Splitting Hairs? Evaluating 'Split Testimony' as an Approach to the Problem of Forensic Expert Evidence

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Abstract

Although evidence law in the United States today is primarily associated with the judicial gatekeeping reliability-validity approach represented by the case *Daubert v Merrell Dow Pharmaceuticals*, in fact, trial courts in the United States employ a wide array of approaches to checking the purported pernicious effects of overstated expert evidence. One of these approaches has been called 'split testimony', which, rather than applying the cudgel of excluding expert testimony altogether, applies the scalpel of parsing or restricting the testimonial claims the expert witness is permitted to utter. This approach emerged as an occasional resolution to challenges to forensic expert evidence in criminal cases in the 1990s, and its attraction appears to have grown following the 2009 publication of a United States National Academy of Science report that was critical of forensic science. 'Split testimony' is consistent with the views of many evidence scholars who have advocated approaches to expert evidence that focus on calibrating the 'fit' between the testimonial claim and the evidentiary basis for that claim, rather than on a binary 'winner-take-all' decision to admit or exclude an expert witness. Using early evidence emerging from 'split testimony' approaches to latent print evidence as a case study, however, this article argues that split testimony may not be the panacea that evidence scholars (the author included) had hoped.

Introduction

Evidence scholars have long recognised the potentially problematic nature of expert evidence. Expert witnesses are often subject to different rules to fact witnesses (hearsay, opinions, etc), and they may be treated with undue deference by fact-finders. There are two broad-brush approaches to this problem within Anglo-American law. One, generally 'liberal', approach is to hope that ordinary

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trial mechanisms, principally cross-examination and rebuttal experts, will ruthlessly expose any shortcomings in expert testimony. The second, generally 'conservative', approach is to police the admissibility of expert evidence in the first place — that is, the judge should screen expert testimony for its potential to mislead the fact-finder prior to allowing it to be heard. Generally speaking, the 'conservative' approach is associated with the United States (US) through two well-known decisions, *Frye v United States* (1923) and the even better known *Daubert v Merrell Dow Pharmaceuticals* (1993).[1] *Daubert* imposed on US federal trial judges a 'gatekeeping' responsibility to ensure the relevance or reliability of expert evidence that would be heard by the fact-finder. In evidence law, *Daubert* is often treated as the US's main export, and international discussion of evidence law often focuses on whether to adopt 'American' approaches to expert evidence, by which is usually meant some sort of screening of expert evidence for reliability.[2] In such contexts, the wisdom and effectiveness of the *Daubert* regime in regulating the quality of expert evidence is hotly debated.

Daubert, however, is by no means the sole American approach to the control of expert evidence. Even within the US, as is well known, *Daubert* by no means is the law in all jurisdictions. *Daubert* is federal law, and it is the law in around half the states that have adopted it, or something very much like it. However, the courts of half the states have *not* adopted *Daubert*.[3] These include some of the largest states, and most cases still take place in state, not federal, courts. In addition, admissibility is not the sole way in which US courts regulate expert evidence. The mechanisms used in 'liberal' regimes, cross-examination and rebuttal, remain fundamental tools in the US courts' regulatory toolkit. Indeed, even the *Daubert* decision itself may be read as viewing exclusion of evidence as an exceptional sanction; it included language noting that '[v]igorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence'.[4] Another way of regulating testimony is the limiting of what an expert witness, who nonetheless is permitted to testify, can say. Thus, it would be misleading to suggest that US courts control expert testimony solely through admissibility.

It is true, however, that evidence scholars have focused on admissibility at the expense of more mundane regulatory tools such as cross-examination, rebuttal and limitation. There are probably a number of reasons for this. First, scholars probably unconsciously tend to look where the 'action' is, and admissibility hearings look like 'action' to evidence scholars, whereas cross-examination looks routine. Motions to exclude evidence result in rulings on these motions, the legality

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1 *Frye v United States*, 293 F 1013 (DC Cir, 1923); *Daubert v Merrell Dow Pharmaceuticals*, 509 US 579 (US, 1993).

2 Gary Edmond and Andrew Roberts, 'Procedural Fairness, the Criminal Trial and Forensic Science and Medicine' (2011) 33 *Sydney Law Review* [**PAGE**]; Kent Roach, 'Forensic Science and Miscarriages of Justice: Some Lessons from Comparative Experience' (2009) 50 *Jurimetrics* 67, 92; Law Commission, Report, *Expert Evidence in Criminal Proceedings in England and Wales* (21 March 2011).

3 Alice B Lustre, Annotation, 'Post-*Daubert* Standards for Admissibility of Scientific and Other Expert Evidence in State Courts' (2001) 90 *American Law Reports* 5th 453, §2.

4 *Daubert v Merrell Dow Pharmaceuticals*, 509 US 579, 596 (US, 1993).

and wisdom of which can be debated, whereas there may be little to say about a routine cross-examination or rebuttal unless some judicial error is alleged.

Post-*Daubert* evidence scholarship focused primarily on two issues. First, there were vigorous debates about the wisdom and coherence of the *Daubert* framework itself. Its superiority or inferiority to other possible regulatory regimes, notably the *Frye* 'general acceptance' deference approach or the 'liberal' laissez-faire approach, was debated.[5] The 'coherence' of the decision and its understanding — or misunderstanding — of philosophy of science was debated.[6] Second, there was a great deal of scholarship that sought to evaluate the way courts had fulfilled the gatekeeping responsibility delegated to them by *Daubert.*[7]

While this produced a voluminous body of scholarship, some dissatisfaction with the exclusive focus on the admissibility decision could also be discerned. Admissibility, it was noted, was a binary decision, whereas the reliability of evidence must be continuous. Decisions to admit or preclude expert witnesses were necessarily both over- and under-inclusive of evidence. Barely admitted experts might give evidence making very strong claims, while barely precluded experts would be able to offer no evidence at all, despite the fact that their statements might have some probative value.[8] This criticism was taken to the greatest extreme by Professor Friedman, who argued that all evidence should be admitted, even evidence of very low reliability, so long as the reliability of the evidence was made transparent to the fact-finder.[9] (The ironic corollary of this proposal was that evidence of very high reliability should be excluded unless it is able to make its reliability transparent to the fact-finder.)

Thus, a number of evidence scholars made statements that suggested courts might do better to focus less on admissibility and more on control of the probative value of the statements the expert witness proposed to make.[10] It was suggested that

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5 See, eg, Scott Brewer, 'Scientific Expert Testimony and Intellectual Due Process' (1998) 107 *Yale Law Journal* 1535; Adina Schwartz, 'A "Dogma of Empiricism" Revisited: *Daubert v Merrell Dow Pharmaceuticals, Inc* and the Need to Resurrect the Philosophical Insight of *Frye v United States* (1997) 10 *Harvard Journal of Law & Technology* 149.

6 See, eg, Susan Haack, 'Trial and Error: The Supreme Court's Philosophy of Science' (2005) 95 *American Journal of Public Health* S66; Susan Haack, 'An Epistemologist in the Bramble-Bush: At the Supreme Court with Mr Joiner' (2001) 26 *Journal of Health Politics, Policy and Law* 217; David S Caudill and Richard E Redding, 'Junk Philosophy of Science?: The Paradox of Expertise and Interdisciplinarity in Federal Courts' (2000) 57 *Washington and Lee Law Review* 685.

7 See, eg, D L Faigman et al (eds), *Modern Scientific Evidence: The Law and Science of Expert Testimony* (West, 3rd ed, 2007).

8 S A Cole, 'Where the Rubber Meets the Road: Thinking About Expert Evidence as Expert Testimony' (2007) 52 *Villanova Law Review* 803.

