

# Forensic Thinking, Fast and Slow

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Cybergenetics

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THINKING,  
FAST AND SLOW



DANIEL  
KAHNEMAN

WINNER OF THE NOBEL PRIZE IN ECONOMICS

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## Rush to judgment



The finger mark found on a bag of detonators.  
印在集束炸弹袋上的指纹



Brandon Mayfield's Fingerprint.  
Brandon Mayfield的指纹



Dunmore Island's Fingerprint.  
Dunmore Island的指纹

Source: US Department of Justice, March 2009  
(资料来源: 美国司法部, 2009年3月)

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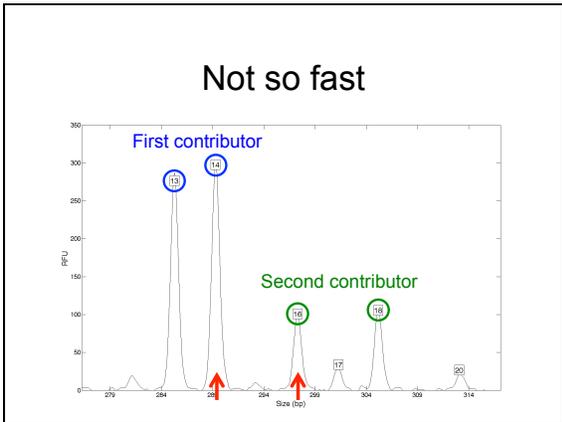
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## Not so fast



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## Is it a match?

YES?



NO?



MAYBE!



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## Match statistic

$$\frac{\text{Probability}(\text{evidence match})}{\text{Probability}(\text{coincidental match})}$$

- slow, deliberative thought
- consider every possibility
- objective & unbiased inference
- only see evidence, never a suspect
- provide information: strength of match

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## Plain language

A **match** between the evidence  
and the **suspect** is  
**12.3 trillion times more probable**  
**than a coincidental match**  
to an unrelated person

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## Information age



### Forensic Science In The Information Age

By Mark W. Perlin, Ph.D., MD, Ph.D.

Article Posted: April 10, 2012

**Reliable computer interpretation can address the scientific need for thorough, objective, and informative analysis of DNA evidence.**

Perlin MW. Forensic science in the information age.  
*Forensic Magazine*. 2012;9(2):17-21.

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