PHIL 105 - Bayes

Evidence strength:
P(E|H) / P(E|~H)

This is neutral if it is 1, it doesn't matter.
If it is > 1, it is confirming
If it is < 1, it is disconfirming

An Example

The mystery of mh370

Best explanation (so far): A fire made smoke and cut electricity. The pilot turned towards airports. Everyone fell unconscious. The plane flew on autopilot until it crashed
Estimate: P(Fire) = 0.7

Alternative Hypothesis:
The pilot purposely crashed.
Estimate: P(Pilot) = 0.2

Data on the pilot's flight simulator showed that he practiced a southern indian ocean flight

It seems only somewhat likely that he would practice a plan to crash into the ocean. (It's not difficult)

P(SimPractice|Pilot) = 0.4

But a normal pilot would have no reason to practice flying to the southern Indian Ocean. (There's nowhere to land)
Estimate P(SimPractice|~Pilot) = 0.15

If the flaps are found to be open. If not pilot there would be a 2% chance they would be open. If pilot there would be a 10% chance they would be open.

With the updated, 0.77 chance the pilot did it.

At the beginning of the story, how strong does the evidence have to be so that investigators should ask the FBI for help?

P(E|P)/P(E|~P) = x/y = ?

x/y = 0.6/0.05 = 12

We need evidence that makes it 12 times more likely that the pilot did it.