9 R D Friedman, 'Squeezing *Daubert* Out of the Picture' (2003) 33 *Seton Hall Law Review* 1047.

10 Edward J Imwinkelried, 'The Relativity of Reliability' (2004) 34 *Seton Hall Law Review* 269; B Black, 'Focus on Science, Not Checklists' (2003) 39 *Trial* 26; D A Nance, 'Reliability and the Admissibility of Experts' (2003) 34 *Seton Hall Law Review* 191; Margaret A Berger, 'Expert Testimony in Criminal Proceedings: Questions *Daubert* Does Not Answer' (2003) 33 *Seton Hall Law Review* 1125; Erica Beecher-Monas, 'A Ray of Light for Judges Blinded by Science: Triers of Science and Intellectual Due Process' (1999) 33 *Georgia Law Review* 1047; David L Faigman, 'Expert Evidence in Flatland: The Geometry of a World Without Scientific Culture' (2004) 33 *Seton Hall Law Review* 255; Samue Gross and Jennifer L Mnookin, 'Expert Information and Expert Evidence: A Preliminary Taxonomy' (2003) 34 *Seton Hall Law Review* 143; William C Thompson, 'The NRC's Plan to Strengthen Forensic Science: Does the Path Ahead Run Through the Courts?' (2009) 50 *Jurimetrics* 35, 48; Gary Edmond and Kent Roach, 'A Contextual Approach to the

expert evidence must be 'calibrated' — that is, that the probative value attributed to the evidence by the witness must be supported by some form of evidence. Taken to their logical outcomes, these musings implicitly posited an alternative approach to the regulation of expert evidence — control of testimony, rather than blanket exclusion or wholesale admission. It is this approach that will be explored in this article. Ms Tierney has called this approach 'split testimony'.[11] Most commonly, 'split testimony' appears to refer to 'the splitting of "observational" testimony and "identification" testimony, where "observational" testimony only is allowed',[12] an approach that Professor Risinger has labelled 'the *Hines/McVeigh* approach'.[13] However, in at least one case the term 'split testimony' appears to encompass testimonial restrictions other than a strict split between observation and inference, such as the judicial prohibition of certain testimonial conclusions and mandating of alternative testimonial conclusions.[14] This article will adopt the broad meaning of the term 'split testimony' to denote any sort of judicial restriction on an expert witness's testimonial conclusions. Because of recent events concerning forensic science in the US, there is renewed judicial interest in split testimony as a solution to the problem of expert evidence. This article suggests that we can draw on the American experience for more than just its experience with *Daubert* and proposes to treat US legal challenges to latent print ('fingerprint') evidence as a case study in the early application of split testimony to a contested forensic discipline. While a relatively robust admissibility jurisprudence concerning latent print evidence has developed in the US since 1999,[15] recent cases have increasingly focused on split testimony, rather than admissibility. This case study will bring into relief some of the benefits of a testimonial control approach, but it will also strike a cautious note, raising questions about whether split testimony really is the panacea many scholars — including this author[16] — hoped it would be. It is hoped that this case study will provide fodder for further thinking about the regulation of expert testimony, not only for other disciplines, in both criminal and civil law, but also for other legal systems, besides that of the US

II Split Testimony

Generally, a split testimony control approach to forensic science has been operationalised through what has been called 'the *Hines/McVeigh* approach', in which the witness is permitted to describe to the fact-finder similarities and differences between two samples, but is not permitted to offer a conclusion or (put another way) to offer an opinion as to what inference should be made from those similarities and differences.[17] The approach bears some resemblance to — and perhaps derives, consciously or unconsciously, from — the way forensic DNA analysts approach evidence through a 'two-step' process: first, identifying

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Admissibility of the State's Forensic Science' (2011) *University of Toronto Law Journal* (forthcoming)**[AQ Pls supply volume and page if now known]**.**Volume 61, No. 3, 343-409.**

11 Laura Tierney, 'Forensic Science Disciplines and *Daubert*: A Trend Toward "Split Testimony"' (Paper, Impression & Pattern Evidence Symposium, Florida, August 2010).

12 Ibid.

13 D Michael Risinger, 'Handwriting Identification' in Faigman et al (eds), above n 7, 113, 136.

14 Tierney, above n 11, referring to *State v Whittingham (Mary)* (unpublished case, 2009).

15 For a review, see Faigman et al, above n 7.

16 Cole, above n 8.

17 Risinger, above n 13.

consistencies and inconsistencies between samples and then estimating the relative likelihood of those findings under the competing hypotheses of the prosecutor and defendant.[18] Perhaps the earliest split testimony case in the post-*Daubert* era was an unreported decision on an admissibility challenge to handwriting identification testimony in *United States v McVeigh* (1997), in which the court ruled that the expert witness could point out similarities between two samples but not draw a conclusion about the relative likelihood of a common source.[19] The approach was then adopted in *United States v Hines* (1999), another handwriting case,[20] and three subsequent federal rulings on the admissibility of handwriting identification.[21] The *Hines/McVeigh* approach was also adopted for toolmark evidence in *United States v Green.*[22]

Split testimony also spread outside the US. For instance, *R v Tang*, the leading admissibility decision for criminal law in New South Wales, calls for split testimony for expert facial identification, allowing the expert witness to testify about '[e]vidence of similarities between the photographs of the Appellant and the photographs of the offender', but not to her 'opinion [that] they are of the same person'.[23] The Candadian case, *R v Abbey*, may also be considered a split testimony decision on expert evidence offered by a sociologist with expertise in gang culture.[24] The general philosophy that trial courts should not merely control admissibility but also ensure that the proffered testimonial claims are supported by evidence, may be found in both the Morin and Goudge inquiries from Canada and in the recent report of the United Kingdom Law Commission.[25]

III Split Testimony and Latent Prints

The *Hines/McVeigh* approach was adopted briefly for latent prints in *United States v Llera-Plaza I.*[26] This decision is often popularly described as an exclusion, but, in fact, latent print testimony was not excluded at all; rather, it was restricted. Therefore, like all the cases described above, *Llera-Plaza I* is more appropriately described as a split testimony case rather than an exclusion

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18 Colin G G Aitken, *Statistics and the Evaluation of Evidence for Forensic Scientists* (Wiley, 1995).

19 *United States v McVeigh*, 1997 WL 47724 (D Colo, 1997); Risinger, above n 13, 113, 121.

20 *United States v Hines*, 55 F Supp 2d 62 (D Mass, 1999); Risinger, above n 13, 113, 134.

21 Risinger, above n 13, 113, 136.

22 *United States v Green*, 405 F Supp 2d 104 (D Mass, 2005).

23 *R v Tang* (2006) 65 NSWLR 681**[AQ Is this the case your mean?]The citation I have is: NSWCCA 167** [6], [33]. For discussion, see G Edmond, K Biber, R Kemp, G Porter, 'Law's Looking Glass: Expert Identification Evidence Derived from Photographic and Video Images' (2009) 20 *Current Issues in Criminal Justice* 337, 348.

24 For a discussion, see Edmond and Roach, above n 100.

25 Roach, above n 2, 72–3; Law Commission, above n 2.

26 *United States v Llera Plaza*, 179 F Supp 2d 492, 517 (ED Pa, 2002):

> The parties will be able to present expert fingerprint testimony (1) describing how any latent and rolled prints at issue in this case were obtained, (2) identifying, and placing before the jury, such fingerprints and any necessary magnifications, and (3) pointing out any observed similarities and differences between a particular latent print and a particular rolled print alleged by the government to be attributable to the same persons. But the parties will not be permitted to present testimony expressing an opinion of an expert witness that a particular latent print matches, or does not match, the rolled print of a particular person and hence is, or is not, the fingerprint of that person.

case.[27] Nevertheless, *Llera-Plaza I* was quickly vacated and withdrawn, and the subsequent opinion, *United States v Llera-Plaza II*, changed the outcome to blanket admissibility.[28] In 2008, however, there were two unreported split testimony decisions on latent prints that stuck. In *State v Pope*, the court ruled:

> that the fingerprint examiners should not be allowed to testify that they have identified the right middle fingerprint of Jomekia Pope to the exclusion of all others, or that they have made a positive, absolute or certain identification. Instead they will be allowed to testify that the fingerprint found in this case is 'consistent with' the known fingerprint found on the right middle finger of Jomekia Pope.[29]

In *State v Johnson*, a Maryland trial court ruled that the:

> State's proffer . . . to have the expert testify that, not only do the latent prints match the Defendant's known prints, but also that no other person in the world's print could also match the latents . . . is a step too far based on what appears to be the currently validated science on the issue. . . . There does not seem to be a factual foundation or basis for Mr Hafner [the latent print examiner] in this case to say more than that the Defendant's print closely or exactly matches the partial latent print he lifted. He can point out similarities and the differences, if any, between the latent print and the exemplar. The court discerns no basis in the proffer for him to express an opinion that no other person could have a similar number of matching points or what the probability or lack of probability is of the existence of such persons.[30]

