



## Guest editorial

## Expressing evaluative opinions: A position statement

The judgment of the Court of Appeal in *R v T* [1] 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 the 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 observations, 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 1908.

- 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

- [1] *R v T*, [2010] EWCA Crim 2430.
- [2] C. Berger, J. Buckleton, C. Champod, I.W. Evett and G. Jackson, Expressing evaluative opinions in criminal cases: a response to *R v T*, *Science and Justice*, in press.

## Signatories

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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 (ENFSI has 58 member institutes in 33 countries).

- Dr. Jan De Kinder, Chairman  
 Paweł Rybicki, Chairman designate  
 Tore Olsson, Member  
 Burhanettin Cihangiroğlu, Member  
 Dr. Torsten Ahlhorn, Member