HHHH	B	F	Row total
Cell Prop.	$P(B) \& P(0)$	$P(F) \& P(0)$	$P(0)$
Row Prop. 0	$P(B \mid 0)$	$P(F \mid 0)$	
Col^n Prop.	$P(0 \mid B)$	~~$P(0 \mid F)$~~ $P(0 \mid F)$	
1	$P(1) \& P(B)$	$P(1) \& P(F)$	$P(1)$
	$P(B \mid 1)$	$P(F \mid 1)$	
	$P(1 \mid B)$	$P(1 \mid F)$	
Col^n ~~total~~	$P(B)$	$P(F)$	1
	$= 1/5 = 0.2$	0.8	

$$P(B \mid 1) = P(B \mid HHHH)$$

$$= B$$

$$P(B \mid HHHH) = \frac{P(B)\, P(HHHH \mid B)}{P(HHHH)}$$

$P(HHHH|B) = (0.75)^4 = 0.3164$

$P(HHHH) = (0.2) \times (0.75)^4 + 0.8 \times (0.5)^4$

$= 0.1138$

$\Rightarrow P(B|HHHH) = \dfrac{(0.2) \times 0.3164}{0.1138}$

$= 0.556 \text{ (approx)}$