These few split testimony decisions notwithstanding, most admissibility decisions on forensic evidence found for blanket admissibility without any need for

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27 Of course, the distinction being drawn here is somewhat vague. In theory, an admissibility regime, like that proscribed by *Daubert*, can achieve the same ends as a testimonial control regime. The court need simply focus on the nature of the proffered expert testimony, rather than on the credentials of the proffered expert witness, and exclude any proffered testimony that is not adequately supported by evidence or data. Such an exclusion, however, would under no circumstances preclude the proponent of the evidence from returning to court with the same witness and a new proffer. In other words, the court would simply place the burden on the proponent of the evidence to make a proffer that they can support with evidence or data and exclude any proffer that does not meet this threshold without making a blanket exclusion of a particular expert or discipline. Thus, what is here referred to as 'testimonial control' is, in effect, nothing more than a strict admissibility regime that focuses on testimonial conclusions, rather than general expertise, and allows the proponent of the evidence multiple opportunities to develop an acceptable proffer. In the author's view, an admissibility approach is, in fact, preferable because it puts the court in a more 'passive' posture — the court places the burden of formulating supportable testimonial conclusions on the proponent of the evidence and simply admits or excludes those conclusions. In contrast, 'testimonial control' places the court in a more 'active' role of telling the parties (and the expert witness) what conclusions a proffered expert witness should offer. Strictly speaking, this is somewhat unseemly — it seems outside the role of the court. For reasons about which we can only speculate, however, courts, when dealing with forensic evidence, seem to prefer the active posture of 'testimonial control' to the passive posture of exercising gatekeeping authority over proffered testimonial conclusions. The author's intuition is that courts view forensic evidence as very important for public safety and are, therefore, uncomfortable with the passive posture of placing full responsibility for formulating legally admissible testimonial conclusions upon prosecutors, and unwilling to simply exclude evidence, thereby offering prosecutors a 'solution' to their dilemma. Therefore, courts instinctively shift into a more active role and take it upon themselves to offer an escape from the bind that unvalidated forensic disciplines present to prosecutors.

28 *United States v Llera Plaza*, 188 F Supp 2d 549 (ED Pa, 2002).

29 *State v Pope*, Case No 07CR62135 (Super Ct Bibb Cty Geo, 2008).

30 *State v Johnson*, Case No 07-47108 (Mary Cir Ct Howard Cty, 2008).

testimonial control.[31] And yet, at the same time evidence scholarship was increasingly unanimous in its scathing criticism of these decisions, accusing the courts of protecting forensic science, of outcome orientation, and of intellectual dishonesty.[32]

IV The US National Academy of Science Report on Forensic Science

These issues came to a head with the publication in 2009 of a long-awaited report by the National Academy of Science (NAS) on forensic science.[33] Because the NAS was a prestigious, extrajudicial scientific institution, there was a sense in which it could function as a sort of 'court of last resort' for many of the longstanding controversies over the admissibility of many forensic techniques.[34] The report decidedly supported evidence scholars' view of the courts' performance in handling forensic evidence in the post-*Daubert* era. In a memorable passage, it stated that '"the undeniable reality is that the community of forensic science professionals has not done nearly as much as it reasonably could have done to establish either the validity of its approach or the accuracy of its practitioners' conclusions," and the courts have been "utterly ineffective" in addressing this problem'.[35] Nevertheless, according to the report, courts had done something even more damaging than simply failing to demand scientific validation; they had actively helped provide cover for the absence of validation by 'having the reliability of certain forensic science methodologies judicially certified before the techniques have been properly studied and their accuracy verified'.[36] Thus, the report argued (as the author and other evidence scholars have argued elsewhere) that court decisions had 'certified' forensic techniques, serving as proxies for the missing scientific validation studies.[37] These scathing criticisms were all the more remarkable in coming not merely from the scientific community, but from a committee co-chaired by a federal judge.

Thus, for two reasons the NAS report would seem to push courts in the direction of split testimony for forensic evidence such as latent prints. First, the report's factual findings concerning the lack of validation of these disciplines rendered judicial opinions holding for blanket admissibility less tenable — though

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31 Faigman et al, above n 7.

32 Ibid; see also, eg, Craig M Cooley and Gabriel S Oberfield, 'Increasing Forensic Evidence's Reliability and Minimizing Wrongful Convictions: Applying *Daubert* Isn't the Only Problem' (2007) 43 *Tulsa Law Review* 285; D Michael Risinger, 'Goodbye to All That, or A Fool's Errand, by One of the Fools: How I Stopped Worrying about Court Responses to Handwriting Identification (and "Forensic Science" in General) and Learned to Love Misinterpretations of *Kumho Tire v Carmichael*' (2007) 43 *Tulsa Law Review* 447, 473; Susan D Rozelle, '*Daubert*, Schmaubert: Criminal Defendants and the Short End of the Science Stick' (2007) 43 *Tulsa Law Review* 597.

33 National Research Council, Report, *Strengthening Forensic Science in the United States: A Path Forward* (February 2009).

34 Simon A Cole, 'Who Speaks for Science? A Response to the National Academy of Sciences Report on Forensic Science' (2010) 9 *Law, Probability and Risk* 25.

35 National Research Council, above n 33, 108–9.

36 Ibid 86.

37 D Michael Risinger, 'Navigating Expert Reliability: Are Criminal Standards of Certainty Being Left on the Dock?' (2000) 64 *Alberta Law Review* 99; Risinger, above n 32; Simon A Cole, 'Grandfathering Evidence: Fingerprint Admissibility Ruling from *Jennings* to *Llera Plaza* and Back Again' (2004) 41 *American Criminal Law Review* 1189.

certainly not untenable. As some scholars have noted, however, US courts seemed reluctant to follow these factual findings to their logical conclusion and rule the evidence inadmissible. As a result, courts might be in the market for an alternative to either blanket admissibility of a technique that, according to the NAS, lacked validation or blanket exclusion of technique that judges intuited was highly probative.[38] Meanwhile, outside the US the NAS report has not yet even been cited by Australian courts, for instance.[39] Second, the report lamented the absence of standardised 'terminology used in reporting and testifying about the results of forensic science investigations' and called for the establishment of standard terminology for reporting forensic conclusions.[40] Judges might interpret this as an argument in favour of split testimony.

V The Problem with Latent Print Testimony

In the case of latent prints, there was the additional fact that the NAS report explicitly stated that what was by current professional guidelines the *only* permissible inclusionary testimonial conclusion,[41] '*individualisation*', could not be supported for latent prints — or, for that matter, any discipline other than nuclear DNA analysis.[42] This statement by the NAS only sharpened the dilemma for courts faced with admissibility challenges to latent print evidence. Admitting testimony of 'individualisation' amounted to allowing an expert witness testifying as a scientist to make a testimonial claim that the National Academy of Science had explicitly stated was unsupported. On the other hand, since 'individualisation' was, according to professional rules, the only permissible testimonial claim, excluding testimony of individualisation amounted to doing away with what was widely viewed as the most useful forensic technology ever developed — at least prior to the development of DNA typing. This situation

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38 Rachel Dioso-Villa, 'Where There's Smoke, There's Fire: A Comparative Analysis of Judicial Outcomes and the Legal Rhetoric of Expert Evidence' (PhD Thesis, University of California, Irvine); Risinger, above n 37; Déirdre Dwyer, '(Why) Are Civil and Criminal Expert Evidence Different?' (2007) 43 *Tulsa Law Review* 381; Rozelle, above n 32; Michael J Saks, 'Protecting Factfinders from Being Overly Misled, While Still Admitting Weakly Supported Forensic Science into Evidence' (2007) 43 *Tulsa Law Review* 609; Gary Edmond and David Hamer, 'Evidence Law' in P Cane and H Kritzer (eds), *The Oxford Handbook of Empirical Legal Research* (Oxford University Press, 2010) 652.

39 G Edmond, 'Actual Innocents? Legal Limitations and their Implications for Forensic Science and Medicine' (2011) 43 *Australian Journal of Forensic Sciences* 177.

40 National Research Council, above n 33, 21.

41 Scientific Working Group on Friction Ridge Analysis Study and Technology (SWGFAST), *Standards for Conclusions* (9/11/03 ver 1.0) <http://www.swgfast.org/documents/conclusions/030911_Standards_Conclusions_1.0.pdf>.

