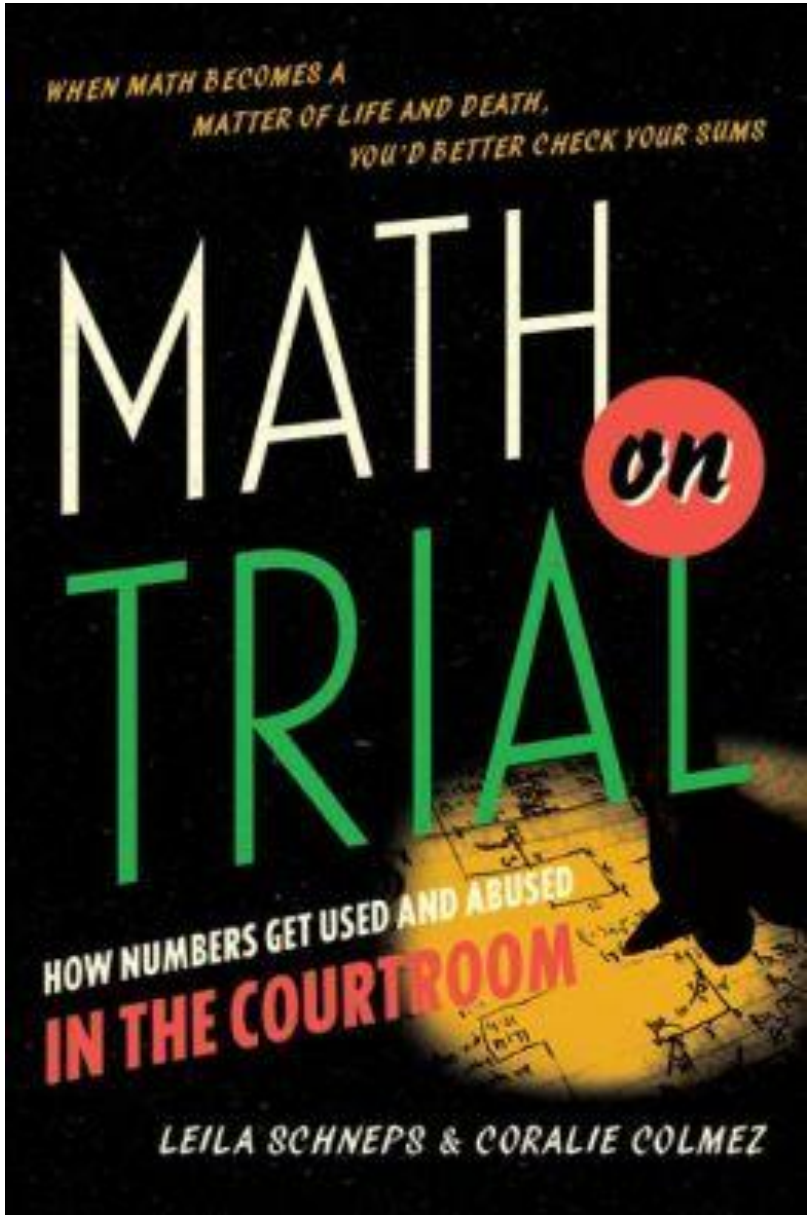
THE INTERNATIONAL BESTSELLER

'Mind-bending' Fortune 'Delightful' Guardian

THE DRUNKARD'S WALK

HOW RANDOMESS RULES OUR LIVES

LEONARD MLODINOW


WHEN MATH BECOMES A
MATTER OF LIFE AND DEATH,
YOU'D BETTER CHECK YOUR SUMS
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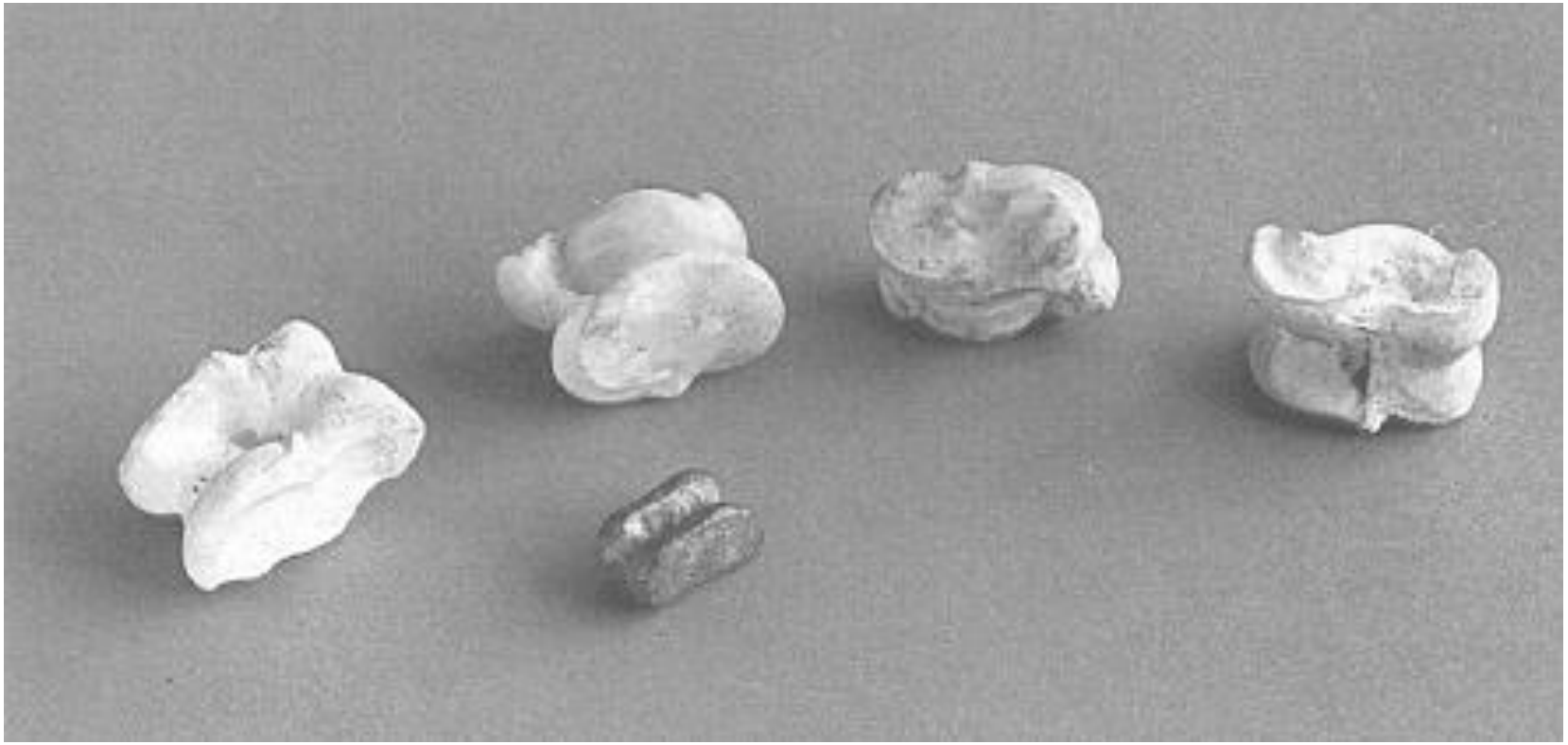
on
TRIAL
HOW NUMBERS GET USED AND ABUSED
IN THE COURTROOM
LEILA SCHNEPS & CORALIE COLMEZ


ALEA JACTA EST!



"Nothing is so uncertain as a cast of tali and yet there is no one who plays often who does not sometimes make a Venus and occasionally twice or thrice in a row."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BANZAI
PLACE BETS NOW!


