bias is here, right now, in your own courtroom, in your own mind, and in mine."

The larger category of implicit bias can be divided into two main types, both of which have the potential to reduce the accuracy of a judgment: cognitive biases, which entail some broadly erroneous form of reasoning, and social biases, which entail reasoning based on implicit attitudes and stereotypes (Zenker 2021). The specialised literature distinguishes between cognitive biases and social biases, even though it can be argued that social biases also have a strong cognitive rooting. In this framework, the term cognitive bias is used within cognitive psychology – roughly equivalent to a cognitive fallacy – whereas social bias is used in social psychology to denote an unintentional partiality toward certain social groups. This distinction becomes more relevant when addressing the roots of bias (e.g., the fact that the majority of criminal defendants are black might reinforce judges' implicit association between blackness and criminality) and how to mitigate it (e.g., social biases, being primarily a social problem, might require different forms of intervention, including ones that are more group focused). In the end, this work will deal with (ways to avoid/mitigate) both cognitive and social biases. Finally, note that social biases are sometimes also referred to as invidious or implicit biases. There is a risk, however, that adopting the latter definition may erroneously lead to the idea that cognitive biases are not also implicit (in

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the sense of operating under the level of consciousness), which is why preference is given to the term social bias.

Implicit biases are inherent in human judgment, and judges are not excepted from their influence. Even if not consciously endorsed by judges, implicit biases can have a meaningful impact on the administration of justice, influencing judges' decisions throughout different stages of judicial proceedings: confirmation and hindsight bias, for instance, can hamper the hearing process, and racial bias can influence the way in which a witness or defendant is assessed. Likewise, the contrast/compromise effect, along with the gambler's fallacy or the status quo bias can affect judicial rulings, and sentencing can be anchored toward the initial demand made by the prosecutor or display gender or ingroup biases. To give some examples of relevant findings:

- Numerous studies have investigated the impact of anchoring effects on judicial decisions (for a recent meta-analysis, see Bystranowski et al. 2021). Experiments conducted with professional judges as subjects found that sentencing decisions and compensation awards were not only to be anchored by the initial demand made by the prosecutor, but also by random and unrelated factors to the decision at hand (Rachlinski et al. 2015; Guthrie et al. 2001, 2009; Englich et al. 2006; Enough and Mussweiler 2001).
- In a criminal investigation scenario, irrelevant contextual information affected judges' conviction rate, and confirmation bias led them to prefer incriminating investigations (Rassin 2020). Similarly, the pretrial detention of defendants later influenced judges' assessments of their guilt in criminal cases (Lidén et al. 2019).
- Judges' decisions were biased by the gender of the parties in studies involving hypothetical cases about child custody and relocation, employment discrimination, and criminal sentencing (Miller 2019; Rachlinski and Wistrich 2021).

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- In negligence assessments, judicial decisions have also been found to be affected by hindsight bias, with judges in the hindsight condition believing that they would have foreseen the harm to a greater extent than those with genuine foresight did (Oeberst and Goeckenjan 2016).
- Data analysis of judges' bail decisions revealed racial bias against black defendants, even after controlling for variables such as criminal history and past pretrial misconduct (Arnold et al. 2020). And when tested with the Implicit Association Test (IAT), judges harboured the same measure of implicit biases concerning black people as most lay adults (Rachlinski et al. 2009).

The presence of bias is hard to separate from conditions that also produce suboptimal decision-making outcomes, or conditions that do so by interacting with a bias (Zenker 2021). These include environmental or institutional conditions, as well as personal constraints that, by generally leading individuals to be more reliant on intuitive thinking, are conducive to biased reasoning. Concerning the former, not only do judicial decisions often hinge on interpretations of subjective, ambiguous information, but the very nature of the trial process makes it particularly susceptible to implicit biases. For instance, it requires judges to make decisions about past events, opening the door to hindsight bias, and to convert assessments of harm into monetary values or prison terms, which is sensitive to anchoring and contrast effects. Unlike a jury, judges cannot be shielded from inadmissible evidence, even though there is no indication that they are better at disregarding it than jurors (Wistrich, Guthrie, and Rachlinski 2005). And due to their relevance, they cannot be shielded from certain information (e.g., identities or demographic characteristics) concerning litigants that could introduce bias into the decision-making process. Furthermore, the institutional context within which judges operate often lacks timely and constructive feedback, configuring a "wicked learning environment" (Hogarth 2010, 2015), and existing forms of accountability primarily concentrate on a judge's performance in individual

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cases rather than conducting systematic long-term assessments that might reveal implicit biases (Leibovitch 2021).

Regarding personal constraints that interact with bias and produce suboptimal decision-making outcomes, fatigued judges may be more likely to rely on recommendations provided by surrounding court actors, such as the prosecutor, or to keep things as they are, defaulting to the status quo of, for example, maintaining incarceration (Danziger, Levav, and Avnaim-Pesso 2011). One of the manifestations of mental fatigue is decision fatigue, described as an impaired ability to make decisions and control behaviour as a consequence of repeated acts of decision-making, which can lead individuals to be "more susceptible to the use of cognitive heuristics (...) that may bias decision-making – potentially resulting in decisions that yield undesirable outcomes" (Pignatiello et al. 2020, 7). The effects of decision fatigue on judicial decisions have been documented (Shroff and Vamvourellis 2022; Torres and Williams 2022); as well as the effects of sleep deprivation – a situational antecedent implicated in the development of decision fatigue (Cho et al. 2017). Like most actors in the judicial system, judges are stressed, overburdened, and operating under time pressure. Significant stressors that judges face include the burden of consequential decision-making, exposure to disturbing evidence, and isolation (Maroney et al. 2023). Evidence suggests that stress leads people to scan alternatives less systematically and completely (Keinan 1987), and that time pressures are correlated with less accurate decisions (Braun 2000; Axt and Lai 2019), all of which is particularly problematic when it comes to judges making highly consequential decisions.

A final facilitating condition for judgment errors relates to the natural decline of cognitive capabilities due to aging. Empirical research shows, via an array of methodologies, the vulnerability of cognitive abilities like reasoning and processing speed due to the normal aging process. These findings are consistent across genders, educational levels, and generations (Kaufman et al. 2016). The declines in key cognitive abilities with age impact

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individual executive functioning in areas such as judgment, decision-making, problem solving, concept formation, attention, memory, concentration, and planning ability (Flanagan et al. 2013). As Alan Kaufman (2021, 7) emphasizes, "this set of skills bears an intuitive relationship to the diverse kinds of real-life problem solving and effective processing of in-depth information required to be an effective, intelligent judge". To the author, the overwhelming consistency in the literature on ageing and intellectual decline should call into question practices concerning the length of judicial appointments, considering that in many jurisdictions judges are, effectively, appointed for life, without checking potential cognitive decline.

