LEGAL PATHOLOGY: EVALUATING THE HIGH COURT ON EXPERT EVIDENCE

GARY EDMOND*

This article explains why the application of admissibility rules to the opinion of a forensic pathologist in Lang v The Queen *('Lang') (and forensic pathologists in* Velevski v The Queen*, and indirectly an anatomist in* Honeysett v The Queen*) seems insufficiently attentive to the expressed need for specialised knowledge and, inextricably, the actual abilities of those recognised as expert witnesses. The article explains why legal practitioners and judges should carefully attend to 'specialised knowledge', and treat independent evidence supporting specific abilities (in* Lang*, being able to discriminate between self-inflicted stab wounds and stab wounds inflicted by others) as a form of 'specialised knowledge'. Notwithstanding obiter in* Dasreef Pty Ltd v Hawchar*, it cautions against placing too much reliance on training, formal qualifications, general experience, and past legal practice. Courts, in particular, should be more sceptical about opinion evidence adduced by parties (especially prosecutors in criminal proceedings), the abilities of trial lawyers, judges and other fact-finders, as well as the effectiveness of trial safeguards and appeals.*

I INTRODUCTION

In *Lang v The Queen* ('*Lang*')[1] the High Court appears to have unified the law of expert opinion evidence across Australia. With respect to admissibility there now appear to be few differences between common law and uniform evidence law ('UEL') jurisdictions.[2] This article aims to briefly set out the main rules regulating admissibility in the aftermath of *Lang*. Then, it re-considers the application of these rules to the opinion in *Lang*; most prominently the requirements that expert opinion be substantially based on specialised knowledge and presented in a manner enabling rational evaluation. In so doing, it identifies potentially serious limitations with prevailing interpretations and applications of our admissibility rules and jurisprudence, particularly the heavy reliance on the expert's formal qualifications and general experience. Close examination of the opinion evidence adduced and deemed admissible in *Lang* provides a way of explaining why

* Professor, School of Law, Society and Criminology, UNSW Law and Justice; Research Professor (fractional), School of Law, Northumbria University; Chair, Evidence-Based Forensics Initiative.

1 (2023) 278 CLR 323 ('*Lang*').

2 The uniform evidence law ('UEL') refers collectively to *Evidence Act 1995* (Cth); *Evidence Act 2011* (ACT); *Evidence Act 1995* (NSW); *Evidence (National Uniform Legislation) Act 2011* (NT); *Evidence Act 2001* (Tas); *Evidence Act 2008* (Vic).

DOI:

admissibility practices in our evolving adversarial systems require further refinement.

The appeal in *Lang* raised two grounds. First, the verdict was said to be 'unreasonable, or can not be supported having regard to the evidence'.[3] Thomas Lang was convicted by a jury in the Supreme Court of Queensland of the murder of Maureen Boyce (also 'the deceased') in her Kangaroo Point sub-penthouse in the early hours of 22 October 2015. The deceased was recovered from her bed with a large kitchen knife protruding from her abdomen. It was not in dispute that Mr Lang and the deceased were the only persons in the well-secured apartment at the time of her death. The issue at trial was whether the deceased was killed by Mr Lang or had killed herself.[4] There was circumstantial evidence which might have enabled a jury to convict Mr Lang, although reasonable minds might differ as to whether the prosecution case was capable of proving guilt beyond reasonable doubt.[5] This article is primarily concerned with a second related ground — the admissibility of *an* expert opinion adduced by the prosecutor.

The appellant asserted that a miscarriage of justice was caused by the wrongful admission of an opinion from a forensic pathologist, Dr Beng Beng Ong, working for Queensland Health Forensic and Scientific Services.[6] As part of his regular employment, Dr Ong attended the scene and subsequently performed an autopsy. At trial Dr Ong described the stab wound and explained how it might have been caused. He also offered an opinion on the central question of whether the wound was self-inflicted or inflicted by another person. To be clear, Dr Ong's suggestion that it was 'more likely' that the deceased's stab wound(s) was inflicted by another person was expressed quite modestly. Nevertheless, because of the way the case was prosecuted, the opinion directly addressed the ultimate issue in this criminal prosecution.

---

3 *Lang* (n 1) 394 [245], 395 [249] (Jagot J); *Criminal Code Act 1899* (Qld) s 668E(1) ('*Criminal Code*').

4 Expressed in this way it was murder or acquittal. However, it was not for the jurors to prefer one version of events, but for the prosecutor to satisfy them that it was beyond reasonable doubt that Mr Lang killed Mrs Boyce: see Transcript of Proceedings, *R v Lang* (Supreme Court of Queensland, 273/2017, A Lyons SJA, 25 November 2020, 3:31pm) 4 (A Lyons SJA) ('Transcript Summing-Up'). In *Lang*, among other things, the jury were told their task was like 'putting together all the pieces of this puzzle': at 16. That characterisation unhelpfully implies a correct solution available *on the evidence*, as opposed to the real possibility of uncertainty or doubt.

5 The High Court of Australia and the Queensland Court of Appeal were satisfied that the verdict was safe (or available on the evidence) without the contested opinion. This includes the *Lang* dissentients: (n 1) 376 [186] (Gordon and Edelman JJ). Interestingly, I have not met anyone who agrees with this perspective.

6 While this article focuses on the opinion evidence of Dr Ong in *Lang*, other pathologists might have ventured similar opinions. In consequence, it is concerned with the legal recognition and regulation of opinion evidence, using the contested opinion in *Lang* as an example. On forensic pathology, see the sociological account by Stephan Timmermans, *Postmortem: How Medical Examiners Explain Suspicious Deaths* (University of Chicago Press, 2006).

This article considers how the High Court approached the admissibility of the contested opinion and, indirectly, the operation of adversarial trial procedures and safeguards. For, there is something artificial about focusing on admissibility without considering how evidence deemed admissible was (and is) presented, contested and understood at trial and on appeal. In considering the expert opinion in *Lang*, it is useful to recognise that this was a murder case where the trial actors, specifically prosecutor, defence counsel, solicitors and judge, were unusually well-positioned and prepared. It was the fourth time the forensic pathologist was publicly questioned about his opinion.[7]

This article is not intended as criticism of the performance of the expert witness.[8] The evidence — his testimony (and demeanour) — was largely dependent on questions posed by the lawyers. Admissibility was a legal question, for the lawyers and judges. It is easy to understand that when a highly trained and experienced forensic pathologist, such as Dr Ong, is asked to provide answers he or she endeavours to assist the court.[9] That such assistance might be conceived as appropriate is supported by the provision of similar opinions — about cause and manner of death, for example — in other settings, such as through written reports or testimony in coronial proceedings.[10] The focus of this article is on the *legal* reception and treatment of opinion evidence in criminal proceedings. It explains why the legal approach to admissibility in *Lang* does not enable us to determine whether Dr Ong or other forensic pathologists can reliably distinguish between stab wounds that were self-inflicted from those inflicted by another (or others). Rather than recriminate, the following sections aim to explain this lacuna, some of its implications for trials, along with the need for greater rigour in the application of admissibility rules, particularly around the need for opinions to be conspicuously based on specialised knowledge such that they will be presented (and challenged) in ways that enables them to be understood and rationally evaluated.

II Unifying the Common Law and the UEL

In *Lang* the High Court provided its clearest indication that the rules regulating the admission of opinion evidence at common law are substantially similar, and perhaps the same, as those operating in UEL jurisdictions.[11] Considering the admissibility of Dr Ong's contested opinion in the common law jurisdiction of

---

7 Dr Ong was questioned at committal proceedings, the first trial, a pre-trial admissibility hearing, and the second trial.

8 I endorse the description of Dr Ong in *Lang* (n 1) 335 [20] (Kiefel CJ and Gageler J).

9 Expert witnesses do not necessarily know or understand the complex rules around admissibility.

10 It may be that (some) experts require more training about the scope of their expertise and legal responsibilities, but that is a separate matter.

11 See especially *Lang* (n 1) 332 [11] (Kiefel CJ and Gageler J).

Queensland, the High Court repeatedly referred to the statutory language of UEL s 79(1) and drew directly upon jurisprudence from leading UEL decisions.[12] While the text of s 79(1) of the UEL drew, to some degree, upon the pre-existing common law,[13] in *Lang* the High Court expressly relied on common law as well as UEL jurisprudence in a manner that appears to unify laws regulating the admission of expert opinion evidence throughout Australia.

Grounded in High Court authority — especially *Lang*, but also *HG v The Queen* ('*HG*'),[14] *Velevski v The Queen* ('*Velevski*'),[15] *Dasreef Pty Ltd v Hawchar* ('*Dasreef*'),[16] *Aytugrul v The Queen* ('*Aytugrul*')[17] and *Honeysett v The Queen* ('*Honeysett*')[18] — this section provides a very succinct overview of what now appear to be the main admissibility requirements for expert opinion. In addition to the evidence having the capacity to rationally affect assessment of a fact in issue (ie, being logically relevant), the basic requirements seem to be, *first* and foremost, the opinion must be substantially based on 'specialised knowledge' (or specialist knowledge).[19] The High Court offered the following elaboration in *Honeysett*:

> The Macquarie Dictionary defines 'knowledge' as 'acquaintance with facts, truths, or principles, as from study or investigation' and it is in this sense that it is used in s 79(1). The concept is captured in Blackmun J's formulation in *Daubert v Merrell Dow Pharmaceuticals Inc*: 'the word "knowledge" connotes more than subjective belief or unsupported speculation. ... [It] applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds.'[20]

---

12 See, eg, ibid 330 [6], 330–1 [7], 333 [13], 333–4 [15], 334 [16], 334–5 [17] (Kiefel CJ and Gageler J), 378–9 [193], 387–8 [221], 388 [222], 389 [223], 389 [224], 389 [225], 390 [228], 391 [230], 393–4 [242] (Gordon and Edelman JJ), 444 [422], 446 [430], 447 [431], 447 [433], 448 [434], 448 [435], 449 [438], 449 [439], 459 [470] (Jagot J).

13 See generally Australian Law Reform Commission, *Evidence* (Report No 38, June 1987).

14 (1999) 197 CLR 414 ('*HG*').

15 (2002) 76 ALJR 402 ('*Velevski*').

16 (2011) 243 CLR 588 ('*Dasreef*').

17 (2012) 247 CLR 170 ('*Aytugrul*').

18 (2014) 253 CLR 122 ('*Honeysett*').

19 With respect to relevance, the inclusion of 'if accepted' in the definition in UEL (n 2) s 55 cannot overcome the more fundamental (and prior) requirement of an ability to 'rationally affect'. When it comes to opinions admitted via the exception provided by UEL s 79(1) and its common law equivalent — especially scientific, technical and biomedical opinions — the rational capacity of the evidence is dependent on the existence of 'specialised knowledge' for admission and not on what a jury might — in ignorance or error — accept about the capacity of the evidence.

20 *Honeysett* (n 18) 131 [23] (The Court) (emphasis added) (citations omitted) quoting *Daubert v Merrell Dow Pharmaceuticals Inc* 509 US 579, 590 (1993). See also *Lang* (n 1) 331 [9]–[10] (Kiefel CJ and Gageler J). The United States Supreme Court jurisprudence is discussed in Gary Edmond, 'Supersizing *Daubert*: *Science for Litigation* and its Implications for Legal Practice and Scientific Research' (2007) 52(4) *Villanova Law Review* 857, and relevant Canadian jurisprudence is discussed in Gary Edmond and Kent Roach, 'A Contextual Approach to the Admissibility of the State's Forensic Science and Medical Evidence' (2011) 61(3) *University of Toronto Law Journal* 343.

Where the evidence is scientific, technical, or biomedical, 'known facts' or bases 'accepted as truths on good grounds' should be clearly linked to 'study or investigation'.[21]

Secondly, there is an expectation that the expert will possess 'training, study or experience' clearly related to the 'specialised knowledge'.[22] According to *Honeysett*, the witness's 'training, study or experience *must result in the acquisition of knowledge*'.[23] *Thirdly*, there must be reasoning capable of supporting each opinion.[24] It is the responsibility of the expert witness (and trial counsel) 'to furnish the Judge or jury with the necessary scientific criteria for testing the accuracy of their conclusions so as to enable the Judge or jury to form their own independent judgment by the application of these criteria to the facts proved in evidence'.[25] *Fourthly*, the strict form of the common law basis rule no longer applies. The question of whether the fact (or facts) underpinning an opinion is

---

21 *Honeysett* (n 18) 131 [23]. For an introduction to what is required to evaluate and understand forensic science and medicine evidence, see President's Council of Advisors on Science and Technology, Executive Office of the President, *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods* (Report, September 2016) ('*PCAST Report*'); Committee on Identifying the Needs of the Forensic Science Community, National Research Council, *Strengthening Forensic Science in the United States: A Path Forward* (National Academies Press, 2009) ('*NRC Report*').

22 *Lang* (n 1) 446 [429], 448 [436] (Jagot J), 330 [6], 332 [10]–[11], 334 [16], 336[24] (Gordon and Edelman JJ); *R v Bonython* (1984) 38 SASR 45, 46-7 (King CJ) ('*Bonython*'); *HG* (n 14) 432 [58] (Gaudron J); *Velevski* (n 15) 416 [82] (Gaudron J), 426–7 [154] (Gummow and Callinan JJ). It might be that common law jurisdictions remain slightly more favourably disposed to opinions based on experience, because of references to 'knowledge or experience' from *Bonython* (and the relative ease of decision-making): *Bonython* (n 22) 46-7. See Gary Edmond and Kristy Martire, 'Knowing Experts? Section 79, Forensic Science Evidence and the Limits of "Training, Study or Experience"' in Andrew Roberts and Jeremy Gans (eds), *Critical Perspectives on the Uniform Evidence Law* (Federation Press, 2017) 80.

23 *Honeysett* (n 18) 131 [23] (The Court) (emphasis added). There is a tendency, exemplified in *Lang*, to supplement, or replace, 'knowledge' with 'experience': see, eg, *Lang* (n 1) 330 [6] (Kiefel CJ and Gageler JJ) ('based on that person's specialised knowledge or experience'), 389 [224] (Gordon and Edelman JJ) ('knowledge which is not possessed by ordinary people, and which is "sufficiently organised or recognised to be accepted as a reliable body of knowledge or experience"'), 448 [436] (Jagot J) ('whether the subject matter of the opinion forms part of a body of knowledge or experience which is sufficiently organized or recognized to be accepted as a reliable body of knowledge or experience').

24 *Lang* (n 1) 330 [7] (Kiefel CJ and Gageler J), 388[223], 392 [234] (Gordon and Edelman JJ). Particularly contested opinions. And, the reasons must be capable of supporting the opinion.

25 *Davie v City of Edinburgh* 1953 SC 34, 40 (Lord Cooper) ('*Davie*'), quoted in *Makita (Australia) Pty Ltd v Sprowles* (2001) 52 NSWLR 705, 729 [59] (Heydon JA), in turn quoted in *Dasreef* (n 16) 624 [93] (Heydon J) and engaged in *Lang* (n 1) 388 [222] (Gordon and Edelman JJ). More generally, see *Hillstead v The Queen* [2005] WASCA 116, [48]–[49] (Wheeler JA); *Hevi Lift (PNG) Ltd v Etherington* [2005] NSWCA 42; *Bropho v Western Australia [No 2]* [2009] WASCA 94; *Stapleton & Hayes* [2011] FamCAFC 70; *MA v The Queen* [2013] VSCA 20; *R v Mahony* [2019] QCA 131 ('*Mahony*'); *Sidaros v The Queen [No 3]* [2021] ACTCA 31. This basic requirement should be explicitly addressed in expert reports.

proved is for the tribunal of fact.[26] *Fifthly*, prohibitions on opinions on the ultimate issue and common knowledge have been abolished, though where an expert opinion bears directly on the ultimate issue in proceedings, courts should 'exercise particular scrutiny'.[27] Expert opinions bearing on common knowledge will generally need to qualify or correct popular misapprehensions and (mis-)beliefs, otherwise they may not be relevant.[28] *Sixthly*, the probative value of opinion evidence must outweigh the danger of unfair prejudice to the defendant.[29] That is, the opinion 'taken at its highest' — which means its maximum *capacity* — must outweigh risks to the defendant from unfairness, misunderstanding or misuse, and procedural disadvantage.[30]

There are several additional considerations, not strictly admissibility rules, also worthy of attention in this context. In *Dasreef*, six members of the High Court suggested that with some types of opinion evidence, implicitly those from well-established domains, the need to closely scrutinise the opinion to determine whether formal admissibility requirements (the *first* to *fifth* requirements, above) have been satisfied might be expedited. The diagnostic opinions of medical practitioners, for example, were said to 'require *little explicit articulation or amplification* once the witness has described *his or her qualifications and experience*, and has identified the subject matter about which the opinion is proffered'.[31] This

---

[26] *Dasreef* (n 16) 605 [41] (French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ). See also Australian Law Reform Commission, *Evidence (Interim)* (Report No 26, 1985) vol 1, 78–9 [161]; *Sydneywide Distributors Pty Ltd v Red Bull Australia Pty Ltd* [2002] FCAFC 157.

[27] *R v GK* (2001) 53 NSWLR 317, 326 [40] (Mason P). See also *Murphy v The Queen* (1989) 167 CLR 94, 110 (Mason CJ and Toohey J); *Aytugrul* (n 17); David Hamer, 'Expected Frequencies, Exclusion Percentages and "Mathematical Equivalence": The Probative Value of DNA Evidence in *Aytugrul v The Queen*' (2013) 45(3) *Australian Journal of Forensic Sciences* 271.

[28] See *Smith v The Queen* (2001) 206 CLR 650; *Cadbury Schweppes Pty Ltd v Darrell Lea Chocolate Shops Pty Ltd* (2007) 159 FCR 397. Though, see also UEL (n 2) ss 79(2), 108C.

[29] *R v Christie* [1914] AC 545 ('*Christie*'); UEL (n 2) s 137. Section 137 only applies following an objection, notwithstanding the statutory language. Section 135, which applies to all parties, as well as in civil proceedings, strikes a different balance (favouring even more liberal admission) and incorporates concerns beyond fairness, such as efficiency.

[30] *TKWJ v The Queen* (2002) 212 CLR 124, 154 [90] (McHugh J): 'In this context, prejudice means diverting the jury's attention from the issues to be determined in the case to the detriment of the accused.' Though, see Andrew Roberts, 'Probative Value, Reliability, and Rationality' in Andrew Roberts and Jeremy Gans (eds), *Critical Perspectives on the Uniform Evidence Law* (Federation Press, 2017) 63; David Hamer, 'The Unstable Province of Jury Fact-Finding: Evidence Exclusion, Probative Value and Judicial Restraint after *IMM v The Queen*' (2017) 41(2) *Melbourne University Law Review* 689; Gary Edmond, 'Icarus and the Evidence Act: Section 137, Probative Value and Taking Forensic Science Evidence "at Its Highest"' (2017) 41(1) *Melbourne University Law Review* 106.

