Space Shuttle *Challenger* disaster

Contents [hide]

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Coordinates: 28°38′24″N 80°16′48″W

Space Shuttle *Challenger* disaster

Challenger's solid rocket boosters fly uncontrollably after the breakup of the external tank separated them from the shuttle stack. The remains of the orbiter and tank leave thin white contrails as they fall toward the Atlantic Ocean.

Date	January 28, 1986; 37 years ago
Time	11:39:13 EST (16:39:13 UTC)

On January 28, 1986, the Space Shuttle *Challenger* broke apart 73 seconds into its flight, killing all seven crew members aboard. The spacecraft disintegrated 46,000 feet (14 km) above the Atlantic Ocean, off the coast of Cape Canaveral, Florida, at 11:39 a.m. EST (16:39 UTC). It was the first fatal accident involving an American spacecraft while in flight.

The mission, designated STS-51-L, was the tenth flight for the orbiter and the twenty-fifth flight of the Space Shuttle fleet. The crew was scheduled to deploy a communications satellite and study Halley's Comet while they were in orbit, in addition to taking school teacher Christa McAuliffe into space. The latter resulted in a higher than usual media interest and coverage of the mission; the launch and subsequent disaster were seen live in many schools across the United States.

The cause of the disaster was the failure of the primary and secondary redundant O-ring seals in a joint in the shuttle's right solid rocket booster (SRB). The record-low temperatures the morning of the launch had stiffened the rubber O-rings, reducing their ability to seal the joints. Shortly after liftoff, the seals were breached, and hot pressurized gas from within the SRB leaked through the joint and burned through the aft attachment strut connecting it to the external propellant tank (ET), then into the tank itself. The collapse of the ET's internal structures and the rotation of the SRB that followed threw

Sally Clark

7 languages

Article Talk Read Edit View history Tools

Contents [hide]

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For other people named Sally Clark, see Sally Clark (disambiguation).

Sally Clark	
Born	Sally Lockyer August 1964[1] Devizes, England[1]
Died	15 March 2007 (aged 42) Hatfield Peverel, England[2]
Nationality	English
Citizenship	United Kingdom
Occupation	Solicitor
Known for	Wrongly convicted of killing her sons

Sally Clark (August 1964 – 15 March 2007)[1] was an English solicitor who, in November 1999, became the victim of a miscarriage of justice when she was found guilty of the murder of her two infant sons. Clark's first son died in December 1996 within a few weeks of his birth, and her second son died in similar circumstances in January 1998. A month later, Clark was arrested and tried for both deaths. The defense argued that the children had died of sudden infant death syndrome (SIDS). The prosecution case relied on flawed statistical evidence presented by paediatrician Professor Sir Roy Meadow, who testified that the chance of two children from an affluent family suffering SIDS was 1 in 73 million. He had arrived at this figure by squaring his estimate of a chance of 1 in 8500 of an individual SIDS death in similar circumstances. The Royal Statistical Society later issued a statement arguing that there was no statistical basis for Meadow's claim, and expressed concern at the "misuse of statistics in the courts".[3]

Clark was convicted in November 1999. The convictions were upheld on appeal in October 2000, but overturned in a second appeal in January 2003, after it emerged that Alan Williams, the prosecution forensic pathologist who examined both babies, had failed to disclose microbiological reports that suggested the second of her sons had died of natural causes.[4] Clark was released from prison having served more than three years of her sentence. Journalist Geoffrey Wansell called Clark's experience "one of the great miscarriages of justice in modern British legal history".[5] As a result of her case, the Attorney General Lord Goldsmith ordered a review of hundreds of other cases, and two other women had their convictions overturned. Clark's experience caused her to develop severe psychiatric problems and she died in her home in March 2007 from alcohol poisoning.[2]

Contents [hide]

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"The Lady with the Lamp" redirects here. For the 1951 film, see The Lady with a Lamp. For other uses, see Florence Nightingale (disambiguation).

