

# **When Science and the Criminal Justice System Meet**

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**More information (WWW): <http://users.ecs.soton.ac.uk/id/biometrics.html>**

**Cognitive Consultants International**

Science → ‘Criminal Justice System’

Science → ‘Police’

Science → ‘Forensic’

- Huge variability
  - Within forces/agencies
  - Between forces
  - Across countries

- Three domains:

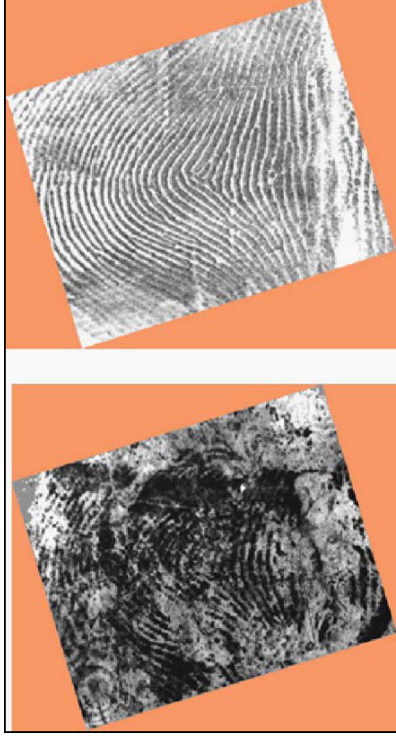
Fingerprints



CCTV

Eyewitness

- Dror, I.E. & Fraser-Mackenzie, P. (2008). **Cognitive biases in human perception, judgment, and decision making: Bridging theory and the real world.** In K. Rossmo (Ed.) *Criminal Investigative Failures* (pp 53-67). Taylor & Francis Publishing.
- Dror, I.E. & Rosenthal, R. (2008). **Meta-analytically Quantifying the Reliability and Biasability of Forensic Experts.** *Journal of Forensic Sciences* 53(4), 900-903.
- Dror, I.E., Charlton, D., & Peron A. (2006). **Contextual information renders experts vulnerable to making erroneous identifications.** *Forensic Science International*, 156 (1), 74-78.
- Dror, I.E. & Charlton, D. (2006). **Why experts make errors.** *Journal of Forensic Identification*, 51 (4), 600-616.
- Dror, I.E., Peron, A., Hind, S., & Charlton, D. (2005). **When emotions get the better of us: The effect of contextual top-down processing on matching fingerprints.** *Applied Cognitive Psychology*, 19(6), 799-809.