[31] *Dasreef* (n 16) 604 [37] (French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ) (emphasis added). Cf Paul Meehl, *Clinical vs Statistical Predictions* (University of Minnesota Press, 1954). See also William Grove et al, 'Clinical versus Mechanical Prediction: A Meta-Analysis' (2000) 12(1) *Psychological Assessment* 19. The shortcut should not be used to facilitate the admission of controversial opinions, such as some opinions suggesting that babies were shaken or abused. See Keith Findley et al (eds), *Shaken Baby Syndrome: Investigating the Abusive Head Trauma Controversy* (Cambridge University Press, 2023).

admissibility 'shortcut' was used in *Lang* in a manner that, as we shall see, enabled the majority to limit their interest in 'specialised knowledge'.[32]

Another consideration follows the design of our adversarial system. For, the tribunal of fact (often a jury) is responsible for evaluating admissible expert opinions and 'resolving' expert disagreement. Where there is only one expert witness, when experts disagree, or there is controversy around the boundaries of expert knowledge, it is jurors who are expected to evaluate the expert testimony in the context of all the evidence presented, any judicial directions and warnings, and the burden and standard of proof.[33] Liberal admissibility practice, prosecutorial over-stepping, limited funding for defence work, weak performances by defence lawyers, and even gambles around strategy (eg, whether to call a rebuttal expert), place much of the responsibility for understanding, evaluating and integrating expert opinion on the tribunal of fact.

Finally, in most jurisdictions expert witnesses are formally required to acknowledge and adhere to practice directions.[34] Though not admissibility rules *per se*, compliance with codes of conduct and practice notes should be closely related to admissibility. In most cases, the expert report (or certificate) provides the primary means of determining whether admissibility requirements are satisfied; particularly, whether the opinion is based on specialised knowledge (and what that knowledge is and whether it is capable of supporting the opinion).[35]

III The Forensic Pathology Evidence in *Lang*

Now, in the shadow of this admissibility jurisprudence, we turn to take a closer look at the opinion evidence and its treatment in *Lang*. Before proceeding to consider how the High Court majority applied the admissibility standards, it seems appropriate to consider the contested opinion and the associated reasons. In this

---

32 It may be that 'fast-tracked' would be a more precise metaphor, but little appears to hinge on this distinction.

33 *Velevski* (n 15) 432 [180] (Gummow and Callinan JJ). In *Velevski*, Gleeson CJ and Hayne J did not decide the issue. For Gaudron J the judge must be satisfied that the 'jury could reach its own conclusions': at 417 [84]. Cf Scott Brewer, 'Scientific Expert Testimony and Intellectual Due Process' (1998) 107(6) *Yale Law Journal* 1535; Kristy Martire and Gary Edmond, 'How Well Do Lay People Comprehend Statistical Statements from Forensic Scientists?' in David Banks et al (eds), *Handbook of Forensic Statistics* (Chapman and Hall/CRC, 2020) 201.

34 See, eg, Supreme Court of Queensland, *Practice Direction No 124 of 2024: Evidence in Criminal Proceedings (Other than Sentences)*, 15 April 2024. This practice direction, modelled on Supreme Court of Victoria, *Practice Note SC CR 3: Expert Evidence in Criminal Trials*, 30 January 2017, was introduced after the trial and appeal in *Lang*. On practice directions more generally, see Jason Chin, Mehera San Roque and Rory McFadden, 'The New Psychology of Expert Witness Procedure' (2020) 42(1) *Sydney Law Review* 69; Gary Edmond, Kristy Martire and Mehera San Roque, 'Expert Reports and the Forensic Sciences' (2017) 40(2) *University of New South Wales Law Journal* 590.

35 *HG* (n 14) 427 [39] (Gleeson CJ).

Part, and for the purposes of the ensuing analysis, Dr Ong's testimony is divided into two main sections. The first includes his description of the stab wound, explanation of how the injury occurred, the effects of the injuries on the deceased, along with the attribution of a cause (or mechanism) of death. This section also includes Dr Ong's responses to a series of related or incidental issues about whether the deceased was conscious, her mobility, how long she might have retained consciousness and lived, and so forth. There was no objection, at trial or on appeal, to the admissibility of this evidence — descriptive, explanatory, interpretive, even speculative.[36] The sections thereafter focus on the contested opinion.

A *Uncontested Testimony*

Dr Ong was the state-employed forensic pathologist responsible for reviewing Mrs Boyce's unnatural death. He attended the scene, conducted an autopsy the following day, produced a report and testified in committal proceedings, a pre-trial hearing and in two trials. Most of Dr Ong's testimony was broadly consistent with death being the result of *either* suicide or homicide. For that reason, there was no challenge to the admissibility of most of his descriptions, explanations and opinions.[37] They were available to support the prosecution allegation of murder as well as the possibility of suicide.

Dr Ong concluded that Mrs Boyce died from loss of blood associated with a 'stab wound to the abdomen'.[38] He testified about encountering the body of a 68-year-old woman lying on a bed, beneath a sheet, with a large kitchen knife (195mm blade) protruding from her abdomen. There was a single entry wound (73mm x 24mm), though Dr Ong identified two groups of incisions — track A and track B — within the wound. The first — track A — was said to be composed of two internal tracks created by two ('plunging') movements of the blade while inside the wound. According to Dr Ong, the knife was then partially withdrawn (leaving about 40-50mm of the blade within the wound), rotated roughly 180 degrees, and then re-inserted, thereby creating track B — composed of three

---

[36] Some of the uncontested opinions, such as the nature of the wound and the way it was produced, could have been challenged because such interpretations are *not* straightforward. It is not easy to determine the number or order of internal cuts (or tracks). No method or explanation was provided for what was presented, and accepted by most of the judges, as pure description (or essentially descriptive). Discussed below in nn 37, 69, 199 and 200.

[37] The boundaries around these categories can be remarkably porous. Where there is doubt or contestation, it is generally preferable to err on the side of caution by treating claims as interpretive (and therefore opinion) rather than to elide complexity through strict (and often artificial) definitions.

[38] Beng Ong, *Autopsy Report* (Autopsy No SS15J1580, Queensland Health Forensic and Scientific Services, 3 February 2016) 14 <https://osf.io/h9zvb> ('*Autopsy Report*'). See also *Lang* (n 1) 337 [27] (Gordon and Edelman JJ), 396 [253], 452 [449] (Jagot J).

additional internal tracks with the blade facing in the opposite direction.[39] On recovery, the knife was protruding slightly from the deceased's back and the handle was partially inserted into the abdomen.

One of the internal tracks, said to be the first of track A, severed the liver, the bile duct, the inferior vena cava (a major vessel), and a renal vein.[40] This incision was said to have been fatal. The tracks comprising track B penetrated the chest cavity and resulted in an incision on the chest wall, a fracture of the 11th rib, a glancing facture of the 12th rib, and two additional exit wounds on the back.[41] Initially Dr Ong estimated that the force required to fracture the ribs 'was between mild to moderate'.[42] This was subsequently lowered to 'mild', and its significance downplayed, when he became aware that the deceased had osteoporosis.[43] Dr Ong estimated that 'it might have taken up to five seconds' to produce the wound — 'for the knife to be inserted, withdrawn, rotated and reinserted'.[44] There was blood on the deceased's left hand but no blood on her right hand; which was under the pillow on recovery of the body. Dr Ong testified that the bleeding would have increased after the vena cava was severed, and conceded — consistent with the suicide theory — that it was possible Mrs Boyce had used both hands initially (for the injuries associated with track A) but used only her left hand, for the second group of incisions (track B), once the profuse bleeding began.

Dr Ong testified that the deceased was alive, conscious and lying in her bed when stabbed. Her death, from loss of blood, was said to have taken minutes. Dr Ong was 'certain that none of the injuries could have immediately disabled the deceased or immediately prevented her from moving'.[45] He estimated that it could have been between 5 to 15 minutes before she lost consciousness and eventually died.[46] Based on toxicological results, Dr Ong reported the deceased's blood alcohol concentration as 0.049 and therapeutic levels of a range of medicines and metabolites associated with anxiety and depression. Dr Ong was of the opinion that these substances in the specific concentrations 'would not have

---

39 *Lang* (n 1) 450 [442], 450 [444] (Jagot J). The knife was left in the body during transportation to the morgue, and Dr Ong made some limited concessions, pre-trial, around the possibility of the third minor track (in track B) having been modified by transportation.

40 Ibid 381 [204] (Gordon and Edelman JJ), 396–7 [255], 452 [449] (Jagot J); *R v Lang* [2022] QCA 29, [51] (Mullins JA, McMurdo JA and Brown J agreeing) ('*Lang QCA*').

41 *Lang* (n 1) 380 [199], 381–2 [204]–[205] (Gordon and Edelman JJ), 396 [255] (Jagot J); *Lang QCA* (n 40) [57] (Mullins JA).

42 *Lang* (n 1)363 [136], 380 [199], 381–2 [203]–[205], 393 [240] (Gordon and Edelman JJ), 397 [261] (Jagot J); *Lang QCA* (n 40) [56] (Mullins JA).

43 *Lang* (n 1) 380 [199] (Gordon and Edelman JJ). Rib damage was one of the factors noted in *Lang QCA* (n 40) [96] (Mullins JA).

44 *Lang* (n 1) 452 [449] (Jagot J).

45 Ibid 380 [200], 387 [220], 393 [239], 393 [240] (Gordon and Edelman JJ), 397–8 [261], 434 [394], 435 [396], 436 [398], 452 [449] (Jagot J).

46 Ibid 340 [40], 363–4 [140], 365–6 [146]–[148] (Gordon and Edelman JJ), 397–8 [261], 435 [395]–[396], 452 [449] (Jagot J).

prevented [her] from fighting an attacker'.[47] He testified that 'they do not play any role in her death'.[48] The deceased had a long history of mental illness (specifically bi-polar disorder and borderline personality disorder) along with episodes of suicidal ideation. The prosecutor called her treating psychiatrist to testify.

Helpfully, Jagot J provides a summary of the subjects on which Dr Ong 'gave evidence':

> (a) there were no observable defensive injuries on Mrs Boyce's body; (b) the injury to the inferior vena cava would have caused a 'fairly catastrophic' and 'profuse' haemorrhage severely impacting the body causing shock, probably within minutes, that is, within the first five minutes; (c) the degree of force required to inflict the wounds would have been mild to moderate; (d) the wounds may have taken up to five seconds to inflict; (e) the significant blood loss would not have occurred over the first five seconds but more slowly over time and it would have been at least a number of minutes before Mrs Boyce was weakened to the point of not being able to move; (f) the inferior vena cava is a major vessel and although it is difficult to estimate how a person withstands blood loss, there would be serious consequences (loss of consciousness) within a number of minutes, not seconds — it might have taken five minutes or it could have taken 15 minutes for unconsciousness to occur; (g) Mrs Boyce had an alcohol concentration in her blood of 0.049 per cent and the effect of this on her would be subjective, although the level is not very high; (h) Mrs Boyce had therapeutic levels of anti-depressants and anti-anxiety drugs in her system and Dr Ong would not know the combined effect of these drugs on her but these levels of drugs would not have prevented her from fighting back; and (i) a stab wound to the abdomen with a kitchen knife would induce a person's fight or flight response. As noted, Dr Ong also gave *the impugned evidence* …[49]

B *The Impugned Evidence*

Now we consider the contested opinion. Relevant testimony is separated into examination-in-chief and cross-examination to enable readers to obtain a sense of what the prosecutor adduced, along with the burden that particular presentation imposed on the defendant (via defence counsel) and this accusatorial proceeding.

1 *Pre-Trial Hearing and Examination-in-Chief*

The contested opinion was proffered on two occasions during the re-trial. Initially, in a pre-trial hearing into its admissibility,[50] having described the wound, Dr Ong was asked about the opinion he expressed at the first trial:

---

47 Ibid 365 [146] (Gordon and Edelman JJ); *Lang QCA* (n 40) [61] (Mullins JA).

48 Transcript of Proceedings, *R v Lang* (Supreme Court of Queensland, 273/2017, A Lyons SJA, 19 November 2020) 49 ('Transcript Trial Day 4').

49 *Lang* (n 1) 397–8 [261] (Jagot J) (emphasis added).

50 See *Criminal Code* (n 3) s 590AA.

[MR FULLER:] You were asked during the trial ... whether the injuries that you observed were self-inflicted or caused by another person? ...

[DR ONG:] My opinion was that given the injuries, *it is more likely that this injury is caused by another party, but I cannot rule out that is — that it can self-inflicted.*

Right. Now, what were the features that your observed, that contributed to you forming that opinion, please? --- I base this on *three major factors*. One is that I consider the experience that I've come across, but I mentioned I have about two or three stab wounds a year, and — but in addition, I do, during the — in the post-mortem room, I do — *we all* — those who are working — to look at other cases as well, so that it is - one is the experience, but the experience is — to me, there is a limit of how many cases you can see in one career. There is a limitation of — certain number of cases, so experience is there. The second is that, I go — when I deduce — is based on literature. In terms of literature there are two different types of literature. One is that — is well-described in the forensic textbooks — the — what are the features of self-inflicted stab wounds and what are the features of homicidal stab wounds, and in this instance, there are some features suggestive of homicidal stab wounds.

Her Honour: Such as? --- One is that they - - -

...

Sorry, the criteria is the number of stab wounds is relevant? --- One of them.

Right? --- The other one fairly minor — is that it has gone through the bed — the sheet. The stab wound has gone through the flat sheet that was over her, which is slightly unusual, but not uncommon. The third is, there is a lack of any other wounds to suggest the features of self-infliction stab wounds.

Sorry, self-infliction, right? --- Yeah, there is like a hesitation injuries.

So by that you mean, there's only one entry point and you would have thought there'd be other entry points? --- Yes.

...

Sorry, single stab entry or - - -? --- Single entry in the skin which sort of attracts [sic: tracks] internally. There — there — I — I've come across two reported case, and I think that that was pointed out during the first trial of — actually, it's a case that I was unaware which happens in our own centre.

...

All right. So you're now clarifying that there's knowledge of single entry and several tracks. Is that what you said? --- Yes.

You know of single entry, several tracks? --- Yes.

> All right? --- But, of course, these are fairly rare, but doesn't mean that it can't occur. And finally, the — the — the — the — the — the other conclusion that I made is the — I would say it's getting the logical sense of what has happened.[51]

As the reader will now see, the prosecutor offered even less to the jury.[52]

At trial, toward the end of his examination-in-chief, when asked whether there are 'factors that you take into account in determining whether this was a self-inflicted injury or not', Dr Ong invoked the collective 'we' in the following explanation of the contested opinion:

> Yes, it's often a — *a difficult issue* with respect to stab wounds to the abdomen. But — but *there are certain factors* ***we*** *take into account*. ***One*** is there — is there any issues such as the self-harm and I mentioned has the patient injuries — injuries elsewhere that may indicate self-harm, like incision to the wrist and so forth. ***Second*** is looking at the — the fact that the stab wound has occurred for the [indistinct]. This are — this has de — described in forensic texts and journals. And I believe these are *not very strong factors* to decide one way or another. The — I think in — in my determination, the — ***the strongest factor*** or — ***or the one that I take most into account*** is the ***multiplicity of the stab wounds***. I detected [indistinct] the two main directions and this include rotation of the blade. To — take into account that the — in the first instance — that is, track wound A — wider structures has been damaged or — or — sorry, involved. That is the main one I take into account is the inferior vena cava which will cause bleeding. A profuse amount of bleeding, and also even the liver substance itself. The liver itself, which is a very vascular organ, and also I take into account that — I mentioned the rotation of the blade and — and that it appears that some of the wounds, judging by the blood on her hand, that it's only — if — if it's self-inflicted, it — it may be only the — the left hand was involved, especially at the later stages. The — the initial stages, it's possible both hands can be involved because there's no bleeding yet. But after the bleeding has occurred, it was only the left hand that was — has bloodstains.[53]

This was the testimony, adduced by the prosecutor, presented as capable of supporting and explaining the contested opinion.

The contested opinion was then expressed as follows:

> And taking into account all this, *I would think that it is more likely that this wound caused by a — a second — a different person or a second — a different party*. But having said that,

---

[51] Transcript of Proceedings, *R v Lang* (Supreme Court of Queensland, 273/2017, A Lyons SJA, 9 November 2020) 19–21 (emphasis added) ('Transcript Pre-Trial Application'). This passage was partially quoted in *Lang* (n 1) 450 [442] (Jagot J).

[52] On this issue, see *Lang* (n 1) 378–9 [193], and especially at 380 [198] (Gordon and Edelman JJ). Gordon and Edelman JJ expressed concern about the reliance on 'some amalgam of evidence that was before, and not before, the jury' for the purposes of admissibility: 380 [199]. Cf Jagot J at 443 [421], which seems sound, subject to the concerns identified by Gordon and Edelman JJ being addressed.

[53] Transcript Trial Day 4 (n 48) 50 (emphasis added). The second, '[indistinct]', factor is discussed below in Part VC.

> I think that I cannot completely eliminate the fact that it — it cannot be a self-inflicted injury.[54]

Notwithstanding that it was a rather weak opinion, couched as a qualified relative probability — '*I would think … it is more likely*' — it focused directly on the ultimate issue in the proceedings and implicated Lang.[55]

After a short recess, the prosecutor concluded his examination of Dr Ong by asking about the pain associated with the wounds:

> Now, I assume that you've never stabbed yourself in the stomach, Doctor … Can you comment on the degree of pain, something sharp being inserted into the abdomen would cause? --- I — well, all I can say is it's probably painful.[56]

That was it.

2 *The Cross-Examination of Dr Ong*

Rather than provide a summary of the cross-examination, which constituted most of the engagement with the contested opinion and the reasoning elucidated through the trial process, the reader is encouraged to read the following extract from the transcript of the testimony presented to the jury.