BETTING ENDS


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Banzai


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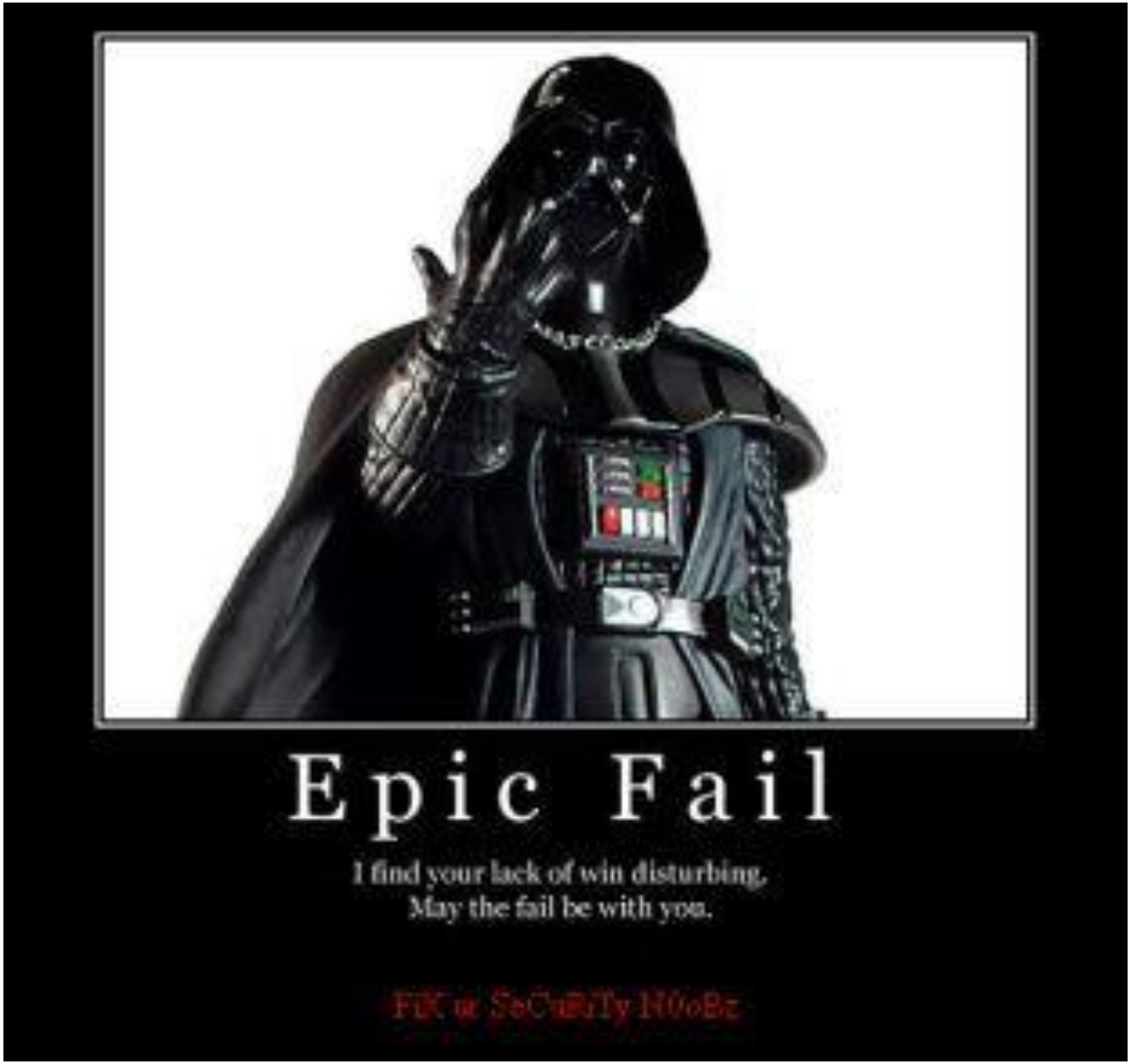
KEEP
CALM
AND USE
THE
FORCE


Epic Fail
I find your lack of win disturbing.
May the fail be with you.
FAIL @ SeCuRiTy NiNjAz


FEAR
ANGER
HATE
SUFFERING


Yes, I crossed your path.
Deal with it.

- The most famous example of the gambler's fallacy occurred in a game of roulette at the Monte Carlo Casino on August 18, 1913,when the ball fell in black **26 times in a row**.

- This was an extremely uncommon occurrence, although no more nor less common than any of the other 67,108,863 sequences of 26 red or black.

- Gamblers lost **millions** of francs betting against black, reasoning incorrectly that the streak was causing an "imbalance" in the randomness of the wheel, and that it had to be followed by a long streak of red.