42 National Research Council, above n 33: '[N]o forensic method other than nuclear DNA analysis has been rigorously shown to have the capacity to consistently and with a high degree of certainty support conclusions about "individualization" (more commonly known as "matching" of an unknown item of evidence to a specific known source)'. Whether the Report ought to have endorsed claims of 'individualisation', even for DNA analysis, is questionable and was perhaps a manifestation of the report's tendency to idealise DNA evidence. See Erin Murphy, 'What "Strengthening Forensic Science" Today Means for Tomorrow: DNA Exceptionalism and the 2009 NAS Report' (2010) 9 *Law, Probability and Risk* 7. The author has elsewhere argued further that all claims of 'individualisation' are inherently untenable and that the term and concept of 'individualisation' should be abandoned as a goal by all of forensic science: Simon A Cole, 'Forensics without Uniqueness, Conclusions without Individualization: The New Epistemology of Forensic Identification' (2009) 8 *Law, Probability and Risk* 233.

would seem to only further heighten the appeal of split testimony: allowing latent print evidence in some form other than the now discredited form of 'individualisation'.

'Individualisation' is a somewhat strange term of art in forensic science, but it is widely taken to mean the reduction of the potential donor pool of a trace to a *single* possible source.[43] More confusing is the relationship of 'individualisation' to the term 'identification'. Here the literature is quite ambiguous: whereas some authorities clearly distinguish the two terms, others treat them as synonymous. Those who distinguish do so by equating 'identification' with the reduction of the potential donor pool to some number of donors between 2 and n-1 (where n = the potential donor pool before performing this particular forensic analysis).

As several scholars have noted, it is unclear what sort of evidence could ever support a testimonial claim of 'individualisation'.[44] Some evidence scholars, such as Professor Kaye, argue that testimonial claims of 'individualisation' can be supported if the outcome of the analysis renders the probability of an alternate source extremely low.[45] In any case, for latent prints there is no empirical support that would support an expert witness stating the donor pool has been reduced to precisely one source, as opposed to any other small number. Thus, the current state of affairs presents courts, expert witnesses and prosecutors with a conundrum: 'individualisation' testimony is clearly unsupported, and yet professional guidelines mandate it as the only possible testimony. As one American latent print examiner candidly put it in a report on a conference to digest and discuss the NAS report:

> It was clear from numerous sources on both sides of the fence that we should no longer be testifying to zero error rate, to 100% certainty in our results, or to individualization to the exclusion of all others. . . . However, the most disappointing feature of this conference was that with all the brilliant minds heads of organizations with a lot of letters behind their names and learned judges present in the room, no solid recommendations were made on what to do in the interim. . . . For the next months, years or decades, while the necessary research is funded

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43 Keith Inman and Norah Rudin, *Principles and Practice of Criminalistics: The Profession of Forensic Science* (CRC Press, 2001).

44 Quon Yin Kwan, 'Inference of Identity of Source' (PhD Thesis, University of California, Berkeley, 1977); Bernard W N Robertson, 'Fingerprints, Relevance and Admissibility' (1990) 2 *New Zealand Recent Law Review* 252; David A Stoney, 'What Made Us Ever Think We Could Individualize Using Statistics?' (1991) 31 *Journal of the Forensic Science Society* 197; James E Starrs, 'Judicial Control Over Scientific Supermen: Fingerprint Experts and Others Who Exceed the Bounds' (1999) 35 *Criminal Law Bulletin* 234: 'Instead of meaning incapable of error, fingerprint identifications are declared to be infallible on account of the uniqueness of fingerprints to each person, with no possiblity of replication within society at large.'; Christophe Champod and Ian W Evett, 'A Probabilistic Approach to Fingerprint Evidence' (2001) 51 *Journal of Forensic Identification* 101; Inman and Rudin, above n 43; John I Thornton and Joseph L Peterson, 'The General Assumptions and Rationale of Forensic Identification' in D L Faigman et al (eds), *Science in the Law: Forensic Science Issues* (West Group, 2002) 1; Didier Meuwly, 'Forensic Individualisation from Biometric Data' (2006) 46 *Science and Justice* 205; Michael J Saks and David L Faigman, 'Failed Forensics: How Forensic Science Lost Its Way and How It Might Yet Find It' (2008) 4 *Annual Review of Law and Social Science* 149; Michael J Saks and Jonathan J Koehler, 'The Individualization Fallacy in Forensic Science Evidence' (2008) 61 *Vanderbilt Law Review* 199; Simon A Cole, 'Forensics without Uniqueness, Conclusions without Individualization: The New Epistemology of Forensic Identification' (2009) 8 *Law, Probability and Risk* 233. **This last article already cite n. 42.**

45 David H Kaye, 'Probability, Individualization, and Uniqueness in Forensic Science Evidence' (2010) 75 *Brooklyn Law Review* 1163, 1174.

> completed, validated, trained and implemented, we will still be doing casework. We will still be testifying in court. We will still be meeting *Daubert*, *Frye* and *Mack* challenges. We can't say what we used to say and we can't yet say what we will say. What do we say in the meantime? What do we do? How do we achieve consistency when everyone is feeling their way alone in the dark?[46]

VI Post-NAS Split Testimony

Split testimony decisions continued to appear after the release of the NAS report. For example, there have been at least six post-NAS split testimony toolmark decisions and at least one arson evidence decision.[47] Perhaps in anticipation of such decisions, some American latent print examiners, even prior to the release of the NAS report, began offering reformulated testimonial conclusions that avoid the now arguably discredited conclusion of 'individualisation'. For example, in *State v Hull* (2008) the examiners disavowed 'individualisation' testimony.[48] Instead, of individualisation, these examiners proposed to testify to 'identification', defined as follows:

> [The expert witness] has examined a latent print; he has found these features; they're corresponding to another individual; and he's made a decision given the relevant population that he's made a decision that the chance that someone else could have left that is so remotely small, he's willing to dismiss it and say yes, I believe that this latent print in my opinion was produced by that individual. He did not say that he's excluded everyone else on the planet and he left a theoretical possibility that there might be someone else on the planet that could have produced a similar looking latent print. And he has no way of calculating what that probab[i]l[it]y is at this time.[49]

Two things should be noted at the outset about this proffered testimony. First, it constituted 'civil disobedience' by latent print examiners against their own professional regulations, which ban all testimony other than 'individualisation'. This was all the more striking because one of the examiners (Mr Langenburg) was a member of the very regulatory body that promulgated that rule, the Scientific Working Group for Friction Ridge Analysis, Study and Technology (SWGFAST). Second, the testimony posited a clear and comprehensible distinction between 'individualisation' and 'identification', whereas that same regulatory body (SWGFAST) officially defined the two terms as synonymous.[50]

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46 Heidi Eldridge, 'Perspectives from the NAS Report Conference at ASU' (2009) 39 *Identification News* 8.

47 Tierney, above n 111 (referring to *State v Whittingham* and *United States v St Gerard* (Case No APO Ae 09107 (5th Jud Cir, Germany, 2010); *United States v Mouzone*, Case No 2009 WL 3617748 (D Md, 2009); *United States v Willock*, Case No 2010 WL 118371 (D Md, 2010); *United States v Smallwood*, Case No 2010 WL 4168823 (WD Ky, 2010); *United States v Taylor*, 663 F Supp 2d 1170 (D NM, 2009); *Commonwealth v Heang*, 458 Mass 827 (Mass, 2011).

48 *State v Hull*, Case No 48 (Minn D Ct, Cty of Mille Lacs, 2008)**[AQ Can't find this case - any other details?]**.

49 **Ibid**.

50 SWGFAST, Glossary (5/08/09, ver 2.0) <http://www.swgfast.org/OldCurrentDocuments.html>. Unlike some of the other cases discussed in this article, *Hull* did produce a published appellate opinion from the Minnesota Supreme Court. However, the opinion focused solely on the admissibility issue, and the modification of the proffered testimony was not noticed: *State v Hull*, 788 NW 2d 91 (Minn, 2010).