It is important to acknowledge that empirical studies that directly investigate the effects of implicit biases on judges, using judges themselves as research subjects, remain relatively scarce. Nevertheless, existing evidence raises concerns: judges tend to perform no better than laypersons on standard measures of cognitive and social biases, such as the Cognitive Reflection Test (Guthrie at al. 2007) and the Implicit Association Test (Rachlinski et al. 2009). This suggests that they are not immune to the same cognitive limitations and automatic associations that affect decision-making more broadly. While the precise size of bias effects in judicial contexts is still debated, it should be noted that even minor disparities in treatment can accumulate over time, creating powerful headwinds and tailwinds that shape the trajectory of individuals in significant ways: when aggregated across entire groups – for example, between men and women or across racial categories – these small differences may generate substantial structural inequalities (Kang 2021). Moreover, for a single defendant, implicit biases can exert an influence at multiple points in the criminal justice process, from policing and charging decisions to bail, plea bargaining, pretrial motions, assessments of witness credibility, determinations of guilt and sentencing, and these accumulations can ultimately produce larger inequalities than those captured by individual studies measuring a specific bias alone.

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Implicit biases are capable of exerting a significant influence on judicial decision-making across various stages of the trial process, being further aggravated by institutional structures, environmental conditions, and personal constraints. Yet, while recognising the pervasiveness and complexity of such biases, it remains necessary to assess the extent to which the law itself provides mechanisms to counteract them. The following section therefore turns to the limits of adjudicative debiasing through law, examining how existing substantive and procedural safeguards operate as tools of explicit bias mitigation, and why they may fall short in addressing judicial implicit biases.

3. Adjudicative Debiasing Through Law

Adjudicative debiasing strategies (Jolls and Sunstein 2006) aim to eliminate or mitigate biases in adjudication, largely focusing on procedural rules governing how judges or juries ought to decide. Indeed, there are several elements of substantive and procedural law that can be interpreted as sedimented debiasing strategies, serving to avoid legal decisions that are arbitrary, unfair or ill reasoned. In other words, they seek to avoid, or at least mitigate, negative decision-making outcomes to which cognitive and social biases can contribute.

Perhaps the most basic procedural debiasing measure rests in judges' accountability, insofar as decisions are subject to revision by higher courts (Arkes 1998). Article 2 of Protocol 7 of the European Convention of Human Rights (ECHR) provides that "everyone convicted of a criminal offense by a tribunal shall have the right to have his conviction or sentence reviewed by a higher tribunal (...)" (Council of Europe 1984). Mainly when it comes to decision-making at the higher level, having entire courts, rather than only individual judges deciding the case, can also be interpreted as a traditional and institutionalised debiasing measure (Zenker 2021). A related procedural form of intervention includes separating the decision-making process into

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distinct phases, as is already the case in legal proceedings (Zenker, Dahlman, and Sarwar 2015, 3).

The debiasing technique known as consider-the-opposite (or playing the devil's advocate) operates by reminding agents of the hypothetical possibility of the opposite standpoint, requiring them to imagine alternate outcomes. In law, it is represented in the dictum *audi alteram partem*, which states that the other side must be heard as well, and enshrined in the principle that both parties should be given a fair hearing, and have the opportunity to respond to claims being brought against them. Such a principle is closely related to the right to counsel, considering how having a third party point out alternative plausible scenarios increases the likelihood of success of the technique:

> (...) if whatever the opposite to consider is yet to be generated from imagination, rather than being made available in full detail by a defence attorney, for instance, then the same strategy may be less likely to work. Presumably, sheer lack of imagination, or lack of motivation to probe it, could lead agents to conclude (incorrectly) on the basis of the few alternatives that are thus generated – of which some may be 'out of the way' possibilities – that the original belief was not problematic after all. It is easy to see that the role of the defence attorney may be viewed as a counter-weight to a lack of imagination, for instance by providing plausible scenarios that put the defendant, at the relevant time, at places other than the crime scene, say, or explanations for the presence of the evidence presented by the prosecution even if the defendant was innocent (aka the probability of the evidence conditional on the falsity of the hypothesis) (Zenker, Dahlman, and Sarwar 2015, 17-8).

Another debiasing technique that corresponds to legal procedure is providing reasons in favour and against (*pro et contra*) a decision, which translates into the obligation, generally falling upon the judge, to give reasoned verdicts. In deciding cases at the domestic level, the courts in Council of Europe member states are usually obliged under domestic law to

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provide detailed reasoning to their judgments. And the ECHR, as interpreted by the European Court of Human Rights (ECtHR) in its case law, also gives rise to substantial obligations concerning the content of that reasoning, primarily under Article 6 of the Convention. At the EU level, article 47 of the Charter of the Fundamental Rights (CFREU) guarantees the right to a reasoned judgment, also to be interpreted in accordance with the ECtHR case law.

A number of benefits theoretically achieved by giving reasoned judgments have been identified, which are summarised by Mathilde Cohen (2015) according to the three central values promoted by reason-giving in the courtroom, namely, participation, accountability, and accuracy. Fundamentally, imposing an obligation to give reasons for a judgment aims to secure litigants' involvement in the judicial process while ensuring the court is held accountable and accurate decisions are reached. To demonstrate that they are receptive to the evidence and arguments put out by the parties, judges must provide an explanation for their rulings. A judge conveys the degree to which the parties' arguments have been comprehended, accepted, or served as the foundation for the verdict by explaining their decisions. According to social psychology research, the perception that the decision maker has given due consideration to the respondent's views and arguments is crucial to accepting both the decision as well as the authority of the institution that imposes the decision (Cohen, Lind, and Tyler 1989). Giving reasoned verdicts also works as an accountability-enhancing mechanism. It limits judicial discretion by ensuring that written decisions or at least some record of the proceedings can be read and reviewed by higher courts, as well as the public in general, and by encouraging judges to treat similarly situated cases alike and to treat differently situated cases differently (Cohen 2015). Lastly, giving reasons for judgments enforces a form of self-discipline that is thought to improve the quality of the decisions themselves – a process often described as the 'it won't write' phenomenon:

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> In attempting to reason her decision, a judge discovers that she cannot find an appropriate legal justification, leading her to reconsider her initial ruling and make a more accurate determination. The theory can be generalized to non-written forms of justification: forcing judges to substantiate their decisions based on facts and legal arguments enhances the accuracy of judicial decision-making. It ensures that judicial decisions are not made arbitrarily or based on speculation, suspicion, or irrelevant information. The giving of reasons, it is thought, ensures that the deciding court has considered all relevant factors, researched the applicable law and given the case the thought it deserved (Cohen 2015, 511-2).