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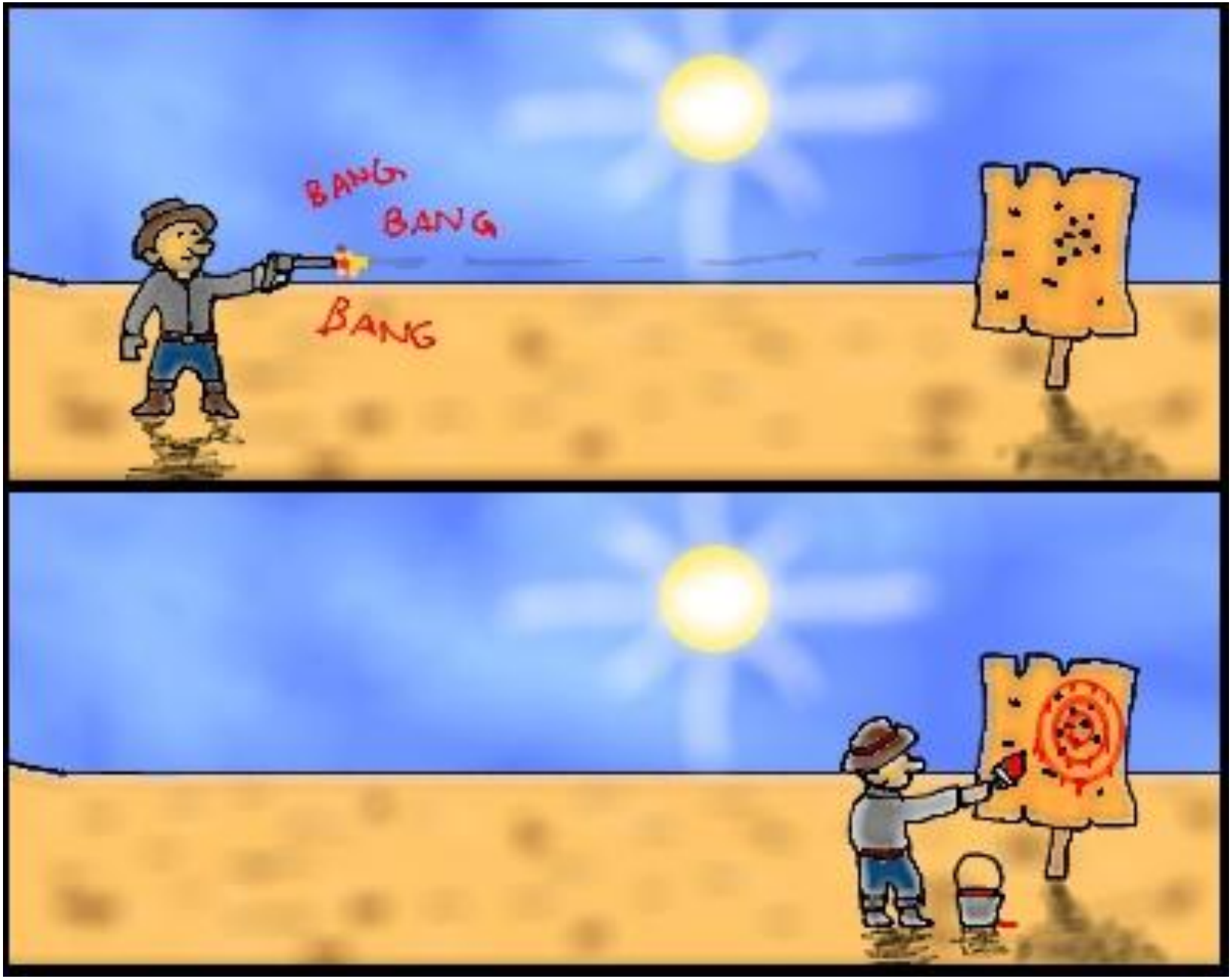
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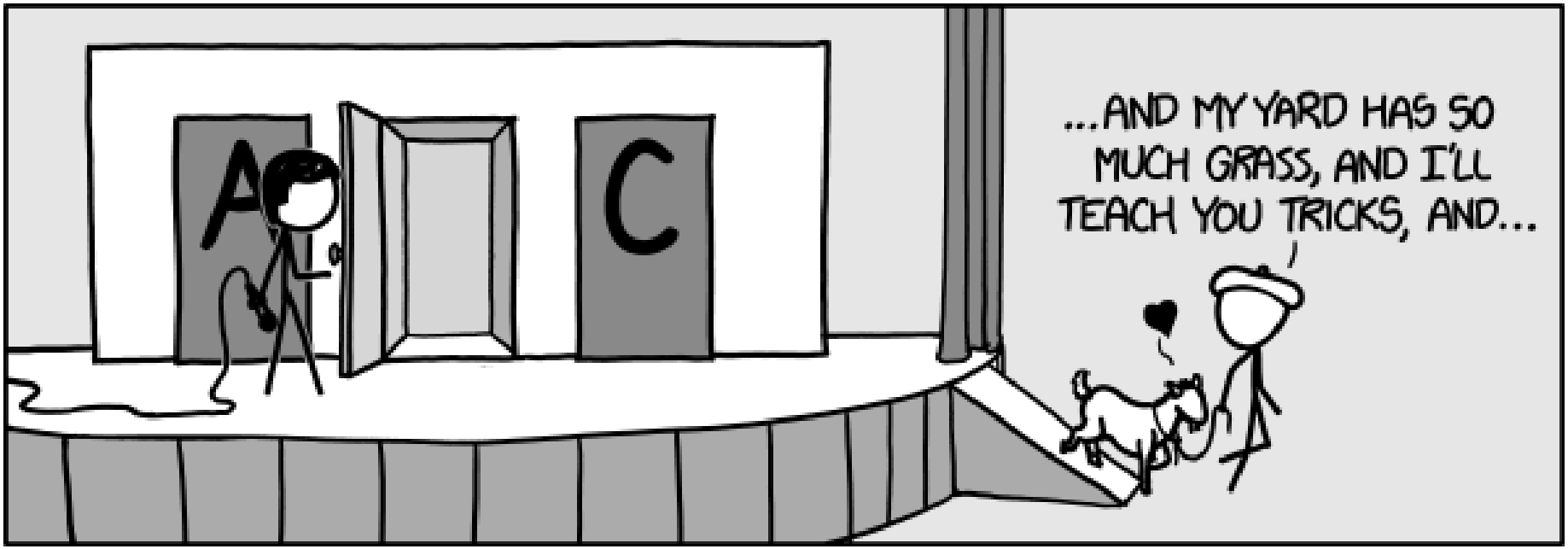
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...AND MY YARD HAS SO MUCH GRASS, AND I'LL TEACH YOU TRICKS, AND...


