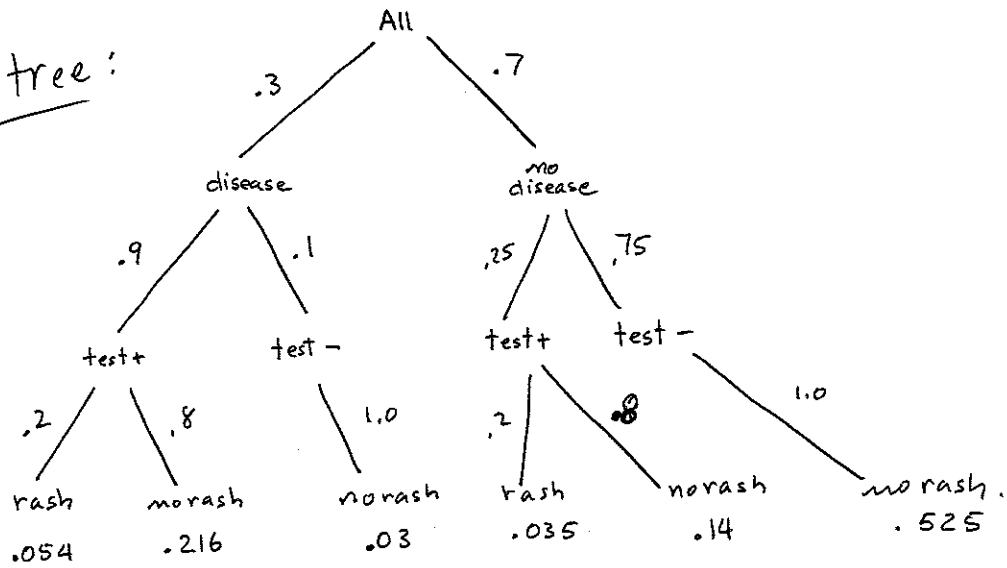


By tree:



$$P(\text{disease}|\text{rash}) = \frac{P(\text{rash} \& \text{disease})}{P(\text{rash})} = \frac{.054}{.089} \quad (P(\text{rash}) = .054 + .035)$$

By Bayes:

$$\begin{aligned}
 P(\text{disease}|\text{rash}) &= \frac{P(\text{rash}|\text{disease}) P(\text{disease})}{P(\text{rash})} \\
 &= \frac{[(.9)(.2)] (.3)}{(.2) P(\text{test}+)} = \frac{(.18)(.3)}{(.2) [(.3)(.9) + (.25)(.7)]} \\
 &= .054 / .089.
 \end{aligned}$$

By table:

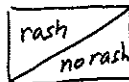
		Test		
		+	-	
Disease	yes	A	B	C
	no	D	E	F
		G	H	

$$C = .3; F = .7; A = (.3)(.9) = .27; B = .3 - .27 = .03$$

$$D = (.7)(.25) = .175; E = .7 - .175 = .525$$

$$G = A + D = .445, H = B + E = .03 + .525 = .555$$

Now divide the cells:



		Test		
		+	-	
Disease	yes	.054 / .216	0 / .03	.054 / .246
	no	.035 / .14	0 / .525	.035 / .665
		.089 / .356	0 / .555	.089 / .911

So

$$\begin{aligned}
 P(\text{disease}|\text{rash}) &= \\
 &= \frac{P(\text{rash} \& \text{disease})}{P(\text{rash})} \\
 &= \frac{.054}{.089}
 \end{aligned}$$