A perfect bridge deal – what are the chances?

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A bridge (or whist) deal is called perfect if each of the four players has all 13 cards of the same suit.

The chances of a perfect deal with a randomly shuffled pack are one in

$$\binom{52}{13}\binom{39}{13}\binom{26}{13}\binom{13}{13}/4!$$

= 2,235,197,406,895,366,368,301,600,000.

This number is so enormous that it is infeasible that such an event could ever have happened!

Big deal . . . From left, Hazel Ruffles, Hilda Golding, John and Evelyn Bloomfield show the four hands dealt in one round at their whist drive

Odds

Odds against dealing 13 cards of one suit: 158,753,389,899 to 1.

Odds against a named player receiving a perfect hand consisting of all 13 spades: 635,013,559,599 to 1.

Odds against getting new variant CJD: 5,000,000 to 1.

Odds against dying in an air crash: 20,000 to 1.

Odds against dying in an asteroid or comet collision with the Earth: 20,000 to 1.

Odds against being electrocuted: 5,000 to 1.

Perfect deal at whist drive trumps the odds

Christopher Elliott

THE fortnightly whist drive at Bucklesham and Foxhall village hall, in Suffolk, is a genteel affair among friends, with few risks for the pocket or person.

It is unlikely that any of the 50 or so regulars will be run over and killed by a car on their way there (a 1 in 16,000 chance) or struck by lightning (a 1 in 4 million chance).

But what are the odds against being dealt perfection — each of the four hands a complete set of 13 hearts, clubs, diamonds and spades? To be precise: 2,235,197,406,895,366, 368,301,599,999 to 1.

Hilda Golding, aged 87, one of the three women taking part, had never seen anything like it in 49 years of playing. "It was a new pack of cards which were shuffled and cut," said Mrs Golding, from Felixstowe. "I was picking them up one by one and then I realised they were all clubs!"

The dealer was Hazel Ruffles, from Hasketon, whose hand was all the diamonds. Her daughter Alison Chilvers, aged 41, from near Otley, had all the hearts, which were trumps, and the fourth hand, a dummy, was all spades.

The 13 other tables were flabbergasted. "I was so astonished, I leaned over to the next table and told them. No one could believe it," said Mrs Ruffles.

The odds against such a perfect hand, as calculated by the Guinness Book of Records, are astronomical. There is infinitely more chance of winning the lottery at 13,983,816 to 1 or hitting a hole in one at golf at 42,952 to 1.

The drive was organised by Evelyn Bloomfield to raise funds for the hall. She said: "It was the first hand and someone said they had 13 trumps. When we looked closer everyone had a full suit. I have heard of a perfect deal in bridge but their cards are dealt in blocks. These were shuffled twice and then cut — it is astonishing."

The luck of the evening did not end there — later another player was dealt 10 trump cards.

The extraordinary luck made serious high rollers groan. "The pity is it happened to three ladies at a whist drive," said Al Alvarez, who wrote a book about poker. "They won't make any money out of it."

Mrs Golding is unimpressed. "The prizes are always very good at Bucklesham; a chicken, joint of beef or a big tub of butter."

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The luck of the evening did not end there — later

A perfect riffle shuffle is one in which the pack is split into exactly two halves and the two halves merged by allowing the cards in one half to fall exactly alternately with the cards from the other half.

Theorem.   With a new pack of cards, two perfect riffle shuffles, followed by a cut (or, indeed, any number of cuts), is guaranteed to produce a perfect deal.

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Corollary. The Bucklesham and Foxhall Four may well be innocent!

CONCLUSION

When you see a claim of an event which appears to defy astronomical odds,

do be highly sceptical, but

don't dismiss the claim out of hand.