> [MS O'GORMAN:] As I understood it, the **first factor** that you said that you took into account was any features suggesting self-harm? --- [DR ONG:] Yes.
>
> And I think you mentioned the word 'cutting'? --- Or incision, yes. …
>
> Were you inferring then, in terms of features of self-harm, to cuttings that had occurred at the time of the death or are you talking about things like previous -

---

54 Ibid (emphasis added). This and the previous passage are extracted in *Lang* (n 1) 382–3 [207] (Gordon and Edelman JJ), 451–2 [447] (Jagot J). They were summarised by Kiefel CJ and Gageler J at 339 [35]: 'He concluded after a lengthy analysis of the nature of the wound with an expression of the opinion that although he could not "completely eliminate" the possibility of a self-inflicted injury "it [was] more likely that [the] wound [was] caused by a … different person".' See also at 383 [208] (Gordon and Edelman JJ): 'The transcription of this crucial part of Dr Ong's evidence was not perfect. And it provided very little *detail* as to how his expertise had been applied to the factors to which he had had regard in order to reach his opinion.' Qualification to the expression of the opinion (eg, 'more likely', or restricting opinions to 'similarities', as in *R v Tang* (2006) 65 NSWLR 681), should not be used to avoid confronting the question of whether there is relevant specialised knowledge.

55 Although, the inability to 'completely eliminate' the alternative, might be seen to modify the qualification. In *Autopsy Report* (n 38) 12, the opinion is expressed in a stronger form: 'There are no definite features excluding self-infliction in this instance. However, *there were features showing that the stab wound was inflicted by a second party*' (emphasis added). There follows a list of four factors said to be in favour of 'inflicted by a second party', followed by four supplementary factors.

56 Transcript Trial Day 4 (n 48) 56. See also *Lang* (n 1) 363 [138], 365–6 [147] (Gordon and Edelman JJ), 452 [448] (Jagot J).

evidence of previous attempts of self-harm, like cutting of the wrists? --- It'll be both here.

Both? Okay. So let's deal with the ones at the time. You said you were looking for both. What's the significance of any cuttings that you might have seen that were fresh? --- It will tell that there has been attempt to self-harm, and because there — these wounds in addition to the fatal wounds — eventually fatal wounds, that I consider this — other wounds to be a failure in an attempt to take one's life.

All right. So you're talking really about any injuries that you might have observed that were suggestive of a previous attempt to take her life? --- Yes.

Okay. And if you had found any evidence of previous - a previous attempt by her to take her own life, that would have been a factor presumably which weighed more towards this being more likely to have been self-inflicted? --- Yes.

Because, as I understand the reasoning, if there is a history of self-harm, or attempts of self-harm that might be an indicator of future behaviour, ie, a further attempt at self-harm? --- Yes.

Okay. Now, do you know anything about Mrs Boyce's mental health history? --- No. ...

Are you aware that Mrs Boyce has been diagnosed with bipolar disorder? --- No.

All right. Are you aware whether Mrs Boyce has ever spoken in the past of committing suicide? --- No.

And are you aware of an incident which involved her son being called to intervene as she was, it seems, stepping on a chair on the edge of her balcony, on that apartment you went to on the 20th floor? --- No.

If you were aware of those masters — and we're talking about this first factor, the features suggesting previous self-harm, as an indicator of future behaviour. Would they have weighed in your mind as making it more likely that this was inflicted — self-inflicted rather than by somebody else? --- I will definitely take this into consideration, but at the end of course, I will look at the — the entire feature on this — all the features on it entirely and rather than just one feature on its own. ...

The **second factor** ... was the perforation of the sheet — the fact that the knife had pierced the sheet and then the skin and into the body? --- Yes.

Can I just confirm that essentially what your evidence is about is that it's a neutral feature. Sometimes it occurs in suicides, sometimes it doesn't occur in suicides? --- It does occur more often in suicides, but it's not a very strong

feature. ...

Then you spoke about the number of the stab wounds being the **third factor**? --- Yes.

And just again for precision and for my sake, of course, we're only talking about one external stab wound aren't we? --- Yes.

All right. And then the four, or possibly five internal tracks? --- Yes.

Okay. Now, the number of stab wounds is an equivocal feature with respect to whether or not an injury is inflicted by somebody else or self-inflicted, isn't it? --- I think that the general and as best — I emphasise this only: a general acceptance is that the more stab wounds than the — it's more likelihood that it's done be a different party.

Okay. So a large number of stab wounds is more likely to be done by a different party? --- Yes. Another party, yes.

Another party. One stab wound is more consistent with suicide? --- I think it's just equivocal. ...

And one stab wound with internal tracks is also just equivocal? --- I think you have to go into the minutiae of the — the stabbing. Because of this case, I've looked through what is available in the literature. I think that — I've actually found, so far, three cases that has a self-inflicted injury that has multiple tracks inside a single stab wound. One of them is actually one of our case - - -

Yes? --- - - - in the past. That particular case, I think that is a stab wound through the chest. I think there was three tracks. The second one in the — that was in the literature — there's no detail. He- they just say that one — a case with three stabs, three tracks, so I know nothing about that — no detail. The - the third one has some details. There was actually five tracks. Again, it's into the chest. Three of the tracks did not enter the chest cavity. One did, but did not cause any major injuries. And I think the last one has caused some major injuries, either to — I can't remember offhand but it's either to the heart or one of the major vessels of the — supplying the heart. So in — in — in all this — by listing those two cases, the — the — the — the — the main thing I — I notice is that there's only one track in all those cases that caused a major injury that can cause death. That is, in other words, the other tracks are not severe enough to — to kill, and of course, all those tracks were — there's no involvement in rotation of it.

All right. I might've just slipped off at the end. Did you say in all of those cases there was no - - - ? --- There doesn't appear from the description — there's no — there doesn't appear to be any rotation of a blade here.

Okay. So no rotation, but a number of internal tracks within one external stab wound? --- Yes.

Okay. And were there two different cases that you described to us or three different cases? --- Two. The third one is — is just a — is just a general description of a — a case with three stab wounds and nothing more to — to it, so I have no details on the case.

Okay. So one of them involved only a bare report. The other two were — you had some more details about? --- Yes. One case was fairly detailed in their report, in the — in the journal. The other one was, of course, a — one of our cases so I have access to it.

When you say one of your cases, it was a — it was a case dealt with at the John Tonge Centre? --- Yeah, sorry. It was not — not my case but one of my colleagues, yeah.

Okay. And in each of those cases, it was deemed that the death was suicide, not a death caused by a second person? --- Yes.

Can we talk about the difference, if any, between a single entry wound with a number of tracks like you've just explaining to the jury and a single entry wound with a number of internal tracks plus rotation of the knife. Is there any difference between the two scenarios in your mind? Is one more likely to be suicide or homicide? --- I think that it would play a role because there'd be a — a slight delay in — in the blade being rotated, yes. ...

Is it because — and so the next fate — factor was the rotation of the knife which is why I'm interested to talk about these together. Is the fact of rotation of the knife significant in your mind because it might cause more pain that if there had just been stabs within one direction? --- It's not just the, I think, pain. It's just the — the features of it. I mean, if you have two stabs in one direction and these stabs — they will eventually kill. I agree with you that in a — initial instance, it may not be immediately fatal. And the we have a — a de — a slight delay because there's a rotation of the blade.

Sure? --- And further plunging in a different direction. And — and that is a bit — that is odd. That is not common and I have not found any case of report of stabbing inj — injuries by this means.

Okay. So when you say you haven't found any reported cases of that, what you mean is that you haven't seen any that have involved that mechanism you've talked about — a single entry wound, a couple of stabs, the rotation, a couple more stabs — being discussed in the literature? --- Yes.

And you haven't yourself dealt with a case like that? --- Yes.

Okay. Is it the fact of the delay that would have been necessary to turn the blade what is significant in your mind; is it? --- I think this — it does play a part in my decision, yes.

What else — what else is there? I'm just trying to understand the significance of the rotation of the knife? --- And — and of course, the multiple tracks. Although I've quoted three cases, these are only three cases in multiple cases that we have experienced, you know.

I understand. What I'm trying to get at is as I understand it, in your mind it's significant that there has been rotation of the knife? --- Yes.

And I'm just trying to understand why that's significant. As I understand it, you've said it's significant in part because there might have — well, there would've been some delay to turn the handle. What's the — any other significance of it? --- I Just find that it's — that if a person needs to — in an attempt to — to self inflict injuries — that it — that — that the injurer would take the trouble to rotate a blade, rather than just plunge it in different directions.

Okay. And is that's the sum total of it, of the significance of it? --- Yes. Looking at it, yes.

Okay. It did — or would, wouldn't it, serve a — quite a very real practical purpose in the sense that is one was intent on killing oneself in that manner, then you are more likely to achieve that aim, aren't you, if you have a number of stabs in your body that if you just have one or two? --- Yes, I've — I've seen — like I said, I've seen — I've personally have — I've performed autopsies on a self-inflicted victim, more that 20, 30 stab wounds. But - - -

Sorry. Can I just stop you, just to make sure I understand. Did you say that you've performed autopsies on bodies that had died by suicide where had — there had been more than 20 or 30 stab wounds? --- Or multiple stab wounds, yes.

Okay. But what was the number that you said? --- Offhand. l can't remember but I'm sure it's more than 10, maybe 20.

Okay. And they've been suicides - - -? --- Yes.

- - - cases like that? --- But — all these stabs are — they're fairly superficial, you know.

Superficial? --- Mmm.

It'd be painful, nonetheless though, because it's the pain, the nerve endings on the skin that contain the pain receptors; isn't it? --- I would think so, yes. ...

As I understand it, your evidence is that one of the factors that you take into

account is the fact that there has been a rotation of the knife? --- Yes.

Because — and maybe if you could just explain it to me one more time. You thought that that's not something that somebody would do? --- It's not — definitely not commonly found, and it's fairly unusual. And, like I said, I've never come across a case, but - - -

Okay? - - - - - it does not mean that it cannot occur.

Doesn't mean it can't occur. Can I just take a little bit of time to explore the significance of the fact that it's not commonly found. There's a lot of literature that deals with death by sharp wounds, or incisions, aren't there? --- Yes.

And that literature, probably obviously enough, deals with unusual cases? --- Yes.

And you would be aware that there are highly unusual ways that people choose to kill themselves? --- Yes. ...

All right. The number of the stab wounds then — and I'm moving backwards of course, because we started with the fact of the rotation of the knife. Then you talked about the number of the stab wounds, and we confirmed, of course, that that's the tracks within the body. You've agreed that that could, physically, have been self-inflicted? --- Yes.

And I think you said that although multiple stab wounds on the body are consistent with wounds inflicted by a second person, they can also be self-inflicted. And you gave examples of having done autopsies involving multiple stabs? --- Yes.

So that feature is really a neutral feature, isn't it? --- I wouldn't say it's a neutral feature. When there's multiple stab wounds this always points towards a — a possible second party involvement, but it's definitely not a definite feature to — for me to make up my mind.

Okay, And, in fact, none of the feature are definite, either by themselves or in combination? You told Mr Fuller [Crown Prosecutor] that before lunch? --- Yes.

Finally, can I just ask whether, in your opinion, there are in fact some other features which make this case more consistent with self-infliction rather than infliction by another person? We've touched on some of them, but I just want to confirm. Firstly, the lack of defensive injuries on the deceased's body? --- Yes. ...

Okay. And, of course, we talked about the apparent lack of struggle, and that would be a feature which, in your view, would weigh more in favour of this being a suicide than a death occasioned by a second person? --- Yes.

That's the cross-examination of this witness. Thank you, your Honour.[57]

IV The High Court Response to the Contested Opinion

According to Kiefel CJ and Gageler J and Jagot J, Dr Ong's contested opinion was admissible.[58] Dr Ong was a qualified forensic pathologist and fellow of the Royal College of Pathologists Australasia. Across a long career he had performed thousands of autopsies and encountered about two or three stab wounds each year. Dr Ong referred to textbooks, journals and literature, as well as the 'acceptance' of his approach among forensic pathologists. For Kiefel CJ and Gageler J:

> The opinion of Dr Ong was demonstrated by his evidence in chief at the trial to have been founded substantially on specialised knowledge of the interpretation of incised injuries acquired through long experience as a specialist forensic pathologist and through reading of literature on incised injuries within the specialised field of forensic pathology. *Nothing in the evidence he gave in the pre-trial hearing or in cross-examination in the trial undermined that foundation*.[59]

Acknowledging that Dr Ong's testimony was not ideal, or even at times clear, for Kiefel CJ and Gageler J, residual admissibility issues were more appropriately addressed through discretionary exclusion — discussed in Part VG.[60]

According to Jagot J:

> [I]t cannot merely be assumed that Dr Ong, in giving any part of his evidence, was not basing his opinions on his specialist qualifications and work of 25 years as a forensic pathologist.[61]

> [I]t must be recalled that that Dr Ong has worked as a forensic pathologist for some 25 years. He had performed anywhere between about 4,000 to 5,000 autopsies.[62] … While Dr Ong always looked at the 'whole picture', as explained, he did so through his expert perspective.[63]

---

57 Transcript Trial Day 4 (n 48) 70–6 (emphasis added) ('Cross-Examination'). The ellipses and line numbers are mine. Subsequent references will be to these line numbers. Parts of this exchange are quoted in the High Court judgments: see, eg, *Lang* (n 1) 384–5 [211]–[212], 386–7 [216]–[219] (Gordon and Edelman JJ), 453 [454], 454 [456] (Jagot J).

58 *Lang* (n 1) 329 [1] (Kiefel CJ and Gageler J), 395 [248] (Jagot J).

59 Ibid 329 [3] (Kiefel CJ and Gageler J) (emphasis added).

60 On clarity, see *Lang* (n 1) 335 [20], 336 [24] (Kiefel CJ and Gageler J), 383 [208] (Gordon and Edelman JJ). On privileging the position of the jurors (if not the stenographers), see 364–5 [143], 376–7 [186] (Gordon and Edelman JJ), 455 [460] (Jagot J).

61 Ibid 455–6 [461] (emphasis added).

62 Ibid 456–7 [463].

63 Ibid 457 [465].

> It is unexceptional that Dr Ong would bring to bear all his expertise to say that this sequence of events was 'odd' for a self-inflicted injury (and, by necessary implication, not so odd for an injury inflicted by another)[64]

> The fact that Dr Ong had not identified such a sequence of events in either a suicide or a homicide caused by stabbing does not mean that his evidence was not based on his expertise and does not mean his evidence lacked a rational foundation. The essence of expertise is the capacity to reason from facts based on specialist training, study, or experience. … The lack of an identical case of either suicide or homicide does not mean a forensic pathologist such as Dr Ong is incapable of providing an admissible expert opinion. He is entitled to bring to bear all his specialist training, study, or experience to form an opinion without being able to point to an identical or even similar case.[65]

> Dr Ong's opinion as to the likelihood of the fatal wounds being inflicted by another person rather than self-inflicted was not cloaked 'with a spurious appearance of authority', and thereby did not involve any risk that 'legitimate processes of fact-finding may be subverted'.[66]

The remainder of the article challenges the majority's applications of the law to the contested opinion, particularly the casual substitution of general experience as a forensic pathologist and the provision of reasons for specialised knowledge.

V Problems with Admissibility Practice in *Lang* (and *Velevski*)

In their dissent, Gordon and Edelman JJ were on the right path. In finding the contested opinion inadmissible they were unwilling to place heavy reliance on training and experience, the *Dasreef* shortcut, or treat the testimony as 'weak' but sufficient:[67]

> The problem for Dr Ong's opinion on this issue, and the reason that it was both inadmissible and of no weight, is that he failed to expose how his expertise was the substantial basis for connecting the facts to which he referred to this opinion. … The entirety of the justification for Dr Ong's contested opinion therefore rested upon the third factor that was the subject of cross-examination, which concerned the multiple tracks within the single stab wound and the rotation of the knife. But the only instances of multiple tracks within a single stab wound that Dr Ong said that he had read of were in suicides. He had never seen any. And Dr Ong had never seen or read about an instance where a knife had been rotated in the wound.[68]

---

64 Ibid 458 [467].

65 Ibid 458–9 [469].

66 Ibid 459 [470] (emphasis added) (citations omitted). See also 450 [443]–[444]. Justice Jagot's approach to the literature resembles the trial judge's description from the pre-trial hearing: see *R v Lang* [2020] QSCPR 26, [27]–[29] (A Lyons SJA).

67 Cf *Lang* (n 1) 334–5 [17] (Kiefel CJ and Gageler J).

68 Ibid 392 [234], 392–3 [238]. See also 387 [220], 390 [229], 391 [231].

What follows is a detailed explication of these and other problems. It identifies limitations with the contested opinion and associated reasons that are not susceptible to repair or mitigation through legal procedures.

A *Distinguishing Opinions and Taking 'Specialised' Seriously*

To begin, it is useful to undertake a little conceptual and definitional work. The lawyers and judges in *Lang* did not distinguish between the different types of opinions proffered by Dr Ong. This is unfortunate because closer engagement might have generated a more cautionary attitude to the opinions, especially those with the most extended inference chains.

Dr Ong expressed a wide variety of opinions, but if we limit our focus to the stab wound, we can identify three opinions featuring different kinds of inference. Moving from fairly direct to more indirect (and complex) inferences, let's begin with the description of the wound. Here, Dr Ong was engaged in interpreting anatomical damage. He described the features of the wound — multiple internal tracks along with bone, organ, tissue and blood vessel damage.[69] A second, and more interpretive, opinion was concerned with the mechanism of injury — how features of the wound might have been caused. Relying on his interpretation of the wound and the knife embedded in the deceased, Dr Ong postulated that the wound was caused by multiple plunges and a partial rotation of the blade while the deceased was lying on her side, her body partially bent.[70] These first two opinions are closely linked to the damage observed and the knife recovered; though, the second suggests the mechanism of cutting. Last is the contested opinion. This third interpretation is radically different to the other two. It is not limited to describing or explaining features of the wound, and operates at a higher level of abstraction, drawing upon experience, feature comparisons with other wounds and other cases (see Part VE), as well as other features of the body and the scene (some potentially beyond the scope of forensic pathology: see Part VF).[71]

While it might be reasonable, or ordinarily expected, for a forensic pathologist to express opinions about illness and injury and their relationship to

---

69 *Lang* (n 1) 330 [5] (Kiefel CJ and Gageler J). Kiefel CJ and Gageler J indicated that 'much' of Dr Ong's evidence was descriptive and so evidence of fact. See also 391 [232] (Gordon and Edelman JJ): 'expert factual evidence'. Where a forensic pathologist inspects and describes a wound (or a fingerprint examiner a fingerprint), he or she is involved in an interpretative process and does not perceive the wound (or the print) like a lay person. See more generally Charles Goodwin, 'Professional Vision' (1994) 96(3) *American Anthropologist* 606; Charles Goodwin, 'Seeing in Depth' (1995) 25(2) *Social Studies of Science* 237, and the discussion in nn 37, 199 and 200, above and below.

70 Dr Ong explicitly described this as a 'postulation' during examination-in-chief: see Transcript Trial Day 4 (n 48) 33.

