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## **Monty Hall Problem Conditional Probability**

Conditional Probability, The Monty Hall Problem Sometimes we already know the occurrence of an event A, then the probability of a relevant event B given A is different from  $P(B)$  without any information on A. Since the sample

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space is reduced from the total space to A and the probability that B will occur given that A has occurred is

## **Conditional Probability, The Monty Hall Problem**

Conditional Probability can be calculated as Probability of A intersection B, divided by the probability of event B  $P(A | B) =$

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$P(A \cap B) / P(B)$  Let us start to analyze this problem when the contestant has chosen door 1.

## **Understand Conditional Probability Solving the Monty Hall ...**

The Monty Hall problem is a famous, seemingly paradoxical problem in conditional probability and reasoning

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using Bayes' theorem. Information affects your decision that at first glance seems as though it shouldn't. In the problem, you are on a game show, being asked to choose between three doors. Behind each door, there is either a car or a goat.

## **Monty Hall Problem | Brilliant Math**

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Conditional Probability and the Monty Hall Problem You've been selected from the audience of a game show to come up and play a game. The host walks you up to the stage, where you find three doors labelled 1, 2, and 3. He says, "Behind one of these doors is a brand new car.



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## **Conditional Probability and the Monty Hall Problem ...**

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wrong using the Send to Kindle feature.  
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Probability Therefore the joint probability  
is  $4/36$  and  $P(A)=15/36$ , then we have

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the conditional probability is  $4/15$ .  
Conditional probability can be very  
puzzling sometimes, actually it is the  
source of ...

## **Monty Hall Problem Conditional Probability Solution**

The "Let's Make a Deal" (Monty Hall)  
Problem Turning word problems into

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probability problems can be subtle, and intuition about probability can be misleading. This chapter looks carefully at a problem that has confused both the general public and professional mathematicians and statisticians: the Let's Make a Deal or Monty Hall problem.

## **The "Let's Make a Deal" (Monty**

# Access Free Monty Hall Problem Conditional Probability Solution **Hall) Problem**

As in the Monty Hall problem, the intuitive answer is  $1 / 2$ , but the probability is actually  $2 / 3$ . The Three Prisoners problem, published in Martin Gardner's Mathematical Games column in Scientific American in 1959 is equivalent to the Monty Hall problem. This problem involves three condemned

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prisoners, a random one of whom has been secretly chosen to be pardoned.

## **Monty Hall problem - Wikipedia**

More intuitively you can think of the probability of 2 doors having a  $2/3$  chance. The host always filters a goat (the wrong one) so the chance doesn't change.  $D = \Pr(2 \text{ goats in } 2 \text{ doors not}$

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picked) =  $2/3 / 1/3 = 2/3$  (conditional probability)  $E = \Pr(1 \text{ goat \& 1 car in doors not picked}) = 2/3$ .

## **Understanding the Monty Hall Problem - BetterExplained**

Hall's name is used in a probability puzzle known as the "Monty Hall problem". The name was conceived by

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statistician Steve Selvin who used the title in describing a probability problem to Scientific American in 1975 based on one of the games on Let's Make a Deal, and more popularized when it was presented in a weekly national newspaper column by Marilyn vos Savant in 1990.

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## **Monty Hall - Wikipedia**

Proof of the “Monty Hall Problem”: 1)  
The probability that the prize is behind  
door 1, 2, or 3 is. 3. P. 1. =1. 3. P. 2.

## **Proof of the “Monty Hall Problem”**

Analysis of the Monty Hall Problem Using  
Conditional Probability Take a typical  
situation in the game. Suppose the



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contestant has chosen Door 3 and Monty Hall reveals that there is a goat behind Door 2.

### **The Monty Hall Game**

more. The probability of winning is  $1/3$  because there are 3 doors and 2 doors are wrong and 1 door is right so the chance of losing is higher than the

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chance of winning. You said if a person picks door 2 the Monty Hall will close door 1 and 3.

## **The Monty Hall problem (video) | Khan Academy**

Monty's opening door 2 doesn't change that, so the whole  $\frac{2}{3}$  not-door-1 probability "falls on" door 3. So the

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probability of door 1 stays  $1/3$ , and the probability of door 3 becomes  $2/3$ , ergo you...

## **An “easy” answer to the infamous Monty Hall problem - The ...**

This problem, known as the Monty Hall problem, is famous for being so bizarre and counter-intuitive. It is in fact best to

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switch doors, and this is not hard to prove either. In my opinion, the reason it seems so bizarre the first time one (including me) encounters it is that humans are simply bad at thinking about probability.

**probability - The Monty Hall  
problem - Mathematics Stack ...**

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get black or 0, you loose. The probability to win is  $\frac{18}{37}$ , and the probability to loose is obtained by conditioning on the first spin  $P(\text{lose}) = P(\text{lose} | \text{black})P(\text{black}) + P(\text{lose} | P_1)P(P_1) = \frac{1}{37} + \frac{19}{37} \cdot \frac{1}{37} = 0.50036523(4)$  Monte-Carlo roulette (2st version) is played as in the 1st version but with a second prison (P2).

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## **Lecture 13: Conditional probability**

The only correct explanation for the Monty Hall problem uses conditional probability. The next section I'll write addresses those that don't; skip it to get to the one you asked for. There are essentially two intuitive (i.e., not based on conditional probability) attempts at

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solutions. If Door #1 is chosen, and Door #3 is opened:

## **Is there an explanation for the Monty Hall problem in the ...**

The Monty Hall Problem is rooted in the concepts of statistics and probability theory, the mathematical concepts that will help endeavour a more clear under-

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standing for the solutions to its different variations and its classical, canonical version. We will rely heavily on Bayes' Theorem, which is a derivation of conditional probability.

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