This testimony perhaps laid the foundation for post-NAS testimonial formulations. In *United States v Faison*, the examiner also used the term 'identification' as a concept distinct from individualisation. As Ms Gische testified:

> When I'm effecting an identification decision, I am basically saying that there is sufficient amount of information agreement here that I have never seen, nor have my colleagues, nor have any of the research that I have read, seen, this much information in agreement between two prints that did not come from the same source. But it is not possible to look at every area of friction ridge skin that has ever existed in the universe.[51]

After denying the defendant's motion to blanket exclude latent print evidence under *Frye*, the court accepted the defendant's request that '[c]onclusions drawn from fingerprint examiners should no longer be stated in absolute terms, ie, testimony from an examiner that a print is unique to one person to the exclusion of all others'.[52] The court then gave the parties 'more time to propose language to the Court regarding the parameters of the manner in which latent print identification can be presented at trial'.[53] The government proposed the following language: The two latent lifts in this case were identified as having been produced by the defendant '*to a reasonable degree of scientific certainty*'.[54] This cautious language was purportedly in order to account for:

> 1) The possibility of human error (which is always present in any scientific endeavor); and
>
> 2) The theoretical, infinitesimal possibility that the pattern covered by the latent print could be coincidentally indistinguishable to a latent print of the same area of the finger produced by another person.[55]

The defendant countered with the following proposed language: 'In my subjective opinion, based on my training and experience, I cannot exclude Mr Faison as a possible source of the partial prints lifted from government exhibit [#].'[56] The court generally accepted the government's view and ruled that the expert witness could testify only that 'in her opinion, based on her training and experience, the inked print and the latent match to a reasonable degree of fingerprint certainty'.[57]

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51 *United States v Faison*, Case No 2008-CF2-16636 Tr Trans, 125 (Super Ct DC, 2010).

52 Of course, the court here has misstated the issue, in a manner in which it is very commonly misstated and which the author has elsewhere called 'the fingerprint examiner's fallacy'. Testimony 'that a print is unique to one person' would be valueless in almost any imaginable criminal case. The thrust of latent print expert testimony is typically that an individual is the *source* of a particular latent print. Presumably the court meant to preclude 'testimony from an examiner than one *individual* is the *source* of a latent print to the exclusion of all others'.

53 *United States v Faison*, Case No 2008-CF2-16636, Order, 12, n 14 (Super Ct DC, 2010).

54 *United States v Faison*, Case No 2008-CF2-16636, Government's Proposed Language Regarding a Fingerprint Identification (Super Ct DC, 2010) (emphasis in original).

55 *United States v Faison*, Case No 2008-CF2-16636, Government's Proposed Language Regarding a Fingerprint Identification (Super Ct DC, 2010) (emphasis in original).

56 *United States v Faison*, Case No 2008-CF2-16636, Motion for Generally Accepted Limitations on Fingerprint Examiner's Conclusion and for Jury Instruction (Super Ct DC, 2010).

57 The term 'fingerprint certainty' is reminiscent of the term 'ballistic certainty' that has been proffered by the government in some toolmark cases and permitted by some US courts: see *United States v Monteiro*, 407 F Supp 2d 351 (D Mass, 2006). Courts' permitting of this term has been criticised by evidence scholars who have characterised it as a 'fig leaf' concealing the lack of empirical foundations of toolmark analysis: David H Kaye, 'Probability, Individualization, and Uniqueness in Forensic Science Evidence' (2010) 75 *Brooklyn Law Review* 1163, 1183; see also A

At an admissibility hearing at another state trial, another examiner retreated from the strongest form of individualisation. Interestingly, this was the same examiner quoted above expressing the lack of an acceptable post-NAS formulation for testimonial conclusions.[58] Even in a pre-trial affidavit, the expert witness signalled her intention to retreat from the strongest forms of individualisation testimony:

> The defense objects to me giving testimony that the fingerprint evidence I am offering is a 100% match, that fingerprint analysis has a zero error rate, or that I have identified the fingerprints to the exclusion of all others. I have no intention of testifying to any of these things.[59]

At the hearing, the examiner clarified as follows:

> Q. So to make sure we're clear, you propose to testify that Mr _____ is the source of the fingerprints that you were provided?
>
> A. Yes.
>
> Q. You're willing to concede a theoretical possibility it could be someone else?
>
> A. Yes.
>
> Q. But you don't under — you don't — you are unable to articulate what that theoretical possibility is?
>
> A. Correct.[60]

In other cases, however, the expert witness did *not* voluntarily retreat from strong claims of individualisation, but, as in *Llera Plaza I*, *Pope* and *Johnson*, the court mandated such a retreat. In *United States v Zajac*, the court, in a preliminary order, ruled:

> Nor may [the examiner] Lewis represent or otherwise indicate the degree of probability that the fingerprints match. . . . Neither in general background testimony nor in testimony pertaining to Zajac specifically may Lewis testify about individualization or permanence.[61]

Schwartz, 'Challenging Firearms and Toolmark Identification: Part Two' (2008) 32 *The Champion* 44. The term was not permitted in *United States v Glynn*, 578 F Supp 2d 567 (SDNY, 2008): see D H Kaye, D E Bernstein, J L Mnookin, *The New Wigmore: A Treatise on Evidence. Expert Evidence* (Aspen, 2004) 363; D H Kaye, *The Double Helix and the Law of Evidence* (Harvard University Press, 2010) 82.

58 Above n 46**[AQ Pls clarify what this refers to]**.**Heidi Eldridge article at n. 46.**

59 Heidi Eldridge, Affidavit, *State v Angius*, Case No 200924231, [14] (Cir Ct Ore Lane Cty) (14 May 2010). It should be noted that the expert here combines the three different objectionable overstatements about latent print analysis: see infra note 67**[AQ Pls clarify this reference]I am referring to the text that ends with note 67.** and accompanying text.

60 Testimony of Eldridge, *State v Angius*, Case No 200924231, 135 (Cir Ct Ore Lane Cty) (14 May 2010), on file with the author.

61 *United States v Zajac*, Case No 2:06-cr-00811 CW, 2–3 (US Dist Ct Utah Central Div, 16 September 2010). The court indicated that a formal order would be forthcoming, but this order has not yet been published.**[AQ Does this statement need updating?]No formal order has been published. I must admit it seems unlikely that the court will ever publish the order. We might clarify things by quoting from the informal order as follows: "Due to the need for this ruling before trial begins on September 20, 2010, the court sets forth its ruling without analysis. Subsequent to trial, the court will issue a memorandum decision that more fully explains its ruling in this matter" (p. 1).**

In another federal case, the court found latent print evidence admissible under *Daubert* after incorrectly reporting that the NAS report's concerns about latent print evidence were limited to 'lack of specificity' and bias.[62] The court did, however, split the testimony, limiting the degree of certainty the expert witness would be permitted to express to a 'reasonable degree of certainty in the latent print examination field'[63] and precluding the witness from using the words 'to the exclusion of all other people in the world'.[64]

The following day, the Supreme Judicial Court of Massachusetts came tantalisingly close to a split testimony decision. In that case, the expert witness testified that he had 'individualised' the latent print to the defendant and that by this he meant the defendant was the source 'to the exclusion of all others'.[65] Unlike its federal counterpart, the Massachusetts court recognised that one of the principal concerns of the NAS Committee was 'the need to prevent overstatement of the accuracy of fingerprint comparisons'.[66] It is important to note that 'overstatement' comes in at least three, closely related forms: (1) testimony that the error rate has some extremely low value without reference to any actual data measuring that rate; (2) testimony that the conclusion is 'absolute' or 'absolutely certain'; (3) and testimony that the defendant's friction ridge skin is the only skin the could be found consistent with the latent print ('individualisation'). The court noted that the witness backed off from the former two claims under cross-examination.[67] But the witness clearly made the third claim. The court sidestepped the issue by ruling that, if it were error to permit testimony of 'individualisation', it was harmless in the case at Bar.[68] In a footnote — after stating, risibly, that 'there is tension' between the NAS report's assertion that latent print identification is 'plausible' and its assertion that 'merely following [the method] does not imply that one is . . . producing reliable results'[69] — the court suggested that testimony of 'individualisation' might be permissible if couched 'as an opinion, not a fact' and expressions of absolute certainty are 'avoided'.[70] This raises the curious question of whether there can even be such a thing as an 'opinion' about 'individualisation' — the claim that only one object in the universe could be the source of a trace, especially when such an opinion is not based on data.