71 These interpretations are sometimes described as 'manner of death', including accident, murder, suicide, natural and undetermined.

death (eg, from loss of blood), the third opinion is of a different order.[72] Forensic pathologists, or a sub-group of forensic pathologists, *might* be able to reliably determine whether wounds (or some types of wounds) attributed to bladed instruments were self-inflicted or inflicted by others on the basis of specific features of the wound (and/or surrounding circumstances), but this would require formal studies, the systematic collection and analysis of data, the preparation and evaluation of a method or protocol based on 'factors' shown to be significant, along with rigorous testing of those who use it to ascertain ability and accuracy.[73] None of this was undertaken (or required) in *Lang*.[74]

An important related point, flowing directly from the jurisprudence (and statutory language with respect to the UEL) is that 'specialised' is used to qualify, indeed focus, the requirement of knowledge.[75] To be admissible, the opinion must be substantially based not on general knowledge but on a particular area or specialisation relevant to the opinion. The Court's heavy reliance on experience and the characterisation of forensic pathology as a discipline concerned with death investigation — which includes deaths by stabbing — resulted in very limited attention being directed to the question of whether general training, study or experience as a forensic pathologist provided access to specialised knowledge capable of resolving whether stab wounds were self-inflicted or inflicted by others. Reliance on the *Dasreef* shortcut — particularly Dr Ong's 'specialist qualifications' and experience — facilitated admission but at the cost of attention to relevant specialised knowledge.

Courts should be wary of treating members of a profession as though they each possessed all of the 'specialised knowledge' of the entire domain and its sub-fields, especially where: the domain is expansive (such as forensic pathology — concerned with *all* death); personal experience with the specific issue is limited; the particular interpretation is difficult or controversial; and there are no specific

---

72 Keith Findley and Dean Strang, 'Ending Manner-of-Death Testimony and Other Opinion Determinations of Crime' (2022) 60 *Duquesne University Law Review* 302.

73 Kiefel CJ and Gageler J characterised the multiple stab wound and rotation as the two factors relied upon: *Lang* (n 1) 336 [22]. Justice Jagot referred, at different levels of generality, to three and two factors: 450 [443], 451 [447]. Gordon and Edelman JJ identified three: 383–4 [210]. The Queensland Court of Appeal, in contrast, identified five: *Lang QCA* (n 40) [96] (Mullins JA). There is overlap, but limited consistency, around the main factors identified by trial counsel, the trial judge and appellate courts. Factors expressly relied upon include: the multiple stab wound, the lack of hesitation wounds; the pierced sheet; the internal tracks; rotation; the impact on the ribs; the 'delay' and associated pain; the rarity of the features; the oddness of the wound and circumstances; blood on one hand; the literature; three other cases; general experience; and the contention that four of the incisions were 'excessive' because the first was fatal.

74 On protocols, see *NRC Report* (n 21) 6: 'Often there are no standard protocols governing forensic practice in a given discipline. And, even when protocols are in place, they often are vague and not enforced in any meaningful way. … These shortcomings obviously pose a continuing and serious threat to the quality and credibility of forensic science practice.'

75 *Lang* (n 1) 332–3 [12] (Kiefel CJ and Gageler J).

references to protocols, relevant literatures or systematic reviews.[76] To put this another way, we might wonder whether Dr Ong (or any of his colleagues) is in a position to express reliable (ie, non-speculative) opinions on whether a deceased person: shot themselves or was shot by another; fainted and drowned in a bath or was drowned by another; slipped or was pushed from a cliff; self-immolated or was set on fire; over-dosed intentionally or accidentally or at the hands of another; crashed their bicycle or was hit by a car; fell from a tree onto a rock or was hit with the rock, and so on and so forth.[77] Recalling the definition from *Honeysett*, does exposure to some of these types of death enable a forensic pathologist to provide an opinion in relation to who caused them that can be said to be based on 'specialised knowledge'?

B *'The Strongest Factor'? A 'Multiple Stab Wound' (and Its Components)*

According to Jagot J, Dr Ong identified the main factors relied upon by 'forensic pathologists' during his examination-in-chief:

> While Dr Ong clearly identified that the issues 'we' (meaning forensic pathologists) considered were (a) injuries elsewhere that may indicate self-harm, like an incision to the wrist, and (b) the multiplicity of stab wounds (which was the strongest factor in his view), the balance of his evidence in answer to this question is difficult to follow.[78]

Dr Ong described Mrs Boyce's injury as a multiple stab wound and characterised this as 'the strongest factor' underpinning the contested opinion.[79] When asked whether multiple stab wounds was 'a neutral feature' he demurred, explaining that, for forensic pathologists this factor '*always points towards* a — a *possible second party involvement*'.[80] Elsewhere he testified: 'I think that the general and as best — I emphasise this only: a *general acceptance* is that the more stab wounds than the — it's more likelihood that it's done by a different party.'[81] Accepting

---

[76] For an accessible introduction, see EunJin Ahn and Hyun Kang, 'Introduction to Systematic Review and Meta-Analysis' (2018) 71(2) *Korean Journal of Anesthesiology* 103. Consider the ranking of 'levels of evidence' in Figure 1, where 'case reports' are considered weak evidence.

[77] See, eg, *Mahony* (n 25).

[78] *Lang* (n 1) 451–2 [447] (Jagot J). In terms of justification, elsewhere Jagot J referred to reliance on literature and the witness's experience: at 450 [441], 450 [443]. Perhaps in an attempt to address the 'balance of his evidence', Jagot J quoted Dr Ong's responses to questions posed about the pain he attributed to the wound: at 452 [448]. This is the final exchange extracted in Part IIIB above. On representation, see Jonathan Potter, *Representing Reality: Discourse, Rhetoric and Social Construction* (Sage, 1996).

[79] Transcript Trial Day 4 (n 48) 50. See also Umberto Eco and Thomas Seboek (eds), *The Sign of Three: Dupin, Holmes and Peirce* (Indiana University Press, 1984).

[80] Cross-Examination (n 57) lines 227-8.

[81] Ibid lines 67-69 (emphasis added). But compare lines 173-192. On 'acceptance', see Gary Edmond, 'Deflating *Daubert*: *Kumho Tire Co v Carmichael* and the Inevitability of General Acceptance (*Frye*)' (2000) 23(1) *University of New South Wales Law Journal* 38.

that the interpretation of stab wounds is 'difficult', several issues arise from these characterisations.[82]

Initially we might ask whether the particular wound ought to be classified as a multiple stab wound.[83] There was no meaningful engagement with the definitional question: what constitutes a multiple stab wound? Should a single wound with internal tracks — especially if such cases are (extremely) rare — be treated as a multiple stab wound? This is not a pedantic issue of nomenclature. If the wound is invested with significance because multiple stab wounds in some way suggest that a person was (more likely, though not definitively) stabbed by someone else, we need to be confident that the wound is of a type that is capable of supporting the inference. We also need to know something about the empirical (ie, statistical) foundations for the probabilistic claim. Like the jurors, we are not provided with the definition of a multiple stab wound from the literature said to ground the reliance that forensic pathologists ('we') place on this factor. We are not referred to any literature or data set that supports the classification, let alone the general inference.[84]

In Dr Ong's autopsy report, among the factors that are said to support the contested opinion, the first is:

> The stab wound consists of two major directions. In addition, there were further thrusts in each major direction. In order to inflict the second major track, the blade had to be rotated. There appear to be fairly excessive movement of the knife especially when the first stab component (direction) was potentially fatal.[85]

There are no references here, or elsewhere in the 'Interpretation' of the evidence in the autopsy report, to the injury being a multiple stab wound.[86]

Further difficulties emerge from features of the wound — the internal tracks and rotation — being invested with significance. The apparent rarity of internal

---

82 *Lang* (n 1) 382–3 [207] (Gordon and Edelman JJ), 451 [445] (Jagot J).

83 Geoffrey Bowker and Susan Star, *Sorting Things Out: Classification and Its Consequences* (MIT Press, 1999).

84 *Lang* (n 1) 382–3 [207] (Gordon and Edelman JJ), 451 [447], 452–3 [450]–[453] (Jagot J). At 450 [441], Jagot J states that 'Dr Ong was familiar with the relevant literature and had examined the literature with specific regard to the minutiae of this stabbing.' But, there are no references to any specific literature and limited evidence of 'literature with specific regard to the minutiae of this stabbing' in the trial transcript or autopsy report.

85 *Autopsy Report* (n 38) 12. Among the other enumerated factors are: the force; the blood only on the left hand; and the first stab was said to have inflicted the major injuries making the deceased 'less capable' of inflicting the remaining damage. There were no references to multiple stab wounds in the brief summary of the forensic pathology evidence in the first appeal. See *R v Lang* [2019] QCA 289, [8]–[10] (The Court): 'A number of factors including the direction of blade tracks, the absence of blood on the deceased's dominant hand, that the stabbing was through a sheet and the absence of any hesitation marks caused Dr Ong to favour the involvement of a second party in the stabbing, but not conclusively so.'

86 This might raise questions as to whether the significance attached to the multiple stab wound at trial was based on literature or experience (at this earlier time). Diachronic shifts in emphasis might bring reliance on experience into question.

tracks (in reported suicides) and the inability to locate another instance of rotation were used to suggest that the injuries were not self-inflicted.[87] This involves moving from attributing significance to 'a multiple stab wound' to attributing significance to individual features (or components) of the particular wound.[88] The three cases 'available in the literature' were said to document internal tracks in single entry stab wounds accepted as 'self-inflicted' — with, respectively, three, three and five tracks. These cases were characterised as the '*only three cases* in multiple cases that *we have experienced*'.[89] Dr Ong seems to imply that what is important in these cases is the fact that one track caused the fatal injury and no rotation of the blade was observed. Putting aside uncertainty surrounding the way the three cases were located, what can we reasonably infer from them?[90] Are three cases, or these three cases, meaningful? Are tracks significant with respect to suicide by stabbing, let alone stab wounds inflicted by another? Similarly, is rotation, even if (highly) unusual, diagnostic or even meaningful, when attempting to distinguish between self-infliction and infliction by another?

What is missing here (apart from a more systematic review of the literature and any relevant databases) is symmetry: evidence that internal tracks and/or rotation in a single wound is more common in knife wounds inflicted by others. For, internal tracks and/or rotation might also be rare in wounds inflicted by others and so non-diagnostic. Dr Ong's testimony presents us with a tiny and statistically insignificant set of cases (n=3), the representativeness of which is uncertain, in conjunction with no consideration of internal tracks and rotation in wounds inflicted by others (the comparator). One of the problems with the (implicit) reasoning offered by Dr Ong is that it appears to conflate not having seen (or encountered) internal tracks and rotation of a knife with these particular features being meaningful with respect to determining manner of death. The type of incision in *Lang* might well be rare, but does that reveal anything about who

---

87 In some instances there is uncertainty as to whether a case classified as suicide is actually suicide or something else, because we have no idea about the accuracy of the opinions and ground truth is unknown. I have sometimes referred to this issue as '(reported) suicides' or the expert's 'belief'; but this problem is corrosive of experience. The problem is compounded by social and religious sensitivities associated with some conclusions by forensic pathologists and coroners. These problems are longstanding: see Emile Durkheim, *Suicide: A Study in Sociology*, tr John Spaulding and George Simpson (Routledge & Kegan Paul, 1952).

88 Cross-Examination (n 57) lines 77-95.

89 Ibid lines 154-5 (emphasis added). There are no references to these cases in the autopsy report. See also *Lang* (n 1) 386 [217] (Gordon and Edelman JJ). '[O]ur case', mentioned by Dr Ong during cross-examination, refers to a non-published multi-track stab wound in a (reported) suicide from the John Tonge Centre — the mortuary for Queensland Health Forensic and Science Services.

90 Cross-Examination (n 57) lines 79-81, 137-46, 194-202.

might have inflicted it?[91] At no stage did Dr Ong explain *how* internal tracks assist in determining whether the wounds were self-inflicted.[92]

When asked 'about the difference, if any, between a single entry wound with a number of tracks … and a single entry wound with a number of internal tracks plus rotation of the knife' with respect to 'suicide or homicide', Dr Ong answered 'I think that it would play a role because there'd be a — a slight delay in — in the blade being rotated'.[93] When asked about whether the significance attributed to the partial withdrawal, rotation and re-insertion of the blade was related to pain, Dr Ong answered that it was more than the pain.[94] These explanations, and the description of the later internal thrusts as 'excessive' in the autopsy report, confer a curious anatomical understanding (and rationality) upon a lay person who might have killed herself with a knife (perhaps while unwell).[95]

Under cross-examination Dr Ong supplemented the significance he attached to the pain and the difficulty understanding why a person might kill themselves in this particular way, with the apparent rarity of the wound: 'It's not — definitely not commonly found, and it's fairly unusual. And, like I said, I've never come across a case'.[96] But, the fact that a wound is unusual, or even unique, reveals little, if anything, about whether it was self-inflicted. Dr Ong appears to be speculating.[97] Why, he wonders, would a person 'take the trouble to rotate a blade, rather than plunge it in different directions'?[98] Once again, Dr Ong's testimony did not raise or address the alternative proposition, specifically: why would someone attacking, or trying to kill, with a knife rotate the blade (or be more likely to rotate the blade than a person attempting suicide, particularly in the absence of resistance)?[99] This asymmetrical orientation and the lack of explanation, in

---

91 *Lang* (n 1) 386–7 [218] (Gordon and Edelman JJ). It is difficult to understand the significance apparently attributed to one track being fatal and the stabbing continuing beyond infliction of the (potentially) fatal injury — but see (n 169).

92 Dr Ong's reasoning was described by Kiefel CJ and Gageler J as 'inductive' and 'inferential': *Lang* (n 1) 336 [21], 336 [24]. Ironically, applying non-statistical reasoning, it would have been just as easy — though no more rigorous — to present the 'only three' cases of suicide with internal tracks as supporting suicide in *Lang* — another case with internal tracks within a single stab wound. See *Lang* (n 1) 392–3 [238] (Gordon and Edelman JJ).

93 Cross-Examination (n 57) lines 125-6, 134-5.

94 Ibid lines 128-135, 160-165.

95 *Autopsy Report* (n 38) 12.

96 Cross-Examination (n 57) lines 137-9, 199-202.

97 Rather than knowledge, some of the answers have the appearance of post hoc rationalisation.

98 Cross-Examination (n 57) lines 163-5; *Lang* (n 1) 387 [219], 393 [240] (Gordon and Edelman JJ). Cf *Lang* (n 1) 456 [462], 458 [468] (Jagot J). Among historians, particularly historians of science and natural philosophy, this kind of 'psychologism' tends to be controversial. Consider RG Collingwood's concept of 're-thinking' in his posthumous *The Idea of History* (Oxford University Press, 1945) and the critical reception of Frank Manuel, *A Portrait of Isaac Newton* (Harvard University Press, 1968). In more general terms Hans Gadamer speaks of hermeneutic 'horizons' in *Truth and Method* (Continuum Books, 1975).

99 This is consistent with a logical approach to the issue, notwithstanding the Bayesian resonances.

conjunction with apparent incomprehension, all suggest the absence of specialised knowledge.

Recourse to the delay and associated pain attributed to the particular wound is also curious.[100] Rotation of the blade appears to assume significance because it 'unnecessarily' prolonged the stabbing and so presumably increased the pain — though perhaps for a second or two. Interestingly, duration of the stabbing and subjective assessment of the pain experienced were not included among the factors Dr Ong advanced as significant when asked about his contested opinion.[101] On prompting, at the conclusion of examination-in-chief, he indicated: 'all I can say is it's probably painful'.[102] Later, Dr Ong appears to have surprised defence counsel when, in accepting that multiple stab wounds could be self-inflicted, he referred to personal experience with '10, maybe 20 cases' of (what he believed were) suicide where 'there had been more than 20, 30 stab wounds'.[103] The attribution of pain to the wound in *Lang* is not distinguished from these cases of suicide where the deceased inflicted large numbers of apparently painful wounds (20-30 incisions), or the three cases with three to five internal tracks. This begs the question: why is the time taken, perhaps five seconds, considered informative and used to support stabbing by another person in *Lang*, when cases treated as suicide, involving multiple painful incisions, appear to sometimes extend over similar or even longer periods of time?[104] How does the time taken to inflict injuries enable, or help, a forensic pathologist to determine whether the wound was self-inflicted? Without more, the 'delay' from rotation (and the tracks), does not obviously support the conclusion or appear to be based on specialised knowledge.

Dr Ong was also said to have relied on the 'oddness' of the wound (and the wounding). Justice Jagot works to redeem Dr Ong's inability to find another death with a similar wound and the significance he attaches to that 'failure':[105]

> Further, while Dr Ong had found three cases of suicide with one stab wound and multiple internal tracks, none of these involved partial withdrawal and rotation of the knife. Those facts, partial withdrawal and rotation of the knife before replunging the knife in a different direction, would have involved some delay which Dr Ong found 'odd'. It is plain that, in context, Dr Ong meant that he found this 'odd' in respect of a suicide. While he said he had found no reported cases of 'a single entry wound, a couple

---

100 Cross-Examination (n 57) lines 124-6, 131-5, 148-50, 163-5.

101 Pain (as a factor or reason) may overlap with hesitation wounds, such that some factors may not be independent.

102 *Lang* (n 1) 452 [448] (Jagot J).

103 Cross-Examination (n 57) lines 172-5, 181-2. These and other estimates are imprecise.

104 Ibid lines 191-2.

105 This seems to operate in a similar way to the alleged failure to find another mother who had lost four young children in the circumstantial case against Folbigg. See Thomas Bathurst, 2022 Inquiry into the Convictions of Kathleen Megan Folbigg (Report, 8 November 2023) 87 [357], 91 [380], 110 [494], 132 [602], 159 [770], 169 [829], 332–3 [1565], though compare 117–18 [522] and the ultimate findings.

