Just cognition: Scientific research on bias and some implications for legal procedure and decision-making

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Abstract

Judges are expected to be impartial. Traditionally, common law judges have been concerned about bias and even the appearance of bias. Bias is believed to threaten the administration of justice and the legitimacy of legal decision-making, particularly public confidence in the courts. This article contrasts legal approaches to bias with a range of biases, particularly cognitive biases, familiar to scientists who study human cognition and decision-making. What this research reveals is how narrowly judges have conceived the biases that threaten legal decision-making. Judges have insisted that some potential sources of bias are not open to review and maintained the idea that they are peculiarly resistant to bias through legal training and judicial experience. This article explains how, notwithstanding express concern with bias, there has been limited legal engagement with many risks known to actually bias decision-making. Through examples, and drawing upon scientific research, it questions legal approaches and discusses the implications of more empirically-based approaches to bias for decision making and institutional legitimacy.

Keywords: impartiality, judging, adjudication, cognitive science, psychology, recusal

1. Introduction

Judges in all legal traditions have concerned themselves with bias and partiality.[1] Bias, really the appearance of factors considered by judges (and others) as potentially biasing, is conceived as a threat to the legitimacy of both legal proceedings and outcomes. Indeed, impartiality has been considered so fundamental to the administration of justice, and partiality (or bias) so disruptive, that judges in common law systems developed rules and procedures to insulate legal institutions and practice from bias and even perceptions of bias. Curiously, alongside this sensitivity to bias and its institutionally destabilizing potential, common law judges developed the idea that they are peculiarly resistant to bias. Through their legal training, experience, inclinations and efforts, judges – we are told – have become exceptional. They are, according to prevalent judicial perspectives, able to resist the kinds of biases, prejudices and predispositions that frequently contaminate the decision-making (and cognition) of ordinary citizens. This article questions traditional legal approaches to bias, particularly judicial exceptionalism and the restrictive way judges have characterised bias and attendant dangers.

With these legal concerns and commitments foregrounded, this article aims to introduce legal decision-makers to scientific insights on cognitive bias. We aim to introduce the kinds of biases and heuristics that tend to influence *all* human decision-making.[2] Drawing on scientific research, we contend that judges are likely to be

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[1] See e.g. John Tarrant, *Disqualification for bias* (Federation Press, 2012) 19-32. A classical norm was captured in the phrase *nemo judex in sua causa* (nobody is to be judge in their own cause).

[2] Heuristics are 'rules of thumb' that generally help us to make good decisions in fast and frugal ways. See G. Gigerenzer and P. Todd, *Simple heuristics that make us smart* (New York: Oxford University Press, 1999). See also D. Kahnemann, *Thinking fast and slow* (New York: Farrar, Straus and Giroux,

vulnerable to many, and perhaps all, of the biases that influence ordinary human cognition.[3] From the outset it is important to note that cognitive biases are more common and more expansive than traditional legal conceptions of bias. Cognitive biases are not limited to having an interest in or obtaining a benefit from a specific outcome (be it actual or apprehended). Cognitive biases operate automatically and unconsciously and are not necessarily overcome by training, experience or effort. They are, in consequence, ubiquitous and insidious. This article explores the role and implications of biases that are quick and effortless – that is, biases unconsciously shaping our perceptions, problem solving and decision-making. Remarkably, given anxieties about the corrosive potential of even the appearance of bias, few common law judges have publicly engaged with research on cognitive bias and its implications for traditional legal models of adjudication, prevailing commitment to special judicial abilities, or the effectiveness of legal procedures.

Cognitive biases would appear to influence perceptions and interpretations at every stage of legal proceedings – from the identification of a cause of action, the collection of evidence, the framing and presentation of the issues, to the analysis of law and evidence. This article is, however, primarily focused on bias in judicial decision-making. It begins with two examples of cognitive bias in non-legal professional decision-making contexts, followed by a discussion of judicial bias. We use cognitive science as a foil to explore these approaches, before moving to consider biases and their implications with particular application to legal decision-making. Ultimately, the article explains why cognitive biases are important, and consequently, why we should study their impact on judicial performance and, where appropriate, develop empirically-based responses (e.g. training *and* revised procedures) to protect decision-makers from actual biases that threaten the fairness and accuracy of proceedings and public confidence in our legal institutions.

2. Two non-legal examples

Because lawyers and judges have developed narrow conceptions of bias, and seem to believe they possess special abilities (e.g. heightened scepticism and the ability to overcome potentially biasing influences), we have elected to begin this article with non-legal examples of cognitive bias in the hope that the experiences of decision-makers in other domains might help to cast light on the potential vulnerability of legal practices, commitments and rationales. Let's begin with the selection of musicians.[4]

A. Selecting the best musicians

Until relatively recently the New York Philharmonic Orchestra selected musicians on the basis of a competitive audition before a selection panel.[5] The eminent panel was

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2011).

[3] See e.g. S. Redfield (ed.), *Enhancing Justice: Reducing Bias* (American Bar Association, 2018); E. Cunliffe, 'Judging Fast and Slow: Using Decision-Making Theory to Explore Judicial Fact Determination' (2014) 18 *International Journal of Evidence & Proof* 139 and more generally R. Thaler and C. Sunstein, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (New Haven, Yale University Press, 2008).

[4] Another revealing example concerns the abilities of wine connoisseurs. See e.g. G. Morrot, F. Brochet and D. Dubordieu, 'The Color of Odors' (2001) 79 *Brain & Language* 309; D. Valentine et al, 'What's in a wine name? When and why do wine experts perform better than novices?' (2000) 36 *Abstracts of the Psychonomic Society* 5.

[5] This account is based on research by C. Goldin, and C. Rouse, 'Orchestrating Impartiality: The Impact Of 'Blind' Auditions On Female Musicians' (2000) 90 *American Economic Review* 715-741. See also D. Neumark, R. Bank and K. Van Nort, 'Sex discrimination in restaurant hiring: An audit

composed of experienced musicians, composers, conductors and patrons. No one suggested that those involved in selection were anything but well-suited to the task and firmly committed to both the excellence and vitality of the orchestra. The majority of those involved in selection were themselves experts or connoisseurs. The musicians recruited in this way were disproportionately male. This over-representation continued over time, even as the number of applicants who were women (or from minority groups) began to more closely resemble broader societal demographics, and as the cultural advantages once available to white males (e.g. privileged access to formal training) slowly equilibrated. Now, the over-representation of males could be because male musicians are (inherently) superior to female musicians.[6] The alternative is that selectors were making decisions that were biased in favour of male applicants.

Eventually, as the over-representation of males became sociologically conspicuous, the New York Philharmonic decided to experiment with a different method of selection. The new procedure was designed to eliminate or reduce bias against women (and some minorities and music schools). The Philharmonic introduced 'blind' auditions.[7] That is, the gender (and race and school) of the applicant was shielded from the panel through the use of a curtain or pre-recording (or some other form of non-disclosure).[8] The selection panel was forced to make an assessment on the only relevant criterion – the ability of the performer. Following this procedural innovation the proportion of female musicians selected began to rise. Slowly, the composition of the orchestra began to more closely resemble the demographics of applicants and the broader society. The results of blind audition seem to confirm that the previous process was systematically, if unintentionally, biased by factors unrelated to the quality of the audition. Selection panels had not been able to control, overcome or interrogate their prejudices, even as gender disparities became conspicuous and socially untenable.

It is important to emphasise that prior to the introduction of blind auditions none of the selectors perceived themselves, or their panels, to be biased. They believed that they were making decisions on the basis of raw ability or merit. These decision-makers seemed to be oblivious to the fact that their decisions were systematically shaped by a factor (here gender) that was not in a simple relationship with the quality of musicianship and performance. Moreover, for a while, the dominance of male musicians was perceived and understood as directly correlated to ability – and implicitly natural.[9] All of the panels (and panel members) could offer plausible explanations for the selection of predominantly male musicians based on *merit*.[10] And yet the results of blinding suggest that the prior

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study' (1996) 111 *Quarterly Journal of Economics* 915; M. Betrand and S. Mullainathan, 'Are Emily and Greg More Employable Than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination' (2004) 94 *American Economic Review* 991.

[6] Historical over-and under-representation in certain roles (whether judges, slaves, or professors) is usually easier to explain sociologically – e.g. in terms of opportunity and support – rather than biologically – i.e. invoking innate abilities.

[7] The Boston Symphony Orchestra apparently began experiments with blind auditions in 1952 and other groups eventually followed. Such blinding is now popularly embodied in popular media, such as *The Voice*. The original program, *The Voice of Holland*, first aired in 2010.

[8] It turned out that there was also a need for carpets as the sounds of shoes, as applicants walked on the stage behind the screen, provided strong hints about gender.

[9] See e.g. S.J. Gould, *The mismeasure of man*, 2nd ed. (WW Norton, 1996); S. Jasanoff, 'Future imperfect: Science, Technology and the imaginations of modernity' in S. Jasanoff and S. Kim (eds), *Dreamscapes of modernity: Sociotechnical imaginaries and the fabrication of power* (Chicago: University of Chicago Press, 2015) 1.

[10] Such considerations might have direct application to judicial selection, interpretive claims about merit and excellence, and the over-representation of particular groups. We leave judicial selection for another occasion.

selection was biased in a manner that was not directly correlated with ability. Even as selectors became aware of the gender disparity, particularly in response to changing social expectations, they still encountered interpretative difficulties when not blinded.[11]

The example of musician selection is revealing in terms of the following discussion. It suggests that biases might be a problem for decision-makers even when acting with the best intentions. The example also suggests that being experienced or expert in some domain (whether music and perhaps law), and even being aware of dangers to cognition (e.g. an awareness of the over-representation of males), may not be sufficient to counteract insidious effects. Many biases (and heuristics) operate automatically or unconsciously such that decision-makers may not be aware of their influence and thus incapable of consciously 'overpowering' them. Indeed, the dangers are such that individuals and groups may even develop justifications – such as appeals to the natural order, or intrinsic merit, in our example – for the biased outcomes they unwittingly re-produced. Significantly, decision-makers (and others) may come to understand the world in terms of such outcomes, such that biased decision-making may perpetuate perspectives and beliefs that are not based in reality.[12] The contention that males are better musicians is much more difficult to maintain once it has been shown that those with perceptual abilities (i.e. the selection panel) are generally incapable of determining the gender of a performer in blind auditions.[13]

B. Forensic scientists and contextual information

Our second example concerns forensic science evidence, specifically latent fingerprints. On Thursday, 11 March 2004, four Spanish commuter trains were bombed. Almost 200 people were killed and around 2 000 injured.[14] Among the debris investigators located a latent fingerprint on an unexploded bomb. Images of the fingerprint were sent to a range of fingerprint examiners, including those at the FBI Latent Print Unit.[15] There, a search of the Integrated Automated Fingerprint Identification System (IAFIS) produced a list of candidate fingerprints for comparison. These prints were analyzed by an FBI fingerprint examiner. The examiner made an identification, matching the latent fingerprint to a US citizen, Brandon Mayfield, whose fingerprints were stored on the IAFIS database. The Unit chief and a contracted 'verifier' reviewed the images and confirmed the identification.

Mayfield was an attorney from Portland, Oregon. He was married to an Egyptian immigrant, had converted to Islam, and was linked to suspected terrorists through his representation of a convicted terrorist in a child custody matter. Mayfield was arrested and held in custody as media interest in a possible American suspect intensified. He denied involvement. In preliminary criminal proceedings the United States Attorney's Office requested a copy of the latent fingerprint print for the purpose of an independent re-examination. The latent fingerprint from Spain was again identified to Mayfield.

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[11] These are obviously influenced by other social and performative considerations. On changes in understanding, consider J. Johnson, *Listening in Paris: A cultural history* (UC Press, 1995) and T. DeNora, *Beethoven and the construction of genius* (Cambridge: CUP, 1995).

[12] This might help to explain the persistence of mistaken beliefs in a variety of domains, from witch trials to contemporary miscarriages of justice.

[13] See also A. Turing, 'Computing machinery and intelligence' (1950) 59 *Mind* 433.

[14] J. de Ceballos, F. Turégano-Fuentes, D. Pérez-Diaz, M. Sanz-Sanchez, C. Martin-Llorente, and J. Guerrero-Sanz, '11 March 2004: The terrorist bomb explosions in Madrid, Spain–an analysis of the logistics, injuries sustained and clinical management of casualties treated at the closest hospital' (2005) 9 *Critical Care* 104.