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62 *United States v Cerna*, Case No 08-0730; 2010 WL 3448528, *7**[AQ Is this a para or page ref?] Page.**(ND Cal, 2010). In fact, the NAS report expressed far more fundamental concerns about latent print analysis than 'lack of specificity' and bias. The report stated that the method was not validated, that the testimonial conclusion of 'individualisation' was unsupported, and that there was only 'limited' information available about its accuracy: National Research Council, above n 33, 87, 142.

63 On the issues concerning this language, see above n 57**[AQ pls check – shd be n 57?]. Yes, 57.**

64 Ibid.

65 *Commonwealth v Gambora*, 457 Mass 715, 722 (Mass 2010).

66 Ibid 726.

67 Ibid 727.

68 Ibid 728.

69 There is no 'tension'. The NAS Committee's clear conclusion was that the latent print community had not assembled and presented to the Committee any data showing the accuracy ('reliability') of latent print analysis. That conclusion is not incompatible with the statement that the committee found it 'plausible' that latent print analysis might be accurate some of the time. 'Plausibility' has a very low threshold. Such a statement of 'plausibility' does not in any way undermine or contradict the NAS Committee's clear conclusion that they were not presented with any data about the accuracy of the latent print analysis and thus that no fact-finder can draw any but the vaguest conclusions about the accuracy of the technique.

70 *Commonwealth v Gambora*, 457 Mass 715, 729.

VII Some Reservations about Split Testimony

Although we are still in the early stages, the above cases may be taken as indicative of a post-NAS trend toward a change in the way trial courts, at least, tend to deal with admissibility challenges to latent print evidence. In general, this trend, if indeed it is a trend, should be seen as a positive development. It suggests that latent print practitioners are retreating from one of the more egregiously unsupportable of their testimonial claims, which in turn suggests that the profession is beginning to absorb some of the points that various scholars from outside and inside the profession have been making about the claim of 'individualisation'.[71] Likewise, it suggests that courts, which the NAS report concluded had hitherto been 'utterly ineffective' in compelling forensic expert witnesses to support their testimonial claims as a condition of admissibility, understood the fundamental unsupportability of 'individualisation' testimony and were at least willing to restrict forensic expert witnesses from making the most egregiously unsupportable testimonial claims. From the perspective of a 'deference' model of judicial regulation of expert evidence, it suggests that courts are affording the NAS report at least some authority by taking seriously the report's assertion that claims of 'individualisation' cannot be supported for disciplines other than nuclear DNA profiling. Having elsewhere argued that forensic science would be better off if the term and concept of 'individualisation' were eliminated, this author is obviously encouraged by these developments.[72] Finally, the trend suggests a focus on the nuances of testimonial language, rather than binary admissibility decisions that many scholars would find appropriate.[73]

Split testimony opinions thus far have primarily focused on what expert witnesses cannot say, but have had far less to say about what they can say. This is hardly surprising, given that what expert witnesses should be permitted to say about pattern recognition forensic science analyses is a confounding problem.[74] As Ms Eldridge noted above, it is not clear what sort of testimonial claim should replace 'individualisation'.[75] Our enthusiasm for the restriction of 'individualisation' might be tempered by concern about the testimony that replaces it. Given that it is not clear what testimonial claims will develop, it is suggested in this article that the aforementioned cases may offer a sneak preview of what sorts of testimonial formulations expert witnesses may be willing to offer and trial courts may be willing to accept. A closer consideration of these formulations suggests that they may offer little improvement over 'individualisation' testimony in terms of meeting the presumed goals of expert testimony — that is, making statements supported by data or reason and clearly conveying the probative value of evidence to the fact-finder. In the following section, some concerns that evidence scholars might raise about these new testimonial formulations are considered.

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71 However, it should be noted that many practising latent print examiners and courts continue to defend the use of both the term and the concept of 'individualisation'.

72 See above n 44**[AQ Pls check – shd be n 42?].Yes, 42.**

73 Cole, above n 8.

74 Edmond, above n 39.

75 See above n 60.**[AQ Is this what your statement is referring to?]Probably better to refer to Eldridge article n. 46.**

A Ambiguity

If latent print expert witnesses are searching for a new term to replace 'individualisation' that will convey the notion that they have reduced the donor pool to a number of potential donors that is somewhere between 2 and n-1, 'identification' might not be the ideal term. As noted above, 'identification' and 'individualisation' have long been considered synonymous by many within the profession, and official documents are still in print which treat them as synonymous.[76] This suggests that even practitioners themselves are not clear as to whether the terms are synonymous or distinct.

Further, if even practitioners are not clear about whether 'individualisation' and 'identification' are synonymous or distinct, the problem is even greater for laypersons who function as fact-finders in criminal trials. It seems very likely that, when uttered by an expert witness, laypersons may understand the colloquial term 'identification' (or even the term 'match')[77] to mean what is technically meant by 'individualisation', not least because practitioners have been using the terms interchangeably for decades. As Professors McQuiston-Surrett and Saks dryly put it, '[f]orensic expert witnesses cannot simply adopt a term, define for themselves what they wish it to mean, and expect judges and juries to understand what they mean by it.'[78] One wonders whether a neologism — any neologism — might be a better choice.

(a) The Six Little Words

In some of the cases discussed above, much was made of the removal of what will here be called 'the six little words' ('to the exclusion of all others') from the definition of 'individualisation'. SWGFAST removed the six words from the official definition of 'individualisation' in 2009, soon after the release of the NAS report.[79] Ms Eldridge, for example, apparently viewed her refusal to say the six words as highly significant, and several judicial rulings specifically banned the six words.[80]

The significance of the removal of the six words is, however, questionable if the term or concept of 'individualisation' is left intact. Were the six words a further specification of the notion of 'individualisation' — a specification whose removal changes the meaning of 'individualisation' — or merely a gloss on the notion? As someone who writes frequently about the notion of 'individualisation', this author has found the six words useful as a gloss to explain to laypeople a rather unfamiliar concept. The six words seem to me to help clarify what is meant by 'originated from the same source'. Similarly, Ms Gische, in *Faison*, described the six words as 'redundant', suggesting that they convey a meaning that is no different

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76 SWGFAST, Glossary ver 2.0, above n 50.

77 Kaye et al, above n 57, 497.

78 Dawn McQuiston-Surrett and Michael J Saks, 'Communicating Opinion Evidence in the Forensic Identification Sciences: Accuracy and Impact' (2008) 59 *Hastings Law Journal* 1159, 1163.

79 SWGFAST, Glossary ver 2.0, above n 50.

80 See above n 60.**[AQ Ditto previous query re statement by Ms Eldridge] Here I think we should refer to the Eldridge testimony n. 59.**

from 'individualisation' itself.[81] Simply as a matter of logic, there does not seem to be a material difference between 'originated from the same source' and 'originated from the same source to the exclusion of all others'. Thus, removing the six little words would seem to constitute only a cosmetic change.

(b) Relevance

If, indeed, latent print expert witnesses were to switch from claiming to have reduced the donor pool to one source to claiming to have reduced it to an unspecified number of sources between 2 and n-1, they would join a large complement of other expert witnesses who give such testimony. While latent print expert witnesses would be less vulnerable to charges of exaggerating the probative value of the evidence, they would have dispensed with the problem of overclaiming only to adopt the problem of relevance. With regard to many other forms of evidence, scholars have long noted the problem of telling the fact-finder about a finding of consistency without having access to enough data to say anything about the estimated frequency of those markers of consistency.[82]

Truly converting latent print testimony into claims of 'identification' rather than 'individualisation' would generate new problems associated with telling the fact-finder that the donor pool has to be reduced to some number of individuals between 2 and n-1. However, as the above cases indicate, the intent is not really to convey something quite so unspecific to the fact-finder. Instead, it is clear that what these expert witnesses are trying to convey to the fact-finder is that the potential donor pool is very, very small. While they may have retreated from the claim that the potential donor pool *is* one, their words seem to convey that the potential donor probably is 1 and, if not, is still very, very small — not much more than 2. If this is the case, then the 'new' latent print testimony of 'identification' is not 'new' at all — and it is not 'identification' in the classical sense of reducing the donor pool to a class of objects of unspecified size. Rather, it seems more like 'individualisation' through the back door and again risks overstating the probative value of the evidence.