A final debiasing strategy is censorship, which corresponds to insulating the decision-maker from information that may lead him or her to biased decisions. According to the law of evidence, even if certain pieces of proof are factually relevant to the dispute, they may not be admitted in trial when, e.g., its potential to confuse or mislead jury members outweighs its probative value. Procedural rules also insulate judges from acting in certain situations, in order to fully implement the principle according to which every trial takes place before an independent and impartial judge. These are situations identified by the legislator where there is a risk of biased reasoning due, for instance, to the judge having an interest in the case assigned to him, or being in a relationship of kinship, affinity or marriage with one of the parties. In these cases, the judge vested with the decision of a case has the obligation to abstain from judging, and must be replaced by another. A risk of biased reasoning may also emerge if the judge has already carried out certain actions in the proceedings – for instance, if he or she pronounced or contributed to pronouncing the sentence in one level, exercising the functions of judge in the other levels of the proceedings is prohibited.

In short, it is possible to re-identify elements of modern procedural and substantive law as sedimented debiasing techniques. Nevertheless, biased reasoning and decision-making persists amongst judges, as illustrated by the

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findings presented earlier in this article. A possible explanation for this is that formal procedures typically address explicit instances of biased decision-making. While the right to appeal serves the general goal of ensuring the correct interpretation and application of the law, it is a remedy often limited to specific situations. For instance, the grounds for cassation are limited to when there is a failure to properly apply the substantive law to the facts found true by the first instance court, or a failure to apply procedural rules that give rise to a nullity. And even though an appeal trial is supposed to address both the facts and the law by freshly retrying the case in its entirety, in most systems today appellants-to-be must articulate reasons for exercising this remedy, with courts being able to dismiss an appeal without a hearing if the reasons are considered inadequate. The decisions of courts of appeal are, in this sense, becoming increasingly "cassational" in that they review the judgment of the first instance court for factual and legal errors before admitting the case for trial (Thaman 2019). It is thus hard to envision how a litigant could successfully challenge a decision through one of these remedies on the grounds of it having been unduly influenced by implicit biases.

When it comes to insulating (or censorship), the law of evidence has developed with the main goal of keeping even relevant evidence away from a frequently distrusted jury, with no specialised training either in law or in factual analysis (Schauer 2009, 210), while holding the belief that judges, precisely because of their training, are better at assessing, weighing and, when necessary, ignoring evidence. While it may be possible to shield the jury from evidence deemed inadmissible, there are reasons to be sceptical of the effectiveness of this insulating technique when it comes to judges (see Wistrich et al. 2005).

Lastly, the duty to give reasoned verdicts seeks to ensure that judicial decisions are not made arbitrarily or based on irrelevant information, and there is some (albeit limited) evidence that suggests that requiring decision-makers to explain their reasoning for a decision may help mitigate some cognitive biases (see Guthrie, Rachlinski, and Wistrich 2007; Mitchell 2002;

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Zenker et al. 2018; Liu 2018). According to traditional, formalist theories of judging, judicial decision-making follows a linear pattern: the judge searches for relevant evidence, weighs it and coordinates it with the applicable law and the dominant doctrines before reaching a decision – all in a step-by-step, conscious, intentional and controllable process. Once the decision is made, the judge who is asked to give a justification simply recounts these steps (Cohen 2015). However, the picture depicted by a number of psychologists offers a different account, suggesting that people's reasoning is frequently unconsciously motivated, in the sense that the reasoning process constructs *post hoc* justifications (see generally Haidt 2001, 2013).

In sum, existing substantive and procedural rules designed to prevent arbitrary, partial, or inaccurate legal decisions primarily focus on the explicit manifestations of biases, neglecting to adequately address the negative effects of biases that operate beneath the level of consciousness, and which are not subject to direct introspection. In order to effectively mitigate the effects of implicit biases, the law needs to take into account the influence of these cognitive and behavioural factors in judges' decision-making, and incorporate new measures aimed at identifying and counteracting their impact. The Legal Realism movement recognises the influence of such extraneous factors in judicial decision-making, challenging the notion of purely objective legal reasoning. By acknowledging that judicial decisions are shaped not only by legal rules but also by psychological and social dynamics, legal realism provides a more accurate account of legal reasoning – one that supports the implementation of targeted interventions to address implicit biases and promote greater fairness and impartiality in the legal process. The next section therefore turns to Behavioural Realism, a contemporary strand of the legal realist movement that builds upon these insights. Unlike formalist theories of judging, it explicitly incorporates unconscious influences on decision-making, such as implicit cognition and bias, into its account of legal reasoning.

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4. Behavioural Realism: Accounting for Unconscious Influences in Legal Reasoning

Broadly understood, reasoning consists in the process of drawing conclusions (inferences) from some initial information (premises). One form of doing so is through deduction, a reasoning process in which a conclusion necessarily follows from the stated premises. The paradigm of deduction is syllogism, which consists of a general statement, known as the major premise; a specific statement, known as the minor premise; and a conclusion that necessarily follows from the two premises (Eisenberg 2022). A famous example of a major premise is that "all men are mortal"; as a minor premise, "Socrates is a man"; from that, one can deductively arrive at the conclusion that "Socrates is mortal". In deductive legal reasoning, the decision-maker, most frequently a judge, begins with a specific set of facts, looks at the law that applies to those facts, and then reaches a verdict.

This type of legal reasoning is described by Damiano Canale and Giovanni Tuzet (2020) as the judicial syllogism, consisting in a prescriptive (rather than descriptive) model of judicial practice. It places a general and abstract norm as a major premise; a representation of the fact as a minor premise; and draws a deductive conclusion, that is, the conclusion by a particular and concrete norm. The internal justification, in this scenario, is the justification that the premises give to the conclusion of the syllogism (Canale and Tuzet 2020). When the facts of the case are proven in accordance with the relevant standards of proof, and they clearly fall under the range of application of the rule, the judge's conclusion will follow deductively, justified by simple mention of the facts and the legal rule. And being a deductive conclusion, it is necessarily true if the premises are also true. The issue, however, is that in most cases the premises are not already formed, not even the legal ones, but must be figured out by the judges during and at the outcome of the trial, on the basis of the arguments produced by the parties and further considerations that are legitimate and relevant. They must determine the premises starting

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from all the relevant evidence, legal texts and materials and derive the rule applicable to the case. There are many ways in which ambiguity can creep into this process:

> For once, the decision-maker is faced with a specific set of facts. If he or she is a judge, there are almost always two versions of the facts. It is the attorneys' job to organise the facts in a way that fits the legal outcome they wish to achieve, and they do this by emphasising different facts and, often, different legal precedents (...) There may be more than one law that is potentially applicable. There may be several statutory provisions that might be relevant, and the two opposing counsels may argue that a different rule is the one that should control this case. The statute itself may violate a higher rule, such as the (...) constitution. The rule may be ambiguous, as in a ban on 'excessive noise', or the application of the 'reasonable person' standard ('Would a reasonable person have believed that her life was in danger?') (Ellsworth 2005, 686-7).