> of stabs, the rotation, a couple more stabs' in the literature (and, by this, Dr Ong should be understood to have meant no cases at all in the literature, whether murder or suicide), that does not mean that his evidence — that he found the injuries and how they had been inflicted (multiple stabs causing multiple internal wound tracks with a partial withdrawal and rotation of the knife before reinsertion of the knife) 'odd' for a self-inflicted injury — was not based on his expertise.[106]

The forensic pathologist's *impression* of the wound as 'odd' is said to be 'based on his expertise' where the rarity (or exceptional nature) of the wound is invested with meaning.[107] We are left to wonder why in the absence of empirical evidence these features of the injury are characterised as 'odd' and treated as significant.[108] Without more, we cannot substitute the rarity or oddness of an event for a postulated cause.[109]

We might reasonably wonder why, out of all the information available to Dr Ong, he placed most reliance (at trial) on the wound as a multiple stabbing. The jury were told that forensic pathologists considered this to be significant, but were not provided with insight into its significance or even what constituted a multiple stabbing. Moreover, it was not the fact of multiple stabs (which were said to be supported by other forensic pathologists and the literature), but rather sub-features of the particular wound and its effects — the internal tracks, rotation, delay and ensuing pain — and his difficulty comprehending that were invested with subjective significance when Dr Ong was asked to explain his opinion.[110]

C *Evaluating Various factors: Inclusion, (Relative In)Significance and Elision*

> I will definitely take this into consideration, but at the end of course, I will look at the — the entire feature on this — all the features on it entirely and rather than just one feature on its own.[111]

Dr Ong described his approach and the contested opinion in terms of what was 'generally accepted' when trying to understand 'all the features' and the 'whole picture' of death by incision.[112] However, when we start to probe the range of factors and considerations available to him, the observer is left to wonder why

---

106 *Lang* (n 1) 457–8 [466]. See also at 455–6 [461], reproduced earlier.

107 Cross-Examination (n 57) line 137-9.

108 This is part of feature (or pattern) comparison, discussed in Part VE below.

109 See the exemplary reasoning of Coldrey J in *R v Matthey* (2007) 177 A Crim R 470.

110 Cf *Lang* (n 1) 375 [182] (Gordon and Edelman JJ): 'Dr Ong accepted [that] people sometimes commit suicide in "highly unusual ways" and "very extreme ways"'.

111 Cross-Examination (n 57) lines 44-7.

112 Ibid lines 67-9. See also Transcript Trial Day 4 (n 48) 71: 'I'll take into consideration this and I will — but my final interpretation — or my interpretation will be based on looking at the whole picture rather than just on one factor alone'. This also applies to the claim of trying to understand 'the logical sense of what has happened': *Lang* (n 1) 335–6 [21] (Kiefel CJ and Gageler J), 450–1 [444]–[445], 458 [467] (Jagot J).

some were included and others excluded, why some were invested with significance and others treated as insignificant. Initially, this section reviews the two additional factors advanced by Dr Ong during examination-in-chief, before turning to consider the curious lack of engagement with a range of factors which, on their face, appear to provide more direct insight into who might have killed Mrs Boyce.[113]

Earlier we saw how Jagot J described 'the multiplicity of stab wounds' and evidence of 'self-harm' as two factors accepted by forensic pathologists.[114] Drawing on the testimony from the admissibility hearing, defence counsel and Gordon and Edelman JJ indicated that the knife piercing the bedsheet was the '[indistinct]' factor raised by Dr Ong during his examination-in-chief (see Part IIIB above).[115] Let's examine these residual factors before turning to consider additional factors that may or may not have been incorporated into the formation of the contested opinion.

During examination-in-chief Dr Ong advanced hesitation wounds and evidence of previous self-harm as issues forensic pathologists would consider when trying to determine whether wounds were self-inflicted:

> Q: You spoke of also looking for signs that may be linked to suicide?
>
> A: Yes. On the body, sometimes they may have additional injuries around the site of the stab. This is known as hesitation injuries. It usually occurs when — any injury — making a decision to — to — to stab may — may — may — may do some stabbings at around the vicinity of the stab wound — of — of the eventual stab wound just to — well, *some people* will see — to test the pain, to see how painful before — before being brave enough to make the plunge. There may be other signs of self-harm injuries elsewhere.[116]

When present, hesitation wounds seem to be invested with significance — though forensic pathologists might disagree as to whether a particular injury ought to be characterised as 'hesitation'.[117] Where, as in *Lang*, there are no hesitation wounds, that absence is not necessarily significant.[118] For, in relation to suicides by knife, we are told that it is not uncommon for wounds to be inflicted without hesitation on a first attempt. Dr Ong's testimony is not entirely clear on this point; though he appears to accept that the absence of these injuries is 'not very strong' evidence.[119] Nevertheless, the absence of hesitation wounds appears to be among

---

113 I accept that this 'common sense' might be misguided, but we require knowledge and reasoning to overcome it.

114 *Lang* (n 1) 451–2 [447] (Jagot J).

115 See also *Lang QCA* (n 40) [96] (Mullins JA).

116 *Lang* (n 1) 383–4 [210] (Gordon and Edelman JJ) (emphasis added).

117 Consider the discussion in Part VE below.

118 Cf *Lang* (n 1) 455–6 [461] (Jagot J).

119 Cross-Examination (n 57) lines 11-6; *Lang* (n 1) 392 [236] (Gordon and Edelman JJ).

the few 'factors' incorporated into the 'whole picture' analysis supporting the contested opinion.[120]

Another factor identified by Dr Ong was the knife piercing the sheet before entering the deceased's abdomen:

> Although the transcription of his evidence in chief did not reveal the second factor that Dr Ong took into account, he said, in cross-examination, that he took into account as a factor that the knife had pierced the sheet before moving into the skin and the body. But he said that this was a factor that 'does occur more often in suicides, but it's not a very strong feature'. He concluded that this factor was neutral.[121]

If piercing the sheet is more common in suicides than homicides — which seems counter-intuitive (discussed in Part VE) — why is this factor treated as 'neutral'? Why is the knife through the sheet not used to support suicide, even if only weakly?[122] Why is the wound, treated as a multiple stabbing, invested with greater significance than the pierced bedsheet — which is also advanced as one of the salient factors? The reasons for attributing significance, or relative significance, to the three factors advanced by Dr Ong is not explained. We might be able to imagine why some factors are privileged, but there is no explanation of the relative weightings of the three factors said to be drawn from the literature as somehow and to some degree illuminating.

These problems are compounded when we introduce a broader range of potential factors and considerations. For, the three factors pro-actively advanced and expressly relied upon by Dr Ong are not the only *biomedical* factors capable of casting light on who killed Mrs Boyce.[123] In other cases — such as *Velevski*, considered in Part VE — forensic pathologists placed heavy reliance upon different factors. Dr Ong's claim that the contested opinion was holistic becomes difficult to understand when, during cross-examination, he acknowledged the potential significance of additional factors. On the available record, it is uncertain whether these factors were somehow incorporated into his largely opaque subjective calculus.[124]

Let's start with the 'lack of defensive injuries'. We are told that 'Dr Ong accepted that the lack of defensive injuries on the deceased's body, with no evidence of any attempt to grab the knife or ward off an attacker, and the apparent lack of a struggle were features that would weigh in favour of the stab wounds

---

120 Notwithstanding *Lang* (n 1) 452–3 [450], 457 [464] (Jagot J), it is not obvious, on the transcript, if, where or how other factors were taken into account.

121 Ibid 385 [215] (Gordon and Edelman JJ).

122 When would it be considered sufficiently positive (or negative) to act upon and on what basis? None of this is explained.

123 Once again, it is uncertain whether these are issues for the forensic pathologist or the jury. And, whether some are task (ir)relevant — issues to be considered in Part VF below.

124 The trial judge instructed the jury that Dr Ong's 'was not an opinion that took into account all of the evidence in this trial': Transcript Summing-Up (n 4) 15.

being self-inflicted'.[125] This might make sense intuitively, but we, like the jury, are left to wonder why the absence of defensive wounds on the deceased's hands and forearms was not included among the primary factors relied upon in the attempt to determine who did the stabbing? Dr Ong acknowledged that the absence of defence wounds and the lack of a struggle 'would weigh in favour of' suicide, but does not appear to have incorporated them into his 'whole picture' analysis? If he did, how, and where? If the lack of defence wounds supports suicide, on what basis is this evidence dismissed or treated as less significant than the multiple stab wound, the tracks, rotation of the blade and five seconds of pain? Reasoning requires explanation, and this includes the need to explain why apparently inconsistent evidence should, or can, be rejected or discounted. That need is acute where, as in this case, lack of resistance appears to be more objective (or direct) than the extended inferential chains associated with the attribution of the wound and its sub-features to a manner of death. Acknowledging, during cross-examination, that some evidence favoured an opposing perspective, specifically suicide, is not the same as incorporating that evidence into an evaluation or explaining why it can be discounted.[126]

But there is more. Via the toxicological results, Dr Ong was aware of the alcohol and the metabolites of psychiatric drugs in the deceased's blood. He testified that diazepam can be taken 'to lessen anxiety', amlodipine is 'an antihypertensive', Olanzapine 'is also a drug I think to lessen anxiety, or psychiatric use', and Venlafaxine 'is supposed — for similar purpose'.[127] His conclusion was that the volume of alcohol and therapeutic doses of pharmaceuticals would not have prevented the deceased from feeling pain or 'fighting back or attempting to move away from an attacker'.[128] The difference in weights between the deceased (74kg) and Mr Lang (100kg) was said not to be sufficient to prevent an attempt to 'ward off an attacker'.[129] On the evidence, the deceased was conscious and capable of resisting.[130]

---

125 *Lang* (n 1) 454 [459] (Jagot J). See also at 366 [148] (Gordon and Edelman JJ), 397–8 [261] (Jagot J); Cross-Examination (n 57) lines 235-6.

126 In *Autopsy Report* (n 38) 13, along with the iteration of a (stronger) version of the contested opinion and factors (and supplementary factors), the following appears, though without further explanation: 'The scene indicated that the deceased had been stabbed at the site where she was found. There was no evidence of any injuries caused by a struggle'. There are references to the absence of defence injuries and psychiatric drugs in the more descriptive part of the report, but they do not feature among the reasons for the interpretation associated with the contested opinion.

127 Transcript Trial Day 4 (n 48) 48.

128 *Lang* (n 1) 366–7 [149] (Gordon and Edelman JJ), 435–6 [397] (Jagot J). Dr Ong also accepted that 'a stab' might induce a 'fight or flight response'. See also *Lang QCA* (n 40) [67] (Mullins JA). The absence of fight or flight response does not obviously inform the contested opinion, and Dr Ong was not asked about whether a victim might 'freeze' — an idea, apparently, first introduced in the prosecutor's closing submissions. Concepts such as 'fight or flight' are not obviously within the knowledge and expertise of forensic pathologists.

129 *Lang* (n 1) 436 [398], 454 [459] (Jagot J).

130 Ibid 363 [138], 363-4 [140] (Gordon and Edelman JJ).

Notwithstanding the toxicological results, Dr Ong testified that he was unaware of the deceased's mental illness.[131] In cross-examination he accepted that mental illness might be significant and had he known he would 'definitely take this into consideration'.[132] That answer is curious. While Dr Ong may not have known about the deceased's medical history — that is, the specific diagnosis and symptoms (including suicidal ideation and impulsiveness) — but the toxicological report provided a strong hint of mental illness. Once again, it is unclear why an apparently significant factor (for him) appears to have been overlooked or not followed up, and so effectively discounted.[133] By way of contrast, the deceased's osteoporosis was taken into consideration, in relation to moderating the force required to inflict the wounds, when Dr Ong was told about this aspect of Mrs Boyce's medical history.[134] It might be that psychiatric histories are beyond scope for a forensic pathologist, although that possibility is not suggested by Dr Ong's responses.[135]

Moving away from the biomedical evidence, suicide seems to have been supported by the deceased's extraordinarily passive behaviour while she was apparently conscious and able to move in the minutes after the wound was inflicted, her not taking advantage of a landline telephone adjacent to the bed to call for assistance, evidence suggesting the scene had not been tidied or cleaned, and the absence of Mr Lang's DNA under her fingernails.[136] It was also supported by more remote forensic science evidence, including: none of the deceased's blood being found elsewhere in the apartment (the sinks, drains and pipes were tested); there were no wounds on Mr Lang which might have resulted from a struggle with the deceased; and no DNA or fingerprints matching him were recovered from the knife.[137] None of this material is conspicuous in the formation of the contested opinion and associated reasoning.

This other evidence, though particularly the absence of defence wounds and the potential significance of mental illness given Dr Ong's testimony, introduces

---

131 Cross-Examination (n 57) lines 29-30.

132 Ibid lines 44-7.

133 The prosecutor's reliance on statistical evidence, about the frequency of suicide among persons with mental illness, was the subject of a successful appeal to the Court of Appeal, resulting in the second trial: see *R v Lang* [2019] QCA 289.

134 *Lang* (n 1) 380 [199] (Gordon and Edelman JJ).

135 Cross-examination (n 57) lines 44-47. Part of the problem with this evidence, which suggests the lack of specialised knowledge, is the lack of clarity about what matters and why. See generally Thomas Gieryn, *Cultural Boundaries of Science* (University of Chicago Press, 1999).

136 *Lang* (n 1) 361 [130] (Gordon and Edelman JJ), 397 [259], 432–3 [387] (Jagot J); *Lang QCA* (n 40) [61] (Mullins JA). DNA matching Lang's was recovered from the deceased's chest, but their involvement in a consensual intimate relationship meant that this was treated as unhelpful on the fact in issue at trial.

137 The positioning of the hands and respective bloodstaining was another factor in the mix, and one that might have favoured infliction by another: *Lang* (n 1) 351 [91], 383 [209], 392 [234] (Gordon and Edelman JJ), 451–2 [447] (Jagot J). It was given more prominence in Dr Ong's autopsy report: see *Autopsy Report* (n 38) 13.

an important issue which will appear again in relation to the discussion of cognitive bias — see Part VF. For present purposes, Dr Ong's concessions around the significance of factors which he did not consider, or do not feature in the reasons provided for the contested opinion, raises the question of why these were omitted and, more fundamentally, what is properly within scope when interpreting stab wounds. It raises unresolved questions about the method, specifically what information is required and which factors are important, for a *knowledge-based* opinion about whether knife wounds were self-inflicted.[138]

By way of overview, when thinking about the need for specialised knowledge and the factors and reasoning offered, I want to suggest that it was, and is, not possible to rationally evaluate Dr Ong's contested opinion. On inspection, the reasons and the handful of cases advanced are incapable of supporting it. In the absence of an identified method, let alone a validated method capable of reliably discriminating between wounds that were self-inflicted and those inflicted by others, it is not possible to make sense of the particular factors invested with (in)significance. Simultaneously, we have no means of approaching the seemingly significant evidence that was elided, or discounted, for reasons unknown. It is unclear why Dr Ong's intuitions around the oddness of a stab wound, even if we accept there is empirical evidence supporting the contention that multiple stab wounds are often associated with infliction by another, outweighs evidence necessitating much less inferential work — no defence wounds, no struggle and no attempt to move or call for help in the aftermath of an alleged attack.[139]

D *General Experience, General 'Acceptance' and 'the Literature'*

> Dr Ong said that his opinion was 'based on' his 'experience' as a forensic pathologist for about 25 years during which he had seen roughly two or three deaths from stab wounds a year and on the 'literature' concerning the typical features of self-inflicted stab wounds and those of homicidal stab wounds.[140]
>
> Dr Ong explained that his main task as a forensic pathologist was performing autopsies for coronial inquiries to establish the cause of death. … He had performed

---

138 *Lang* (n 1) 392 [236] (Gordon and Edelman JJ). See also National Commission on Forensic Science, *Ensuring That Forensic Analysis Is Based upon Task-Relevant Information* (Views Document, 2015) app ('*NCFS Views Document*'). Here, we might note that mental illness could be correlated with particular styles of knife wounds, such that (very) unusual wounds might be more likely where persons are mentally ill. This is yet another unknown. See generally Nancy Cartwright and Jeremy Hardie, *Evidence-Based Policy: A Practical Guide to Doing It Better* (Oxford University Press, 2012).

139 An alert reader might wonder why the dismissive approach to the opinion evidence of a traffic engineer in *Fox v Percy* (2003) 214 CLR 118, was not conceived as a more appropriate legal response to the contested opinion in the face of behavioural and anatomical 'skid marks'.

140 *Lang* (n 1) 335–6 [21]. See also 329 [3] (Kiefel CJ and Gageler J).

> about 4,000 to 5,000 autopsies in total, at a rate of about 160 to 200 cases a year, as well as supervising an additional 20 to 30 autopsies a year. Dr Ong was familiar with the relevant literature and had examined the literature with specific regard to the minutiae of this stabbing.[141]
>
> Dr Ong said he based this opinion on three major factors: (a) his experience with stab wounds; (b) his deductions from the literature; and (c) the lack of any hesitation wounds.[142]
>
> Dr Ong said he had found no literature on a single entry (external) wound, a couple of stabs, the rotation, and a couple of more stabs. He had also not dealt with a case like that.[143]
>
> He had looked at the literature and found three cases of a self-inflicted injury with multiple tracks inside a single stab wound. He noticed that in all those cases there was only one track that caused a major injury that resulted in death. He also said that in none of these cases was there a rotation of the knife.[144]
>
> Further, it cannot merely be assumed that Dr Ong, in giving any part of his evidence, was not basing his opinions on his specialist qualifications and work of 25 years as a forensic pathologist.[145]

Seven of nine judges responsible for considering the admissibility of the contested opinion accepted, some insisted, that Dr Ong's training and experience (or expertise) enabled him to express it.[146] However, having considered the factors relied upon (as well as those apparently discounted upon questioning), the precise utility of experience with respect to determining if stab wounds were self-inflicted remains elusive. Putting aside the absence of references to specific biomedical literature, and taking Dr Ong's references to other cases at face value, it is salutary to consider their value in drawing inferences from the assumed facts (particularly the interpretation of the wound).

Dr Ong referred to thousands of autopsies, including 2-3 stab wounds per year, and the three cases of (reported) suicide he located featuring a single wound with internal tracks. He also referred to cases of suicide he had encountered where the deceased had multiple incised wounds (up to 30), and testified that he had never encountered and had not heard of a stab wound where the blade had been rotated.[147] Dr Ong's experience and the cases he describes were mobilised as

---

141 Ibid 450 [441] (Jagot J).

142 Ibid 450 [443] (Jagot J).

143 Ibid 453 [455] (Jagot J).

144 Ibid 453 [452] (Jagot J).

145 Ibid 455–6 [461] (Jagot J). See also *Lang QCA* (n 40) [93]–[95], [100]–[104] (Mullins JA).

146 There were different trial judges, though admissibility does not appear to have been raised at the first trial, where the defendant called his own expert witness. Similarly, Lang's first appeal did not raise the admissibility of Dr Ong's opinion, so those appellate judges are not included, with the exception of McMurdo JA who, anomalously, heard both appeals to the Queensland Court of Appeal.