LET'S
MAKE
A
DEAL


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marilynvossavant.com

Game Show Problem

(This material in this article was originally published in PARADE magazine in 1990 and 1991.)

Suppose you're on a game show, and you're given the choice of three doors. Behind one door is a car, behind the others, goats. You pick a door, say #1, and the host, who knows what's behind the doors, opens another door, say #3, which has a goat. He says to you, "Do you want to pick door #2?" Is it to your advantage to switch your choice of doors?
Craig F. Whitaker
Columbia, Maryland

Yes; you should switch. The first door has a 1/3 chance of winning, but the second door has a 2/3 chance. Here's a good way to visualize what happened. Suppose there are a million doors, and you pick door #1. Then the host, who knows what's behind the doors and will always avoid the one with the prize, opens them all except door #777,777. You'd switch to that door pretty fast, wouldn't you?

Since you seem to enjoy coming straight to the point, I'll do the same. You blew it! Let me explain. If one door is shown to be a loser, that information changes the probability of either remaining choice, neither of which has any reason to be more likely, to 1/2. As a professional mathematician, I'm very concerned with the general public's lack of mathematical skills. Please help by confessing your error and in the future being more careful.
Robert Sachs, Ph.D.
George Mason University

You blew it, and you blew it big! Since you seem to have difficulty grasping the basic principle at work here, I'll explain. After the host reveals a goat, you now have a one-in-two chance of being correct. Whether you change your selection or not, the odds are the same. There is enough mathematical illiteracy in this country, and we don't need the world's highest IQ propagating more. Shame!