Therefore, further reasons are needed to establish the truth or correctness of the premises, which involves the elaboration of other arguments in addition to the syllogism. In other words, additional to the connection between the premises and conclusion of the syllogism, reasons are required to assume the soundness of both premises. Canale and Tuzet (2020) hence distinguish between the internal justification, which is the justification of the conclusion of the judicial syllogism, and the external justification, which is the justification of its premises. While the former is typically deductive, the latter is more often non-deductive. Within the external justification, the authors further distinguish between the external justification in law, which relates to the major premise of the syllogism, and the external justification in fact, which relates to the minor premise. Interpretative or integrative arguments of the law offer the external justification in law, which consists in drawing rules from legal provisions (interpretative arguments) and in filling any gaps in the

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system (integrative arguments, the main which is the analogy). Meanwhile, offering the external justification in fact is evidentiary argumentation, consisting in drawing evidentiary conclusions from empirical evidence or other factual information collected in the trial or proceeding.

However, even the apparently most simple form of legal reasoning – i.e., deductively deciding whether the law covers the specific fact situation – is often more complicated in practice. When looking for the premises of the judicial syllogism, judges are faced with two different sets of problems: examining what happened through evidential reasoning and deciding what consequences flow from what happened through the legal qualification of the fact, both of which are open to the influence of extra-legal factors. In fact, one of the objections that have historically been raised against the syllogistic model is that judges do not decide according to it but do so under the influence of other dynamics like their emotions, idiosyncrasies and preferences of various kinds. According to this view, the syllogistic reasoning would therefore only be an *ex post* rationalisation of a decision already made on other bases. Recognising that judicial decisions are shaped by considerations that go beyond the formal law was a hallmark of Legal Realism – a movement that was concerned primarily with the human factor in legal decision-making.

The basic realist position about judicial decision-making can be said to be a two-part hypothesis (Schauer 2009). The first part consists in the claim that judges have a preferred outcome that precedes consultation of the formal law – the judicial "hunch" (Hutcheson 1929). This preferred outcome can be based on characteristics of the litigant or of the judge, different conceptions of justice, ideology, or assessments of wise policy (legal realists highly diverged on this point), but they all precede the search for a legal justification. The second part consists in the claim that, in looking for the legal justification for their preferred outcome, judges will often find defensible legal justifications available for a wide range of possible outcomes. Realists claimed, then, that in making their decisions, judges respond first to the stimulus of the facts of the case, rather than to legal rules and reasons, and

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thus to obtain the best explanation for why judges decide as they do, one ought to look elsewhere (Leiter 2005).

The fact that we now often take the question of what the main determinants of judicial decisions are to be an empirical one is perhaps the most important legacy of the Realist program. For example, insofar as the Attitudinal model explains much of judicial decision-making in terms of judges' political preferences – or attitudes, hence the name attached to the movement –, it can be properly understood as carrying on a realist approach to studying judicial decision-making. Through the use of sophisticated multiple regression techniques, political scientists have been able to ascertain the leading determinants of US Supreme Court outcomes. After analysing a variety of criteria, it has been found that ideology, rather than personality traits, or legal determinations from text and precedent, is the best predictor of that Court's decisions (see, e.g., Landes and Posner 2009; Segal and Spaeth 2004). Similar results have been found in some EU countries' higher courts (Franck 2009; Amaral-Garcia et al. 2009; Garoupa et al. 2013, 2015).

The basic claims of Legal Realism have both contemporary adherents and continuing relevance. As highlighted by Spamann and Klöhn (2016, 3), "realism matters because the specificities of judges and the legal process might well have deep effects on legal reasoning as practiced in courts". Legal Realist scholars thought of judicial decisions as being predictable but claimed that the key to this prediction lies neither in the consultation of formal legal authorities nor in the internal understanding or self-reports of judges themselves. The prediction is rather best accomplished by determining what factors systematically influence case decisions through empirical (and external) inquiry.

The empirical work on judicial behaviour that emerged in the last decades can be best understood as a new generation of Legal Realism, with researchers conducting what Llewellyn (1931, 1244) and his peers only envisioned: "large-scale quantitative studies of facts and outcome" that assess the influence of the extra-legal factors on case outcomes. In the words of

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behavioural law and economic scholars Thomas Miles and Cass Sunstein (2008), the numerous relevant results have produced a "New Legal Realism", conceptualised as an effort to understand the sources of judicial decisions on the basis of testable hypotheses and large data sets. The distinguishing characteristic of this new strand lies in

> the close examination of reported cases in order to understand how judicial 'personality', understood in testable ways, influences legal outcomes, and how legal institutions constrain or unleash these influences. These inquiries represent an effort to test certain intuitive ideas about the indeterminacy of law, and to implement the (old-style) realist call for empirical study of how different judges decide cases by responding to the 'stimulus' of each case (Miles and Sunstein 2008, 834-5).

In this context, and in light of "a mountain of evidence demonstrating the deficiencies of human reasoning, and little or no evidence that reasoning can perform in the way that rationalist theories (...) require it to perform" (Haidt 2013, 867), some scholars advocate for a new type of Legal Realism, namely "Behavioural Realism" – a school of thought that asks the law to take into account more accurate models of human cognition and behaviour (Kang 2023). In order to do so, it is suggested that legal operators should be on the lookout for a more accurate, upgraded model of human behaviour that comes from the sciences, including experimental social and cognitive psychology, and compare it to the "commonsense" legacy understanding that is embedded within the status quo. When the gap between the two models grows too large, it should be closed by revising the law to take into account the upgraded model. If that cannot be done, either for principled or pragmatic reasons, then lawmakers should articulate the reasons why transparently. Unlike previous theories that have focused on the influence of aspects such as ideology or personal preferences on judges' decisions, this behaviourist strand of realism examines the influence of factors operating under the level of consciousness,

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such as implicit biases, and in doing so also aims to understand the judicial decision-making through the lens of cognitive psychology and neuroscience.

For instance, scholars have suggested to study judicial choice also through the lens of neuroscience, more specifically through the examination of the cognitive processes people use when deciding. This can help illuminate some aspects of decision-making processes that remain hidden, that is, that occur outside of a person's conscious awareness or control, like implicit biases. These hidden processes are part of what is referred to as implicit cognition, which also includes, for example, emotions and empathy, and can influence decisions in ways that we are not aware of. Behavioural, social and neuroscientific findings regarding human decision-making processes not only support the claim that implicit biases are real and present in society but, being applicable to most people, can also inform our understanding about how judges decide (Bradley 2018). In line with this, the next section turns to debiasing strategies designed to address such effects, with a focus on those tested in legal contexts and their respective strengths and shortcomings in counteracting implicit bias in adjudication.