[15] R. Stacey, 'A report on the erroneous fingerprint Individualization1 in the Madrid train bombing case' (2004) 54 *Journal of Forensic Identification* 706.

Two days later, on 19 May 2004, the Spanish National Police advised the FBI that they had identified the latent fingerprint to Ouhnane Daoud, an Algerian national. The FBI reviewed Daoud's prints and withdrew its identification of Mayfield.[16] The US latent fingerprint examiners had all been wrong. Mayfield was not the source of the latent print, their systems had failed and a very public error had been made. The US government dismissed the criminal proceedings against Mayfield and he was released from prison. Eventually Mayfield received a formal apology and was awarded $2 million in compensation. Yet the damage was done. Both Mayfield and the reputation of fingerprint evidence suffered irreparable losses. Identification by fingerprint had become (publicly) fallible.[17]

It is against this backdrop that a now notorious study was conducted examining the potential role of contextual bias (or context effects) in forensic science decision-making.[18] Contextual bias is where our perceptions and interpretations of objects and events are influenced by factors in the environment that are unrelated to the specific decision at hand.[19] Researcher Itiel Dror wanted to know whether contextual information about the Mayfield case could lead fingerprint examiners to change how they viewed and interpreted a pair of matching fingerprints. At some point in 2004, following the Mayfield misidentification, Dror and his colleagues recruited five fingerprint examiners with 85 years of combined experience to participate in a study. The examiners would not know when the study would take place or what it entailed. Indeed, they would not even know that they had actually participated until the study was over.

For the purposes of the study, a pair of fingerprints – one latent fingerprint and one reference fingerprint – was prepared for each of the five examiners. More importantly, in each case the prints were drawn from the specific examiner's own casework history. Four years earlier (in 2000) each of the examiners had concluded that these prints matched.[20] The examiners were shown the prints again as part of Dror's study, but were not told that they had previously declared them to match. Instead, in each case a colleague presented the examiner with the pair of fingerprints explaining that they were the prints that had been erroneously matched by the FBI in the Madrid train bombing – this is the contextual information.[21] The fingerprint examiner was then invited to examine the 'Mayfield' prints – this is the data or evidence – and provide an assessment. The results of this modest experiment rocked the forensic sciences across the world. Of the five examiners only one was able to resist the powerful contextual suggestion that the two prints did not match – maintaining his original judgement. One expert concluded that there was now insufficient information to support a judgement either way – notwithstanding the fact that they had

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[16] For a review of the FBI's handling of the Brandon Mayfield case, see United States Department of Justice, *A Review of the FBI's Handling of the Brandon Mayfield Case* (US Department of Justice, Office of the Inspector General, Oversight and Review Division, 2006).

[17] Generally, see S. Cole, *Suspect Identities: A History of Fingerprinting and Criminal Identification* (Harvard University Press, 2001).

[18] I. Dror, D. Charlton and A. Péron, 'Contextual information renders experts vulnerable to making erroneous identifications' (2006) 156 *Forensic Science International* 74.

[19] For a discussion in a forensic context see G. Edmond, J. Tangen, R. Searston, and I. Dror, 'Contextual bias and cross-contamination in the forensic sciences: the corrosive implications for investigations, plea bargains, trials and appeals' (2015) 14 *Law Probability and Risk 1*.

[20] Two independent examiners were asked to review the prints for the purpose of the study and declared that each pair of prints matched. The question of whether the prints used in this study actually match is less important than the examiners' responses when re-presented with prints they had previously matched.

[21] Here, the context is suggestive, but misleading. Context information, such as the criminal record of the suspect, should make no difference to the question of whether two fingerprints match or do not match (or are not sufficient to match).

previously been deemed sufficient for comparison and identified. The three remaining experts directly contradicted their previous identification by reporting that the prints were non-matching.

While validation studies suggest that qualified fingerprint examiners possess genuine expertise in fingerprint comparison, and perform the task with a high degree of accuracy,[22] this study demonstrates the corrosive power of suggestive contextual information – including misleading information.[23] The qualifications and expertise of the participants in this study were unimpeachable, the research method was robust and realistic. Yet, information that was irrelevant to the visual comparison was sufficient to cause three of five examiners to reverse their decision.[24] They no longer believed what they saw. Moreover, the changed interpretation was not trivial. Even though the appearance of the fingerprints had not changed four of the examiners radically changed their interpretation. Context effects like this one have now been reproduced in many different forensic science domains including DNA mixture interpretation,[25] the interpretation of crime scenes,[26] blood pattern analysis,[27] forensic anthropology,[28] and forensic psychology.[29]

Concerns about the bias caused by contextual information in the forensic sciences have now been expressed by authoritative scientific organisations including the National Research Council (NRC) of the National Academy of Sciences, the National Institute of Science and Technology (NIST), the President's Council of Advisors on Science and Technology (PCAST), the American Association for the Advancement of Science (AAAS), the Royal Societies of London and Edinburgh and the Forensic Science

[22] B. Ulery, R. Hicklin, J. Buscaglia and M. Roberts, 'Repeatability and reproducibility of decisions by latent fingerprint examiners' (2012) 7 *PloS one* e32800; B. Ulery, R. Hicklin, J. Buscaglia and M. Roberts, 'Accuracy and reliability of forensic latent fingerprint decisions' (2011) 108 *Proceedings of the National Academy of Sciences* 7733; J. Tangen, M. Thompson and D. McCarthy 'Identifying fingerprint expertise' (2011) 22 *Psychological Science* 995.

[23] Unfortunately, in practice we do not always know if contextual information is accurate.

[24] Such materials are sometimes described as 'domain-irrelevant information'. That is, they are not required to undertake the task – here latent fingerprint comparison. And, of vital importance, domain irrelevant information may introduce serious dangers to interpretation and decision-making.

[25] I. Dror and G. Hampikian, 'Subjectivity and bias in forensic DNA mixture interpretation' (2011) 51 *Science & Justice* 204.

[26] C. van den Eeden, C. de Poot and P. Van Koppen, 'Forensic expectations: Investigating a crime scene with prior information' (2016) 56 *Science & Justice* 475.

[27] N. Osborne, M. Taylor, M. Healey and R. Zajac, 'Bloodstain pattern classification: Accuracy, effect of contextual information and the role of analyst characteristics' (2016) 56 *Science & Justice* 123.

[28] S. Nakhaeizadeh, I. Dror and R. Morgan, 'Cognitive bias in forensic anthropology: visual assessment of skeletal remains is susceptible to confirmation bias' (2014) 54 *Science & Justice* 208.

[29] D. Murrie, M. Boccaccini, L. Guarnera and K. Rufino, 'Are forensic experts biased by the side that retained them?' (2013) 24 *Psychological Science* 1889. For a review of forensic confirmation bias see S. Kassin, I. Dror and J. Kukucka, 'The forensic confirmation bias: Problems, perspectives, and proposed solutions' (2013) 2 *Journal of Applied Research in Memory and Cognition* 42.

Regulator (UK).[30] Alongside this critical attention, strategies are now being developed and implemented to manage the effects of bias on experienced forensic practitioners.[31]

3. Legal approaches to partiality, pre-judgment and their appearances

Concerns about bias and even the appearance of bias are abiding anxieties of modern independent judiciaries tasked with the resolution of disputes. Indeed, the risk of bias and its apprehension have led common law judges to develop a range of rules and procedures intended to manage dangers in ways that encourage public confidence in the courts and the administration of justice. In this section it is our intention to provide some sense of the rather limited ways in which common law judges have approached and understood bias. We might characterise these as legally-recognised biases. In doing so, we have drawn quite liberally on the jurisprudence of superior common law courts. Rather than attempt to synthesize or reconcile the jurisprudence, it is our intention to provide an indication of predominant concerns, assumptions and responses.

In common law systems ideas about bias are derived from the exigencies of litigation and the collective experience of judges.[32] Modern concerns with bias are said to emerge from one of the two central precepts of natural justice. The first precept requires that persons whose rights or interests might be affected by a decision should be notified and afforded an opportunity to participate in the process before a decision is made. The other precept concerns bias and is sometimes described as the bias rule, the rule against bias or, as in the following extract, the 'apprehension of bias principle'.

> The apprehension of bias principle may be thought to find its justification in the importance of the basic principle, that the tribunal be independent and impartial. So important is the principle that even the appearance of departure from it is prohibited lest the integrity of the judicial system be undermined.[33]

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[30] National Research Council, *Strengthening Forensic Science in the United States: A Path Forward* (National Academies Press, 2009); Expert Working Group on Human Factors in Latent Print Analysis, *Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach* (US Department of Commerce, National Institute of Standards and Technology, 2012); President's Council of Advisors on Science and Technology, *Forensic Science in Criminal Proceedings: Ensuring Scientific Validity of Feature-Comparison Methods* (Executive Office of the President of the United States, 2016); and W. Thompson et al, *Forensic Science Assessments: A quality and gap analysis – Latent fingerprint examination* (AAAS, Washington DC, 2017).

[31] Sequential unmasking is one such strategy where the facts surrounding the decision are progressively revealed. See D. Krane, S. Ford, J. Gilder, K. Inman, A. Jamieson, R. Koppl, L. Kornfield, M. Risinger, N. Rudin, M. Taylor and W. Thompson, 'Sequential unmasking: a means of minimizing observer effects in forensic DNA interpretation' (2008) 53 *Journal of Forensic Sciences* 1006. This approach has subsequently been updated to include a linear component to balance competing context management and opinion revision considerations. See I. Dror, W. Thompson, C. Meissner, I. Kornfield, D. Krane, M. Saks, and M. Risinger, 'Context management toolbox: A Linear Sequential Unmasking (LSU) Approach for minimizing cognitive bias in forensic decision making' (2015) 60 *Journal of Forensic Sciences* 1111.

[32] Though, some of these ideas pre-date our particular institutions and might be considered part of the consciousness, or common sense, in western intellectual traditions. In recent years, managerial judging and more interventionist case management may have created new risks. See e.g. J. Resnik, 'Managerial judges' (1982) 96 *Harvard Law Review* 364 and A. Zuckerman, 'Truth finding and the mirage of inquisitorial process', paper presented at the Evidential Legal Reasoning World Congress, Girona (6-8 June, 2018).

[33] *Ebner v Official Trustee* (2000) 205 CLR 337, 345. Lon Fuller refers to the fundamental need for a neutral umpire, in 'The forms and limits of adjudication' (1978) 92 *Harvard LR* 353.

Whatever the precise nomenclature, judges are expected (and assumed) to be impartial.[34] This requires that they approach decisions 'with an open mind that is free of prejudgment and prejudice'.[35] The English Court of Appeal defined bias as 'a predisposition or prejudice ... unconnected with the merits of the issue.'[36] Another definition, from the High Court of Australia, takes the conceptualisation even further insisting that bias need not actually lead to an error, rather that 'bias, whether actual or apparent, connotes the absence of impartiality.'[37] A judge should make decisions on the basis of relevant and admissible evidence (applied to the relevant law in a procedurally orthodox fashion). Bias may cause practices and decisions to depart, or be perceived to depart, from these expectations. In theory and practice judges (and many other public decision-makers) are required to be unbiased. That is, they should rationally evaluate relevant evidence and disregard – *and not be influenced by* – extraneous considerations.[38]

Common law judges have identified two types of bias – actual and apprehended. *Actual bias* is where the decision-maker has a closed mind or prejudges the case. In such circumstances the judge may not be appropriately persuaded by relevant and admissible evidence, usually because of some interests, conduct, associations or exposure to extraneous information.[39] In *Locabail (UK) Ltd v Bayfield Properties* the English Court of Appeal explained (in gendered terms) that 'proof of actual bias is very difficult, because the law does not countenance the questioning of a judge about extraneous influences affecting his mind'.[40] Even where a judge has a conspicuous interest in the proceedings, or is otherwise conflicted, it can be difficult to demonstrate actual pre-judgment or partiality.[41] Because of this difficulty, in conjunction with the expectation that courts are expected to be independent and impartial, concerns about bias extend beyond actual bias to the appearance of bias.

