Baye's Law

P(A/B) = P(B/A) * P(A) / P(B)

In [6]:

```
#calculate P(A/B) given P(A), P(B/A), P(B/notA)

def bayes_theorem(p_a, p_b_given_a, p_b_given_not_a):
    #calculate P(notA)
    p_not_a = 1-p_a
    #calculate P(B)
    p_b = p_b_given_a * p_a + p_b_given_not_a * p_not_a
    #calculate P(A/B)
    p_a_given_b = (p_b_given_a*p_a)/p_b
    return p_a_given_b

#P(A)
p_a= 0.0002
#P(B/A)
p_b_given_a=0.85
#P(B/not A)
p_b_given_not_a=0.05
#calculate P(A/B)
result=bayes_theorem(p_a, p_b_given_a, p_b_given_not_a)
#summarize
print('P(A/B)=%.4f%%'%(result*100))
```

```
P(A/B)=0.3389%
```

In [ ]:

```

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