

2011-002

Article Title: Regina V T case No. 2007/03644/D2

Origin: High Court of Justice, Court of Appeal (Criminal Div.) Strand London, UK

Date Published: 2010-10-26

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Article's Subject Matter:

Appeal of a murder conviction where footwear evidence was introduced into evidence at trial using a scale of verbal probabilities stating the footwear mark at the crime scene had "moderate support" that it was made by footwear seized from the accused residence subsequent to his arrest. This is a very lengthy decision with the result being the Judge overturned the conviction given at the initial trial. I've attempted to summarize the reason for appeal and reasoning of the decision being overturned below.

Key Points in Article

The Appeal:

- Major reason for the appeal was that the footwear examiner expressed his opinion based on a verbal scale of probabilities
- It was later learned that the examiner had also applied the Bayesian Statistical model to lend support to where he was on the verbal scale of probabilities but that he had not advised the court during trial that his conclusion was based on a database of information with respect to footwear and that he had applied a mathematical formula to arrive at a numeric value for a likelihood ratio

Judge's Ruling:

- Justice saw the appeal as determining whether there was a sufficiently reliable scientific basis for the footwear evidence to be admitted
- Justices agreed that a footwear examiner could go further in his opinion than to merely state that a mark could have been made by a particular shoe even in the absence of individualizing characteristics contained in the mark
- Justices agreed that a conclusion of "could have made the mark" is quite different and really more precise and more helpful to a jury than the opinion of "moderate support that the mark was made by a specific shoe"
- Justice did not agree that the use of scientific data, mathematical formula and the calculation of likelihood ratios could be applied to all forensic disciplines due to the differences in the nature of the underlying data
- Justices accepted that some disciplines such as DNA have established reliable statistical data from which likelihood ratios can be calculated, that this is clearly not the case for

footwear due to the large number of uncontrollable variables in attempting to develop such data

- It became evident in questioning the footwear examiner in this case that the data on which he based his calculations in determining a likelihood ratio were not at all reliable and favoured the prosecutions proposition. Based on this fact the Justices opined that there was no sufficiently reliable basis for a footwear expert to reach a conclusion based on the use of a mathematical formula
- The justices stated that except where there is already established a firm statistical basis, such as DNA, that Bayes theorem and the calculation of likelihood ratios should not be used
- Justices did go on to say that the fact no reliable statistical basis exist for footwear, it does not preclude a footwear examiner from offering an evaluative opinion of the evidence and can offer an opinion that a mark “could have been made” by a particular shoe
- The final decision to quash was made due to the unreliable data used by the examiner to arrive at his likelihood ratio, along with the fact that this it was not disclosed at trial that he had even used a mathematical formula and therefore he was not transparent about how he had arrived at his conclusion

Fallacies and Issues

- During this appeal it came out that in the UK despite the fact that the Baysian Model was officially adopted by the Association of Forensic Science Providers, many footwear examiners did not adopt the model as part of their work and continued to express their opinion as “did make”, “did not make” or “could have made”, with no further verbal scale of probability.
- This case is no doubt viewed as a large victory to those who do not subscribe to the whole use of the Baysian model in the development of likelihood rations to develop degrees of probability with respect to a footwear examination. On the other hand for those striving to address the concerns of the NAS report and who advocate the use of the Baysian model in order to lend credence to footwear identification as a “science”, this case will definitely be viewed as a step backwards.
- Only time will tell in which direction the courts will lean.