2016-04-09

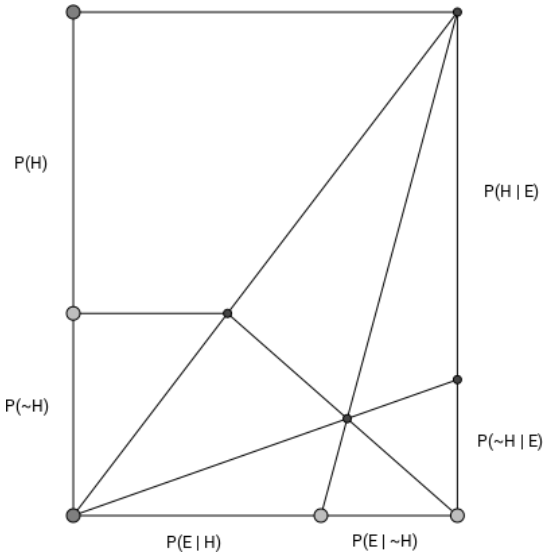
Geometric Bayesian Update

Today, I present to you Bayes theorem like you have never seen it before.

Take a moment to think about the equation in the Bayes theorem. How would you calculate it using only basic geometry?

Or, to state it more precisely: you are given the unit segment, as well as line segments of lengths equal to P(H), P(E | H) and P(E | ~H) (or the ratio of the last two, if you prefer). How do you get P(H | E) only by drawing straight lines on paper? Can you think of a way that would be possible to implement using a simple mechanical instrument?

I noticed a very neat way to solve this, which is best shown on a diagram:



Have fun with this GeoGebra worksheet.

Your math homework is to find a proof that this is indeed correct (solution).

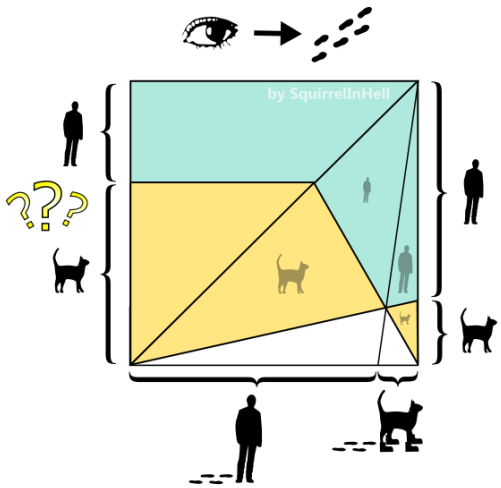
As an answer to a comment on LessWrong, I also made a pictograph-only version of the diagram:

Blog Archive

January 2018 (3)
December 2017 (3)
November 2017 (1)
October 2017 (2)
September 2017 (1)
August 2017 (2)
July 2017 (1)
May 2017 (2)
April 2017 (1)
March 2017 (2)
January 2017 (2)
November 2016 (1)
October 2016 (1)
September 2016 (2)
August 2016 (1)
April 2016 (1)
March 2016 (1)

More by SquirrelInHell

- AI Safety Comics
- Android Apps
- Be Well Tuned
- Rationality Updates



No comments:

Post a Comment

Newer Post Home Older Post

Subscribe to: Post Comments (Atom)