Expressing evaluative opinions: a position statement

V10.2 19 December 2010.

The judgment of the Court of Appeal in R v T raises several issues relating to the evaluation of scientific evidence that, we believe, require a response.

We, the undersigned, oppose any response to the judgment that would result in a movement away from the use of logical methods for evidence evaluation. A paper in this issue of the Journal [2] re-iterates logical principles of evidence interpretation that are accepted by a broad range of those who have an interest in forensic reasoning. The divergence between those principles of interpretation and the apparent implications of the R v T ruling are epitomised by the following issues that represent our collective position with regard to the evaluation of evidence within the context of a criminal trial.

1) The interpretation of scientific evidence invokes reasoning in the face of uncertainty. Probability theory provides the only coherent logical foundation for such reasoning.

2) To form an evaluative opinion from a set of observations, it is necessary for forensic scientist to consider those observations in the light of propositions that represent the positions of the different participants in the legal process. In a criminal trial, the propositions will represent the positions of prosecution and defence, respectively.

3) It is necessary for the scientist to consider the probability of the observations given each of the stated propositions. Not only is it not appropriate for the scientist to consider the probability of the proposition given the evidence, there is a danger that in doing so the jury will be misled.

4) The ratio of the probability of the observations given the prosecution proposition to the probability of the observations given the defence proposition, which is known as the likelihood ratio, provides the most appropriate foundation for assisting the court in establishing the weight that should be assigned to those observations.

5) A verbal scale based on the notion of the likelihood ratio is the most appropriate basis for communication of an evaluative expert opinion to the court. It can be phrased in terms of support for one of a pair of clearly stated propositions.

6) Not only are phrases such as “could have come from” or “is consistent with” ineffective for communicating the scientist’s opinion with regard to the weight that should be assigned to a set of observations, but there is also a danger that they may be misleading.

7) Probabilities should be informed by data, knowledge and experience. All data collections are imperfect and incomplete and it necessarily follows that different experts might legitimately assign different probabilities to the same set of observations.

8) The logical approach to evaluating evidence implicit in the foregoing points has come to be known as the “Bayesian approach”. The ideas behind this approach are not novel. Indeed, they were first applied to resolving a serious miscarriage of justice in the Dreyfus case in 1906.
9) It is regrettable that the judgment confuses the Bayesian approach with the use of Bayes’ Theorem. The Bayesian approach does not necessarily involve the use of Bayes’ Theorem.

10) While we are fully in agreement with the principle of disclosure, candour and full disclosure in court can undermine comprehensibility when scientific evaluations involve technicalities. Pre-trial hearings should be used to explore the basis of expert opinions and to resolve if possible any differences between experts.

References


Signatories

In alphabetical order of surname:

Dr. Charles E.H. Berger, Principal Scientist, Netherlands Forensic Institute, Netherlands.
Dr. John S. Buckleton, Principal Scientist, Institute of Environmental Science and Research, New Zealand.
Dr. Christophe Champod, Professor in Forensic Science, University of Lausanne, Switzerland.
Dr. James Curran, Professor of Statistics, University of Auckland, New Zealand.
Dr. A.P. Dawid, Professor of Statistics, University of Cambridge, United Kingdom.
Dr. Ian W. Evett, forensic scientist, Forensic Science Service, United Kingdom.
Dr. Peter Gill, Professor of Forensic Genetics, Institute of Legal Medicine, University of Oslo, Norway.
Dr. Graham Jackson, Professor in Forensic Science, Abertay University, United Kingdom.
Dr. Ate Kloosterman, Professor in Forensic Biology, University of Amsterdam, Netherlands.
Dr. David Lucy, Lecturer in Department of Mathematics and Statistics, Lancaster University, United Kingdom.
Dr. Pierre Margot, Professor in Forensic Science, University of Lausanne, Switzerland.
Dr. Louise McKenna, Director of science, Eolaíocht Fhóiréinseach Éireann (EFÉ, forensic science laboratory), Ireland.
Dr Roberto Puch, forensic scientist, Forensic Science Service, United Kingdom.
Dr. Didier Meuwly, Principal Scientist, Netherlands Forensic Institute, Netherlands.
Dr. Mike Redmayne, Professor in the Department of Law, London School of Economics, United Kingdom.
Dr. Paul Roberts, Professor of Criminal Jurisprudence, University of Nottingham School of Law, United Kingdom.
Dr. Bernard Robertson, Editor, New Zealand Law Journal, New Zealand.
Dr. Claude Roux, Professor and Director, Centre for Forensic Science, University of Technology Sydney, Australia.
Dr. Marjan J. Sjerps, Professor in Forensic Statistics, University of Amsterdam, Netherlands.
Dr. Franco Taroni, Professor in Forensic Statistics, University of Lausanne, Switzerland.
Dr. Tjark Tjin-A-Tsoi, General Director, Netherlands Forensic Institute, Netherlands.
Dr. G.A. Vignaux, Emeritus Professor of Operations Research, Victoria University of Wellington, New Zealand.
Dr. Sheila M. Willis, Director, Eolaíocht Fhóiréinseach Éireann (EFÉ, forensic science laboratory), Ireland.
Dr. Grzegorz Zadora, Senior Scientist, forensic chemist, Instytut Ekspertyz Sądowych (IES, institute of forensic research), Poland.

The Board of the European Network of Forensic Science Institutes (ENFSI) also supports this position statement and engages itself to work towards a full implementation within the ENFSI laboratories. Dr. Jan De Kinder, Chairman
Paweł Rybicki, Chairman designate
Tore Olsson, Member
Burhanettin Cihangiroğlu, Member
Dr. Torsten Ahlhorn, Member

1 ENFSI has 58 member institutes in 33 countries.