Apprehended bias is concerned with how others might assess the circumstances in which the judge is acting.[42] The following formulation is representative:

> A judge should not ... hear a case if in all the circumstances the parties or the public might entertain a reasonable apprehension that *he* might not bring an impartial and unprejudiced mind to the resolution of the question involved in it.[43]

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[34] In *Republican Parry of Minnesota v White*, 536 US 765, 775-777 (2002), Scalia J refers to three different meanings of impartial. These are 'a lack of bias for or against' a party, a 'lack of preconception in favour of or against a particular legal view', and 'open-mindedness'. It was Scalia's assessment that the second was 'virtually impossible', but the first and third were sufficient. This position was described by Anthony Mason, former Chief Justice of Australia, as 'unquestionably right' in 'Judicial independence in Australia: Contemporary challenges, future directions', R. Ananian-Welsh and J. Crowe (eds), *Judicial Independent in Australia* (Federation Press, Sydney, 2016) 7, 9-10.

[35] M. Groves, 'The Rule against bias' (2009) *Hong Kong Law Review* 485, 486. It is not necessarily a mind that has not thought about, or even written about, the subject matter: *R v Commonwealth Conciliation & Arbitration Commission; Ex parte Angliss Group* (1969) 122 CLR 546, 554.

[36] *Flaherty v National Greyhound Racing Club Ltd* [2005] EWCA Civ 1117, [28]; *Imperial Oil Ltd v A-G of Quebec* (2003) 231 DLR (4th) 577, [28]; *Laws v Australian Broadcasting Tribunal* (1990) 170 CLR 70, 100; *Minister for Immigration and Multicultural Affairs v Jia Legeng* (2001) 205 CLR 507, [72].

[37] *Ebner*, 348; *Gillies v Secretary of State for Work and Pensions* [2006] 1 All ER 731, [23].

[38] For reasons explained below, notorious threats must be at least as important as appearances.

[39] *Webb v The Queen* (1994) 181 CLR 41. There may also be procedural failings.

[40] *Locabail (UK) Ltd v Bayfield Properties Ltd* [1999] EWCA Civ 3004; [2000] QB 451, [3].

[41] That is, to identify how the interest, for example, overtly subverts the fairness process or the decision(-making). Things are difficult because the evidence is often capable of supporting a range of interpretations. Though, actual bias is occasionally inferred, see e.g. *Sun v Minister for Immigration & Ethnic Affairs* (1997) 81 FCR 71, 134-135.

[42] *R v Huggins* [1895] 1 QB 563, 656.

[43] *Livesey v New South Wales Bar Association* (1983) 151 CLR 288, 293-294 (italics added).

Proving actual bias requires evidence that a judge is not open-minded and responsive to admissible evidence. Apprehended bias is less demanding, requiring only that an observer '*might* conclude there was a real *possibility* that the decision-maker was not impartial.'[44]

Because apprehension of bias is a broader category than actual bias and much easier to establish – based as it is on appearances and impressions – most of the concerns, challenges and jurisprudence are directed toward the apprehension of bias.[45] In cases where a judge is vulnerable to an allegation of bias (e.g. because of a close relationship with a party or significant financial interests in the outcome of the dispute) it will usually lead to voluntary recusal.[46] Although, there are countervailing resource and institutional pressures on judges not to recuse themselves too readily and not to allow parties – particularly 'repeat players' – to exert influence by attempting to manipulate who presides over specific cases.[47]

In terms of determining whether a judge is or appears biased, all common law courts have developed formal tests. The modern instantiation of these tests is often located in the House of Lord's response to a decision by the Lord Chancellor in *Dimes v Grand Junction Canal Proprietors* (1852). Lord Cottenham affirmed a decision on appeal without disclosing a personal interest – his ownership of a substantial parcel of shares whose value was directly related to the outcome of the suit. When the unsuccessful party became aware of the Lord Chancellor's interest he appealed. When the case eventually came before the House of Lords, the panel explained:

> No one can suppose that Lord Cottenham could be, in the remotest degree, influenced by the interest he had in this concern; but, my Lords, it is of the last importance that the maxim that no man is to be a judge in his own cause should be held sacred. And that is not to be confined to a cause in which he is a party, but applies to a cause in which he has *an interest.* … And it will have a most salutary influence on these tribunals [inferior courts] when it is known that this high Court of last resort, in a case in which the Lord Chancellor of England had an interest, considered that his decree was on that account a decree not according to law, and was set aside. This will be a lesson to all inferior tribunals to take care not only that in their decrees they are not influenced by their personal interest, but to avoid the appearance of labouring under such an influence.[48]

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[44] Groves, 'The rule against bias', 494. See also *Porter v Magill* [2002] 2 AC 357. Both parts are potentially quite complicated. One of the issues that has garnered attention is the level of knowledge, about law and the facts, that the 'fair minded ... observer' should be assumed to possess.

[45] It has the institutional benefit of allowing judges (and lawyers making allegations) to avoid the more professionally insidious claims of actual bias. A request for recusal on the basis of the appearance of bias may require a trial judge to address the issue even where there is no suggestion of any actual bias. Consider the recusal application made to the Commissioner during the Trade Union Royal Commission in Australia. About half way through the application the following submission was advanced by senior counsel for the ACTU: 'I know you understand it, but for the benefit of everyone else, I, at no point in these submissions, are suggesting that you [are] actually biased'. D. Heydon, 'Reasons for ruling on disqualification applications' Trade Union Royal Commission (2015), [26] available at: < https://www.tradeunionroyalcommission.gov.au/Hearings/Documents/2015/Evidence31August2015/ReasonsforRulingonDisqualificationApplicationdated31August2015.pdf> (accessed on 5 September 2018).

[46] G. Hammond, *Judicial recusal: Principles, process and problems* (Hart, 2009). Contrast conflict of interest in other domains, where the acceptance of free pens, note pads and meals have been shown to bias the prescribing behaviour of doctors: S. Krimsky, 'Small Gifts, Conflicts of Interest, and the zero-Tolerance Threshold in Medicine' (2003) 3 *American Journal of Bioethics* 50.

[47] See e.g. the opinion of Justice Scalia in *Cheney v US District Court for the District of Columbia*, 541 US 913 (2004).

[48] *Dimes v Grand Junction Canal Proprietors* (1852) 3 HL Cas 759 (1852) 10 ER 301. (italics added) The Lord Chancellor died the year before this decision was handed down. See also *Earl of Derby's case* (1614) 12 Co Rep 114 and *City of London v Wood* (1702) 12 Mod 669.

The decision, like much of the ensuing jurisprudence, implies that the Lord Chancellor was not actually biased, and was implicitly capable of resisting the influence of his substantial financial interest. It was the panel's concern with legal legitimacy, and the unfortunate appearances, that required intervention. Subsequently, the *Dimes* approach was applied strictly such that any pecuniary interest in a matter under consideration disqualified a judge from hearing the case. Over time the rigour has been relaxed (particularly in Australia) in response to the increasingly complex social circumstances (especially, around financial interests and professional relations) in which contemporary judges find themselves.[49]

We can observe a tempering of the strict approach from *Dimes* and ensuing decisions in *Ebner v Official Trustee*, where the High Court of Australia consolidated a series of decisions in the provision of a more refined test for the apprehension of bias. The *Ebner* test is composed of two parts.

> First, it requires the identification of what it is said might lead a judge (or juror) to decide a case other than on its legal and factual merits. The second step is no less important. There must be an articulation of the logical connection between the matter and the feared deviation from the course of deciding the case on its merits. The bare assertion that a judge (or juror) has an "interest" in litigation, or an interest in a party to it, will be of no assistance until the nature of the interest, and the asserted connection with the possibility of departure from impartial decision making, is articulated.[50]

Such tests are to be applied by the trial judge (themselves) or by an appellate court (on review) adopting the perspective of an imagined 'fair-minded lay observer', familiar with the key elements of the case. Those reviewing the issue are to consider whether, from the perspective of such an observer, the judge 'might not bring an impartial and unprejudiced mind to the resolution of the question'.[51] That is, would there be a 'reasonable apprehension on the part of a fair-minded and informed observer'?[52] Would such an observer accept that the decision-maker acted with an open mind and was responsive to the evidence adduced? Would perceived conflicts and perceived interest, perhaps including non-pecuniary interests, give rise to a reasonable apprehension of bias?[53] Most common law jurisdictions now apply similar tests where allegations of bias arise.

While judicial independence and impartiality are seen as fundamental to socially-legitimate judging, there is widespread (and unavoidable) recognition that judges come to

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[49] *Locabail (UK) Ltd v Bayfield Properties Ltd* [2000] Q.B. 451. English courts tended to use 'the real likelihood of bias' test from *R v Bath Compensation Authority* (1925) 1 KB 685, approved by the House of Lords in *Frome United Breweries Co Ltd v Bath Justices* (1926) AC 586, 591; *R v Cambourne Justices; Ex Parte Pearce* [1955] 1 QB 41, 47. This test had more of a subjective flavour than Australian formulations: *Metropolitan Properties Co (FCG) Ltd v Lannon* [1969] 1 QB 577, 599-602. In *R v Gough* (1993) AC 646, 670, the House of Lords approved a test focused on a real danger of bias 'to ensure that the courts is thinking in terms of possibility rather than probability of bias'. This involved more than a minimal risk: *R v Inner West London Coroner; Ex parte Dallaglio* [1994] 4 All ER 139, 151. See the discussion in J. Sackar, 'Disqualification of judges for bias', paper presented at the University of Oxford (January 2018) and empirical analysis in S. Buhai, 'Federal Judicial Disqualification: A Behavioral and Quantitative Analysis' (2011) 90 *Oregon Law Review* 69.

[50] *Ebner*, [8].

[51] *Johnson v Johnson* (2000) 201 CLR 488, [11]; *Committee for Justice and Liberty v. Canada (National Energy Board)*, [1978] 1 S.C.R. 369, 394.

[52] *Webb v The Queen* (1994) 181 CLR 41, 74. According to *Webb*, the main categories of bias are interests, conduct, associations and exposure to extraneous information.

[53] *R v Bow St Magistrate Ex parte Pinochet (No 2)* [2001] 1 AC 119 (concerning Lord Hoffman's association with Amnesty International).

the bench with a range of perspectives, experiences, values and beliefs.[54] Indeed, judicial diversity may enhance legal legitimacy. Judges are expected to bring these different perspectives, experiences, values and beliefs to their practice and decision-making. According to the Supreme Court of Canada, 'impartiality does not require that the judge have no sympathies or opinions; it requires that the judge nevertheless be free to entertain and act upon different points of view with an open mind.'[55] Even so, recognition of variation in backgrounds, perspectives, experiences, values and beliefs may introduce tensions between ideas such as justice being blind (and frequently blindfolded in symbolic representations), the expectation that cases should be treated consistently, and the requirement that judges 'must act only on the evidence adduced by the parties and must not act upon information acquired otherwise.'[56] Such expectations may be difficult to satisfy in practice, regardless of how they manifest in judicial performances on the bench and in reasons produced for public consumption.

4. Bias(ed) jurisprudence

For the purposes of this article and discussion we have selected four aspects of legal engagement with bias that might be considered salient and perhaps revealing. They are: (a) the widespread contention that judges are peculiarly resistant to the kinds of biases and prejudices that influence ordinary decision-makers – let's call this *judicial exceptionalism*; (b) the procedure used, at first instance, to review recusal applications (and here we might include, by analogy, admissibility decisions by judges acting as the tribunal of fact) – *judicial insight*; (c) factors that, for English courts at least, appear to be formally exempted from consideration in recusal applications and treated as not exerting potentially biasing effects – *formal exemptions*; and (d) the almost exclusive legal concern with visible forms of bias – so-called *bias optics*. In the context of this article, drawing upon cognitive science evidence, these procedures and assumptions are revealing.

This article is not especially interested in intentional bias, particularly when covert.[57] Rather, it focuses on a range of biases, some subtle and unconscious, that threaten the perception and cognition of decision-makers acting with the best intentions. Indeed, one of the most salient findings from the scientific study of biases is that many biases operate even where decision-makers are endeavouring to function, and believe they are functioning, with impartially and integrity.

