Suppose we have the following table representative of how each state refers to soda.

Time Zone	Pop	Soda	Coke
EST (0.4)	0.2	0.3	0.5
CST (0.2)	0.5	0.3	0.2
MST (0.1)	0.333	0.333	0.333
PST (0.3)	0.1	0.2	0.7

By the law of total probability, we can determine that the probability of someone calling it "pop" is

$$P(\text{“}pop\text{”}) = P(pop|EST)\cdot P(EST)+P(\text{“}pop\text{”}|CST)\cdot P(CST)+P(\text{“}pop\text{”}|MST)\cdot P(MST)+P(\text{“}pop\text{”}|PST)\cdot P(PST).$$

More interestingly, we can find the probability that someone is from the central US by Bayes Theorem. To do so, we need to come up with the value of $P(\text{“}pop\text{”})$. Recall that $P(A|B) = \frac{P(A\cap B)}{P(B)}$.

$$P(\text{“}pop\text{”}) = 0.2(0.4) + 0.5(0.2) + 0.3333(0.1) + 0.1(0.3) = 0.243$$

We can now calcuate the probability that one is from CST given that they say "pop".

$$P(CST|\text{“}pop\text{”}) = \frac{P(CST \cap \text{“}pop\text{”})}{P(\text{“}pop\text{”})} = \frac{0.2 \cdot 0.5}{0.243} = 0.41.$$