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Posted by u/Sacamato 5 8 years ago 📄

## Excel Nerd Time: The Monty Hall Problem

The Monty Hall Problem, explained [here](#), has always bothered me. I'd encountered it before: in books, in the show Numb3rs, and last night in Uncle John's Heavy Duty Bathroom Reader (#23 - awesome series of books, by the way).

It's so non-intuitive, and I've never really trusted that it's correct, so my skepticism caused me to build a spreadsheet to test it.

Here's a [screenshot](#) with my column headers. They should be self-explanatory. Under the Door columns, a TRUE would be the new car, and a FALSE would be a goat. In order to randomly select, in each row, one car and two goats, here are the formulas in each cell (assuming row 2):

A2

```
=RAND() $<$ 1/3
```

B2

```
=IF(A2, FALSE, RAND() $<$ 1/2)
```

C2

```
=NOT(OR(A2:B2))
```

There are other ways to do this part, but the way I did it above is more fun and elegant, I think. It does distribute the car an even 33% behind each door over time.

D2

```
=CEILING(RAND()*3, 1)
```

A simple random choice of which door the contestant chooses.

E2

```
=IF(CHOOSE(D2, A2, B2, C2), CHOOSE(CEILING(RAND()*2, 1), IF(A2, 2,
```





```
=CHOOSE(6-E2-D2,A2,B2,C2)
```

This returns TRUE if switching to the other door wins the car, and FALSE if switching gets you the goat.

G1 (the winning percentage)

```
=COUNTIF(F:F,TRUE)/(COUNTA(F:F)-1)
```

I copied the formulas in A2:F2 down to row 1001, giving me 1000 simulations. No matter how many times I recalculate the RANDs, it stays around two thirds (63%-71%).

Weird, huh?

**Edit:** working this out also helped me think of a way to explain why it works:

In this particular scenario, if you initially chose the correct door, switching your guess will give you the incorrect door 100% of the time. If you initially chose one of the incorrect doors, switching your guess will give you the correct door 100% of the time. Since your initial probability of choosing the correct door is 33%, vs. the initial probability of choosing the incorrect door at 67%, your chances of getting the correct one when you switch is 67%.

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werd678 3 points · 8 years ago

this helped me understand it... pulled it from the wikipedia article... "switching loses if and only if the player initially picks



A2

=RANDBETWEEN(1, 3)

B2

=IF(A2=1,"CAR", "GOAT")

C2

=IF(A2=2,"CAR", "GOAT")

D2

=IF(A2=3,"CAR", "GOAT")


E2

=B2="CAR"

F2

=OR(C2="CAR", D2="CAR")

This assumes that Door 1 is initially picked. The contestant only "loses" if both Door 2 and Door 3 are goats whereas they will succeed if either Door 2 or Door 3 is a car.

**Sacamato** 5  1 point · 8 years ago

TIL the RANDBETWEEN function. Thanks :)

SydFoodGuy 1 point · 8 years ago

LOVE THIS SHTUFF!

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Title says it all - congrats [u/excelelevator](#) for a big milestone and for helping so many people.

I also noted that [u/semicolonsemicolon](#) also hit 1,000 recently :)

330

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Posted by u/lukaskoebis 5 days ago

Advertisement **Show and tell: My first Excel add-in - Monte-Carlo simulations made simple**

Hi,

I just released my first [Excel add-in](#). It lets you run Monte Carlo simulations in Excel. I'm familiar with alternatives like [CrystalBall](#) and [@Risk](#). They're very expensive and you need to be very technical to use them (know about various types of distributions, correlation, ...).

I tried to develop an add-in that lets you enter ranges like "2% to 4%" and the add-in takes care of the rest.

It would be great to get your feedback/feature requests! Happy to talk about the development experience and the approval process if people are interested.

RTW I created the same for [Google Sheets](#) but it's much slower than the Excel

77

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Posted by u/tirlibibi17 1 day ago

Pro Tip **Pro Tip - Extract first name, last name, and e-mails from a recipient list in Outlook**

I recently oversaw the go-live of a project and part of the go-live plan was a list of participants. They were people I'd been interacting with for several months so my Outlook was already "trained" to auto-complete their names and e-mails when I typed the first letters of their names. Wouldn't it be great if I could just create that list in Outlook with a few keystrokes and then turn that list into a nice table with names and e-mails? Here's how.



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