A. Judicial exceptionalism

Most models of judging suggest that judges are capable of disregarding irrelevant and unfairly prejudicial information and suggestive procedures. The contention that judges are superior to other professional and non-professional groups in their ability to overcome

[54] Ordinary 'inclinations of mind' will not be sufficient: *R v Commonwealth Conciliation and Arbitration Commission; Ex parte Angliss Group* (1969) 122 CLR 546. On this subject, see L. Barnes and K. Malleson, 'Lifting the judicial identity blackout' (2018) 38 *Oxford Journal of Legal Studies* 357.

[55] *R v S (R.D.)*, [1997] 3 SCR 484, [35]. See the discussion in M. Groves, 'Empathy, experience and the rule against bias in criminal trials' (2012) 36 *Criminal Law Journal* 84, 100-101.

[56] *Minister for Immigration and Multicultural Affairs v Jia Legeng*, [179].

[57] This may be difficult to identify and is very difficult to manage. We focus on inadvertent and unconscious biases because all responsible judges should be interested in improving the dispensation of justice.

such influences – to 'detach' themselves so to speak – is repeatedly *asserted* by judges.[58] The following are exemplary:

> Where the decision-maker is a judicial officer the fair-minded observer will have regard to the fact that a judicial officer's training, tradition and oath or affirmation equip the officer with the ability to discard the irrelevant, the immaterial and the prejudicial ... Thus judges are expected to be equipped by training, experience and their oath or affirmation to decide factual contests solely on the material that is in evidence together with other material which is notorious or common knowledge. ... Counsel Assisting pointed to the words of Lord Rodger of *Earlsferry in Helow v Home Secretary* [2008] 1 WLR 2416 at 2422 [23]: 'Even lay people acting as jurors are expected to be able to put aside any prejudices they may have. Judges have the advantage of years of relevant training and experience.'[59]

> The reasonableness of the apprehension must be assessed in the light of the oath of office taken by the judges to administer justice without fear or favour; and their ability to carry out that oath by reason of their training and experience. It must be assumed that they can disabuse their minds of any irrelevant personal beliefs or predispositions. ... At the same time, it must never be forgotten that an impartial judge is a fundamental prerequisite for a fair trial and a judicial officer should not hesitate to recuse herself or himself if there are reasonable grounds on the part of a litigant for apprehending that the judicial officer for whatever reasons, was not or will not be impartial.[60]

> It is the duty of a judge to put out of mind irrelevant or immaterial matters, particularly those of a prejudicial character. Knowledge by a judge of such matters goes nowhere towards establishing a real danger of bias.[61]

These taken for granted or 'assumed' abilities seem to be foundational to the judicial role and the dispensation of justice. According to a former Chief Justice of Australia, 'to be judicial is to be impartial'.[62] Lord Justice Balcombe wrote that bias is 'the antithesis of the proper exercise of a judicial function'.[63]And yet, notwithstanding the demands and breathtaking hubris associated with such assertions, there is little independent support for such abilities.

From a cognitive science perspective biases are predispositions and preferences that affect judgement and decision-making. They can be thought of as the cognitive equivalent of a reflexive knee-jerk; they occur quickly, effortlessly and automatically. Biases are strategies that 'are highly economical and usually effective, but they lead to systematic and predictable errors'.[64] That is, biases are decision-making styles that do not necessarily incorporate what might be understood as rational (or legally normative) approaches to relevant admissible evidence, and they can influence how information is processed, prioritized and evaluated. Decades of research has identified not only a

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[58] *Vakauta v Kelly* (1989) 167 CLR 568, 570-1. It is interesting to contrast influential claims, or really norms, among the scientists. See more generally, R. Merton, (edited by Storer NW), *The sociology of science: theoretical and empirical investigations* (Chicago: University of Chicago Press, 1973); I Mitroff, *The Subjective Side of Science* (Elsevier, Amsterdam, 1974) and M. Mulkay, 'Norms and Ideology in Science' (1979) 4 *Social Science Information* 637.

[59] Heydon, 'Reasons for ruling on disqualification applications' (2015). See also *Isbester v Knox City Council* [2015] HCA 20. For an early modern version of such sentiments, see M. Bacon, *A new abridgement of the law* (1736) Vol 2, 431.

[60] *President of the Republic of South Africa v South Africa Rugby Football Union*, 1999(4) S.A. 147, 177.

[61] *Locabail*, [61].

[62] M. Gleeson, *The rule of law and the Constitution* (ABC Books, 2000) 129.

[63] *Bahai v Rashidian* [1985] 1 W.L.R. 1337, 1342H, 1346F.

[64] A. Tversky, and D. Kahneman, 'Judgment under uncertainty: Heuristics and biases' (1974) 185 *Science* 1131; G. Gigerenzer and P. Todd, *Simple heuristics that make us smart* (New York: Oxford University Press, 1999).

seemingly endless array of different types of bias, but confirmed their ubiquity and influence irrespective of a person's profession, experience or intelligence.[65]

Revealingly, the extant research involving judges as participants has shown that being a judge does not necessarily protect against bias.[66] Englich, Mussweiler and Strack, for example, found that experienced judges were susceptible to *anchoring effects*.[67] This term describes a bias whereby incidental numeric information – that is neither necessarily admissible nor relevant – can affect subsequent numerical estimates thereby 'anchoring' or tethering decision-makers to an initial value.[68] In one study involving a single case vignette, judges and prosecutors were asked to make a sentencing decision following exposure to either a high prosecution sentencing demand or a low prosecution sentencing demand to see if these would operate as 'high' and 'low' anchors. Those judges who received the high anchor issued higher sentences for the defendant (mean 6.5 months) than those who received a low sentencing demand (mean 4 months).[69] This effect was replicated even when the anchors were provided in the form of a question to the judge from a reporter speculating about the high or low possible sentence, and when the anchor was in the form of a number rolled from a dice by the judge.[70]

Judges have also been found to be susceptible to expectancy effects like those described in the context of musician selection and fingerprint examination. The formative studies in this general area explored the biasing effect of expectations on human perceptions of animal performance. Study participants were given either 'maze-bright' or 'maze-dull' rats to train in completing a maze.[71] As one might expect, 'bright' rats were observed to be significantly better maze learners than 'dull' rats. Unbeknownst to the participants, the labels 'bright' and 'dull' had been randomly assigned. There were no actual differences between 'bright' and 'dull' rats in their aptitude for maze learning. The only difference between the participants was their expectations concerning the rats – based on the (misleading) information presented to them. The expectations of participants were sufficient to produce differences in the way they perceived and reported maze learning by the rats. Since this initial demonstration, the effect of expectations on

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[65] T. Gilovich, D. Griffin, and D. Kahneman, D. (eds) *Heuristics and biases: The psychology of intuitive judgment* (New York: Cambridge University Press, 2002).

[66] J. Rachlinski, S. Johnson, A. Wistrich and C. Guthrie, 'Does Unconscious Bias Affect Trial Judges?' (2009) 84 *Notre Dame Law Review* 1195; C. Guthrie, J. Rachlinski and A. Wistrich, 'Inside the Judicial Mind' (2001) 86 *Cornell Law Review* 777 J. Rachlinski, A. Wistrich, and C. Guthrie 'Altering attention in adjudication' (2012) 60 *UCLA Law Review* 1586; C. Guthrie, J. Rachlinski, and A. Wistrich, 'Blinking on the bench: How judges decide cases.' (2007) 93 *Cornell Law Review* 1.

[67] B. Englich, T. Mussweiler and F. Strack, 'Playing dice with criminal sentences: The influence of irrelevant anchors on experts' judicial decision making' (2006) 32 *Personality and Social Psychology Bulletin* 188. See also J. Rachlinski, A. Wistrich, and C, Guthrie 'Can judges make reliable numeric judgments: distorted damages and skewed sentences' (2015) 90 *Indiana Law Journal* 695.

[68] A. Tversky and D. Kahneman, 'Judgment under uncertainty: Heuristics and biases' (1974) 185 *Science* 1131.

[69] B. Englich, T. Mussweiler and F. Strack, 'Playing dice with criminal sentences: The influence of irrelevant anchors on experts' judicial decision making' (2006) 32 *Personality and Social Psychology Bulletin* 188.

[70] See M. Bennett, 'Confronting cognitive anchoring effect and blind spot biases in federal sentencing: A modest solution for reforming a fundamental flaw' (2014) 104 *The Journal of Criminal Law & Criminology* 489 for a detailed consideration of anchoring in the context of judicial decision-making broadly, and federal sentencing specifically. The example with the dice is not too far removed from the parody associated with Judge Bridglegoose in F. Rabelais, *Gargantua and Pantagruel* (1532-1552) Book 3, Ch 3, xxxix.

[71] R. Rosenthal and K. Fode, 'The effect of experimenter bias on the performance of the albino rat' (1963) 8 *Systems Research and Behavioral Science* 183.

outcomes has been replicated in literally hundreds of studies.[72] Studies in legal settings have shown that judicial beliefs about the guilt of the defendant materially influence the instructions provided to jurors, and that this in turn affects verdicts.[73]

The effects of bias have proven resistant to expertise,[74] occupation,[75] authority,[76] intelligence and styles of thinking.[77] Thus, the independent scientific evidence does not on its face support the contention that judges are resistant to or better able to manage (cognitive) bias than others.[78] Self-interested and institutionally-reinforcing declarations (and beliefs) have a long legal pedigree, but age, frequency of repetition and level of acceptance hardly constitute proof of their validity against the backdrop of empirical evidence.

The issue of special judicial abilities emerges conspicuously in relation to the management and evaluation of information. Judges are assumed to be able to identify relevant information, resist irrelevant information and to avoid the influence of unfairly prejudicial information whether admissible or inadmissible.[79] But, if judges are not actually better, and presumably much better than ordinary persons, at resisting the influence of a range of cognitive biases (particularly the influence of irrelevant or unfairly prejudicial information)[80], then many traditional claims about fairness, procedural legitimacy and even the rectitude of some decisions might be open to question – like the opinions of the fingerprint examiners in our example. Judicial decisions may be improperly influenced, even determined, by factors other than (admissible) evidence and, notwithstanding appearances and representations, procedures may not actually be fair. If judges are not genuinely exceptional then their human frailties may be highly corrosive to some of the many activities they are routinely engaged in. Cognitive biases may undermine claimed impartiality and may even threaten public confidence in the courts. On this point it is important to recognise that judges have a great deal of experience avoiding *the appearance of* partisanship and bias. That, however, is very different to avoiding being consciously or unconsciously biased. Claims about abilities and

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[72] R. Rosenthal, and D. Rubin, 'Interpersonal expectancy effects: The first 345 studies' (1978) 1 *Behavioral and Brain Sciences* 377.

[73] R. Rosenthal, 'Covert communication in laboratories, classrooms, and the truly real world' (2003) 12 *Current Directions in Psychological Science* 151.

[74] R. Guilbault, F. Bryant, J. Brockway and E. Posavac, 'A meta-analysis of research on hindsight bias' (2004) 26 *Basic and Applied Social Psychology* 103.

[75] A. Furnham and H. Boo, 'A literature review of the anchoring effect' (2011) 40 *Journal of Socio-Economics* 35; J. Lammers and P. Burgmer, 'Power increases anchoring effects on judgement' 35 *Social Cognition* 40.

[76] J. Lammers and P. Burgmer, 'Power increases anchoring effects on judgement' (2017) 35 *Social Cognition* 40.

[77] R. West, R. Meserve and K. Stanovich, 'Cognitive sophistication does not attenuate the bias blind spot' (2012) 103 *Journal of Personality and Social Psychology* 506.

[78] For an interesting exception see A. Wistrich, C. Guthrie, and J. Rachlinski, 'Can Judges Ignore Inadmissible Information-The Difficulty of Deliberately Disregarding' (2004) 153 *University of Pennsylvania Law Review* 1251. Although subject to several biases, there was no evidence that judges in this study were vulnerable to hindsight biases in the context of a 'probable cause' assessment – though there was evidence of hindsight bias in the context of an 'appeal' decision. The authors suggest that judges may have had other heuristics or decision strategies in place that helped them to avoid hindsight bias in one context but not the other. This variability in the appearance of bias reinforces the importance of research examining actual bias among judges.

[79] This can be especially difficult where judges are unable to agree on whether some issue or evidence is (logically or legally) relevant. See e.g. *R v Smith* [2001] HCA 50 and *Evans v The Queen* [2007] HCA 59.

