
You look at a particular region in the world – for concreteness, a shoe cabinet – and find a white non-raven. How does this affect your credence in the hypothesis that all ravens are black?

H : All ravens are black.

E : There is a white non-raven in the shoe cabinet.

W : There is a white object in the shoe cabinet.

C : $W \rightarrow E$.

$$\begin{aligned} Cr(H/E) &= Cr(H/W \wedge C) \text{ because } E \text{ is equivalent to } W \wedge C \\ &= \frac{Cr(C/H \wedge W)Cr(W/H)Cr(H)}{Cr(C/W)Cr(W)} \text{ by Ratio Formula and Conjunction Rule} \\ &= \frac{1 \cdot Cr(W/H)Cr(H)}{Cr(C/W)Cr(W)} \text{ because } H \text{ entails } C \\ &= \frac{Cr(W)Cr(H)}{Cr(C/W)Cr(W)} \text{ assuming } Cr(W/H) = Cr(W) \\ &= \frac{Cr(H)}{Cr(C/W)} \\ &= \frac{1}{Cr(E/W)}Cr(H) \text{ because } E \wedge W \text{ is equivalent to } C \wedge W \end{aligned}$$

So $Cr(H)$ increases by the factor $1/Cr(E/W)$.

$Cr(E/W)$ is the probability that there's a white non-raven in the shoe cabinet on the assumption that there is a white object in the shoe cabinet.

Imagine somebody tells you that they found a white object in your shoe cabinet. How confident are you that the object is *not* a raven? Normally, you would be very confident in this – even more so if you have reason to suspect that there are no ravens in the shoe cabinet, and even more so if you have other evidence suggesting that ravens tend to be black. Let's say your credence that the object is not a raven is 0.999999. Your credence in E given W must be at least that high.

If $Cr(E/W)$ is 0.999999, then $1/Cr(E/W)$ is 1.000001.

There is virtually no increase in probability.