Normal
messages (17)
_____

Spam
messages (7)

D
D
D.   B   D
Dear Friend Lunch Money

$$P(Dear \mid Normal) = \frac{8}{17} = 0.47$$

$$= \frac{5}{17} = 0.29$$

$$= \frac{3}{17} = 0.18$$

$$= \frac{1}{17} = ...$$

2   1   0   4
Dear Friend Lunch money

$$P(Dear \mid spam) = \frac{2}{7} = 0.29$$

$$P(Friend \mid spam) = \frac{1}{7} = 0.14$$

$$P(lunch \mid spam) = \frac{0}{7} = 0$$

$$P(money \mid spam) = \frac{4}{7} = 0.57$$

Prior
Probability

$$P(N) = \frac{8}{8+4} = 0.67$$

$$P(N) \times P(Dear \mid N) \times P(Friend \mid N) =$$

$$P(S) = \frac{4}{8+4} = 0.33$$

$$P(S) \times P(Dear \mid S) \times P(Dear \mid Friend)$$

$$= 0.01$$

Table | D   N - 12   ②
                    S - 7

                              S

1
2   Dean - 8+1   Dean - 2+1
3   Fried - 5+1   Fried - 1+1
4   lunch - 3+1   lunch - 0+1
5   money - 1+1   money - 4+1
6   ―――   ―――
7   12   7

8          $P(Dean|N) = 0.47$ $P(Dean|S) = 0.29$
9          $P(Friend|N) = 0.29$ $P(Fried|S) = 0.14$
10         $P(lunch|N) = 0.18$ $P(lunch|S) = 0.00$
11         $P(money|N) = 0.06$ $P(money|S) = 0.57$
12
13
14    $X = Dean Friend ✓$ Normal & message
15                $P(N) = \frac{8}{8+y}$
16
17
18    $X =$ lunch money money Money Money.
19
20
           $P(money|N) = 0.06$
           $P(money|S) = 0.57$

           ―― $P(N) * P(lunch|N) P(many|$
           ―― $P(S) * P(lunch|S) P(mony|$