(c) 'Dismissive Qualifiers' and the 'Dead Man in China'

This article has suggested that the purpose of split testimony is to preclude expert witnesses from exaggerating the probative value of the evidence about which they testify, and that some US judges are now convinced that 'individualisation' testimony does so exaggerate. Therefore, judges have required expert witnesses to give testimony that allows for the possibility that someone other than the defendant might also be the source of the trace. If this is, indeed, the purpose of testimonial control, then judges will have to be vigilant about expert witnesses' and prosecutors' inevitable temptation to backslide — not by reasserting

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[81] Testimony of Gische, *United States v Faison*, Case No 2008-CF2-16636 Tr Trans, 186 (Super Ct DC, 2010).

[82] Kaye et al, above n 77,**[AQ pls check]Correct. Citing to The New Wigmore.** 498.

'individualisation', but by dismissing or minimising the probability of an alternate source even as they acknowledge it.

The cases that were reviewed above already provide substantial indications of both the temptation and how it might be indulged. For example, the government's brief in *Faison*, while acknowledging '[t]he possibility that the pattern covered by the latent print could be coincidentally indistinguishable to a latent print of the same area of the finger produced by another person',[83] inserts the adjectives 'theoretical' and 'infinitesimal' into its statement. These adjectives, which will be called 'dismissive qualifiers', backtrack on the concession of ground represented by the ceding of the term 'individualisation'. And yet, the use of these adjectives is problematic. 'Infinitesimal' is a verbal characterisation of a quantity; the government apparently purports to know the probability of error well enough to quantify it, albeit within broad parameters. Nevertheless, the government offered no data that purported to estimate the probability of error and thus yield the quantity that was then verbally characterised as being so very small. The pernicious effects of the word 'theoretical' are more subtle, but they evoke many other controversies over public science — such as the controversy in the US over evolutionary theory — in which the word 'theoretical' is treated as a kind of slur, rather than as a description of a well-grounded and well-reasoned explanation.[84] Here the government appears to be exploiting a colloquial meaning of 'theoretical' to mean 'extraordinarily unlikely' — along the lines of 'there is a "theoretical" possibility that the Earth will blow up tomorrow'. Similarly, Ms Eldridge's testimony implied that the only reason she was retreating from 'individualisation' testimony was because she could not rule out the possibility that 'some guy who lived in China 600 years ago' might also have had friction ridge detail that would appear consistent with the latent print.[85] But, of course, the dead man in China is not within the suspect pool for the crime. The inference a lay fact-finder might make from such testimony is that the expert witness's retreat from individualisation merely constitutes a sort of acknowledgment of radical scepticism but is of no practical importance to the case at hand. Seen another way, dismissive qualifiers imply that the only problem with latent print identification is the problem of induction.

(d) The Problem of Induction

Many of the statements by judges, prosecutors, and expert witnesses cited above imply that 'individualisation' is unsupported only because of the problem of induction. In other words, they imply that the only reason that latent print examiners cannot testify that the defendant is the sole possible source of a trace is because no-one has actually observed all the friction ridge skin in the universe.[86]

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83 *United States v Faison*, Case No 2008-CF2-16636 Tr Trans (Super Ct DC, 2010).

84 David Morrison, 'Only a Theory? Framing the Evolution/Creation Issue' (2005) 29.6 *Skeptical Inquirer* (Nov/Dec) <http://www.csicop.org/si/show/only_a_theory_framing_the_evolution_creation_issue>.

85 *State v Angius*, Case No 200924231, 77 (Cir Ct Ore Lane Cty) (14 May 2010).

86 For example, consider the following exchange from the pre-trial hearing in *Faison:*

> Q. Now what does that mean to you, reasonable degree of scientific certainty?
>
> A. Well, just as I explained it, that I think on its own, it doesn't mean a whole lot. But when you explain it to a reasonable degree of scientific certainty with that little bit of uncertainty,

This is, of course, a common misunderstanding of what the problem is with latent print analysis and other pattern recognition forensic science disciplines. Laypersons often assume that 'the flaw' in latent print identification, if there is one, is merely that we have not been able to test the assumption of the uniqueness of all human friction ridge skin by observing the friction ridge skin of the entire population.[87] In fact, latent print analysis does run into the problem of induction. Not having observed all human friction ridge skin does prevent an expert witness from ruling out the possibility that another area of skin might be identical to the defendant's friction ridge skin, and some commentators have made precisely this point.[88] However, the problem of induction is not the *only* reason that testimony of individualisation in unsupported. The problem is not merely that latent print expert witnesses have not collectively observed all the friction ridge skin in the universe on the chance that two people have identical friction ridge skin. Few commentators, if any, are concerned about there being two individuals with exactly identical friction ridge skin. But exactly identical friction ridge skin is not necessary to falsify claims of individualisation. Individualisation is a claim that no two areas of skin — even different and unique areas of skin — could be found 'consistent' with a latent print *under whatever rules governing findings of 'consistency' are in operation.* Therefore, far more important than the problem of induction is the problem that, even with respect to the population of friction ridge skin that latent print expert witnesses *have* collectively observed, they have not endeavoured to systematically measure the number of areas of friction ridge skin with which a given configuration of friction ridge detail might be found consistent, under whatever rules governing findings of consistency are in operation.[89]

Why does this matter in terms of the testimony that is given at trial? Emphasising the problem of induction as the reason the expert witness cannot testify to individualisation implies to the fact-finder that the profession has already addressed the scientific issues other than the problem of induction. Emphasising 'the dead man in China' implies that the expert witness has already addressed the question of whether someone alive might also be found consistent with the trace, or whether someone in the city in which the crime occurred might also be found consistent with the trace. But the expert witness has done no such thing. This is *not* merely because every individual in a particular place or every living individual is not in the relevant fingerprint database. Latent print expert witnesses have typically not even addressed the issue of whether other areas of friction ridge skin *in the database* might also be found consistent with the trace, under whatever rules governing findings of consistency are in operation.

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meaning, the risk of human error, and the fact that you haven't printed everybody in the world, that's how I would interpret that language.

(Testimony of Gische, *United States v Faison*, Case No 2008-CF2-16636 Tr Trans, 199 (Super Ct DC, 2010)).

87 The character Christopher Moltisanti from the popular television mafia drama, 'The Sopranos', made this point in one episode: see Simon A Cole, 'The Myth of Fingerprints', *New York Times Magazine* (New York), 13 May 2001.

88 Hugh McLachlan, 'No Two Sets the Same? Applying Philosophy to the Theory of Fingerprints' (1995) 83 *The Philosopher* 12.

89 Simon A Cole, 'Forensics without Uniqueness, Conclusions without Individualization: The New Epistemology of Forensic Identification' (2009) 8 *Law, Probability and Risk* 233. **This article already cite n. 42.**

Epistemologically speaking, the 'dead man in China' argument rhetorically suggests to the fact-finder that latent print expert witnesses are analogous to the proverbial biologist who had observed countless zebras[90] in different years, different seasons and geographical locations, and concluded that no two have exactly identical patterns of stripes. No matter how many zebras a biologist observes, they must acknowledge the small probability that the next one observed will be an exact duplicate of one observed earlier. Though this probability can never be eliminated, at some point a belief in it becomes little more than an expression of radical scepticism.[91] But this analogy is fundamentally misleading. The testimonial claim that latent print expert witnesses are making is *not* equivalent to a claim that there are no exact duplicate zebras. The claim they are making is equivalent to a claim that they have developed methods for determining the consistency of zebra stripe patterns that are so discriminating that any given image of a portion of zebra hide can be found consistent only with one zebra. Such claims rest not upon the thoroughness of one's search for exact duplicate zebras but, rather, demand answers to more complex questions about the quality of the images being relied upon and the rules for determining the consistency of stripe patterns.[92] It is the absence of data relevant to these questions — not the failure to observe all possible objects in the universe — that constitutes the reason why claims of 'individualisation' cannot be supported.[93]

For latent print expert witnesses to imply that they are in the empirical position of the proverbial zebra biologist, rather than in the empirical position in which they truly find themselves, is to seriously mislead the fact-finder. The fact-finder might conclude that the expert witness's refusal to individualise — or the judge's preclusion of the word 'individualise' — merely reflects a token nod to radical scepticism, whereas in fact it reflects a failure to deploy knowledge about the rarity of configurations of friction ridge details.

(e) Bad Faith

As we have seen, the early cases of testimonial control indicate that, although latent print expert witnesses are prepared to concede that the potential donor pool of a particular trace is not 1 and that they cannot actually calculate the size of the donor pool, they still intend to convey to fact-finders that the potential donor pool is very, very small. In other words, they intend to suggest to the fact-finder that the potential donor pool is closer to 2 than to n-1.