We've received thousands of letters, and of the people who performed the experiment by hand as described, the results are close to unanimous: you win twice as often when you change doors. Nearly 100% of those readers now believe it pays to switch.

Suppose you're on a game show, and you're given the choice of three doors. Behind one door is a car, behind the others, goats. You pick a door, say #1, and the host, who knows what's behind the doors, opens another door, say #3, which has a goat. He says to you, "Do you want to pick door #2?" Is it to your advantage to switch your choice of doors?

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- Many readers of vos Savant's column refused to believe switching is beneficial despite her explanation.
- After the problem appeared in Parade, approximately 10,000 readers, including nearly 1,000 with PhDs, wrote to the magazine, most of them claiming vos Savant was wrong (*Tierney 1991*).

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Scott Smith, Ph.D.
University of Florida

Your answer to the question is in error. But if it is any consolation, many of my academic colleagues have also been stumped by this problem.

Barry Pasternack, Ph.D.
California Faculty Association

You're in error, but Albert Einstein earned a dearer place in the hearts of people after he admitted his errors.
Frank Rose, Ph.D.
University of Michigan

I have been a faithful reader of your column, and I have not, until now, had any reason to doubt you. However, in this matter (for which I do have expertise), your answer is clearly at odds with the truth.
James Rauff, Ph.D.
Millikin University

May I suggest that you obtain and refer to a standard textbook on probability before you try to answer a question of this type again?
Charles Reid, Ph.D.
University of Florida

I am sure you will receive many letters on this topic from high school and college students. Perhaps you should keep a few addresses for help with future columns.

W. Robert Smith, Ph.D.

Georgia State University

You are utterly incorrect about the game show question, and I hope this controversy will call some public attention to the serious national crisis in mathematical education. If you can admit your error, you will have contributed constructively towards the solution of a deplorable situation. How many irate mathematicians are needed to get you to change your mind?

E. Ray Bobo, Ph.D.

Georgetown University

I am in shock that after being corrected by at least three mathematicians, you still do not see your mistake.

Kent Ford
Dickinson State University

Maybe women look at math problems differently than men.

Don Edwards
Sunriver, Oregon

You made a mistake, but look at the positive side. If all those Ph.D.'s were wrong, the country would be in some very serious trouble.

Everett Harman, Ph.D.

U.S. Army Research Institute

- Even when given explanations, simulations, and formal mathematical proofs, many people still do not accept that switching is the best strategy (*vos Savant 1991a*).
- ***Paul Erdős***, one of the most prolific mathematicians in history, remained unconvinced until he was shown a computer simulation confirming the predicted result (*Vazsonyi 1999*).

DOUBLE FACEPALM

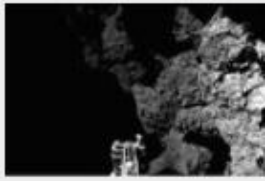
FOR WHEN ONE FACEPALM DOESN'T CUT IT

27 April 2013 Last updated at 23:40 GMT

Amanda Knox and bad maths in court

By Ruth Alexander
BBC News

Top Stories



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'Door closing' for Sy
'Tiger on the loose'

Features &

As an Italian court prepares to try Amanda Knox and Raffaele Sollecito for a second time on charges of killing Meredith Kercher, an expert says a judge failed to grasp the maths of probability involved in the case - and that courts often struggle when it comes to statistics.

