



Questioned Documents Section – 2010

J6 On the Conclusions of Handwriting Examination

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The objective of this presentation is to compare the current practice for interpreting handwriting evidence utilizing the Bayesian framework that is commonly recommended for other domains of forensic science. After attending this presentation, attendees will be made aware that their current practice for interpreting the results of handwriting examinations requires great care in the application of the underlying logical framework. Examples taken from another traditional field of forensic science (fingerprints) will demonstrate to the audience that it is possible to use a probabilistic framework to handle the uncertainty associated with forensic evidence, even in fields concerned with pattern matching.

This presentation is aligned with Recommendation #3 of the recent National Academy of Sciences (NAS) Report and this presentation will impact the forensic science community by asking for more fundamental research in the scientific validity in forensic science. Forensic document examiners, and more generally forensic scientists, need to be fully aware and comfortable with the scheme that they use to interpret and report evidence.

Among the recommendations of the recent report from the National Academy of Sciences is the need to establish the scientific bases of forensic techniques. The interpretation of the results of the examination of a particular evidence item, or in other words, the interpretation of the meaning and value of the evidence in the context of a case, is a critical part of any forensic technique.

Unfortunately, a majority of the fields in forensic science have not fully developed the proper theoretical framework allowing scientists to handle the uncertainty associated with forensic examinations. The weak understanding of the theoretical foundations of the interpretation of forensic evidence renders the assessment of the value of a given evidence item in the context of a case more difficult. As a result, the value of forensic evidence is either overstated for some evidence types, or does not realize its full potential for some other evidence types.

This paper reviews the current framework used by forensic document examiners to interpret the results of their examinations. More specifically, the reporting scheme and the conclusions currently proposed by the ASTM 1658 will be discussed with respect to the underlying logic of evidence interpretation that is proposed by forensic scholars over the past decades, namely the Bayesian framework.

After describing in simple and concrete terms the application of the Bayes' Theorem to handwriting examination, this paper will show that the Bayesian framework is not incompatible with current practice. However, the comparison of the current scheme and the Bayesian framework will highlight elements that require particular attention from documents examiners when reporting their conclusions based on the current scheme. At present, these elements may not satisfy the needs for transparency and for the support by empirical data recommended by the NAS report.

The final part of this paper will present how the proposed Bayesian framework is currently being implemented in other traditional fields of forensic science, such as fingerprints.

Handwriting Reporting Conclusion, Handwriting Interpretation, Probabilistic Framework