5. Debiasing Strategies in Legal Contexts

Implicit biases, we have seen, are a source of judgment errors. The concept of error generally presupposes a normative standard that dictates how agents should act. As such, biases can be thought of as causes of suboptimal reasoning/decision-making relative to that normative standard. If actual behaviour falls systematically short of normative ideals, the question of how to close this gap naturally emerges. Debiasing measures aim to align actual reasoning/decision-making processes and outcomes with the normative standard, seeking to address the negative effects of biases by improving either the decision-making process or some relevant characteristics of the decision-maker (Zenker 2021). While Section 3 examined the limits of adjudicative debiasing through law – strategies aimed at eliminating or mitigating biases

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within adjudication itself, primarily through procedural rules governing how judges or juries ought to decide – this section turns to broader motivational, cognitive, and technological approaches to debiasing.

In his research on judgment and decision-making, psychologist Hal R. Arkes (1998, 449) describes debiasing measures as "all strategies designed to reduce the magnitude of judgment errors", including errors that may not be owed to biases but to non-conducive environmental, institutional, or cultural conditions, as well as personal constraints such as fatigue and stress. Following Richard Larrick's (2004) taxonomy, debiasing measures can be analytically classified into motivational, cognitive, or technological. Motivational strategies focus on increasing the individual's motivation to perform well, for instance through incentives and accountability. They are based on the critical assumption that people possess normative strategies and will use them when the benefits exceed the costs. The two remaining categories, however, do not presume this, but rather assume that, although intuitive strategies are imperfect, they can be replaced by strategies that approach normative standards, even if falling short. Therefore, cognitive techniques focus on modifying the cognitive strategies of individuals through, e.g., training or incentivising them to consider alternative views, and represent a "compromise between a strategy that approximates the normative ideal, but that can be remembered and implemented given ordinary cognitive limitations on memory and computation" (Larrick 2004, 317). Technological debiasing expands "possible strategies to include techniques external to the decision maker", recognising that "individual reasoning can approach normative standards through the use of tools" (Larrick 2004, 318). Examples include improving information processing through decision aids and even replacing individual judgment with statistical models or artificial intelligence.

Researchers have explored the effectiveness of various debiasing techniques, including in legal contexts. These techniques encompass individual-level strategies that judges can adopt themselves to mitigate implicit biases, and institutional-level reforms that could be more widely

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implemented in the judiciary, also referred to as debiasing infrastructures (Zenker 2021, 397). In other words, they target both individual dispositions and abilities, as well as the structure of collective environments. Following Larrick's taxonomy, these debiasing strategies seek to offer subjects personal incentives to use a more desirable mode of reasoning and decision-making, where doing so would be apt; to provide environmental props that facilitate the deployment of these processes as a matter of standardised procedures; and to personally provide them with the knowledge, skill, or information necessary to properly deploy such reasoning processes.

The first step in overcoming implicit biases is to bring them to the awareness of the decision-maker. While many people nowadays recognise the existence and impact of most of the biases described by social and cognitive psychologists, they are less aware of the impact that they have in governing their own judgments (due in part to the bias blind spot). Creating general bias awareness is a debiasing technique that involves educating decision-makers about the existence of implicit biases and how they can affect the decision-making process. This basic education process, which has been applied in a variety of fields, generally takes the form of brief, nontechnical, and intensive tutorials in which specific biases are demonstrated to decision-makers in general terms. Through a better understanding of the underlying decision mechanisms, this strategy seeks to lessen the susceptibility of decision-makers to biases (Reese 2012, 1281).

Courses and training sessions targeting implicit bias have gained momentum in the last years within judicial institutions. For example, some American states such as New York and California have required that sitting judges and practicing lawyers include credit hours of diversity and inclusion aimed at eliminating biases as part of their continuing legal education (Breger 2019). The American Bar Association (2016) issued a Resolution encouraging all courts that currently require mandatory continuing legal education to modify their rules to include, as a separate required credit, programs regarding diversity and inclusion in the legal profession, and

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programs regarding the elimination of bias. Likewise, the Brennan Centre for Justice recommends implicit bias training for judges, as well as training for those who are tasked with selecting judges (Berry 2016). Rachlinski and colleagues (2009, 1228) suggest that this strategy could be furthered, for instance, by the use of judges' Implicit Association Test (IAT) scores, which might "help newly elected or appointed judges understand the extent to which they have implicit biases and alert them to the need to correct for those biases on the job", and therefore enable the system to provide targeted training about bias to new judges. The same could be done with Cognitive Reflection Test (CRT) scores, which could be used to raise awareness to cognitive biases. While these scores may not be able to forecast individual behaviour, they can surely make explicit to judges that they are also vulnerable to bias.

The problem of bias awareness courses and seminars is that they often come unaccompanied with other debiasing interventions. In other words, decision-makers are made aware of their cognitive shortcomings but are given no information or guidance on what to do next. Here, an additional debiasing strategy that could be implemented in the judiciary is auditing. Auditing judges' decisions could not only help them understand the extent to which their work is being influenced by implicit biases (thus raising awareness), but it also works as a motivational strategy, since it improves judicial accountability. Motivational debiasing strategies focus on increasing the individual's motivation to perform well, for instance through incentives and accountability.

As individual judges exercise their daily discretion, it will often be impossible to determine in any specific situation whether an implicit bias played a causal role. If, however, similar decisions are recorded over time and/or by multiple decision makers, the data may reveal patterns of bias, helping identify areas of concern that warrant deeper examination. There is already a great deal of aggregate data regarding the ways in which the race, gender, and other demographic features of litigants affect, e.g., pretrial detention, sentencing, summary judgment motions, and other related issues.

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Aggregate data regarding the influence of judges' demographic traits on their rulings is also available. There is, however, a lack of "data about what individual judges are doing that might enable them to better calibrate their decisions. This makes it easier for individual judges to deny that they are part of the problem" (Wistrich and Rachlinski 2017, 108). The justice system would benefit from the implementation of auditing programs to evaluate the decisions of individual judges, especially regarding discretionary matters such as bail-setting, sentencing, or child-custody allocation, in order to determine whether they appear to be influenced by implicit bias. Jerry Kang (2021) also suggests auditing in his research on implicit biases, saying that judges could, at least at the individual level, collect data to assess their patterns in exercising judicial power, especially regarding decisions involving substantial discretion. Auditing can help mitigate the problem by identifying the areas where intervention might be necessary. Besides, it can help to overcome the first challenge to debiasing, namely, that of the bias blind spot and people's lack of awareness regarding their own biases.