# Do they match?

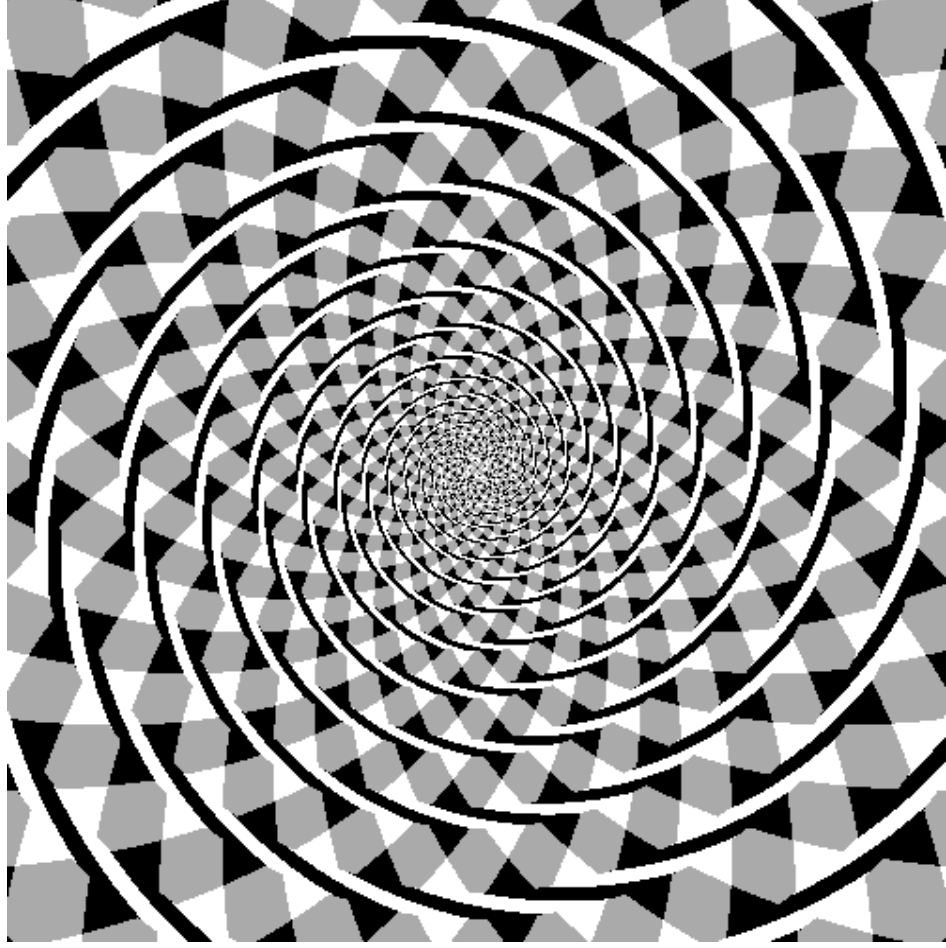


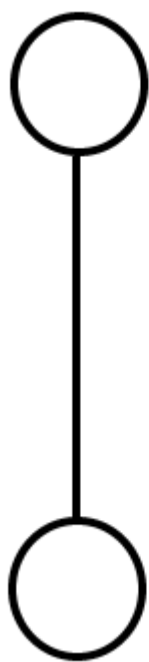
| <u>Context 1</u>   | <u>Context 2</u>   |
|--|--|
| He confessed to the crime  | Someone else confessed to it   |
| An eye witness identified him  | Someone else was identified  |
| The detective 'knows' he is guilty   | The detective thinks it is not him   |
|  |  |

# Response?

- Initially, as long as it was kept within the scientific community → quiet
- But, when it was taken on board in the courts, professional journals and the wider scientific media → !!!
- Very different response than in other professional domains.

# Perceptual illusions





**12  
ABC  
14**

- The same piece of information can get different interpretations, depending on context
- Not only perceptual context, but also mental context, e.g., motivation. Balci et al., E. & Dunning, D. (2006). See what you want to see: Motivational influences on visual perception. *Journal of Personality and Social Psychology* 91, 612–625.

# **Lots of psychological issues and phenomena, few examples:**

- Attention
- Visual search
- Self-fulfilling prophecies
- Wishful thinking
- Confirmation bias
- Escalation of commitment
- Conformity
- Cognitive dissonance
- 
-

# The tide is changing?

- Yes, too early to tell
- NAS (National Academy of Science)
- NIST (National Institute for Standards & Technology)
- NIJ (National Institute of Justice)



Figure 11: The image of the car in question, taken from camera #6 of the CCTV at 00:17.20. This is the only frame that includes the registration plate of the car.

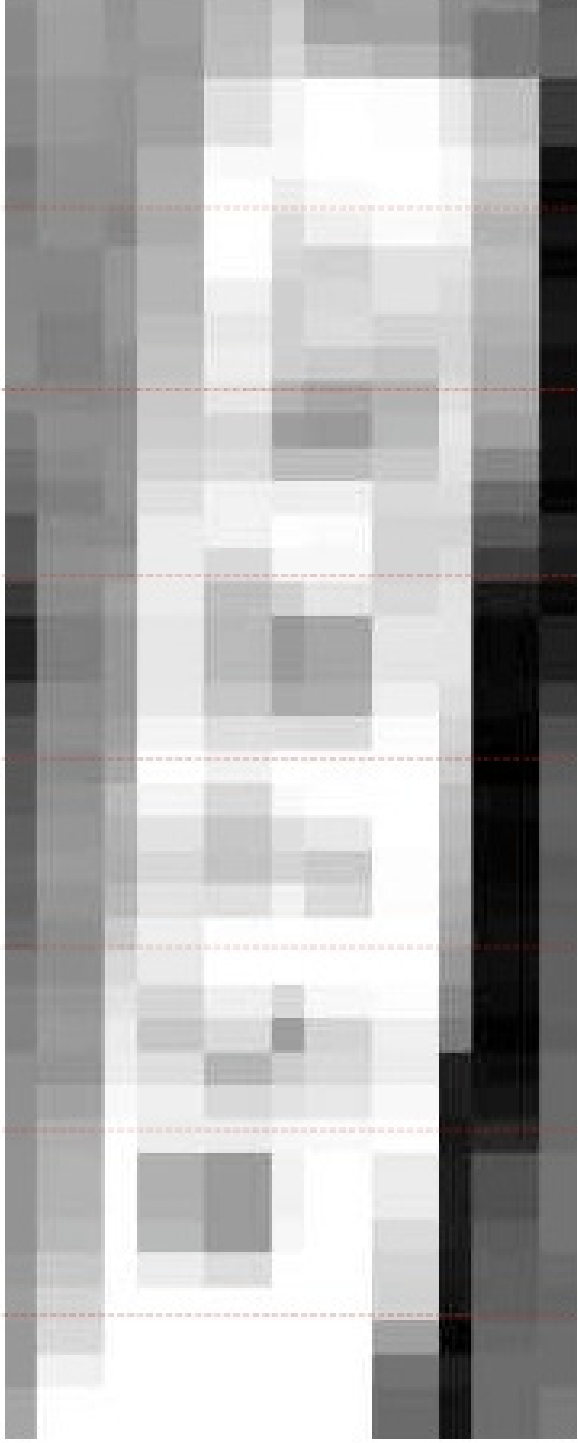


Figure 12: The car's registration plate, enlarged from the CCTV image, see Figure 11.

## These effects are one way!

1. Now you can easily see the baseball player.
2. But, now you cannot see the original evidence the same way you saw it before the influence.

Why?

→ **The mind is not a camera**

*Thank you!*

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