[80] Wistrich et al, 'Can Judges Ignore Inadmissible Information-The Difficulty of Deliberately Disregarding'.

performances on the bench (or in formal reasons) reveal little about the kinds of biases and risks raised in this article or the threat they actually pose to decision-making.

There are few reasons to believe that experienced judges are likely to be more resistant, or less susceptible, to the range of biases, predispositions and potentially misleading heuristics that influence other humans.[81] There is little evidence that legal training or experience somehow enables judges (or lawyers) to transcend biases.[82]

B. Judicial insight

The second issue focuses on the opportunity, afforded to the impugned decision-maker, to personally assess recusal applications.[83] This may make institutional sense in terms of resourcing, and recusal applications *may* catch the majority of *legally*-insidious biases raised by the parties or others. For, sensible judges will recuse themselves if they believe there is a danger that they might be vulnerable when viewed against jurisdictional standards, such as the tests outlined in *Dimes* and *Ebner,* along with evolving social mores. There are, however, few reasons to believe that judges are in a particularly good position to assess their ability to act impartiality or to evaluate how others might interpret their ability to act impartially.[84]

Just as healthy individuals are incapable of overpowering physiological reflexive behaviors, so too it is unlikely that judges and jurors can overcome – or 'disabuse' themselves of – bias in most instances.[85] Research on participants' awareness of, and insight about, bias draws attention to what is known as the *bias blind spot*. This is, in effect, a bias about biases.[86] Specifically, the bias blind spot leads us to believe that we are less susceptible to cognitive, social and motivational biases than others.[87] We tend to believe that we are able to identify our biases – despite the fact they are automatic and unconscious – and we incorrectly conclude that when we cannot perceive a bias it is because no bias is present. By contrast, because we can often readily attribute the potential for and effects of bias to others, we frequently conclude that they are more

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[81] The contention that judges are exceptional is, in essence, an empirical question and can only be credibly addressed through well-designed studies. These might review specific features of (past) judicial performances or formally evaluate abilities through tests in controlled conditions. See e.g. A Wistrich, J. Rachlinski and C. Guthrie, 'Heart versus head: Do judges follow the law of follow their feelings' (2014) 93 *Texas Law Review* 855.

[82] Most lawyers and judges do not receive detailed training about bias and cognition.

[83] Wistrich et al, Can Judges Ignore Inadmissible Information'.

[84] Consider Baroness Butler-Sloss' response to the controversy over her appointment to investigate allegations of an establishment pedophile ring following revelations that her brother-in-law (Sir Michael Havers) had, as Attorney-General, been involved in decisions not to prosecute individuals who may have been involved (e.g. Sir Peter Hayman). In initially rejecting calls to stand down, she is reported to have said: 'I know absolutely nothing about it. … If people think I'm not suitable, then that's up to them.' The implied impression was that ignorance rendered her impartial. She eventually withdrew, presumably because of appearances. See M. Holehouse, and M. Evans, 'Brother of child abuse inquiry judge Elizabeth Butler-Sloss was accused of "cover up"', *The Telegraph* (9 July 2014) and P. Wintour, 'Butler-Sloss: Victims should not run child abuse inquiry', *The Guardian* (Australia) (31 Decemeber, 2014).

[85] Although some have cautiously suggested that intentional efforts to manage bias can be successful in some circumstances – particularly where the potential for bias has been made explicit to the decision-maker. See Rachlinski et al, 'Does unconscious racial bias affect trial judges?'.

[86] E. Pronin, D. Lin and L. Ross, 'The bias blind spot: Perceptions of bias in self versus others' (2002) 28 *Personality and Social Psychology Bulletin* 369.

[87] R. West, R. Meserve and K. Stanovich, 'Cognitive sophistication does not attenuate the bias blind spot' (2012) 103 *Journal of Personality and Social Psychology* 506.

biased.[88] Other studies of significance to judicial decision-making (e.g. in recusal applications) have shown that participants consider that they are less likely to engage in victim blaming, and anticipate that they will be less affected by self-interest, than others. However these beliefs are not borne out by the data. Rather 'knowledge of particular biases in human judgment and inference, and the ability to recognize the impact of those biases in others, neither prevents one from succumbing, nor makes one aware of having done so.'[89]

Those who believe themselves to be less biased than others generally are not. Neither cognitive ability, nor styles of thinking (i.e. a preference for analytical examination and open-mindedness) are associated with greater insight into cognitive predispositions. Intelligence does not protect us and does not increase the accuracy of introspection. What is more, even accurate perceptions of our own bias are generally insufficient to correct them.[90] In this context, merely knowing is not enough and the dangers associated with incorrectly believing oneself to have immunity can be serious. Thus, awareness of the risk of bias and even familiarity with specific biases does not necessarily enable a decision-maker to avoid the dangers.[91] Significantly, other professional groups (e.g. scientists, biomedical researchers and engineers) have not been able to avoid their insidious effects. Cognisant of risks through systematic evaluation of their performances, they have developed special rules and procedures (e.g. double blind clinical trials) to avoid them.[92]

In addition to the observed limits of introspecting about bias, there are practical contingencies that might restrict full and frank self-reflection. An unsuccessful recusal application will require the judge – who heard and denied the application – to be particularly careful in their subsequent performance (e.g. treatment of parties and counsel) and in the provision of reasons for any decision(s) in the related proceedings. Allowing the impugned judge to decide might even accentuate biases (whether consciously or unconsciously), even though appearances are likely to be carefully curated

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[88] In 'Unconscious judicial prejudice' (2001) 75 *Australian Law Journal* 676 at 681, Keith Mason (former President of the NSW Court of Appeal) refers to a meeting where the judges met to consider a draft of the address for the opening of the Royal Courts of Justice in 1882. The original draft stated that 'Your Majesty's Judges are deeply sensible of their own many shortcomings.' Jessell MR objected on the grounds that such an awareness would render him ill-suited to sitting on the bench. Apparently Lord Justice Bowen suggested that the draft be amended to record that the judges were 'deeply sensible of the shortcomings of each other.'

[89] See Pronin et al, 'The bias blind spot: Perceptions of bias in self versus others', 378. In a recent relevant example, a survey of forensic scientists revealed that of those who believed that bias was a problem in forensic sciences (71%), 1 in 5 believed it was *not a concern in their* domain. Of those who believed bias was a problem in their domain (52%), 1 in 3 believed they were not affected by it. See J. Kukucka, S. Kassin, P. Zapf, and I. Dror, 'Cognitive bias and blindness: A global survey of forensic science examiners' (2017) 6 *Journal of Applied Research in Memory and Cognition* 452.

[90] R. West, R. Meserve and K. Stanovich, 'Cognitive sophistication does not attenuate the bias blind spot' (2012) 103 *Journal of Personality and Social Psychology* 506.

[91] There is some evidence, discussed below, that conscious effort may improve performance. But see *Caperton v AT Massey Coal Co.*, 129 S Ct 2252, 2263-4 (2009). Indeed, a judge's reasons in recusal applications might be considered irrelevant, see *British American Tobacco v Laurie* (2011) 242 CLR 283, 309.

[92] See e.g. C. Robertson and A. Kesselheim (eds), *Blinding as a Solution to Bias: Strengthening Biomedical Science, Forensic Science, and Law* (Academic Press, 2016); A. Jadad et al, 'Assessing the quality of reports of randomized clinical trials: Is blinding necessary?' (1996) 17 *Controlled Clinical Trials* 1.

through especially civil performances and detailed and otherwise legally defensible reasons.[93]

The limits of introspection, along with the dangers of contextual influences like those shaping the selection of musicians and interpretations by fingerprint examiners, would appear to have application to many areas of judicial practice. Such issues arise where the same person is both the admissibility gatekeeper and the ultimate fact-finder at trial. In these circumstances the trial judge is expected to simply disregard inadmissible and legally irrelevant information – to act as though they were not aware of the information – and, in the absence of explicit evidence to the contrary, assumed to have done so. Empirical evidence suggests that this is very difficult to achieve.[94]

C. Formal exemptions

The third issue is closely related to claims about judicial exceptionalism. In this case some appellate courts have gone as far as deeming specific personal attributes as effectively out of bounds.[95] These are usually implicit, although in *Locabail* the English Court of Appeal explained that it could not 'conceive of circumstances in which an objection could be soundly based on the religion, ethnic or national origin, gender, age, class, means or sexual orientation of the judge.'[96] By virtue of judicial fiat these attributes are off-limits. They are presented as incapable of disrupting the practice of impartial judging. The *Locabail* Court continued:

> Nor, at any rate ordinarily, could an objection be soundly based on the judge's social or educational or service or employment background or history, nor that of any member of the judge's family; or previous political associations; or membership of social or sporting or charitable bodies; or Masonic associations; or previous judicial decisions; or extra-curricular utterances (whether in textbooks, lectures, speeches, articles, interviews, reports or responses to consultation papers); or to previous receipt of instructions to act for or against any party, solicitor or advocate engaged in a case before him; or membership of the same Inn, circuit, local Law Society or chambers.[97]

These additional factors are merely 'ordinarily' not open to being raised as grounds of (apprehended) bias. There may be institutional, resource and policy reasons for placing these (kinds of) issues off-limits or presumptively off-limits.[98] Though, the question of whether any of these claims and assumptions are sustainable can only be answered empirically. On the available evidence the Court of Appeal's boundary work, rendering some issues off-limits, is open to question, if not directly controvertible. It is difficult to reconcile with scientific (and sociological) research.[99]

As the foregoing discussion suggests, judges are not immune to bias, nor have they been reliably shown to be able to manage or mitigate its effects through awareness,

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[93] Review of recusal applications by appellate courts will tend to be impressionistic and declaratory, focused on appearances, resource implications and institutional traditions, but typically insensitive to scientific research and largely incapable of assessing bias, whether actual, apparent or unconscious.

[94] N. Steblay, H. Hosch, S. Culhane and A. McWethy, 'The impact on juror verdicts of judicial instruction to disregard inadmissible evidence: A meta-analysis' (2006) 30 *Law and Human Behavior* 469.

[95] This goes well beyond the recognition that judges come to the bench with a past. See Barnes and Malleson, 'Lifting the judicial identity blackout'.

[96] *Locabail*, [25].

[97] *Locabail*, [25]. The judgment notes that where these cast doubt, as in the case or extra-judicial writings, there may be a basis.

[98] Although the precise boundaries may be controversial as the *Pinochet* and *S (R.D.)* cases make clear. See also *Hoekstra* (2000) JC 391 and the partial explanation offered in *Taylor v Lawrence* [2003] QB 528, [60].

[99] Consider, as one prominent example, the feminist judgment project: R. Hunter et al (eds), *Feminist judgments: from theory to practice* (Hart: Oxford, 2010).

introspection and experience.[100] As understood from a cognitive science perspective, biases have the potential to operate outside our attentional control and against our explicit intentions.[101] Thus, it is difficult to imagine the particular strategies, skills or capabilities that judges could employ to swim against the well-established tide of biases associated with gender, age, race and religion in human decision-making. The available evidence not only suggests that there is a general tendency to hold non-neutral positions across dozens of topics including, but not limited to, age, race, sexual preference, weight, and religion; but, in addition, these views affect perception and decision-making in significant ways.[102]

Earlier we explained how the gender bias associated with orchestra selection persisted despite the best intentions of selectors (and conscious efforts to redress inequality). We also observed how a 'match' bias arising from outcome expectancies in fingerprint comparison materially affects the decision-making of experts, even in the face of significant collateral consequences (e.g. mis-identification and wrongful conviction). Positive or negative views developed across the spectrum of human experiences, be they personal or professional, change expectations and therefore the way we interact with and understand the world.[103] These effects should not be sidelined merely because they are 'ordinarily' conceived (or described) as professionally insignificant. Rather, they ought to be acknowledged and studied and, where necessary, actively managed.

D. The optics of bias

This fourth section focuses on legal interest in visible biases and the way some of these 'optics' are managed by rules and conventions among common law judges. We can see this clearly in examples of judges failing to live up to expectations (and being genuinely exceptional).