Cognitive debiasing techniques, in their turn, focus on modifying the cognitive strategies of individuals through training and the adoption of better decision-making strategies. Training opportunities for judges going beyond their continuing legal education could be offered, including training in rules and representations. One strategy for improving decision-making is to teach people the necessary rules and principles required to do so. Inferior reasoning strategies can, with training, be replaced by better strategies. Based on Richard Nisbett's (1993) extensive research program exploring the effectiveness of training on normative rules, Larrick (2004, 318) identifies two sets of implications for debiasing: first, there are specific cognitive factors that facilitate the learning and use of normative rules; and second, formal training in basic disciplines, such as economics and statistics, is an important cultural mechanism for transmitting effective cognitive strategies. Judges can also be taught through training how to replace inferior reasoning strategies with better ones, learning, for instance, how to correctly adopt

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strategies such as consider-the-opposite and perspective-taking. The former strategy requires a person to imagine and explain the basis for alternate outcomes, especially those that conflict with the opinion that he or she holds (Wistrich and Rachlisnki 2017). This technique has been shown to be effective at combating cognitive biases such as hindsight, anchoring, overconfidence and confirmation bias (see, e.g., Adame 2016; Van Brussel et al. 2020; Sanna and Schwarz 2003; Mussweiler et al. 2000). A somewhat similar strategy is "the devil's advocate", which formalises the dissent process by bringing in a second person to question the decision maker's conclusion (Reese 2012).

Diversity training can provide judges with the opportunity to challenge their assumptions about different social groups, exposing them to stereotypical-incongruent models. Exposing individuals to examples and narratives that challenge existing stereotypes can help to break down stereotypical associations and promote more accurate perceptions. Encountering a group member whose characteristics contradict the correspondent group stereotype can influence perceptions of the group, thus constituting a valuable learning experience (Garcia-Marques and Mackie 1999). Among interventions designed to reduce social biases, exposure to counter stereotypical exemplars has been repeatedly found to be one of the most promising techniques (FitzGerald et al. 2019; Forscher et al. 2019; Lai et al. 2014). Nonetheless, consciously attempting to change implicit associations in judicial settings might be difficult, as Wistrich and Rachlisnki (2017) explain, given that most judges have little control over their dockets, which tend to include an over-representation of black criminal defendants. This frequent exposure contributes to perpetuating negative associations with black individuals. To avoid this scenario, the authors suggest that courts should consider rotating judges among specialist assignments so that implicit negative attitudes formed while deciding criminal cases will not take root.

Finally, there are also technological debiasing strategies that could be adopted in judicial settings, which encompass techniques external to the

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decision-maker, providing environmental props that facilitate the adoption of standardised procedures. Checklists, for instance, can help cabin discretion in ways that increase overall accuracy (Ashton 1992). Checklists are a potent tool for streamlining processes and thus reducing errors, especially those arising from forgetfulness and other memory distortions, e.g. over-reliance on the availability heuristic (Soll, Milkman, and Payne 2015). The adoption of checklists qualifies as a technological debiasing measure by offering agents with decision-making props, having primarily served areas such as aviation, healthcare, and product manufacturing, where best practices are likely to be overlooked due to complexity, time pressures, high stress, or fatigue. They have "a long history of improving decisions in high-stakes contexts and are particularly well suited to preventing the repetition of past errors" (Kahneman et al. 2021, 218). The adoption of checklists has been suggested as a way to free judges from reliance on their memories and encourage them to proceed methodically, thereby ensuring that they touch all of the deliberative bases. By reviewing a checklist at each step in the decision-making process, a judge is less likely to rely on intuition when doing so is inadvisable (Guthrie, Rachlinski, and Wistrich 2007, 138). Besides, individuals attend to and process information more comprehensively when they have a mental schema that tells them what information is needed in a given situation and where to find it (Heath et al. 1998, 15). Constraining decision-making by adopting checklists or similar tools like scripts thus tend to lead to more accurate and consistent decisions – a recommendation in line, for example, with the structured interview literature (see Kang et al. 2012).

Overall, the main debiasing strategies available to the judiciary include motivational approaches, such as accountability mechanisms and auditing; cognitive techniques, including training, perspective-taking, and exposure to counter-stereotypical exemplars; and technological supports, like checklists and structured procedures. Each of these interventions offers distinct advantages and limitations, but collectively they illustrate the range of possibilities for reducing the influence of implicit bias on judicial reasoning.

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In line with this body of research, and consistent with the aims of the behavioural realist movement, the following section will set out recommendations for mitigating implicit biases in judicial decision-making.

6. Improving Judicial Capabilities

In keeping with the objectives of the Behavioural realist movement, and in line with the existing body of research on debiasing techniques, a number of general recommendations aiming at mitigating judicial implicit biases can be made. The first recommendation is to audit judicial decisions, especially those involving substantial discretion. As individual judges exercise their daily discretion, it will often be impossible to determine in each and any situation whether implicit bias played a causal role. If, however, similar decisions are recorded over time and/or by multiple decision makers, the data may reveal patterns of bias, helping identify areas of concern that warrant deeper examination. Not only can auditing pinpoint the areas where intervention might be necessary, it can also raise judicial awareness to their own biases, enabling judges to overcome overconfidence and the bias blind spot. In addition, auditing can provide them with valuable feedback about their decision-making, which they currently lack, since the institutional context in which judges operate, which can be classified as a wicked learning environment, lacks appropriate feedback about their decisions. Finally, auditing also incentivises accountability, and hence serves as a motivational strategy, since the prospect of having a board of peers assessing one's decisions can encourage cognitively complex reasoning and self-awareness.

This process could be conducted by an audit panel, composed mainly by a diverse group of judges and court staff, who would be responsible for evaluating the consistency and objectivity within a pool of judicial decisions, with the goal of detecting disparities which may have been occasioned by implicit bias. In order to ensure that this auditing process is not itself affected by the evaluators' implicit bias, a blind review format, in which a sample of

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anonymised decisions are assigned to members of the panel, should be adopted. This step could be facilitated by the use of artificial intelligence, which outperforms human evaluators in identifying hidden patterns of implicit bias in a large number of judicial decisions – and here, the growing digitalisation of court proceedings would be helpful in providing input for the system. However, further research on how, precisely, to build this model is still necessary. For instance, issues related to classifying a decision as biased, and overall concerns about the opacity of some AI systems, would need to be addressed (for a discussion, see Lopes 2024). If such a system were to be built and employed to detect patterns of bias in judicial decisions, it would be important that it be overseen by the audit panel. The panel would be responsible for verifying its accuracy and analysing the causes for the disparities detected. Only then could they ascertain whether corrective interventions should be adopted. Importantly, auditing should be conducted for educational purposes and for gaining insight into how implicit biases are affecting judicial decisions, helping target improvement strategies such as training. It should in no way be used to justify disciplinary proceedings, or to penalise judges whatsoever.

The second recommendation is to regularly screen judges, especially those above a certain age, for cognitive decline. Research measuring the natural decline of cognitive performance due to ageing generally indicates that, starting from the age of 65, key cognitive abilities involved in areas such as judgment, decision-making, problem solving, attention, memory, and planning – all of which are important skills for the effective discharge of the judicial function – naturally start to deteriorate. Considering how, in most jurisdictions, judges are appointed for life, it is important to ensure that their cognitive capabilities are up to par, and they are fit for duty until the legal retirement age is reached. Judicial screening should be conducted by physicians specialising in areas such as neurology and psychiatry, who would examine judges for any type of cognitive impairment which could jeopardize their performance. While it is likely that most judges above a certain age

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already undergo some form of regular checkup by their personal physicians, these are bound by rules of confidentiality and may lack the expertise necessary to detect intellectual decline. These evaluations would thus be best conducted by independent experts, who are hired by and report to a judicial oversight board. Similar screenings are done by aviation medical examiners, who conduct physical examinations to assess the "fitness of flight" of pilots, and are trained and designated by an administrative aviation organ (see Matthews and Stretanski 2024).