147 Cross-Examination (n 57) lines 141-6; *Lang* (n 1) 392–3 [238]–[239] (Gordon and Edelman JJ).

reasons implicitly capable of supporting the contested opinion. I want to suggest that Dr Ong's experience, the cases he identified, and his (and implicitly the professions') inexperience with tracks and rotation are individually and collectively incapable of providing an adequate basis for admission.[148] This is an important point because, as the epigraphs above suggest, they appear to have been uncritically accepted as satisfying the need for 'specialised knowledge'.[149]

Dr Ong *estimated* that he performed somewhere between 4,000 and 5,000 autopsies over 25 years.[150] Among these, he *estimated* encountering about two or three cases with stab wounds a year, one or two of which were reported as suicides.[151] The majority appear to overestimate the proportion of Dr Ong's work, and experience, concerned with stab wounds. Dr Ong's estimates refer to all deaths by stab wounds (and so may include incisions) to any part of the body. On the estimates provided, autopsies involving stab wounds — broadly conceived — consume less than 2 per cent of the total. Stab wounds are not a regular feature of Dr Ong's day-to-day work. This experience is further complicated when we distinguish between the description of stab wounds and even the cause and mechanism of death, from (more abstract interpretations involving) determinations as to whether stab wounds were self-inflicted or inflicted by another — ie, manner of death.[152] We are not told how many of the 50 or so cadavers with stab wounds encountered over a quarter of a century required (or resulted in) a determination as to whether they were self-inflicted.[153]

Even if Dr Ong (or any other forensic pathologist) had previously opined on the question of whether stab wounds were self-inflicted or inflicted by another (in a report for the coroner or in a court), that does not mean he (or others) can

---

148 *PCAST Report* (n 21) 55.

149 I do not mean to suggest that Dr Ong has more or less experience with stab wounds than other forensic pathologists.

150 These figures are quoted in *Lang* (n 1) 377 [187] (Gordon and Edelman JJ), 450 [441], 456–7 [463] (Jagot J). Although, Dr Ong appears to have been practising for about 20 years (15 as a fellow of the RCPA) when he performed the autopsy in 2015. The legal focus on qualifications and experience as a forensic pathologist, along with the number of autopsies, is a classic instance of what cognitive scientists call 'attribute substitution', see Daniel Kahneman and Shane Frederick, 'Representativeness Revisited: Attribute Substitution in Intuitive Judgment' in Thomas Gilovich et al (eds) *Heuristics and Biases: The Psychology of Intuitive Judgment* (Cambridge University Press, 2002) 49.

151 *R v Lang* [2020] QSCPR 26, [13] (Lyons SJA); Transcript Pre-Trial Application (n 51) 9–10.

152 By way of analogy, I wonder how many lawyers and judges whose practice involved 1–2 per cent of tax or complex fraud cases, would consider themselves experts in those domains. (Noting that law, as a discipline engaged in textual hermeneutics, may be more homogenous than many other domains.) And, persisting with the analogy, I wonder how many of those lawyers and judges would be comfortable having their Italian sports cars serviced by mechanics who spent 98–9 per cent of her time working on Toyotas, Mazdas and SUVs.

153 Dr Ong appropriately acknowledged, in testimony, that 'there is a limit of how many cases you can see in one career.' We have no idea how many cases he saw where a determination of suicide versus homicide was contested. And, we have no idea how many of the determinations, by Dr Ong or other forensic pathologists, are correct.

reliably do it, or that the particular assumptions and 'method' are valid — ie, based on 'specialised knowledge'.[154] Being allowed to express an opinion — whether by a coroner or judge — is not the same as being capable of reliably discriminating between self-inflicted and other types of stab wounds.[155] Not everything done by experts, including experienced experts, is based on knowledge.[156] Here, identification by bite mark might afford a useful analogue.[157] For decades, in many jurisdictions, forensic dentists (and odontologists) were allowed to express opinions on whether a person's dentition matched a bitemark on a (usually deceased) human's skin.[158] Forensic dentists offered plausible sounding reasons (based on uniqueness of dentition, detailed comparisons of teeth and imprints on skin, biting experiments with replica teeth, and so on), employed technical biomedical language, possessed apparently relevant formal qualifications (including advanced degrees), formed specialist societies (eg, American Board of Forensic Odontology), developed consensus statements, and obtained experience performing bite mark comparisons and testifying in courts.[159] Yet, it turns out that bitemark comparison is not valid, and cannot be reliably performed.[160] Much of the extensive professional literature on

---

154 Kristy Martire and Gary Edmond, 'Rethinking Expert Opinion Evidence' (2017) 40(3) *Melbourne University Law Review* 967.

155 Treating coronial reliance or prior admission as sufficient is a form of bootstrapping, where what counts as 'knowledge' is deemed by legal fiat. On the 'illusion of knowledge', see Leonid Rozenblit and Frank Keil, 'The Misunderstood Limits of Folk science: An Illusion of Explanatory Depth' (2010) 26(5) *Cognitive Science* 521.

156 Philip Tetlock, *Expert Political Judgment: How Good Is It? How Can We Know?* (Princeton University Press, 2006). See also the misguided surgery described in Archibald Cochrane and Max Blythe, *One Man's Medicine: An Autobiography of Professor Archie Cochrane* (British Medical Journal, 1989).

157 I accept that the analogy has limitations, for there are a great many ways to wound with a bladed instrument.

158 In the Chamberlain case, Australian courts allowed odontologists (including one from England) to opine on whether damage to a child's clothing might have been made by a dingo. In that case, a forensic pathologist (Professor James Cameron, University of London) opined — in the absence of a body — that Azaria Chamberlain's throat had been cut with a blade — possibly a scissor.

159 Attempts to identify by bitemark involve pattern (or feature) comparison. See Erica Beecher-Monas, 'Reality Bites: The Illusion of Science in Bite-Mark Evidence' (2009) 30(4) *Cardozo Law Review* 1369, 1383; Mark Page, Jane Taylor and Matt Blenkin, 'Expert Interpretation of Bitemark Injuries: A Contemporary Qualitative Study' (2013) 58(3) *Journal of Forensic Sciences* 664; Mary Bush et al, 'Inquiry into the Scientific Basis for Bitemark Profiling and Arbitrary Distortion Compensation' (2010) 55(4) *Journal of Forensic Sciences* 976; Michael J Saks, 'Forensic Bitemark Identification: Weak Foundations, Exaggerated Claims' (2016) 3(3) *Journal of Law and the Biosciences* 538.

160 *PCAST Report* (n 21) 9: 'PCAST finds that bitemark analysis is far from meeting the scientific standards for foundational validity. We note that some practitioners have expressed concern that the exclusion of bitemarks in court could hamper efforts to convict defendants in some cases. If so, the correct solution, from a scientific perspective, would not be to admit expert testimony based on invalid and unreliable methods but rather to attempt to develop scientifically valid methods.'

identification by bite mark — which tends to be based around individual cases rather than robust data sets, validation studies and rigorous proficiency testing — is misguided or misleading.[161] Similar, unexpected, results have been confirmed in other forensic domains.[162] So much for untested scientific, technical and biomedical experience.

As for recourse to 'the literature', there is not a single reference to, or explicit engagement with, publications that support the contested opinion or the reasons advanced for it in Dr Ong's testimony or his autopsy report — where a version of the contested opinion was initially expressed.[163] There are no references to secondary sources in testimony insistent that the three factors advanced (or 'the minutiae') are well-known and accepted:

> I go — when I deduce — is based on literature. In terms of literature there are two different types of literature. One is that — is well-described in the forensic textbooks — the — what are the features of self-inflicted stab wounds and what are the features of homicidal stab wounds, and in this instance, there are some features suggestive of homicidal stab wounds.[164]

To be clear, I am not doubting the existence of literatures around stab wounds and, more specifically, whether they were self-inflicted. Rather, I am drawing attention to the fact that the witness did not identify any of the literature said to support the contested opinion and its sub-components.[165] The prosecutor, the trial judge, and defence counsel did not probe allusions to the literature, textbooks, articles and journals, let alone how any literature or studies might have informed or constrained the contested opinion.[166] Where an opinion is challenged, especially an opinion attended by reasons said to be based in the literature and accepted by forensic pathologists, it would seem incumbent on the prosecutor and

---

161 References to literature are important, but literatures may not report rigorous studies or be useful for resolving issues. Case reports would appear to have limited utility in this context.

162 See, eg, David White et al, 'Passport Officers' Errors in Face Matching' (2014) 9(8) *PLoS ONE* e103510:1–6; Royal Society and Royal Society of Edinburgh, *Forensic Gait Analysis: A Primer for Courts* (2017); Erik Randich, 'A Metallurgical Review of the Interpretation of Bullet Lead Compositional Analysis' (2002) 127(3) *Forensic Science International* 174; ABS Group, *Root and Cultural Cause Analysis of Report and Testimony Errors by FBI MHCA Examiners* (Report, August 2018); Committee on Evaluation of Sound Spectrograms, National Research Council, *On the Theory and Practice of Voice Identification* (National Academies Press, 1979); *Volpe v The Queen* [2020] VSCA 268.

163 This seems like a legal deficiency, at least in relation to admissibility. Questions of what a jury might legitimately make of any of this are (even) more complicated.

164 Transcript Pre-Trial Application (n 51) 19.

165 There are many references to the literature, cases mentioned in the literature, and to textbooks and articles, including in Cross-Examination (n 57) lines 202-6.

166 See the allusions in ibid lines 77-81, 83-6, 109-112, 141-4, 205-6, 208-9. This may be a consequence of the *Dasreef* 'shortcut' and the witness being a qualified medical specialist.

his witness to identify the literature which supports the assumptions, reasons, acceptance, ability to discriminate, accuracy and so forth.[167]

In the transcript and judgments reference is made to an article on 'incised injuries' written by Dr Ong.[168] Once again, the article is not identified. The real question is, of course, what significance this article has for the contested opinion and 'specialised knowledge' around whether the deceased's injury was self-inflicted. It is far from clear that the unnamed article addresses the ability to discriminate between who inflicted the wounds.[169] Knowledge of physiology, anatomy, and the ability to describe wounds, like previous experience with stab wounds and even being allowed to express opinions on whether stab wounds were self-inflicted, does not obviously translate into an ability to determine whether particular wounds were self-inflicted.[170]

A recent article in the *Proceedings of the National Academy of Sciences* written by members of the Academy's longstanding multidisciplinary Committee on Science, Technology and Law warned against over-reliance on training and experience:

---

167 See *Tuite v The Queen* (2015) 49 VR 196, and more generally *Davie* (n 25). On prosecutors and expert evidence, see Gary Edmond, '(Ad)Ministering Justice: Expert Evidence and the Professional Responsibilities of Prosecutors' (2013) 36(3) *University of New South Wales Law Journal* 921.

168 *R v Lang* [2020] QSCPR 26, [12] (Lyons SJA).

169 The article appears to be Beng-Beng Ong, 'The Pattern of Homicidal Slash/Chop Injuries: A 10 Year Retrospective Study in University Hospital Kuala Lumpur' (1999) 6(1) *Journal of Clinical Forensic Medicine* 24. As the title suggests, the article examines a small group of slash/chop deaths in Kuala Lumpur between 1987-96. The article does not focus on, or explain, the ability to discriminate between suicide and homicide, but takes that ability for granted. Nevertheless, the study depends on forensic pathologists being able to reliably distinguish homicide from other types of death, but there is no discussion of the basis of the distinction or the problem of 'ground truth' — how does the forensic pathologist *know* these deaths were homicide? While some of the deaths might unquestionably be homicide (eg, those observed by multiple witnesses or featuring cuts to the back), ground truth is a serious methodological problem in this and many forensic pathology publications. Forensic pathologists routinely proceed on the basis that their interpretations of cause or manner of death (or similar interpretations provided by others) are correct. This is a problem, because we must be assured that all of the deaths are homicide before we can draw reliable inferences from the data. The cases assembled for the Malaysian study provide limited insight into these issues. The article divides the 'homicides' according to whether they were 'intentional'. Again, there is no explanation of how a forensic pathologist might know. Just under half of the total cases in the sample (n=37) were said to feature more than five cuts (16/27 of the 'intentional' slash/chops), less than a third featured cuts to the 'trunk' (12/37), and just under half featured defence injuries (16/37). There is also a conspicuous interest in identifying the 'the fatal blow'.

170 On the limited transfer of expertise, see Fernand Gobet, *Understanding Expertise: A Multidisciplinary Approach* (Red Globe Press, 2016). Though, see also Bethany Growns et al, 'Jack of All Trades, Master of One: Domain-Specific and Domain-General Contributions to Perceptual Expertise in Visual Comparison' (2024) 9 *Cognitive Research: Principles and Implications* 73; Alice Towler et al, 'Diverse Types of Expertise in Facial Recognition' (2023) 13(1) *Scientific Reports* 11396.

> While few could deny the value of experience, it cannot substitute for empirical evaluation of validity, assessed through carefully designed studies to determine the probability that a forensic method provides the correct answer.[171]

What was required in *Lang* was evidence — drawn from validation studies — that the method (and factors) relied on by Dr Ong was capable of supporting the opinion proffered. Members of the National Academy of Sciences ('NAS') Committee suggested that courts in the United States have tended to adopt a '"trust the examiner" zeitgeist' rather than a '"trust the scientific method" approach'.[172] Like many commentators, the Committee lamented the 'abdication of gatekeeping responsibility'.[173]

In trying to understand Dr Ong's opinions, all of the pro-admissibility judges directed their attention to formal qualifications, the number of autopsies he had performed over his career as well as his experience with cases involving stab wounds.[174] They took comfort from a literature that was not identified, let alone produced. This is important, because the issue is not really how many autopsies he has performed (which mostly do not involve stab wounds or murder). Nor is it a question of how many stab wounds he has encountered. Rather, what we need to know is whether he (and others) can *reliably distinguish* between self-inflicted stab wounds and stab wounds inflicted by others.[175]

E *Comparing the Reasoning, Literature and Jurisprudence from* Velevski

Another way of problematising the reasons offered in *Lang*, along with judicial responses to expert opinion more generally, without a long technical excursion into the biomedical literature, is to contrast those reasons with factors advanced

---

171 Thomas D Albright et al, 'Science, Evidence, Law, and Justice' (2023) 120(41) *Proceedings of the National Academy of Sciences* e2312529120. See also *PCAST Report* (n 21) 55.

172 Albright et al (n 171). See also Jonathan J Koehler et al, 'Science, Technology, or the Expert Witness: What Influences Jurors' Judgments about Forensic Science Testimony' (2016) 22(4) *Psychology, Public Policy and Law* 401. This has resonances with Sir Owen Dixon's observations, quoted by Kiefel CJ and Gageler J in *Lang* (n 1) 333 [13]: 'However valuable intuitive judgment founded upon experience may be in diagnosis and treatment, it requires the justification of reasoned explanation when its conclusions are controverted'; and by Gordon and Edelman JJ at 390 [227]. See also Justin Gleeson, 'The Judge, the Advocate and the Expert Witness: Revisiting the Seminal Views of Sir Owen Dixon in the Modern Context' (2016) 48(4) *Australian Journal of Forensic Sciences* 366.

173 See, eg, Chris Maxwell, 'Preventing Miscarriages of Justice' (2019) 93(8) *Australian Law Journal* 642; Gary Edmond, 'Forensic Science Evidence and the Conditions for Rational (Jury) Evaluation' (2015) 39(1) *Melbourne University Law Review* 77.

174 *Lang* (n 1) 335–6 [21] (Kiefel CJ and Gageler J), 377 [187] (Gordon and Edelman JJ), 450 [441], 456 [463] (Jagot J).

175 In terms of the UEL, what is the 'specialised knowledge' on which the contested opinion is substantially based? See Martire and Edmond, 'Rethinking Expert Opinion Evidence' (n 154); Edmond, 'Conditions for Rational (Jury) Evaluation' (n 173).

by *one* of the forensic pathologists in *Velevski*.[176] In that case, the forensic pathologist (Dr Bradhurst) who attended the crime scene and conducted autopsies on Snezana Velevski and her three young children, came to the conclusion that the mother had cut the throats of the children before cutting her own throat in a locked bedroom of the family home. Snezana's husband, Ljube Velevski, was subsequently convicted of killing Snezana and their children. The prosecutor called five forensic pathologists, most senior to Dr Bradhurst. All but Dr Bradhurst and a forensic pathologist called by the defence thought it more likely that the husband had killed them all.[177] At trial and on appeal the primary focus was on the mother's death because the other deaths — unquestionably murders — were not illuminating on the issue of Mr Velevski's guilt.

Among the many complicated interpretations and issues raised by *Velevski* I want to draw attention to three. In doing so, I am initially drawing on detail provided in Gaudron J's dissenting judgment. When explaining the reasons for preferring suicide to homicide, Dr Bradhurst relied on three main factors, namely:

- the absence of evidence of any struggle;
- the superficial parallel cuts along the edges of the main wound which, he said, were 'consistent with [it] being self-inflicted rather than with being carried out by someone else'; and
- 'the absence of typical defence type injuries.'[178]

The reader might note the striking difference between these factors and emphases and those expressly relied upon by Dr Ong. The first and third of these were also present in *Lang*, but do not feature among the factors identified and invested with significance. Dr Bradhurst attached considerable weight to the 'tranquillity of the scene' and the absence of defence wounds. In *Velevski* there

---

176 A systematic review wound be vastly preferable. The Evidence-Based Forensics Initiative is conducting such a review in order to determine what the relevant research literature is capable of supporting: see Jason M Chin et al, 'Systematic Review: The Reliability of Indicators that may Differentiate between Suicidal, Homicidal, and Accidental Sharp Force Wounds' (Article, MetaResearch Open Review, 1 April 2025) <https://metaror.org/kotahi/articles/23/index.html>. Here, I am using a methodological approach with resonances to 'methodological symmetry' from the strong programme in the sociology of scientific knowledge. See David Bloor, *Knowledge and Social Imagery* (Routledge & Kegan Paul, 1976). One advantage with this approach is that it draws exclusively on materials (from *Velevski*) that were readily available to all of the lawyers and judges involved in *Lang*.

177 Relying on images of the scene and autopsy, the other, more senior, forensic pathologists each suggested that Snezana was murdered.

178 *Velevski* (n 15) 414 [70]. Here I am interested in the factors (and reasons) advanced for the decision. It is not my intention to suggest that Dr Bradhurst was correct or to criticise the other forensic pathologists in their reliance on different factors and reasons.

was disagreement as to whether 'parallel cuts' were hesitation wounds.[179] Notwithstanding some difficulty explaining aspects of the physical evidence (including the depth of the wound, the location of foetal blood and the displacement of the bed), the factors listed above were presented by Dr Bradhurst as decisive. In *Lang*, in contrast, the multiple stab wound was foregrounded as the most important factor, whereas two of the primary factors relied upon (by Dr Bradhurst) in *Velevski* were relegated to the background.