Notwithstanding judicial sensitivity to the issue of bias and the apprehension of bias, actual 'biases' occasionally manifest. They surfaced in *Vakauta v Kelly*, where an exasperated trial judge suggested – in open court – that the medical specialists appearing as expert witnesses for the insurer-defendants were partisan.[104] He described the insurer's doctors as:

> 'that unholy trinity,' the 'usual panel of doctors who think you can do a full week's work without any arms or legs'; whose 'views are almost inevitably slanted in favour of the [insurer] by whom they have been retained, consciously or unconsciously.'[105]

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[100] They may be reasonably well positioned to manage appearances because professionally and institutionally they are sensitive to the importance of appearing impartial. But see Rachlinski et al, 'Does unconscious racial bias affect trial judges'.

[101] For a useful review of implicit bias and its effects see A. Greenwald and L. Krieger, 'Implicit bias: Scientific foundations' (2006) 94 *California Law Review* 945.

[102] A. Greenwald, T. Poehlman, E. Uhlmann and M. Banaji, 'Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity' (2009) 97 *Journal of Personality and Social Psychology* 17; A. Greenwald and L. Krieger, 'Implicit bias: Scientific foundations' (2006) 94 *California Law Review* 945.

[103] R. Rosenthal and D. Rubin, 'Interpersonal expectancy effects: The first 345 studies' (1978) 1 *Behavioral and Brain Sciences* 377; R. Rosenthal and K. Fode, 'The effect of experimenter bias on the performance of the albino rat' (1963) 8 *Systems Research and Behavioral Science*183; R. Rosenthal, 'Covert communication in laboratories, classrooms, and the truly real world' (2003) 12 *Current Directions in Psychological Science* 151.

[104] *Vakauta v Kelly* (1989) 167 CLR 568. See also the irrelevant and intemperate interventions by Peter Smith J leading to his recusal, discussed in *Harb v HRH Prince Abdul Aziz Bin Fahd Bin Abdul Aziz* [2015] EWHC 2201, [52].

[105] *Vakauta*, 571-72. Similar sentiments were expressed, perhaps less directly, many years ago by Jessell MR in *Thorn v Worthing Skating Rink Co.* (1877) 6 Ch. D. 415.

In their reviews of this very experienced trial judge's disparaging commentary, the various courts of appeal considered the main problem to have been the public manifestation (and a degree of specificity), exposing the risk of (the appearance of) pre-judgment.[106] On appeal to the High Court of Australia, the majority explained that the test might not be extremely strict: 'the requirement of the reality and appearance of impartial justice ... must be observed in the real world of actual litigation.' To require otherwise would make 'the administration of justice in personal injury cases ... all but impossible.'[107] Nevertheless, these particular public utterances introduced the danger that bias might reasonably be apprehended.

Of significance, the attitude of the trial judge in *Vakauta* only seems to have become problematic from the point it materialized – that is, became public. Privately held views, in contrast, are not susceptible to consideration. It seems that if the trial judge had resisted the temptation to comment, and preferred the evidence of the plaintiff's doctors in a more legally orthodox manner – perhaps listing the consistency between the plaintiff's evidence and her doctor's opinions, and any concessions or corroboration from the defendant's experts – then the judgment might have been legally orthodox and less vulnerable to impeachment. That is, it would not have been impeachable in terms of bias even though the actual reasons for decision might have been based on actual bias or shaped by pre-commitments and prejudices that would warrant a re-trial had they been disclosed or known.[108]

This brings us to an aspect of judicial bias that remains largely unexplored (and unacknowledged), namely the privately held beliefs, commitments, and prejudices of judges.[109] This realm is unexplored because appellate courts accept that judges come to the bench with a history and, unless there is some legal reason to believe otherwise, assume that a judge's past, beliefs, and commitments do not prevent impartiality. This is an institutional arrangement that combines judicial exceptionalism with fostered ignorance.[110] Indeed, institutional and professional norms operate to foster ignorance by discouraging judges from disclosing too much or being other than reserved in public settings. Consequently, in the absence of evidence of pre-commitments or publicly-known reasons that compromise the ability to appear to act impartially in a specific case, a judge is deemed, or assumed to be, impartial. This applies regardless of any actual beliefs or prejudices a judge might hold or have held. Privately, a judge might be racist, misogynist, anti-Semitic, homophobic, anti-obese, elitist, libertarian or socialist. Such categories are not necessarily independent and the list could go on. In the absence of publicly available evidence of such beliefs or prejudices – even if they are only implicit –

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[106] Systematic prejudices appear to have manifested in criminal proceedings, particularly in response to expert witnesses called by defendants. See R. Dioso-Villa, 'Is the Expert Admissibility Game Fixed? Judicial Gatekeeping of Fire and Arson Evidence' (2016) 38 *Law & Policy* 54; M. Risinger, 'Navigating Expert Reliability: Are Criminal Standards of Certainty Being Left in the Dock?' (2000) *Albion Law Review* 99.

[107] *Vakauta*, [2].

[108] Similar prejudices and commitments, and perhaps worse, that are not articulated do not seem to create a problem for legal legitimacy. To assess judicial integrity, the focus is on public behaviour and judicial performance (in Goffman's sense): E. Goffman, *The presentation of self in everyday life* (New York: Anchor Books, 1959).

[109] One of the relatively small number of articles on unconscious bias, written by a judge, refers to 'prejudices' among (some of) his colleagues on the bench: Mason, 'Unconscious judicial prejudice'.

[110] Although some jurisdictions, particularly the United States federal courts, are very sensitive to alignment and pre-judgment. Consider the controversy that emerged in the senate confirmation proceedings in response to a speech given by Sonia Sotomayor that included the following statement: 'I would hope that a wise Latina woman with the richness of her experiences would more often than not reach a better conclusion than a white male who hasn't lived that life.'

there is no scope to question, let alone challenge, judicial partiality.[111] A presumption of impartiality operates.

It is no coincidence that institutional conventions (and even rules) emphasise moderation and cautious engagement in public activities, especially around issues or subjects that might be raised or litigated in the judge's court.[112] Norms of conservatism and detachment help courts and judges to appear impartial and to maintain public confidence in legal proceedings.[113] However, apart from reinforcing the professional significance of impartiality and benefitting from its apparent absence, such norms do little to prevent the action of cognitive biases that may be substantially prejudicial. They do not necessarily address the many insidious biases notorious to scientists.

Typically, it is difficult to challenge judges on the basis of bias, actual or apprehended, because in most cases we do not have reliable insight into their actual interests, knowledge, assumptions, beliefs, prejudices and so forth. Other potentially biasing factors, which may not be easily disguised, such as age, race and gender, are 'ordinarily' off-limits.[114] By exempting many judicial attributes from consideration, appellate courts have restricted the scope of legally-recognisable bias to appearances, publicly disclosed information, and the formal reasons provided by judges.[115] Review tends to proceed on the basis that judges are not biased and not susceptible to the many biases that influence the cognition and decision-making of other humans. We accept that in most cases, presumably the vast majority of trial judges (acting on the evidence and the law) act in good faith, and that in the cases where they are biased, they may be oblivious to their prejudices and the effects of any biases.[116]

While norms against judicial participation and the expression of strident views in extra-curial activities are understandable, and may even be desirable, the result is that for many judges we have few ideas about their perspectives, values and beliefs. We do not know if the judges who regularly write and speak out hold views that are more or less vehement or partisan than those who do not. We do not know if the views of judges who occasionally lose their cool, such as the judge in *Vakauta* or the English judge whose luggage was misplaced by British Airways, are representative.[117] Reserve, moderation and even silence make institutional sense, but they do not render judges – individually or collectively – impartial. Rather, they are conventions that help courts to manage the risk

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[111] Judges who hold strong views – modern judges who hold sexist or racist attitudes, for example – typically hide these commitments and explain their decisions in orthodox legal terms. We accept that in many cases the law and the evidence might determine the outcome, such that non-racists would agree with the outcome (and perhaps the public reasoning). We accept that terms such as racist and sexist are complex, and we are only using them here as simplistic examples.

[112] See for example: https://www.supremecourt.uk/about/judicial-conduct-and-complaints.html (accessed 28 July 2018) and The Australasian Institute of Judicial Administration Incorporated, *Guide to Judicial Conduct*, published for The Council of Chief Justices of Australia (3rd ed, 2017).

[113] See Goffman, *The presentation of self in everyday life*. See also N. Elias, *The civilizing process* (trans. Edmund Jephcott) 2 vols. (New York: Urizen Boods, 1978) vol. 2, pt. 2, 'Synopsis: Towards a theory of civilizing processes'.

[114] Though, see R. Brubaker, *Trans: Gender and Race in an Age of Unsettled Identities* (Princeton, 2016).

[115] There is an extensive literature, particularly in the US, where issues of race have been expressly excluded from consideration. Consider, for example, statistical evidence on the proportion of black men charged and convicted in capital cases. See e.g. C. Steikert and J. Steikert, 'The American Death Penalty and the (In)Visibility of Race' (2015) 82 *University of Chicago Law Review* 243.

[116] Some of these biases might be exposed through statistical analysis of judicial decisions. Any analysis, like trying to decide who is a competent surgeon, based on data from operation outcomes, will undoubtedly be complex. And, judging and cases may be more idiosyncratic than surgery. We suggest that rather than focus on, or closely monitor, individual performances, legal institutions (i.e. courts) should think about improving processes and awareness.

[117] See *Harb v HRH Prince Abdul Aziz Bin Fahd Bin Abdul Aziz* [2016] EWCA Civ 556, [52]-[53].

of (the appearance of) bias by keeping interested parties, including 'reasonable observers', ignorant.[118] And, they are not uniformly effective. These norms (along with their not infrequent breaches) may be an indication of the limits of judicial exceptionalism; particularly the difficulty of persuading non-legal audiences of special judicial abilities.

E. Other biases that threaten legal decision-making, rationality and legitimacy

A more comprehensive introduction to cognitive biases is beyond the scope of this article. However, there are many biases – not well known to law – that threaten legal decision-making and, unavoidably, legal institutional legitimacy. In addition to anchoring, expectancy effects (such as confirmation bias) and the bias blind spot – already described – it is useful to draw attention to *hindsight bias*, *truth effects* and *implicit biases.*

Hindsight bias is where our tendency to overestimate the predictability of a past event leads to the perception that we 'knew-it-all-along'.[119] That is, we misperceive the foreseeability of events. Classic demonstrations ask those who do and do not know the outcome of a scenario to estimate the likelihood of that outcome *as though* they were naive to the results. The robust finding is that those who know the outcome of historical events – football games, elections and legal cases, among other things – do not realise their knowledge of the outcome has increased their perception of its probability as compared to those who did not have the same information.[120] Consequently, where an event is perceived as being more foreseeable after-the-fact than it was beforehand, perceptions of what somebody could or should have anticipated can change. This can be problematic, particularly in legal contexts where responsibility is determined retrospectively.[121] Though, hindsight bias is not only relevant to liability, where foreseeability is an issue, it also threatens to contaminate the way judges (and others) interpret evidence at trial and on appeal and may make it more difficult following conviction to interpret evidence in ways that capture uncertainty (and doubt).[122]

Truth effects are evident where the repetition of statements (described as 'ambiguous' in the literature) automatically and unconsciously inflates perception of the truth of facts asserted in those statements.[123] For example, the statement that 'the zipper was invented in Norway' tends to be perceived as more truthful the second time it is heard. The effect

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[118] While evidence of overt bias may provide good reason to wonder about claims of impartiality and exceptionalism, the lack of evidence may does not confer or prove actual impartiality.

[119] J. Rachlinski, 'Heuristics and biases in the courts : Ignorance or adaptation' (2000) 79 *Oregon Law Review* 61; R. Guilbault, F. Bryant, J. Brockway and E. Posavac, 'A meta-analysis of research on hindsight bias' (2004) 26 *Basic and Applied Social Psychology* 103; S. Hawkins and R. Hastie, 'Hindsight: Biased judgments of past events after the outcomes are known' (1990) 107 *Psychological Bulletin* 311.

[120] See J. Rachlinski, 'Heuristics and biases in the courts' for a detailed exploration in legal contexts. See also R. Guilbault, F. Bryant, J. Brockway, and E. Posavac, 'A meta-analysis of research on hindsight bias'.

[121] J. Rachlinski, 'Heuristics and biases in the courts : Ignorance or adaptation' (2000) 79 *Oregon Law Review* 61.