The screening of judges for cognitive decline would have to take place within an appropriate framework and infrastructure, to be developed by the oversight board to ensure that appropriate safeguards are in place to guarantee a fair procedure, for instance, by providing that judges who fail an examination have the right to appeal. Moreover, it would have to establish how often these assessments would take place, and if they would target only elderly judges or also – albeit perhaps less frequently – younger or middle-aged judges. Additionally, failing an examination should not result in an immediate assumption of unfitness for duty, and the board should verify, based on information concerning the judge's professional performance, e.g., courtroom behaviour, rate of overturned decisions, whether or not additional measures should be taken.

On a similar note, it is recommended that judges undergo regular health evaluations to assess their physical and mental wellbeing, which are intimately connected to the proper performance of their duties. As previously observed, judges, like most actors in the judicial system, are stressed, overburdened, and operating under time pressures. The most common contributing factor to judicial stress seems to be excessive workloads, and commonly reported negative consequences associated therewith are judgment errors, as well as diminished cognitive abilities, lack of concentration, reduced reasoning skills and clarity of thought. Empirical evidence suggests that stress leads people to scan alternatives less systematically and completely, and that time pressures are correlated with less accurate

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decisions. Furthermore, stress leads to fatigue, low energy and sleep disturbances, all of which can have a detrimental effect on complex cognitive functions. Yearly or biannual evaluations by physicians and psychologists can therefore help determine the state of judges' wellbeing and assess possible interventions that can ameliorate the problem (e.g., professional counselling or therapy, stress-management and emotional resilience courses, wellness leaves). During these evaluations, judges can also receive personalised guidance regarding dietary and exercise interventions aimed at improving cognitive performance. In addition, regular health evaluations contribute to raising institutional awareness to the negative impact of stress and mental health issues within the judicial function, removing stereotypes and stigmatisation still often associated with this topic. Importantly, an investigation of the values and practices within judiciaries that lead to the promotion of unhealthy efficiency is also necessary. Looking into the root causes of judicial stress and promoting changes in the judicial work culture through a better distribution of caseload among courts, monitoring judges' workload, including controlled rest times for mental and physical exercises, and incentivising small active breaks during working hours can help reduce judgment errors and are worth investing in.

The fourth recommendation concerns the incorporation of debiasing strategies in judges' ongoing education and training curricula. This includes the promotion of bias awareness, bringing into light the influence that implicit bias has on judicial decisions, irrespective of judges' good intentions or commitments to objectivity and fairness. Initiatives aiming at promoting bias awareness are already being implemented in some jurisdictions, and should be a mandatory component of judicial education. There are, however, two challenges related to these kinds of initiatives: first, despite raising awareness to the overall existence and impact of implicit biases in judicial decision-making, judges' may remain unconvinced that they are also personally affected by them. This problem could be addressed by presenting judges with their scores from the Implicit Association Test (IAT) and the Cognitive

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Reflection Test (CRT), as well as by auditing their decisions, as mentioned above. The second challenge lies in the fact that bias awareness initiatives often tend not to be accompanied by other interventions. In other words, decision-makers are made aware of their cognitive shortcomings, but are given no information or guidance on what to do next. As previously argued, raising awareness is insufficient if not accompanied by giving decision-makers the tools for overcoming their biases.

Therefore, beyond bias awareness programs, judiciaries should offer specific training sessions focusing on teaching judges reasoning skills that are helpful in combating different kinds of cognitive bias. Examples include training in rules and representations, encompassing formal statistical and logical training, and teaching judges better reasoning strategies like consider-the-opposite. Concerning the latter, besides teaching judges to consider alternative scenarios and encouraging them to do so in their daily professional lives, judiciaries could also implement case review procedures, through peer reviews, panel discussions, or structured deliberation processes (like checklists). When it comes to combating social bias, the judiciary should promote inclusion and diversity training, which exposes judges to stereotype-incongruent models and allows them to assume the perspective of others, increasing empathy and reducing implicit associations and stereotypes towards certain groups. This kind of training can have its effectiveness increased by virtual reality technologies, with tech companies already providing perspective-taking training in VR.

Judicial implicit bias should be approached through a multimodal perspective. Existing debiasing interventions tend to produce limited effects, most likely due to the complex nature of this type of bias and the need to address aspects of cognition, motivation, and technology. Therefore, the best approach is to combine complementary interventions to target each of these components, and that can collectively make up for the limitations of individual strategies. Considering the complexity of implicit bias and of

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human cognition, the adoption of multiple techniques in parallel is the most promising.

Finally, these recommendations should be framed as a legal obligation, by explicitly including them in the scope of the judicial professional duties. This is important to ensure that these measures "have teeth", thus guaranteeing that a failure to comply with them could lead to disciplinary sanctions. Concerning the latter, since the specific violations which may give rise to it ought to be defined in advance in professional codes of conduct, it is necessary that the suggested interventions aimed at improving judicial cognitive functioning and performance be explicitly incorporated into these codes, and not merely implicitly interpreted from other broad judicial duties. This would allow for a failure to accept these interventions without a proper justification for doing so to be interpreted as a grossly negligent behaviour.

Recommendation CM/Rec (2010)12 of the Council of Europe on judges' independence, efficiency, and responsibilities, defines that judges should be guided in their activities by ethical principles of professional conduct, which should be laid down by EU Member-States in codes of judicial conduct. Although these codes are often referred to as codes of ethics, the duties laid down by them have a (quasi-) legal character, referring to a responsibility that a professional has on the basis of a prior regulatory framework. Codes of judicial conduct normally describe the professional obligations of judges, and sometimes also determine a disciplinary regime in view of non-compliance therewith. While professional duties aim at achieving, in an optimal manner, the best professional practices, disciplinary regimes are essentially meant to sanction failures in the accomplishment of (at least some of) these duties. These professional duties can be justified in terms of Hart's concept of role-responsibility (2008, 212): whenever a person occupies a distinctive position within a social organisation, to which distinct duties are attached to provide for the welfare of others or to advance in some specific way the aims or purposes of the organisation, he or she can be said to be responsible for the performance of these duties, or for doing what is necessary to fulfil them.

