



# Cognitive Bias in Fingerprint Evidence: Does the alleged 'matching' ridge detail even exist?

By **Simon Bunter**, Forensic Scientist, Keith Borer Consultants

**C**ognitive bias is not an intentional form of bias but one that manifests itself in different forms in most aspects of day-to-day life. It occurs when the presence of extraneous information influences a person's opinion of a subjective matter. Numerous scientific articles have been written regarding cognitive bias in forensic science, many of which warn about its adverse impact on the inherently subjective field of fingerprint evidence.

There appears a commonly held view amongst police Fingerprint Examiners that they are immune to such bias because they are able to 'use their expertise and experience to nullify it'; nothing could be further from the truth. Ironically, dismissing cognitive bias is a type of bias in itself – 'blind-spot bias'. Examples of the types of situation where cognitive bias can be introduced to the fingerprint comparison process include:

- A police officer informing an expert that the suspect was seen holding the item on which the questioned fingerprint was found.
- The verifying experts being aware that the original examiner has already 'identified' the fingerprint to the suspect.
- Job satisfaction – a fingerprint identification is generally perceived as a 'good' result.
- Performance evaluation – the performance of some Fingerprint Examiners and even entire Fingerprint Bureaux have previously been assessed by the number of identifications they have found.
- **And most importantly...**
- The suspect's fingerprint form itself – the main focus of this article.

Crime scene marks received by Fingerprint Examiners are often poor quality with indistinct, smudged and distorted areas. As a result, ridge characteristics (the features mainly considered during fingerprint comparisons) are frequently unclear with even their very presence being ambiguous. Conversely, a suspect's fingerprint form is made up of good quality fingerprints taken from a person in controlled conditions.

## Currently...

When examining fingerprint evidence from crime scenes, Fingerprint Examiners loosely follow a methodology known as ACE-V (Analysis, Comparison, Evaluation and Verification). It is the manner in which this process is carried out that

can affect the validity of an expert's result. Currently, the 'analysis' stage tends to consist of a brief look at the crime scene mark to determine whether it is suitable for comparison. Normally the Examiner does not make notes of features observed during this important part of the process, instead moving straight on to compare the mark side-by-side with the fingerprint forms of any suspects.

Once the comparison commences, cognitive bias comes into play. The good quality fingerprint in the suspect's reference form can cause the expert to 'see' corresponding ridge detail in the poor quality crime scene mark that simply does not exist. In other words, the clear ridge characteristics in the suspect's fingerprint can persuade the Examiner into 'finding' supposedly corresponding ridge characteristics in the crime scene mark; detail that they otherwise would not have observed. This is known as 'circular' or 'reverse' reasoning and can result in Fingerprint Examiners making exaggerated or unrealistic claims regarding the certainty of their result and the number of matching ridge characteristics that exist. A good example of this occurring is in the case of R-v-Smith (2011).

Although the 16-point standard was abolished in 2001, many Examiners still record the number of matching ridge characteristics in their evidential statement or Stage 2 SFR. It is often professed that a greater number of ridge characteristics is a 'safer' identification than a lesser amount; however, it is the quality of 'matching' features which should take centre stage, not simply the number. For example, a Fingerprint Examiner's claim that there are '18 matching ridge characteristics' might sound like a compelling match whereas, in reality, the vast majority of these characteristics might be extremely questionable. Equally, the existence of differences should be highlighted and explored. Strictly speaking, one confirmed different ridge characteristic should be enough to exclude a suspect. Unfortunately, one consequence of the current methodology is that apparent differences between the mark and the suspect's print are frequently disregarded; once the Examiner starts to find similar characteristics, any detail that looks different is simply 'explained away'.

Although cognitive bias is not a concept new to the fingerprint community, very little, if anything, appears to be changing in Fingerprint

Bureau procedures to nullify such bias. In 2011 a public inquiry into the erroneous Shirley McKie fingerprint 'identification' resulted in 86 recommendations being made. Several of these recommendations detailed specific actions that Fingerprint Examiners should undertake during their examinations in order to tackle the problem of cognitive bias. Many of these important recommendations have gone unheeded and many Fingerprint Bureaux continue to work in the same way as before.

## The Solution?

Adopt a 'linear' approach to the ACE-V examination process. This involves analysing the crime scene mark in isolation of the suspect's reference fingerprint form. An image of the mark is annotated with the ridge detail observed prior to any comparison. These annotations are retained to show the exact detail the Examiner observed prior to any influence induced by sight of the suspect's fingerprint form. When applied correctly, this accurate and transparent mechanism can serve to highlight just how exaggerated some fingerprint evidence really is.

In a number of cases this approach has shown the fingerprint evidence to be unreliable and far from the 'conclusive' result initially claimed. For example, in the case of R-v-Kiseliov (2016) a palm print in blood on a doorframe was 'identified' by a police Fingerprint Examiner and described as having '18 clear ridge characteristics in agreement'. When a linear approach to the ACE-V examination was adopted, however, only 1 of the alleged 18 ridge characteristics could be clearly observed in the crime scene mark. The remaining 17 characteristics relied on by the police were either not observed in the bloody palm mark at all or were shown to have been influenced by the defendant's palm print form. After this was demonstrated in the witness box, Mr Kiseliov was found not guilty.

So just how safe is that fingerprint identification in the police expert's SFR1? Is it a safe and compelling match or is it another example to add to the growing list of cognitive bias affected cases that include Shirley McKie, Brandon Mayfield, Peter Smith, Andrej Kiseliov and so on?

*Simon Bunter*  
Forensic Scientist  
Keith Borer Consultants  
0191 332 4999  
[www.keithborer.co.uk](http://www.keithborer.co.uk)