[122] A number of factors have been shown to moderate hindsight bias, including the type of event or outcome being estimated. Hindsight bias is reduced where the outcome to be estimated is positive or negative rather than neutral. Overall, a summary of 252 tests of the hindsight bias concluded that it is 'robust and well-documented, and typically persists despite attempts to eliminate it'. See R. Guilbault, F. Bryant, J. Brockway and E. Posavac, 'A meta-analysis of research on hindsight bias'. For an exception see Rachlinski et al, 'Does unconscious racial bias affect trial judges?'

[123] A. Dechêne, C.Stahl, J. Hansen and M. Wänke, 'The truth about the truth: A meta-analytic review of the truth effect' (2010) 14 *Personality and Social Psychology Review* 238.

appears to be underpinned by a perceived discrepancy between the expected and experienced fluency with the statement over repeated presentations. The unanticipated familiarity we experience seems to be interpreted as an indicator of truth rather than mere exposure.

The 'truth effect' has been observed for a range of ambiguous statements (including opinions), applies to statements that are true and false, and is observed irrespective of the credibility of the source of the statement; though the effect is larger where the source is also credible.[124] A recent summary of 51 studies on the topic characterised the phenomenon as 'robust' across a wide range of situations.[125] In particular, the results suggest that repetition is a practical but subtle way to increase the perceived persuasiveness of a message. Though most often applied in the context of advertising, the value of such a strategy for persuasive advocacy is clear. Apart from the need to be careful about the way evidence is presented at trial, particularly in addresses by prosecutors and trial judges, there may be a need to focus more attention on the reliability of underlying procedures before 'experts' are allowed to express their opinions and have them echoed in criminal proceedings.[126]

We have already referred to *implicit bias*, but believe it is worth additional consideration given its pervasive and consequential effects. Implicit bias seems important given the kinds of considerations formally exempted, as in *Locabail*, but also because legal scholars and courts have struggled with bias and implicit bias as it applies to litigants – particularly around gender, race and religion.[127] Implicit biases are attitudes or beliefs that affect behaviours without explicit awareness and despite attempts to prevent their manifestation. In short, where there is an implicit bias at play, differentiating characteristic(s) – e.g. the mere perception of skin color, age, sexual orientation, prior offending, and a raft of other factors – can quickly and automatically trigger differential treatment.[128] Socio-legal anxieties about inconsistent treatment provide the basis for antidiscrimination laws, and the legal commitment to formal equality before the law. Interestingly, there seems to be limited interest in extending these concerns to the

[124] A. Dechêne, C.Stahl, J. Hansen, and M. Wänke, 'The truth about the truth: A meta-analytic review of the truth effect' (2010) 14 *Personality and Social Psychology Review* 238.
[125] Dechêne et al, 'The truth about the truth'.
[126] Law Commission, *Expert Evidence in Criminal Proceedings in England and Wales* (Report No 325, 2011). See generally, Dan Simon, *In Doubt: The Psychology of the Criminal Justice Process* (Cambridge, Harvard University Press, 2012).
[127] M. Banaji and A. Greenwald, *Blindspot: Hidden biases of good people* (New York, NY: Delacorte Press, 2013). See the discussion of implicit bias in legal contexts C. Jolls, and C. Sunstein, 'The law of implicit bias' (2006) 94 *California Law Review* 969; J. Kang and K. Lane, 'Seeing through colorblindness: Implicit bias and the law' (2010) 58 *UCLA Law Review* 465; J. Levison and R. Smith (eds), *Implicit racial bias across the law* (Cambridge, New York, 2012); E. Girvan, 'On using the psychological science of implicit bias to advance anti-discrimination law' (2015) 26 *UCLA* 1. On prominent US decisions, see *Wal-Mart Stores, Inc. v. Dukes*, 131 S. Ct. 2541 (2011); *Texas Department of Housing and Community Affairs v. The Inclusive Communities Project, Inc.*, 135 S. Ct. 2507 (2015). Consistent with judicial exceptionalism, US courts have been much more willing, in recent years, to consider overt bias among jurors in serious criminal cases, see *Tharpe v Sellers*, 583 US (2018); *Pena-Rodriguez v Colorado*, 137 S. Ct. 855 (2017).
[128] Greenwald et al, 'Understanding and using the Implicit Association Test'; A. Greenwald and L. Krieger, 'Implicit bias: Scientific foundations' (2006) 94 *California Law Review* 945. Such differential treatment is notorious amongst investigators, see e.g. B. Friedman, *Unwarranted: Policing without permission* (New York, Farrar, Straus & Giroux, 2017).

perceptions and performances of judges. That is, for the implicit beliefs and reactions of judges to be scrutinized, mitigated or managed.[129]

5. Debiasing and Mitigation

A range of strategies have been suggested to mitigate or remove the potential effects of bias.[130] Given the ubiquity of biases and limited legal acknowledgement or engagement with cognitive science research, we believe there are responses that might strengthen both the perceived and actual impartiality of courts.

A. Introspection

In his *The Rule of Law*, in response to the fact that judges do not bring a 'blank canvas' to decision-making, Lord Bingham suggests that judges 'should seek to alert themselves to, and so to neutralize, any extraneous considerations which might bias their judgment.'[131] However, it is important that we make it clear to the reader that appointment to the bench is not among the evidence-based strategies known to ameliorate or effectively manage the impact of bias on decision-making. We have already seen that there is little evidence of exceptionalism for the educated, the analytical, the intelligent, the insightful or the expert. Unfortunately, simply knowing about the existence of a bias is generally insufficient protection.[132] Even so, awareness is a sensible first step.[133] From there on, however, active steps – known as cognitive forcing strategies – are required to eradicate or mitigate the effects of bias.[134]

B. Cognitive forcing strategies

A forcing strategy is a mechanism or procedure specifically introduced to interrupt reflexive cognitive responses. Forcing strategies operate in a number of different ways and might be selected and adapted in response to specific concerns or risks. They include replacement and insulation strategies as well as more generic interventions designed to improve decision-making.

Replacement is a conceptually simple forcing strategy that is likely to be highly effective for mitigating and managing bias, but which may be practically challenging to implement. The basic idea is to substitute a decision-maker who has the potential to be biased in favor of their own (or some identifiable) interests, with either uninterested parties, groups of decision-makers, or both. By changing the relationship between the decision-maker and the decision, and by including additional decision-makers, biasing effects may be diluted or cancelled out, thereby minimizing their potentially deleterious effect on outcomes.

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[129] Implicit biases, like those distorting the selection of musicians (along with controvertible claims about merit), might help to explain the apparent difficulty of well-intentioned individuals and institutions nominating a wider pool of candidates for senior judicial office.

[130] P. Croskerry, 'The importance of cognitive errors in diagnosis and strategies to minimize them' (2003) 78 *Academic Medicine* 775; Jolls and Sunstein, 'The law of implicit bias'.

[131] T. Bingham, *The Rule of Law* (Penguin, 2011) 93. See also David Neuberger, 'Judge not, that ye be judged: Judging judicial decision-making' (FA Mann Lecture, London 29 January 2015), [29] <www.supremecourt.uk/- docs/speech-150129.pdf>.

[132] J. Rachlinski, 'Heuristics and biases in the Courts : Ignorance or adaptation' (2000) 79 *Oregon Law Review* 61; A. Furnham and H. Boo, 'A literature review of the anchoring affect' (2011) 40 *Journal of Socio-Economics* 35.

[133] See Rachlinski et al, 'Does unconscious racial bias affect trial judges?'.

[134] P. Croskerry, 'The importance of cognitive errors in diagnosis and strategies to minimize them' (2003) 78 *Academic Medicine* 775.

One replacement-style reform, already in inconsistent use, is the use of a second judge (or panel) to make decisions.[135] This might be done when the judge is required to assess their own performance, ability and level of conflict – as in recusal applications – or in circumstances where the trial judge is the tribunal of fact and there are attempts to limit exposing the decision-maker to irrelevant or unfairly prejudicial information (that is not admissible).[136] By using this type of procedure, courts reduce their reliance on the affected party to make judgements with implications for their own credibility and standing – whether as a judge in their own case, or being able to ignore unfairly prejudicial suggestion, or implicit biases – and instead call upon a separate and relatively unaffected party to make the decision.

By way of hypothetical example, it would be possible to take this approach even further and use a special jury to make recusal decisions.[137] The basic issues in any recusal application will never be so complex that they require long periods of time to present or decide, and using a jury has the advantage of producing a quick decision without detailed reasons. Such a procedure could be restricted to several hours before the jury is asked to decide whether they apprehend some non-trivial potential for bias. A key benefit of such a reform is that public input – rather than judicial impressions of reasonable persons – would inform and perhaps discipline judicial behavior.

Insulation involves depriving the decision-maker of irrelevant (or gratuitous) information. Deprivation can be absolute, as in the case of blinding, or partial. One prominent form of partial insulation is known as *linear sequential unmasking* (LSU). This is a forcing strategy that works by protecting the decision-maker from potentially biasing information, and may involve releasing information as it is required and as preliminary decisions (based on available relevant information) have been documented.[138] LSU can be applied to a range of conditions where irrelevant (or not yet relevant or admissible) information might contaminate reasoning and decision-making; as is the case with the anchoring and expectation biases already discussed. For example, knowledge that a suspect has confessed to a crime sets a clear expectation that crime scene samples and those obtained from the suspect will 'match'. This in turn increases the likelihood that a forensic practitioner analysing the crime scene samples (e.g. fingerprints or DNA profiles) will see the anticipated similarities and discount any differences as merely apparent or artefactual – thereby creating a self-fulfilling prophecy.[139] This has been demonstrated with DNA profiles (and occurred in the fingerprint example in our introduction). Shielding the practitioner from the potentially corrosive information (e.g.

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[135] See e.g. *Dwr Cymru Cyfynedig v Albion Water* [2008] EWCA Civ 97 and *El Farargy v El Farargy & others* [2007] 2 FCR 711, 725. Some jurisdictions in the United States employ a separate judge for pre-trial decision-making

[136] See discussion in http://www.supremecourt.justice.nsw.gov.au/Documents/Publications/Speeches/2018%20Speeches/Sackar20180116.pdf; Wistrich et al, 'Can Judges Ignore Inadmissible Information'.

[137] We are not advocating such a procedure, although it might help to make judges publicly accountable for their claims about impartiality and special abilities. We appreciate that procedural reforms have a range of complications, but if impartiality is genuinely essential, then these kinds of structural responses might be required.

[138] Krane, et al, 'Sequential unmasking' and I. Dror, W. Thompson, C, Meissner, I. Kornfield, D. Krane, M. Saks, and M. Risinger, 'Context management toolbox: A Linear Sequential Unmasking (LSU) Approach for minimizing cognitive bias in forensic decision making' (2015) 60 *Journal of Forensic Sciences* 1111.

[139] The tendency to overvalue evidence that supports one's expectations and undervalue evidence that contradicts them is specifically termed a 'confirmation bias', see S. Kassin, I. Dror and J. Kukucka, 'The forensic confirmation bias: Problems, perspectives, and proposed solutions' (2013) 2 *Journal of Applied Research in Memory and Cognition* 42.

the confession, the identity of the suspect or information about whether two fingerprints match) prevents them from automatically and unconsciously incorporating domain irrelevant information into their evaluations; thereby biasing the conclusion.

A process similar to LSU – a task reordering procedure – has been proposed to reduce anchoring in the context of federal sentencing decisions in the United States.[140] By simply reviewing factors in the presentencing report *other* than those in the Federal Sentencing Guidelines, the judge can prevent the Guidelines acting as a tether that may limit their discretion regarding the length and severity of sentences.[141] The opposite effect might be stimulated by an exclusive, or initial, focus on the Guidelines.

It turns out that awareness of unconscious biases, and the use of procedural mechanisms to eliminate or mitigate them, is not uncommon beyond the courts. Biomedical researchers and physicists, for example, routinely apply procedures to insulate interpretations and decisions from a range of dangers. The obvious example is the double-blind clinical trial: where both the patient and the treating physician are deprived of the information as to whether a specific patient is receiving the drug being tested or a placebo (or some other comparator).[142] This approach was developed because studies demonstrated that highly-trained physicians and biomedical scientists were incapable of resisting the influence of information when trying to conceal the deception or impartially analyze the empirically-derived data. To complicate matters, the human subjects being studied in clinical trials often respond to their own impressions (whether consciously or unconsciously), such that the placebo effect is a potentially major confounder.[143] These sorts of professional-lay interactions may have analogies in judge-jury interactions. Though, problems with bias are not limited to disciplines engaged with human subjects. Physicists studying complex mathematical data sets in order to detect gravitational waves, for example, have developed elaborate procedures to prevent those trying to identify patterns from mistakenly attributing significance to 'noise'.[144]

Other forcing strategies that address risk factors for bias include those that reduce reliance on memory, simplify task requirements, minimize time pressures, require explicit consideration of alternatives, and incorporate rapid reliable feedback on performance.[145] Ultimately, the point is that bias mitigation needs to be active and intentional. Passive acceptance of the existence of bias is not an effective way to interrupt a cognitive reflex. Appointment to the bench does not create a blank slate upon which only relevant admissible evidence will imprint itself.