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While specific obligations may vary according to jurisdiction, some common duties are present in virtually all codes seeking to discipline the judicial role. One judicial duty commonly encountered in codes of conduct is the maintenance of judges' overall fitness as good adjudicators, having as an end goal the guarantee of the proper application of the law in an impartial, just, fair and efficient manner (CCJE 2010). In this regard, Recommendation CM/Rec (2010)12 emphasises, for instance, how "judges should regularly update and develop their proficiency" (2010, 15). In the explanatory memorandum that accompanies the Recommendation, it is explained that judges can do so by attending training programs, but also "through personal efforts to obtain the knowledge and skills required to continuously provide quality justice" (CoE 2010, 32). On a similar note, the ECtHR's Resolution on Judicial Ethics (2021) states that judges should strive to enhance their professional knowledge and skills to maintain a high level of competence.

The idea that judges ought to take action towards improving the knowledge and abilities that are necessary to continuously provide quality justice provides support to judges' responsibility to adopt certain interventions aimed at mitigating implicit biases. There seems to be a general principle establishing that "there is an obligation not just to have a basic level of competence but also to take active steps to enhance the skills and qualities necessary for the proper performance of judicial duties" (Chandler and Dodek 2016, 339). If cognitive limitations are preventing judges from fulfilling the duties that their role requires, such as impartiality, one can argue that they must take the necessary steps to improve their capabilities.

In other words, it is recognised that the judicial role comes with a responsibility to fulfil certain professional duties, including the duty to acquire and enhance the knowledge and skills necessary for carrying out the judicial role in a proper manner. Jennifer Chandler and Adam Dodek (2016) have defended a similar approach, based on common principles enshrined in the United Nations' Office on Drugs and Crime (UNODC 2002) Bangalore Principles of Judicial Conduct, endorsed by the UN Human Rights

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Commission in 2003, and recognised by various legal systems worldwide. Among the core duties recognised in the document is that of competence and diligence, according to which judges must take reasonable steps to maintain and enhance the knowledge, skills and personal qualities necessary for the proper performance of judicial duties. For this purpose, they should take advantage of the training and other facilities which should be made available, under judicial control, to judges (UNODC 2002).

What is contemplated by current codes of conduct and judicial practice is reasonable care for one's mental and physical health and the pursuit of certain educational opportunities. This can encompass some strategies aimed at reducing bias: while a duty to undergo regular psychological and medical evaluations, to submit oneself to dietary and exercise interventions and to undergo behavioural cognitive training could be derived from the legal duty of care for one's mental and physical health, a duty to participate in training targeting implicit biases and to adopt checklists and other decision props could be derived from the legal duty to foster one's education.

While the preceding recommendations provide a framework for strengthening judicial capabilities and mitigating implicit bias, their practical feasibility and effectiveness raise some unresolved questions. A first limitation concerns the current state of evidence regarding debiasing interventions. Although various strategies – ranging from bias awareness initiatives to auditing mechanisms and technological aids – have shown promise, the available empirical findings are mixed, with some studies reporting limited effects. Systematic evaluation of debiasing methods, including critical consideration of negative findings, remains necessary to assess whether these interventions can achieve sustained improvements in judicial decision-making. A related issue is the possibility of empirically verifying the effectiveness of proposed solutions within judicial contexts. Most evidence to date has been gathered in experimental or non-legal environments, raising concerns about the extent to which these results can be generalised to courts. Robust methodologies, pilot projects, and case studies

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in actual judicial settings would be required to evaluate both their suitability and their limits. Closely related is the question of context-specificity: some interventions may prove useful only under particular institutional or cultural conditions, and therefore their transferability across jurisdictions cannot be assumed. Moreover, attention must be given to potential negative side effects and practical barriers to implementation. Interventions such as mandatory screenings, regular health checks, or extensive training programs may raise concerns about costs, administrative feasibility, the limited time available to judges, and possible resistance within the judiciary. Even if formally adopted, their long-term effectiveness would need to be monitored and evaluated in practice.

These considerations highlight the need for more sustained empirical and normative inquiry into the design, testing, and implementation of debiasing interventions in judicial contexts, particularly before any of the proposed strategies are implemented, and especially prior to framing them as duties incumbent upon judges. A comprehensive analysis of these questions falls outside the scope of this article, but they remain important avenues for further investigation in future scholarly work.

7. Conclusions

This article has explored the gap between the normative expectations of judicial decision-making and the empirical reality of how judges actually decide cases. While the legal system operates under the assumption that judges follow a rational, syllogistic model of reasoning – moving linearly from facts to law to verdict –, decades of research in cognitive and social psychology reveal a more complex picture. Judges, despite their training and commitment to impartiality, remain susceptible to the pervasive influence of implicit biases that operate below the level of conscious awareness. The analysis presented here demonstrates that traditional legal safeguards, though valuable, are fundamentally insufficient to address implicit bias because they

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were designed to combat explicit instances of prejudice and partiality. Current procedural protections, including the right to appeal, requirements for reasoned verdicts, and rules governing judicial recusal, assume a rationalist model of judicial reasoning that fails to account for implicit biases.

Drawing on the insights of Behavioural Realism, this article has argued that the legal system must evolve to incorporate more accurate models of human cognition and behaviour. The evidence presented reveals how various cognitive and social biases consistently influence judicial outcomes across different jurisdictions and throughout different stages of legal proceedings. Moreover, environmental factors such as judicial fatigue, time pressure, and the natural decline of cognitive abilities with age further compound these biasing effects, creating conditions particularly conducive to systematic decision-making errors.

To address these challenges, this article has proposed a comprehensive framework of debiasing interventions that operate at both an individual and at an institutional level. These strategies range from motivational approaches (such as auditing judicial decisions to enhance accountability) to cognitive techniques (including bias awareness training and teaching judges to consider alternative scenarios) to technological solutions (such as the implementation of decision-support checklists). The multimodal approach advocated here recognises that no single intervention is sufficient to address the complex nature of implicit bias, requiring instead a coordinated effort that targets cognitive, motivational, and technological dimensions simultaneously.

These debiasing interventions should not remain optional enhancements to judicial practice but should be encompassed within judges' existing professional duty of competence and diligence. By explicitly incorporating these measures into judicial codes of conduct, the legal system can ensure that efforts to mitigate implicit bias have the necessary institutional support and enforcement mechanisms. This approach builds upon established principles already recognised in judicial ethics codes worldwide, extending the duty to maintain professional competence to include the adoption of evidence-based

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strategies for improving decision-making capabilities. At the same time, however, further research is needed to evaluate the practical feasibility, effectiveness, and limitations of these measures before they can justifiably be demanded as binding professional duties to judges.

The recommendations presented here constitute a preliminary set of measures for judicial systems to address cognitive and social biases, serving as a foundation for future research and more comprehensive reform. They acknowledge that, beyond legal expertise, an understanding of and response to the inherent limitations of decision-makers cognitive capabilities is also necessary. Given the profound consequences of judicial decisions for individuals and society, ensuring the accuracy and fairness of these decisions represents a fundamental duty of the justice system. The failure to address implicit biases not only undermines individual cases but also erodes public confidence in the judicial system's commitment to equal treatment under the law.

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