Secondly, extracted in the judgment of Gummow and Callinan JJ is part of a chapter written by Professor Stephen Cordner, a prominent Australian forensic pathologist, and at the time Director of the Victorian Institute of Forensic Medicine. This is the only time in *Velevski* or *Lang* where we confront actual biomedical literature. The text by Cordner, apparently part of a literature review, is revealing because of what is mentioned and what is absent.

> *Suicidal injuries*
>
> Suicidal injuries usually occur in what are called 'sites of election'. Sites involving incised wounds from sharpened implements such as razors include the wrists, front of elbows and forearms, front and sides of neck and occasionally the groin. *Wounds may be single but are often multiple and grouped together*, and there may be a regularity or symmetry to the pattern. For example, the wounds are often parallel to each other, and often of similar severity, although there may be a number of 'tentative' marks adjacent to the more significant wounds. The injured site, by definition, must be accessible. The clothing is usually spared.
>
> It is not usually difficult to distinguish a suicidal and homicidal 'cut' throat. The former often has the characteristic tentative or hesitant relatively superficial incisions, usually at the lateral end of the deeper wounds. The presence of other suicidal injuries, the absence of injuries associated with an assault together with circumstances indicating a suicide, including the location of the weapon, will assist with resolving the issue. Suicidal stab wounds may be accompanied by 'tentative' marks.
>
> Vanezis and West (1983) reported on 21 fatal cases of self-stabbing. In fifteen cases, tentative or hesitation injuries were present. In a further two cases, such marks were evident in the clothes but not on the body, emphasising the importance of examining the clothing. *Often the clothing is completely spared.* The common sites of election are the chest and abdomen, the exact location sometimes depending on the victim's knowledge of anatomy. [180]

---

179 Other forensic pathologists thought the 'peaceful' scene might suggest a clean-up or some tidying — of which there was no direct evidence. Once again, we might wonder whether this is within scope for forensic pathologists. And, how we avoid it being considered (and so factored in) by forensic pathologists *and* the tribunal of fact.

180 *Velevski* (n 15) 427 [159] (Gummow and Callinan JJ) (emphasis added). The source referred to in the final paragraph is Peter Vanezis and Iain West, 'Tentative Injuries in Self Stabbing' (1983) 21(1) *Forensic Science International* 65.

In this extract *on suicides* we find reference to common sites of fatal stabbings ('chest and abdomen'), hesitation injuries and previous attempts, defence wounds (eg, 'injuries associated with an assault') as well as 'multiple' wounds from 'sharpened implements' being 'grouped together'. This last observation is intriguing. Given the description, an attentive reader might wonder whether multiple stab wounds are particularly diagnostic or ought to be considered the most important factor in favour of homicide in *Lang*. There are no references in the extract to the rotation of sharpened implements or internal tracks, though we are told that clothing is often 'spared'. The sparing of clothing can be read in a manner that is inconsistent with Dr Ong's characterisation of the pierced bedsheet (in testimony).[181] There are no references to bedsheets, but the discussion of clothing suggests that persons who commit suicide often remove clothes to avoid obstructions when inflicting wounds. Incongruously, a factor described as supporting suicide, though said to be neutral in its application in *Lang*, on this literature would appear to be more closely associated with the infliction of wounds by another. Cordner's description of 'sparing' the clothing and the need to examine clothing, along with the findings by Vanezis and West (1983), might have been invoked *in support of Dr Ong's contested opinion*.

It is not my intention to endorse Dr Bradhurst's approach or Professor Cordner's chapter (which does not describe a method), but recourse to *Velevski* opens Dr Ong's reasons — the reliance placed on particular factors and the weightings assigned to them — to further question.[182] We might reasonably wonder whether the literature on the significance of particular features of death caused by stabbing has significantly changed over the last decade or two. Or, as also seems open, when we consider the opinions of forensic pathologists in *Velevski* and other cases, there is relatively limited agreement about the interpretation and significance of a wide range of potential factors. This short detour, a mere skimming of a more extensive literature and set of practices and beliefs, opens the possibility that factors and reasons relied upon by Dr Ong might

---

[181] Dr Ong made a written statement about the bedsheet which is prima facie inconsistent with the testimony reproduced in *Lang* (n 1) 459 [470] (Jagot J). Having identified *four* factors said to be in favour of the wound being 'inflicted by a second party', the *Autopsy Report* continues: 'Other features indicating less likelihood of a self-inflicted injury were as follows: The stab wound had perforated through the bed sheet and not directly to the body. It is more common for self-inflicted injuries to be directly inflicted onto the body rather than through an intermediary object.': (n 38) 13. I do not mean to suggest that this apparent inconsistency is a major point, though it may evidence confusion in the testimony, or its transcription, or both. See *Lang* (n 1) 385 [215], 392 [237] (Gordon and Edelman JJ), 396 [254], 453 [451] (Jagot J).

[182] See also Stephen Cordner, 'The Peden Case and Expert Witnesses' (December 1990) 153(11–12) *Medical Journal of Australia* 643, 644. In the extract above, Professor Cordner asserts that distinguishing between suicidal and homicidal 'cuts' to the throat is 'not usually difficult'. We might wonder about the evidence supporting this claim, and how to determine when a case has moved into the more difficult category.

not be entirely consistent with the literature alluded to.[183] We cannot say anything more conclusive on the basis of a short extract from a single chapter written two decades earlier, but the characterisation of what is 'accepted' among forensic pathologists in *Lang* might not capture a more complex, refractory and divided realm of knowledge *and ignorance*.[184]

Thirdly, the appeal in *Velevski* simultaneously exposes a subsequently obscured realm of legal scepticism around the ability of forensic pathologists to reliably discriminate between self-inflicted wounds and wounds inflicted by others. The view of a former President of the Victorian Court of Appeal, quoted in *Velevski*, is worth repeating, not least because it touches upon the question of who might be able to offer opinions and what might be required to do so:

> I must confess to some difficulty in comprehending how a person, medically qualified or not, by merely observing wounds, can express an opinion that they have been 'self-inflicted'. However, I am prepared to accept that such a body of knowledge exists. … What is clear, however, is that such body of knowledge does not derive from recognised principles of medical science, but rather from the study of characteristics and patterns of wounds from which one may infer, by comparison with recognised standards, that the wounds being studied are themselves self-inflicted. … In a real sense, as I understand it, the claimed expertise is derived from empirical data in much the same way as those who claim an expertise in analysing and interpreting blood stains to determine their source of origin, whence they emanate and the force of impact required to produce them. … In general terms, the law's own experience suggests that expressions of opinions that a wound or wounds are self-inflicted are those expressed with full knowledge of surrounding circumstances; for example the history given by the victim or the knowledge that the victim was found in circumstances suggesting self-harm, etc.[185]

Writing before Victoria embraced the UEL in 2008, Winneke P recognised what many others have not: the ability to discriminate between self-inflicted and other types of wounds involves feature (or pattern) comparison and requires the careful collection and analysis of empirical data (rather than a handful of cases). Interestingly, the issue was touched upon by Kiefel CJ and Gageler J in *Lang*:

> [I]t amounted to a process of inferential reasoning throughout which Dr Ong was engaging in a comparison of the features of this stab wound with what he had seen and

---

183 Even general acceptance does not prove knowledge or ability. It was not until formal testing demonstrated that they could not accurately identify biters based on marks on skin that the prevailing acceptance was disturbed. It is worth noting that not even empirical evidence changed the beliefs and confidence of a minority of forensic odontologists.

184 All of the forensic pathologists who testified in *Velevski* were willing, and presumably felt entitled, to express opinions about who inflicted the wounds.

185 *Velevski* (n 15) 427 [155] (Gummow and Callinan JJ) quoting *R v Anderson* (2000) 1 VR 1, 22–3 [55]. Ordinarily, 'surrounding circumstances' are for the tribunal of fact. Where experts (and judges) do not manage access to information, trials and appeals featuring the opinions of forensic pathologists (and other experts) may encourage double-counting — a form of irrationality — as both experts and the tribunal of fact are separately influenced by them.

> read of the features of stab wounds made in the past by people who had wanted to kill themselves and by people who had been killed by others.[186]

Reviewing feature-comparison procedures used by forensic scientists in 2016, President Obama's Advisory Committee for Scientific and Technology ('PCAST') insisted on the need for validated methods: 'For forensic feature-comparison methods, establishing foundational validity based on empirical evidence is thus a *sine qua non.* Nothing can substitute for it.'[187] And:

> Subjective [feature-comparison] methods require particularly careful scrutiny because their heavy reliance on human judgment means they are especially vulnerable to human error, inconsistency across examiners, and cognitive bias. In the forensic feature-comparison disciplines, cognitive bias includes the phenomena that, in certain settings, humans may tend naturally to focus on similarities between samples and discount differences and may also be influenced by extraneous information and external pressures about a case. [188]

President Winneke's analogy with blood stain analysis, given that Dr Ong was engaged in subjective feature comparison and interpretation, is revealing.[189] Recent empirical studies evaluating actual abilities, rather than the self-serving claims, of those conducting blood pattern analysis, suggests that accuracy is significantly lower than historically claimed (and legally accepted).[190] President Winneke also noted, in an era before contextual and cognitive bias appeared, albeit faintly, on judicial 'radars', that the attribution of a cause usually depends on 'surrounding circumstances' — ie, factors beyond the wound, on which medical doctors may possess few advantages over jurors.

---

186 *Lang* (n 1) 336–7 [24] (Kiefel CJ and Gageler J).

187 *PCAST Report* (n 21) 6. PCAST's first recommendation was to validate feature comparison methods. Its eighth recommendation to the United States Federal Judiciary states: 'Federal judges, when permitting an expert to testify about a foundationally valid feature-comparison method, should ensure that testimony about the accuracy of the method and the probative value of proposed identifications is scientifically valid in that it is limited to what the empirical evidence supports.'

188 *PCAST Report* (n 21) 5. Endorsing the *NRC Report* (n 21), PCAST concluded: 'The 2009 report found that shortcomings in the forensic sciences were especially prevalent among the feature-comparison disciplines, many of which, the report said, lacked well-defined systems for determining error rates and had not done studies to establish the uniqueness or relative rarity or commonality of the particular marks or features examined.'

189 Just a few years earlier John Winneke QC had been counsel for Lindy and Michael Chamberlain at the Morling Royal Commission: see *Royal Commission of Inquiry into Chamberlain Convictions* (Report, June 1987).

190 See, eg, Austin Hicklin et al, 'Accuracy and Reproducibility of Conclusions by Forensic Bloodstain Pattern Analysts' (2021) 325 *Forensic Science International* 110856. In *Mahony* (n 25), relied upon in *Lang QCA* (n 40), the Queensland Supreme Court and Court of Appeal treated a forensic pathologist's opinions on blood spatter as unproblematic.

F *What about Exposure to Contextual Information and Cognitive Biases?*

In the previous extract from PCAST, President Obama's scientific advisers expressed concerns about the vulnerability of forensic scientists to human factors, particularly a range of cognitive biases.[191] Lawyers and courts are yet to fully appreciate the threat to interpretations — including the opinions of those with demonstrable expertise using validated methods — posed by gratuitous exposure to contextual information, suggestions, confirmation and so on. Like most cases involving the opinions of forensic pathologists (and many other expert witnesses), in *Lang* the lawyers and judges do not appear to have considered the implications for the contested opinion introduced by Dr Ong's attendance at the scene and exposure to potentially biasing information. Forensic pathologists, in part because of the complexity and breadth of their work, but also because of pervasive beliefs about special abilities flowing from medical training and experience, have been resistant to addressing the implications of human factors.[192] Unfortunately, empirical evidence confirms that forensic pathologists (like forensic scientists, jurors and judges) are vulnerable to context effects and cognitive biases unconsciously influencing their interpretations.[193]

Scientific studies have repeatedly demonstrated how exposure to extraneous information has the potential to dramatically change the way experts (and non-experts) interpret evidence.[194] This information is often described as *task*- (or domain-) *irrelevant* because it is not required to perform some specific analysis.[195] Exposure to task-irrelevant information threatens to bias the analyst's interpretation. Interpretation is particularly vulnerable to the influence of task-irrelevant information where the stimuli are ambiguous, involve difficult causal

---

191 Expert Working Group on Human Factors in Latent Print Analysis, *Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach* (Report, February 2012) vi: 'The study of human factors focuses on the interaction between humans and products, decisions, procedures, workspaces, and the overall environment encountered at work and in daily living. Human factors analysis can advance our understanding of the nature of errors in complex work settings.' See also Linda T John, Janet M Corrigan and Molla S Donaldson (eds), *To Err Is Human: Building A Safer Health System* (National Academy Press, 1999).

192 William Oliver, 'Cognitive Bias in Medicolegal Death Investigations' (2015) 5(4) *Academic Forensic Pathology* 548; Itiel Dror, 'No One Is Immune to Contextual Bias — Not Even Forensic Pathologists' (2018) 7(2) *Journal of Applied Research in Memory and Cognition* 318. Dan Simon describes the reasoning processes in forensic pathology as abductive: 'complex, sprawling, iterative and open-ended': 'Minimizing Error and Bias in Death Investigations' (2019) 49(2) *Seton Hall Law Review* 255, 277.

193 See Itiel Dror et al, 'Cognitive Bias in Forensic Pathology Decisions' (2021) 66(5) *Journal of Forensic Science* 1751, and the ensuing correspondence, including John Morgan, 'Wrongful Convictions and Claims of False or Misleading Forensic Evidence' (2023) 68(3) *Journal of Forensic Science* 908; Allison Harris and Maya Sen, 'Bias and Judging' (2019) 22(1) *Annual Review of Political Science* 241.

194 For an overview, see Glinda S Cooper and Vanessa Meterko, 'Cognitive Bias Research in Forensic Science: A Systematic Review' (2019) 297 *Forensic Science International* 35.

195 See *NCFS Views Document* (n 138) app.

attributions, or methods are vague (or untested). For a forensic pathologist, task-irrelevant information might include: some aspects of a visit to the scene; being told police suspicions; receiving the results of forensic tests; knowing about suspects and their relationships; and, even details about the demographics (especially age, gender and race) of dead persons and suspects.[196] Forensic pathologists should endeavour to develop empirically based frameworks specifying what is required to perform specific analyses (based on validation studies) and design resource-sensitive processes, such as blinding, sequential unmasking or selective task splitting, to manage unnecessary cognitive contamination and reduce error.[197] The double-blinded clinical trials used to evaluate pharmaceuticals and therapeutic products, are among the best known of these kinds of procedures.

Exposure to contextual and task-irrelevant information can change the way biomedical professionals interpret and report injuries. A study of physical anthropologists and their responses to skeletal damage is informative.[198] Experienced forensic anthropologists were presented with high-quality professional images of human bones along with information about the circumstances of their recovery. One group was told the bones were from a mass grave associated with a modern site of conflict (eg, Sarajevo). A second group was told the same bones were recovered from a 19th century cemetery. A third group was provided with no contextual information. The results? Interpretations of the bones in the photographs were influenced by the contextual information provided. The physical anthropologists who were told the bones were from a mass grave were far more likely (than the other groups) to attribute damage to pre-mortem trauma, especially where the damage was ambiguous. They were also more likely to characterise bones with no conspicuous damage as showing signs

196 Some, though certainly not all, of this might be difficult for forensic pathologists to manage or avoid.

197 See Simon (n 192) for a discussion of complexities and a range of pragmatic responses. See generally, Christopher Robertson and Aaron Kesselheim (eds), *Blinding as a Solution to Bias: Strengthening Biomedical Science, Forensic Science, and Law* (Academic Press, 2016); Dan Krane et al, 'Sequential Unmasking: a Means of Minimizing Observer Effects in Forensic DNA Interpretation' (2008) 53(4) *Journal of Forensic Science* 1006. 'Task-splitting' involves organising work so that relevant issues or information are captured, but not in ways that are likely to contaminate individual interpretations. This might involve a case manager triaging information. For example, different forensic pathologists might attend the scene and perform the autopsy. The pathologist attending the scene (or a case manager) can inform the pathologist conducting the autopsy about any task *relevant* information while shielding her from task irrelevant information and context.

198 Sherry Nakhaeizadeh et al, 'The Power of Contextual Effects in Forensic Anthropology: A Study of Bias Ability in the Visual Interpretations of Trauma Analysis on Skeletal Remains' (2014) 59(5) *Journal of Forensic Sciences* 1177. Subsequent studies suggested that biasing might be cumulative: see Sherry Nakhaeizadeh et al, 'Cascading Bias of Initial Exposure to Information at the Crime Scene to the Subsequent Evaluation of Skeletal Remains' (2018) 63(2) *Journal of Forensic Sciences* 403.

of possible trauma.[199] Those who were told the bones were older were more likely to interpret the damage as post-mortem. Both of these groups diverged significantly from interpretations of the bones by members of the control group.[200] Here, we can observe how exposure to information can unwittingly bias and change interpretations and, in some circumstances, should even lead us to question claimed abilities[201] — in this example the ability to reliably interpret skeletal damage *and* its causes.

In relation to *Lang*, one way to think about the risks posed by contextual and cognitive bias is to consider what Dr Ong knew (or expected) when forming the contested opinion as well as what happened in the aftermath (with respect to confirmation bias).[202] It is unclear from the legal records when (and on what basis) the contested opinion emerged or precisely what was known at that time — a situation reflecting the prevailing legal indifference to human factors — but even a few hypothetical examples might help to distil some of the potential vulnerabilities.[203] It seems likely, from his attendance at the scene and interaction with investigators, that Dr Ong knew there were only two persons in the apartment when Mrs Boyce died.[204] Dr Ong may have known about Mr Lang's relationship with the deceased being strained and possibly coming to an end, and perhaps the evidence associated with a disagreement.[205] This is precisely the kind of task-irrelevant information which might unconsciously transform an attribution of

---

199 We might legitimately wonder if such exposures would lead them to report that such possibilities were 'more likely'. Moreover, this particular result bears directly on the claim by Kiefel CJ and Gageler J, that descriptions of damage are factual rather than interpretation: see above n 69.

200 There may be legitimate questions around what precisely is task-irrelevant in different analyses. We should remember that the only difference between the various conditions in this study was the provision of contextual information. The contextual information changed (ie biased) the way the bones were interpreted, and even their description.

201 This may be complicated by (un)certainty about the accuracy of the information, and whether others — such as judges or the tribunal of fact — might also have access to the same information and even be asked to consider it as part of their fact-finding.

202 One of the additional dangers involves the forensic pathologist placing conscious reliance on information, such as the three cases and the oddness of the wound, 'typically in the honest belief that it is relevant, reliable and diagnostic.' See Simon (n 192) 302.