Should a judge permit this? It seems as though this particular profession's history of testimony is something a judge could appropriately take into account in deciding how much probative value practitioners of this discipline should be permitted to attach to their conclusions in a situation in which the true probative value cannot be responsibly estimated. In sum, the situation is this: the latent print profession now concedes — and the NAS report confirms — that for nearly a

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90 Traditionally, the illustration uses swans, but the reason for zebras will soon become apparent.

91 David H Kaye, 'Probability, Individualization, and Uniqueness in Forensic Science Evidence' (2010) 75 *Brooklyn Law Review* 1163, 1166.

92 Cole, above n 34**[AQ pls check]**. **Should be article Forensic without Uniqueness at note 42.**

93 National Research Council, above n 33, 144.

century the discipline systematically, deliberately and, as a matter of policy, misled fact-finders by overstating the probative value of evidence about which they testified. Now that that fact has come to light — not through any action taken by the latent print profession itself, but through the intervention of an external body — and the profession has been forced to attach less probative value to latent print evidence, the profession proposes, once again, to set the probative value as high as it can get away with. One wonders why a discipline that purports to be scientific would do this, and why it would not be sufficiently chastened to choose now to err on the side of caution. One also wonders why a court would allow such testimony. Why would courts not at least impose some limits on the probative value of latent print evidence as at least a token sanction for a century of overstated testimony?

(f) Alternatives

If we agree that the 'new' testimony to 'identification' is less than satisfactory, then why has it received such a welcome reception in the courts? One reason, undoubtedly, is a widespread sense that, with 'individualisation' testimony largely discredited, the formulations being offered are the only possible alternatives. Indeed, latent print expert witnesses have themselves promulgated this view that testimony to 'identification' is the only viable alternative. Consider the testimony of Ms Eldridge, who, recall, was the examiner who eloquently described the post-NAS lack of guidance toward scientifically appropriate testimony:

> Q. Is there more — a more conservative way that you could express your opinion in a way that is — that more accurately reflects the state of the scientific validation, and where we are in terms of the lack of scientific direction about what you may testify to?
>
> A. I don't know of one. And that's not to say that there isn't one. But I have not heard a viable statement like you're suggesting made. Um, I mean, this is something, quite honestly, that we've all been trying to puzzle out together.[94]

Is it true that there are no alternatives to testifying that the expert witness has determined that the probability of the evidence, given a source other than the defendant, is so small she or he is willing to dismiss it, that there is only a 'theoretical, infinitesimal' probability of error, that the only possible alternative source of a trace is a 'dead man in China'? One alternative that has received a great deal of attention is to present the probative value of latent print evidence to the fact-finder in the form of a likelihood ratio, as can be — and sometimes is — done for other forms of evidence, ranging from DNA typing to glass.[95] However, while researchers are developing tools for calculating likelihood ratios for latent prints,

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[94] Testimony of Eldridge, *State v Angius*, Case No 200924231, 148 (Cir Ct Ore Lane Cty) (14 May 2010).

[95] See, eg, Aitken, above n 18; B Robertson and G A Vignaux, *Interpreting Evidence: Evaluating Forensic Science in the Courtroom* (Wiley, 1995); Geoffrey Stewart Morrison, 'Forensic Voice Comparison and the Paradigm Shift' (2009) 49 *Science & Justice* 298; C Aitken, P Roberts, G Jackson, *Fundamentals of Probability and Statistical Evidence in Criminal Proceedings: Guidance for Judges, Lawyers, Forensic Scientists and Expert Witnesses* (Royal Statistical Society, 2010).

these models are not yet complete.[96] There is considerable debate over whether likelihood ratios are appropriate in the absence of objective data, a situation which applies to many forensic disciplines and problems.[97]

Another alternative is split testimony, in which the examiner is only permitted to describe similarities and differences between two images. The approach prevents expert witnesses from making inferences unsupported by evidence, but is ultimately unsatisfying because the fact-finder is left with no guidance as to what sort of inference to make from those findings of similarity.[98] Scepticism about this approach is also supported by psychological experiments performed by Professors McQuiston-Surrett and Saks, which found little difference between telling jurors the defendant was the source of a trace and telling them that the trace and the reference sample from the defendant were similar in all characteristics. They suggest that both forms of testimony set the probative value of the evidence so high 'as to create something of a ceiling effect which renders other testimonial elements, such as an explicit ultimate opinion largely superfluous'.[99]

The defendant in *Faison* went even further and asked the court to limit the expert witness to testifying that they 'could not exclude' the defendant as the source of the print. While such testimony suffers from the same vice of failing to assist the fact-finder in determining what sort of inference to make from such a finding, it possesses the virtue of being so conservative that it would seem to be relatively immune to the accusation of overstating the probative value of the evidence. If such overstatement is considered the cardinal sin of expert testimony, then 'cannot exclude' at least avoids that sin. While restricting latent print expert witnesses to this conclusion might sound radical, it was advocated in 2009 by no less an authority than the FBI laboratory.[100]

Even testimony of 'consistent with' or 'cannot exclude', however, is far less than ideal. Such testimony runs into the vagueness problem, discussed above: the fact-finder still does not know the significance of the consistency or the failure to exclude and such testimony is thus of limited help to the fact-finder.[101] Therefore, more thinking about how to report conclusions from forensic pattern recognition analyses is still needed.[102]

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96 C Neumann et al, 'Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Any Number of Minutiae' (2007) 52 *Journal of Forensic Sciences* 54; C Neumann et al, 'Computation of Likelihood Ratios in Fingerprint Identification for Configurations of Three Minutiae' (2006) 51 *Journal of Forensic Sciences* 1.

97 See, eg, C Berger et al, 'Evidence Evaluation: A Response to the Court of Appeal Judgment in *R v T*' (2011) 51 *Science & Justice* 43; Morrison, above n 95, 306.

98 Edmond, above n 39.

99 McQuiston-Surrett and Saks, above n 78, 1170; D McQuiston-Surrett and M J Saks, 'The Testimony of Forensic Identification Science: What Expert Witnesses Say and What Factfinders Hear' (2009) *Law and Human Behavior* 436.

100 Bruce Budowle et al, 'A Perspective on Errors, Bias, and Interpretation in the Forensic Sciences and Direction for Continuing Advancement' (2009) 54 *Journal of Forensic Sciences* 798, 804: 'An alternate approach is to use instead the term "failure to exclude," which may seem to some more acceptable.' What is remarkable about this statement is that at least two of the authors (Budowle and Meagher) had previously testified in an admissibility hearing that testimony as to the defendant being the source — and even testimony that the error rate of latent print identification was 'zero' — was perfectly acceptable: *United States v Mitchell*, 365 F 3d 215 (3d Cir, 2004).

101 Kaye et al, above n 777**[AQ Pls check]** **Correct, The New Wigmore**, 498.

102 Edmond, above n 39.

VIII Conclusion

While the US is often associated with its gatekeeping approach to expert evidence, in the realm of forensic evidence it seems likely that it may soon be associated more with split testimony than with using admissibility to regulate expert evidence. Especially considered in light of what the NAS report called the 'utter ineffective[ness]' of admissibility regulation, there is a great deal of appeal to the idea of split testimony as an approach to regulating expert evidence, principally its recognition of the 'reliability' of expert evidence as a continuous, rather than discrete, variable.[103] However, this examination of early indications of the use of split testimony to regulate latent print evidence in the post-NAS environment suggests that it is no panacea to the problem of regulating expert evidence. The new testimonial formulations that have been permitted, or imposed, by courts raise as many questions as they answer: Some evidence scholars will find even the most conservative solutions unsatisfying because of the relevance problem. Arguably, they continue to allow expert witnesses to overstate the probative value of the evidence. The fine distinctions that expert witnesses draw in discussions with attorneys in pre-trial admissibility hearings are probably lost on fact-finders in trials. Different testimonial formulations are used by different experts, in different cases, in different jurisdictions. While the notion of judicial control seems heavy-handed in the abstract, when actual trials are examined, courts seem to allow expert witnesses to dictate the testimony that they will give. It seems international scholars interested in regulating expert testimony must continue working on the problem.

[103] Cole, above n 8.