



### A79 Individualization of Evidence

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After attending this presentation, attendees will understand the nature of the concept of individualization of evidence and the arguments for and against labeling any evidence as being individualized

This presentation will impact the forensic community by providing further understanding of the concept of individualization and the conditions under which it may be proper to use it

In this session, a panel of experts will examine the notion of individuality of evidence; the idea that a piece of physical evidence can be associated with one and only one object or person. What proof is there for the contention that pattern evidence such as fingerprints, bullets, shoe prints, and handwriting can be linked unequivocally to one source to the exclusion of any other? Is it a proper application of statistics to infer individuality of DNA evidence on the basis of the product rule?

The process of classification of physical evidence consists of putting it into successively narrower classes of objects. The goal is ultimately to put the object into a class of one. This is called "individualization". It is the "...science of individualization" (James W. Osterburg). For nearly a century testimony has been offered and accepted in court that a fingerprint obtained from a crime scene and developed by powder or chemical techniques can be unequivocally associated with a single finger on a single person. Similar expert testimony has been offered on behalf of bullets being linked to a specific firearm, handwriting to a particular person, shoe prints to a single shoe, etc. Conclusions of individuality are reached through empirical observations. Practitioners have examined large numbers of exemplars and conclude that, for example, bullets fired from one gun have unique markings which may be associated with one gun to the exclusion of all others. With fingerprints, for example (and this argument is made for other types of pattern evidence), experts may claim that fingerprints are a result of random processes, and proffer the notion that nature doesn't repeat herself (often stated as: all snowflakes are unique).

But are these notions really defensible – scientifically? mathematically? logically? Or does belief in individualization rest more on faith and cognitive illusions? Can any sample of observations prove uniqueness for an entire population of objects? Can probability theory ever support claims of unique individuality? The founders of various individualization fields put forward rationales that supported probabilistic conclusions while encouraging absolute conclusions. Increasing numbers of forensic and other scientists, as well as statisticians, argue that the data are insufficient to support the traditional theory and the theory itself is incoherent. More recently, the use of statistics in forensic DNA testing has become the *de facto* means to "individualize" biological evidence back to a subject. The use of statistics does not prove the evidence is unique but rather, it is argued, demonstrates that the chances that the DNA came from some other person are so small that it is unreasonable to consider – an argument which concedes the essential problem at the same time that it seeks to sidestep it).

We will examine these ideas and hopefully shed light on the contention that individualization of evidence in forensic science is a fallacy. If individualization is indeed an unachievable aim, and probabilistic inferences are the only reality, how can the forensic science constructively adjust, not only in its theory but in its practices?

#### Individual Evidence, Scientific Evidence, Admissibility of Evidence