Florence Nightingale OM RRC DStJ (/ˈnaɪtɪŋɡeɪl/; 12 May 1820 – 13 August 1910) was an English social reformer, statistician and the founder of modern nursing. Nightingale came to prominence while serving as a manager and trainer of nurses during the Crimean War, in which she organised care for wounded soldiers at Constantinople.[4] She significantly reduced death rates by improving hygiene and living standards. Nightingale gave nursing a favourable reputation and became an icon of Victorian culture, especially in the persona of "The Lady with the Lamp" making rounds of wounded soldiers at night.[5][6]

Recent commentators have asserted that Nightingale's Crimean War achievements were exaggerated by the media at the time, but critics agree on the importance of her later work in professionalising nursing roles for women.[7] In 1860, she laid the foundation of professional nursing with the establishment of her nursing school at St Thomas' Hospital in London. It was the first secular nursing school in the world and is now part of King's College London.[8] In recognition of her pioneering work in nursing, the Nightingale Pledge taken by new nurses, and the Florence Nightingale Medal, the highest international distinction a nurse can achieve, were named in her honour, and the annual International Nurses Day is celebrated on her birthday. Her social reforms included improving healthcare for all sections of British society, advocating better hunger relief in India, helping to abolish prostitution laws that were harsh for women, and expanding the acceptable forms of female participation in the workforce.

Nightingale was a pioneer in statistics; she represented her analysis in graphical forms to ease drawing conclusions and actionables from data. She is famous for usage of the polar area diagram, also called the Nightingale rose diagram, equivalent to a modern circular histogram. This diagram is still regularly used in data visualisation.

Florence Nightingale
OM RRC DStJ

Nightingale, c. 1860

Born	12 May 1820 Florence, Grand Duchy of Tuscany
Died	13 August 1910 (aged 90) Mayfair, London, England
Nationality	British

Lady tasting tea

Contents [hide]

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In the design of experiments in statistics, the **lady tasting tea** is a randomized experiment devised by Ronald Fisher and reported in his book *The Design of Experiments* (1935).[1] The experiment is the original exposition of Fisher's notion of a null hypothesis, which is "never proved or established, but is possibly disproved, in the course of experimentation".[2][3]

The experiment asked whether a taster could tell if the milk was added before the brewed tea, when preparing a cup of tea.

The example is loosely based on an event in Fisher's life. The woman in question, phycologist Muriel Bristol, claimed to be able to tell whether the tea or the milk was added first to a cup. Her future husband, William Roach, suggested that Fisher give her eight cups, four of each variety, in random order.[4] One could then ask what the probability was for her getting the specific number of cups she identified correct (in fact all eight), but just by chance.

Fisher's description is less than 10 pages in length and is notable for its simplicity and completeness regarding terminology, calculations and design of the experiment.[5] The test used was Fisher's exact test.

The experiment [edit]

The experiment provides a subject with eight randomly ordered cups of tea – four prepared by pouring milk and then tea, four by pouring tea and then milk. The subject attempts to select the four cups prepared by one method or the other, and may compare cups directly against each other as desired. The method employed in the experiment is fully disclosed to the subject.

Monty Hall problem

Contents [hide]

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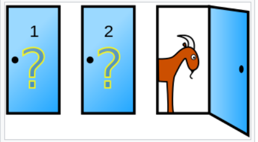
The **Monty Hall problem** is a brain teaser, in the form of a probability puzzle, loosely based on the American television game show *Let's Make a Deal* and named after its original host, Monty Hall. The problem was originally posed (and solved) in a letter by Steve Selvin to the *American Statistician* in 1975.[1][2] It became famous as a question from reader Craig F. Whitaker's letter quoted in Marilyn vos Savant's "Ask Marilyn" column in *Parade* magazine in 1990:[3]



In search of a new car, the player picks a door, say *1*. The game host then opens one of the other doors, say *3*, to reveal a goat and offers to let the player switch from door *1* to door *2*.

> 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 No. 1, and the host, who knows what's behind the doors, opens another door, say No. 3, which has a goat. He then says to you, "Do you want to pick door No. 2?" Is it to your advantage to switch your choice?

Savant's response was that the contestant should switch to the other door.[3] Under the standard assumptions, the switching strategy has a $\frac{2}{3}$ probability of winning the car, while the strategy of sticking with the initial choice has only a $\frac{1}{3}$ probability.

When the player first makes their choice, there is a $\frac{2}{3}$ chance that the car is behind one of the doors not chosen. This probability does not change after the host reveals a goat behind one of the unchosen doors. When the host provides information about the 2 unchosen doors (revealing that one of them does not have the car behind it), the $\frac{2}{3}$ chance of the car being behind one of the unchosen doors rests on the unchosen and unrevealed door, as opposed to the $\frac{1}{3}$ chance of the car being behind the door the contestant chose initially.

The given probabilities depend on specific assumptions about how the host and contestant choose their doors. A key insight is that, under