203 The lawyers and judges do not attend to the conditions of opinion formation.

204 *Autopsy Report* (n 38) 13, following a version of the contested opinion, states: 'The interpretation is based on the circumstances as given to me including the visit to the scene, post-mortem examination, including post-mortem CT scan finding and toxicological results.' We might reasonably wonder: if forensic pathologists can reliably distinguish between self-inflicted stab wounds and stab wounds inflicted by others, do they need to know that there were two people in the apartment? And, is that knowledge, and insight into the relationship, likely to influence — whether consciously or unconsciously — their interpretations? We might also note that the presence of others, and ease of opportunity, are not among the factors (or reasons) advanced in *Lang* or *Velevski*.

205 Dr Ong spoke to police when giving a briefing at the scene: Transcript Trial Day 4 (n 48) 15. When testifying in the second trial, Dr Ong presumably knew that Lang had been convicted by a jury, succeeded on appeal, and that the prosecutor was determined to proceed again.

suicide, or uncertainty, into an attribution of homicide.[206] Dr Ong presumably received the toxicological results (before completing his autopsy report) and so was aware of the presence of therapeutic doses of drugs ordinarily used to manage mental illness.[207] Dr Ong may have been exposed to much of the evidence presented to the jury, albeit in more or less elaborate forms. He may have been exposed to the beliefs of detectives and prosecutors (over time). The risks flowing from exposure to task-irrelevant information were compounded by the unusual wound and apparent difficulty of the task, as well as uncertainty around the factors required to make an accurate determination (along with their relative weightings).

A serious problem for fact-finding in trials and appeals is our inability to retrospectively determine if an expert's opinion has been unconsciously biased — whether influenced or potentially determined — by task-irrelevant information. This seems to be a largely unrecognised problem. By and large courts pretend that well-studied, and so scientifically notorious, biases, such as expectation, confirmation and hindsight, belief preservation, overconfidence, base-rate neglect, and the illusion of consistency are non-issues; easily transcended by highly trained and experienced experts or overcome by adversarial trial safeguards such as cross-examination and judicial directions.[208] Empirical study demonstrates the vulnerability of all persons and the high likelihood that traditional trial safeguards are routinely ineffective.[209] Cognitive contamination cannot be corrected through retrospective attempts to identify exposure(s) to task-irrelevant information, explaining the risks to cognition to the tribunal of fact, or directing it to take them into account or ignore the potentially biasing information. For, how does a jury take into account the danger that information might have influenced a highly experienced expert; or even unconsciously *determined* her opinions? Difficulties are compounded where the expert or prosecutor treats the introduction of cognitive bias as little more than a desperate attack on the witness's integrity, character and credibility.[210] To be clear, the prevailing legal attitudes and responses are

---

206 To be clear, information about the relationship is task-irrelevant to the forensic pathologist's interpretation of the body, but it is not irrelevant to the facts in issue and should be considered by the tribunal of fact. The forensic pathologist's opinion — developed using a valid method that limits exposure to task-irrelevant information — should be incorporated into the tribunal of fact's evaluation of the overall case.

207 This may have been complicated by an awareness that statistical evidence, about the frequency of suicides among persons with mental illnesses, had been deemed inadmissible by the Queensland Court of Appeal in upholding Lang's appeal following an earlier trial: see *R v Lang* [2019] QCA 289.

208 Emily Pronin, Daniel Y Lin and Lee Ross, 'The Bias Blind Spot: Perceptions of Bias in Self Versus Others' (2002) 28(3) *Personality and Social Psychology Bulletin* 369.

209 See Gary Edmond and Mehera San Roque, 'The Cool Crucible: Forensic Science and the Frailty of the Criminal Trial' (2012) 24(1) *Current Issues in Criminal Practice* 51; Gary Edmond et al, 'A Warning about Judicial Directions and Warnings' (2023) 44(1) *Adelaide Law Review* 194; Gary Edmond et al, 'Forensic Science Evidence and the Limits of Cross-Examination' (2019) 42(3) *Melbourne University Law Review* 858.

210 In some jurisdictions, these kinds of questions can lift the defendant's character shield: see *R v Yaryare* [2020] EWCA Crim 1314, [69]–[73], [99]–[110] (Fulford LJ).

incompatible with the description of the risks and recommendations by PCAST, the NAS and the Forensic Science Regulator (UK).[211]

Perhaps even more invidious, how do courts prevent the information which may have biased experts from also contaminating the interpretations of jurors and judges?[212] This is a largely unrecognised problem for adversarial proceedings, especially where an expert's opinion is closely related to the ultimate issue and presented as independent evidence. Where an expert is unnecessarily exposed to (and potentially biased by) task-irrelevant information they are trespassing on the jurors' prerogative.[213] It is the jurors who are required to consider all of the evidence — including evidence that is, or should be, task-irrelevant to the expert — and to evaluate it according to directions and the law. Where experts do not manage their exposure to task-irrelevant information (or do not have a clear idea of information that is task-*relevant* — ie, 'within scope' and so required — for some analytical task), there are real risks that this information will unwittingly influence their interpretations *and be re-used* — in the sense of being open to double-counting and circular reasoning — by the tribunal of fact in its own fact-finding.[214] In these circumstances the jury hears the (unwittingly) contaminated opinion as well as the evidence contaminating it. The contaminating evidence is routinely characterised as independent (separate strands in evidence theory) or treated as though the tribunal of fact is capable of keeping it independent in its fact-finding. The resulting risk of double-counting is rarely identified or considered, even though apart from blinding the expert or excluding their contaminated opinions, there appear to be no reliable means of mitigating dangers.[215]

Peak scientific bodies have repeatedly warned experts and courts about the dangers that cognitive bias poses to forensic science and medicine evidence. Consider the following description by PCAST:

> Cognitive bias refers to ways in which human perceptions and judgments can be shaped by factors other than those relevant to the decision at hand. It includes 'contextual bias', where individuals are influenced by irrelevant background information; 'confirmation bias', where individuals interpret information, or look for new evidence, in a way that conforms to their pre-existing beliefs or assumptions; and

---

211 See *PCAST Report* (n 21) 31–2; *NRC Report* (n 21), recommendations 5 and 6; Forensic Science Regulator, *Cognitive Bias Effects Relevant to Forensic Science Examinations: Issue 2* (Guidance, 2020).

212 Gary Edmond, 'Against Jury Comparisons' (2022) 96(5) *Australian Law Journal* 315.

213 The results of such trespassing cannot be repaired, and may not even be identifiable, retrospectively.

214 William Thompson, 'What Role Should Investigative Facts Play in the Evaluation of Scientific Evidence?' (2011) 43(2–3) *Australian Journal of Forensic Science* 123, 131. Consider, for example, the absence of defensive injuries. Was this a factor for the forensic pathologist or for the jury? If the forensic pathologist relied upon it (or even was exposed to it) how do we keep the strands independent if the tribunal of fact is told about both the absence as well as the contested opinion *informed* by it?

215 Gary Edmond, 'Investigators, Cognitive Bias and Double-Dipping: Misunderstanding Opinion Evidence in Trials and Appeals' (2023) 97(8) *Australian Law Journal* 543.

> 'avoidance of cognitive dissonance', where individuals are reluctant to accept new information that is inconsistent with their tentative conclusion. The biomedical science community, for example, goes to great lengths to minimize cognitive bias by employing strict protocols, such as double-blinding in clinical trials.[216]

This passage could be used as a 'key' to understanding the contested opinion, particularly the way factors were selected, weighed, privileged and elided.[217]

G *What about Mandatory and Discretionary Exclusion?*

Interestingly, Kiefel CJ and Gageler J suggested that Dr Ong's contested opinion might have been excluded on the basis that its probative value was outweighed by the danger of unfair prejudice to the defendant — the test prescribed by *R v Christie* ('*Christie*'),[218] the common law analogue to UEL s 137. In so doing, they even adverted to the danger of a 'white coat effect':

> The prejudicial effect which might in an appropriate case be required to be weighed against the probative value of an expert opinion has properly been recognised to be capable of including a risk that a jury might give the opinion more weight than it deserves by reason of a perception of the status of the expert — the so-called 'white coat effect' — or by reason of difficulty in assessing information of a technical nature.[219]
>
> Absent a clearer explanation of Dr Ong's process of reasoning, his opinion about whether the features of the wound which he identified were more consistent with stabbing by someone else *might legitimately have been thought to have carried little more weight than the opinion that could be expected to be formed by a layperson* once apprised through the technical description by Dr Ong of the same features of the wound. That *weakness* might well have been thought to have gone to the admissibility of Dr Ong's opinion had the argument been advanced that its probative value was outweighed by its prejudicial effect.[220]

Nevertheless, the fact that the *Christie* discretion was not raised at trial or on appeal is revealing. Following *IMM v The Queen*,[221] the credibility of the witness and the reliability of the evidence are not taken into account when determining '*the extent to which* the evidence could *rationally* affect the assessment of the probability of

---

216 *PCAST Report* (n 21) 31; *NRC Report* (n 21) 122: 'Human judgment is subject to many different types of bias, because we unconsciously pick up cues from our environment and factor them in an unstated way into our mental analyses.' See also Keith A Findley and Michael S Scott, 'Multiple Dimensions of Tunnel Vision in Criminal Cases' [2006](2) *Wisconsin Law Review* 291.

217 See also Daniel C Murrie et al, 'Are Forensic Experts Biased by the Side That Retained Them?' (2013) 24(10) *Psychological Science* 1889.

218 (n 29).

219 *Lang* (n 1) 334–5 [17].

220 Ibid 337 [25] (emphasis added). See also at 387–8 [221] (Gordon and Edelman JJ). Several trial judges have privately suggested to me that this is the great hope afforded by *Lang*.

221 (2016) 257 CLR 300.

the existence of a fact in issue'.[222] Perversely, courts have largely rejected the need to engage with validity and reliability, and other indicia of trustworthiness, when endeavouring to determine the 'the extent' or capacity of opinions said to be based on scientific, technical or biomedical knowledge.[223] Indifference to knowledge, and insensitivity to the very information that informs the maximum capacity of a method, procedure or ability, means that probative value is necessarily a judge's best guess — informed by what they think a jury might (reasonably) do. Some judges imagine that the maximum value is the opinion being correct — because a jury might adopt that view. When weighed against pro-admissibility maxima, lawyers have struggled to persuade trial judges of the dangers of unfair prejudice flowing from the admission of speculative or experience-based opinions proffered by those with advanced degrees, official titles and formal positions (usually with state agencies). The problem has been compounded by a naïve, indeed anti-scientific, optimism in the effectiveness of cross-examination, defence experts and judicial directions and warnings.[224]

As for the spectre of the 'white coat effect', a reader might wonder: if the opinion is admitted because it is substantially based on 'specialised knowledge', where is the danger? Here we can see how 'shortcuts' such as admitting the opinion of a highly trained and experienced medical specialist without carefully attending to the evidence base (ie, specialised knowledge), compromise other checks and balances. Justice Jagot emphatically rejected any suggestion that the contested opinion was 'cloaked "with a spurious appearance of authority"'.[225]

But what else was there?

VI Conclusion: The Need to Know about Validity, Accuracy and Ability

This article is intended to be primarily political and institutional in its orientation. It suggests that the contested opinion and reasons supporting it were inadequate for a criminal prosecution and so should not have been adduced by the prosecutor or admitted. This is not the same thing as criticising forensic pathology, or forensic pathologists (eg, *Velevski*) or a forensic pathologist (eg, *Lang*). Although, we might wonder whether forensic pathologists as a college have been sufficiently attentive to the knowledge base supporting some opinions as well as

---

222 See UEL (n 2) Dictionary pt 1 (definition of 'probative value').

223 *NRC Report* (n 21) 9, 87, recommended addressing the following fundamentals:

> (1) the extent to which a particular forensic discipline is founded on a reliable scientific methodology that gives it the capacity to accurately analyse evidence and report findings and (2) the extent to which practitioners in a particular forensic discipline rely on human interpretation that could be tainted by error, the threat of bias, or the absence of sound operational procedures and robust performance standards.

224 See n 209 above.

225 *Lang* (n 1) 459 [470] (Jagot J).

the threats posed by contextual and cognitive bias.[226] Forensic pathologists should not mistake legal reception (or admission) and judicial recognition for epistemic support. In the absence of validated methods, forensic pathologists should be much more willing to state: 'I do not know'. Courts and the communities they serve will be assisted by appropriate confessions of ignorance and uncertainty.[227]

When it comes to *knowledge*, and especially when a putative ability is involved, we should expect those called as scientific, technical or biomedical experts to be able to direct our attention to validated methods or published support. There should be evidence that knowledge claims are sound, that methods work, and that those claiming an ability possess a demonstrable advantage over the tribunal of fact.[228] They should be able to assist the court with empirically based insights into the method, limitations, uncertainties and error — drawn from formal testing. In addition, we must be attentive to the dangers posed by contextual and cognitive bias. For, when experts are engaged in difficult interpretations, they are especially vulnerable to the influence of task-irrelevant information. An important benefit of formally validating a method is that it provides a clear indication of what information is required and so ought to be available to the analyst, what is not required and should be avoided and, vitally, how an opinion might be expressed and evaluated. In *Lang* and *Velevski*, the apparent absence of an identifiable (and valid) method meant that highly trained and experienced forensic pathologists do not seem to have provided an evidence-based account of the most salient factors, their relative significance, or the limits of what they might consider (especially issues on the peripheries or beyond forensic pathology, such as the significance of tidiness, mental illness, or relationship histories). There were apparently no attempts to manage exposure to task-irrelevant information.

I can imagine some lawyers and judges protesting that I am over-reading 'knowledge' and, in effect, expecting too much — perhaps imposing my own counsel of perfection.[229] Or, that I am a 'splitter' endlessly, and unnecessarily, breaking expertise into unrealistic and unachievable components (or individual

---

226 See also Simon Cole et al, *Medicolegal Death Investigation and Convicting the Innocent* (Report, August 2024), and in Australia, Drew Rooke, *A Witness of Fact: the Peculiar Case of Chief Forensic Pathologist Colin Manock* (Scribe Publications, 2002); *R v Keogh [No 2]* [2014] SASCFC 136; *Gilham v The Queen* (2012) 224 A Crim R 22; *Folbigg v R* [2023] NSWCCA 325; Emma Cunliffe, *Murder, Medicine and Motherhood* (Hart Publishing, 2011).

227 See, eg, Professor Cordner's reports and testimony in *R v Matthey* (2007) 177 A Crim R 470; *R v Klamo* (2008) 18 VR 644 and across the Folbigg saga.

228 *Smith v The Queen* (2001) 206 CLR 650.

229 See Tetlock (n 156).

tasks).[230] My retort is: to the extent that courts hope to be part of a post-Enlightenment rational project, they cannot — without good reasons — overlook what is actually required with respect to knowledge and expertise.[231] I have consciously drawn on the definition of 'knowledge' from *Honeysett*.[232] When it comes to opinions said to be based in scientific, technical and biomedical disciplines, there is not much that can now legitimately be claimed as knowledge that has not been formally evaluated and published. When it comes to skills and abilities, they should be capable of demonstration. Research confirms that expertise is surprisingly parochial.[233] Being good at one thing does not necessarily translate into being good at something else, even where the tasks appear similar or related.[234] Similarly, the admission (and admissibility) of opinions about who killed Snezana in *Velevski* tells us nothing about whether Dr Ong (or the forensic pathologists from *Velevski*) is able reliably to discriminate between self-inflicted and other kinds of stab wounds.[235]

It is not my intention to suggest that expert opinion needs to be correct (for admission), only that the procedures (or approaches) must be *known* to be of value and the expert proficient with them.[236] Because forensic scientists and forensic pathologists do not usually know whether specific interpretations are correct — they do not typically receive the unremitting feedback from the world handed to cardiac surgeons (with live patients), architects and engineers (who design and build things), and most scientists (who conduct experiments to test theories) — we should be very interested in independent evidence of organised knowledge, methods that have been formally evaluated, and evidence (beyond non-systematic experience) of personal ability with specific tasks and skills. With respect to the opinions of scientific, technical and biomedical experts, relevance

---

230 See Gobet (n 170). Contrast 'lumpers', who think that expertise is expansive. The terms 'splitters' and 'lumpers' are associated with classification (of species) in Linnaean taxonomy. See Harriet Ritvo, *The Platypus and the Mermaid: And Other Figments of the Classifying Imagination* (Harvard University Press, 1997); Gunnar Broberg, *The Man Who Organized Nature: The Life of Linnaeus* (Princeton University Press, 2023).

231 Particularly given the technical limitations of most lawyers, judges and fact-finders.

232 Courts, to the extent that maintain socio-legal legitimacy, cannot disregard what happens in other epistemic domains, particularly the mainstream sciences. Senior courts might distinguish some legal uses of knowledge but these must be explained and principled.

233 K Anders Ericsson (eds), *The Cambridge Handbook of Expertise and Expert Performance* (Cambridge University Press, 2006).

234 Certified latent fingerprint examiners, for example, are not necessarily significantly more accurate than ordinary persons when asked to compare faces in images, shoeprints or to interpret blood spatter. See Growns et al (n 170)

235 President Winneke's scepticism seems sound. Interestingly, because both parties relied on the opinions of forensic pathologists on the manner of Snezana's death, there was no actual challenge to their admissibility in *Velevski*.

236 Foundationally valid and valid as applied. Questions around how accurate a method (and practitioner) ought to be for admission, and whether validation studies are applicable to addressing admissibility and evaluation are legal issues for the courts.

and admission should not be satisfied by what a judge (or jury) might happen to believe about a profession, method, expert or opinion.

In developing its jurisprudence around the admission of scientific, technical and biomedical expert opinion evidence, the High Court has rarely addressed the most salient question. That question is whether the expert — no matter how qualified, experienced, senior, confident or persuasive — can actually do *the specific task* (and how accurately and how do we know).[237] In consequence, and at great public expense, expert opinion evidence in Australia is all too frequently contested around proxies that do not necessarily shed light on the fundamental issue(s). *Lang* is exemplary. Legal practitioners and courts have repeatedly wasted public (and private) money. They have distracted those engaged in fact-finding and unwittingly subverted the provision of fair trials. In the absence of insight into ability and accuracy (and limitations and human factors), the utility of an expert opinion for fact-finding is uncertain. That uncertainty cannot be rehabilitated through criminal proceedings and trial safeguards. Only scientific study suffices. The legal standards regulating scientific, technical and biomedical opinion evidence across Australia, particularly the requirement that opinions be substantially based on specialised knowledge, should be applied in ways that direct attention to criteria that actually matter.

[237] This was not asked in *Honeysett* (n 18). In consequence, we do not know if Professor Henneberg is more capable or more accurate at identifying persons from images than ordinary persons. Just as we do not know if Dr Ong (or any other forensic pathologist) is better than jurors at determining whether some wounds were self-inflicted.