- *http://www.bbc.com/news/magazine-22310186*

SALFORD ADVERTISER

THURSDAY JUNE 13, 2002

SALFORD UNI MAN SAYS SALLY CLARK CONVICTION MAY BE WRONG

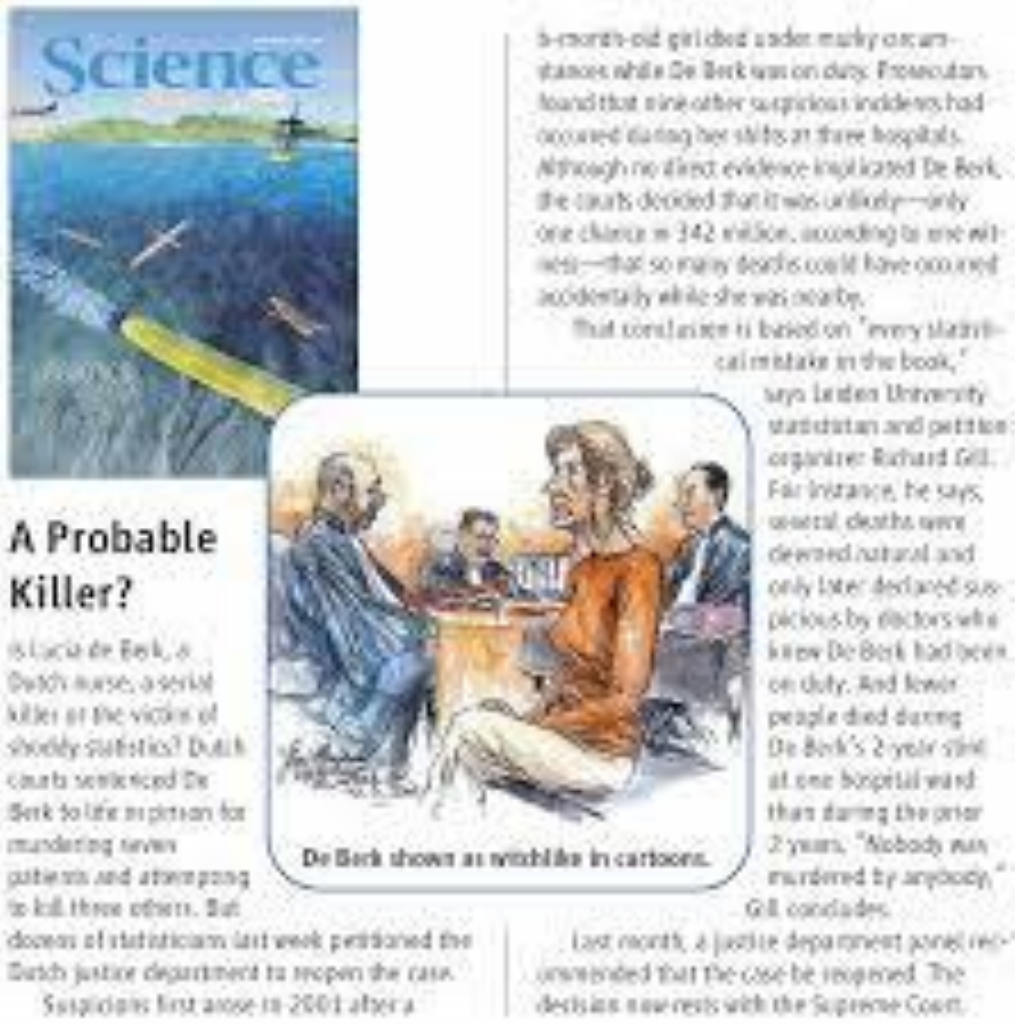
Maths professor challenges double baby murder case

Evidence challenge: Prof Ray Hill

Gene find casts doubt on double 'cot death' murders

An expert said there was a one in 73 million chance Sally Clark's babies died naturally – and a jury agreed. Now new genetic research could help to clear her. **John Sweeney** and **Bill Law** investigate

- "Is Lucia de Berk, a Dutch nurse, a serial killer or the victim of shoddy statistics?



- Also at the O. J. Simpson murder trial, the prosecution presented evidence that Simpson had been violent toward his wife
- The defense argued that there was only one woman murdered for every 2500 women who were subjected to spousal abuse, and that any history of Simpson being violent toward his wife was irrelevant to the trial.

- However, some regard the reasoning behind the defense's calculation as fallacious.
- The correct probability requires the context—that Simpson's wife had not only been subjected to domestic violence, but subjected to domestic violence and murdered—to be taken into account.
- Gigerenzer writes "the chances that a batterer actually murdered his partner, given that she has been killed, is about 8 in 9 or approximately 90%".

ROYAL STATISTICAL SOCIETY

getstats