6. Discussion

A. Focusing on appearances rather than notorious biases

The previous sections might be read to suggest that judges are excessively concerned with the *appearance* of impartiality. Conventional concern with impartiality tends to be based on narrowly conceived risks, particularly those that are readily identifiable by

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[140] Bennett, 'Confronting cognitive anchoring effect and blind spot biases in Federal sentencing.
[141] Permitted in *United States v. Booker*, 543 U.S. 220 (2005).
[142] B. Bausell, *Snake oil science: The truth about complimentary and alternative medicine* (Oxford, OUP, 2007).
[143] S. Epstein, *Inclusion: The politics of difference in medical research* (Chicago, University of Chicago Press, 2007).
[144] For a revealing example from gravitational wave research, see H. Collins, *Gravity's Ghost: Scientific Discovery in the Twenty First Century* (Chicago: University of Chicago Press, 2012).
[145] P. Croskerry, 'The importance of cognitive errors in diagnosis and strategies to minimize them' (2003) 78 *Academic Medicine* 775. Guthrie et al, 'Blinking on the bench'.

litigants and the public. It includes bias inferred from interests (e.g. financial interests), conduct, associations or exposure to extraneous information. These are potentially serious threats to decision-making, but the traditional legal focus could hardly be considered exhaustive or adequate. Many other risks, notorious in other areas of professional and social practice, seem not to have been considered or are simply deemed to be beyond the scope of legal consideration – out of bounds, so to speak. Little attention has been directed to the wide range of cognitive biases that, while perhaps not as conspicuous, directly threaten perception, interpretation and decision-making.

Our concern is not that traditional legal concerns are entirely misguided, but rather that the traditional horizon has been conceived too narrowly. Although, related claims about special judicial traits, particularly the ability to transcend (cognitive) biases, appear, in the absence of demonstration, to be overstated or implausible. Scientific research suggests that human decision-makers are vulnerable to influences that are much more subtle than those traditionally recognised in our rules, procedures and jurisprudence. And, if judges are not exceptional or not known to be exceptional, then there are few reasons to believe that they are capable of resisting, potentially subtle, threats to cognition. Cognitive biases and the risks they pose are not, as our earlier examples indicate, necessarily trivial.

Our review drew attention to English jurisprudence that placed some issues out of bounds. Under the pretext of exceptionalism, *Locabail* enumerates and seeks to inoculate issues, commitments, beliefs and assumptions that are likely to surreptitiously influence the way individuals – including judges – perceive the world and make decisions. Rather than declaratory lists based on the impressions of senior judges, our rules and jurisprudence should be informed by scientific research, with sensitivity to discrimination, policy and resource implications, accuracy, institutional integrity and the values and demographics of our evolving social democracies.

B. Engagement with scientific research (and the limits of judicial awareness)

It might be suggested that common law judges, through their collective experience as lawyers and judges, are aware of the kinds of concerns raised in this article. We contend that such a claim is untenable on the available evidence – particularly our review of the prevailing jurisprudence. There is little evidence in our rules, jurisprudence and practice, and no systematic institutional engagement, with the kinds of research and effects we have described.[146] The occasional reference in submissions and judgments tends to be treated superficially against the backdrop of judicial exceptionalism and centuries of legal experience.[147] Indeed, the persistence of judicial exceptionalism suggests that common law judges are basically ignorant about cognitive biases. The alternatives are that they do not accept the scientific research and its implications or, perhaps as alarming, consider themselves unable to do anything meaningful.[148] It might also suggest that legal and judicial experience can actually impede interest in scientific knowledge as well as understanding.

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[146] We accept that there are some writings, but these are quite sporadic and not entirely consistent with prevalent commitments and rules of procedure and jurisprudence. See e.g. among the Australian judges K. Mason, 'Unconscious judicial prejudice'; P. McClellan, 'Who is telling the truth? Psychology, common sense and the law (2006) 80 *ALJ* 655; G. Pagone, 'Centipedes, liars and unconscious bias' (2009) 83 *ALJ* 255. See also S. Bunn et al, 'Unintentional Bias in Court' (2015) 512 *PostNote* 1 (Houses of Parliament, UK). We appreciate that some judges (and others) have become attentive to issues around cognition, but there have been few institutional responses beyond education.

[147] There are a few references to specific biases in judgments, but these could hardly be considered to be engaged. Generally they operate as inoculation.

[148] We might expect principled justification for non-engagement or the perpetuation of exceptionalism.

Once upon a time those selecting musicians did not believe their choices were biased. Similarly, latent fingerprint examiners (and other forensic scientists) once believed that they were immune from the influence of domain irrelevant information – based on their long training and experience. They were mistaken. To their considerable credit, these and many other groups have begun to reform their practices in order to avoid real, though insidious, risks. There have, in contrast, been no systematic attempts by judges or law reform bodies to consider the implications of cognitive science on legal procedures, ideas of impartiality, the practice of judging and decision-making, or even the traditional conception of a common law judge.[149]

As we have endeavoured to explain, several common law assumptions and practices appear difficult to reconcile with mainstream scientific knowledge. In many cases the main justifications for continuing legal indifference would appear to be self-serving assertions about judicial abilities that have never been independently verified. This is unfortunate because biases shape our cognition in ways that may be insidious and may not be corrected through deliberation. This means that we, and this includes barristers and judges, cannot necessarily think our way around them.

C. Strength of the evidence versus bias (and the appearance of unconscious biases)

Biases shape how individuals understand the world. They influence perception and the assessments of facts, narratives, the experiences and options available to others, the credibility of witnesses, the significance of demeanour, the plausibility of accounts and motives, and the reasonableness of behaviours (by real and imaginary citizens). Biases may lead judges to make admissibility and interlocutory decisions that make it harder to prove or resist particular positions. And, biases might lead a well-intentioned judge to award more or less damages, or to sentence higher or lower than a less (or differently) biased judge might or to set a cascade of other biases or biased decisions in motion.[150]

At the same time we should not get carried away. It is important and appropriate to recognise that if it turns out that judges are influenced by the kinds of biases and heuristics that infect the decision-making of ordinary humans, their humanity will not necessarily corrupt all decisions and all decision-making. In some cases, such as where the evidence is compelling or the law clear, such biases might not make significant practical differences. Clear law and strong evidence might even constrain strong prejudices and unconscious biases (as well as those privately held). However, in most cases, there will be multiple occasions where cognitive biases might subtly influence the interpretation of law and evidence, the operation of procedures and decision-making – if not always their public justification.[151] Where decisions are open, where there is considerable scope for interpretation, where judges have discretion, this is where unconscious biases are most likely to unwittingly exert their potentially discriminatory effects.[152] This is where decision-making is most vulnerable to departing from the law

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[149] Perhaps the primary exception are procedures around eyewitness identification, although these are often quite dated and not always rigorously followed by investigators.

[150] See discussions of 'bias cascade' and 'bias snowball' in I. Dror 'Biases in forensic experts' (2018) 360 *Science*, 243; I. Dror, R. Morgan, C. Rando, and S. Nakhaeizadeh, 'The bias snowball and the bias cascade effects: Two distinct biases that may impact forensic decision making' (2017) 62 *Journal of Forensic Sciences* 832.

[151] Decision-making and explaining/rationalizing decisions are fundamentally different activities. Biases that influenced decision-making, especially if unconscious, will not necessarily manifest in formal decisions and explanations. We should be careful about relying on formal reasons and public behavior as proof of judicial impartiality or the impartiality of decisions.

[152] In these interpretatively open circumstances, bias may be difficult to identify, because a range of decisions might be available (or seem reasonable). These are sometimes characterised as complex (or

(and its egalitarian aspirations) and the relationship between evidence and accurate outcomes most strained. This is where decisions might be inconsistent with normative expectations and, as in the case of our examples, reality.

The advantage of engaging with scientific research and facilitating targeted research on our judges is that we might identify or clarify actual abilities and domains where judges perform well and perhaps not so well. Where risks seem to be worthy of attention we may need to modify procedures. In other cases we may need to be more open and transparent and, unless they are supported empirically, begin to dis-assemble the institutional, rhetorical and procedural legacies erected around commitment to judicial exceptionalism.[153] Empirical insights will help us to anticipate risks and focus attention rather than rely upon misguided, if well-intentioned, claims about special aptitudes associated with *declaratory impartiality*. That is, traditional legal assertions about impartiality decoupled from scientific knowledge. This seems to be preferable to persisting with institutionally and professionally convenient myths about judicial exceptionalism.[154]

7. Beyond judicial exceptionalism and declaratory impartiality

In concluding we want to return to the issue of judicial performance in relation to cognitive biases. We want to reiterate our apprehension about the longstanding and apparently widely held belief that judges are cognitively exceptional. We doubt that, through training, experience, aptitude and strength of will, judges are able to resist the kinds of conscious and unconscious biases and heuristics that influence and sometimes subvert the cognition of other humans – including those selecting musicians, comparing fingerprints or undertaking research in biomedicine and physics. Indeed, the available evidence reinforces our apprehensions. To support claims about exceptional abilities we should expect to see evidence derived from rigorous empirical studies, rather than declarations or appeals to controvertible historical performances.[155]

It may be that legal procedures and experience do help judges to resist, to a degree, some of the influences that contaminate the cognition of most other humans. Though, given the centrality of impartiality to our conception of a judge and institutional legitimacy, such abilities should be demonstrable and demonstrated rather than asserted (or exempted from scrutiny and review). Abilities cannot be demonstrated through appeals to past judicial practice, long traditions of apparent neutrality, the nature of judgment, and other evidence that might be considered part of the judicial *performance* of impartiality. These performances, as feminists and other socio-legal scholars have repeatedly demonstrated, are open to disruptive counter-interpretations.[156]

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wicked) environments. The fact that a range of interpretations or decisions is available should not be understood to mean that biases are not relevant or influential. On such complexity, see R. Hogarth, *Educating intuition* (Chicago Press, 2001).

[153] In terms of testing the evidence, or reviewing the evidence and the reasoning on appeal, we should note that conventional methods may not be very effective in relation to bias. Decision-makers should probably be less deferential to the softer aspects of decision-making – such as privileging the perspective of the those who observed the demeanour of the witness. Alternatively, we might consider video recording testimony to enable reviewers to consider some of the evidence for themselves.

[154] Just as judges struggled to acknowledge that they make law, so too they probably struggle to acknowledge their biases.

[155] Where data has been collected and analysed (mainly for US judges), it tends to disclose statistically significant biases in terms of race and gender. See e.g. Levison and Smith, *Implicit racial bias across the law* and Steikert & Steikert, 'The American Death Penalty and the (In)Visibility of Race'.

[156] See e.g. the feminist judging project.

We are committed to preserving the good reputation of our courts and the appearance of justice. But we are simultaneously concerned about biases that actually contaminate decision-making. To the extent that judges value impartiality, fairness, deciding cases on their merits and socio-political legitimacy, there would appear to be a need to learn about and respond to biases that threaten these fundamental commitments and expectations. It would be curious indeed if judges were apprehensive about the appearance of bias but treated biases notorious amongst scientists with indifference or scepticism. If justice should not only be seen to be done but, more fundamentally, be done, then judges and scientists may need to begin a slow process of dialogue and research in order to better understand and perhaps reform the way that our complex societies organise legal practice and decision-making.[157] Perhaps it is ironic, but in the face of scientific evidence judicial ideas about bias are beginning to appear quaint, archaic, naïve, self-serving and in consequence biased.

[157] See *R v Sussex Justices Ex p McCarthy* [1924] 1 KB 256, 259 and *Johnson v Johnson* (2000) 201 CLR 488, 492-3.