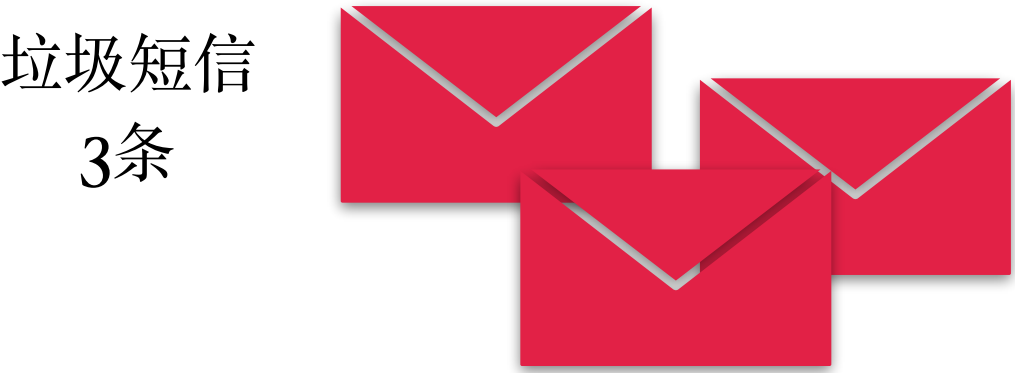


## 2. 计算机-应用结果：



$P(\text{正常}) = 0.75$



$P(\text{垃圾}) = 0.25$

此时，我们手机收到一条短信：  
“您好 话费”



$$\begin{aligned} P(\text{“您好”}|\text{正常}) &= \frac{5}{16} \\ P(\text{“话费”}|\text{正常}) &= \frac{4}{16} \\ P(\text{“链接”}|\text{正常}) &= \frac{1}{16} \\ P(\text{“验证码”}|\text{正常}) &= \frac{6}{16} \end{aligned}$$

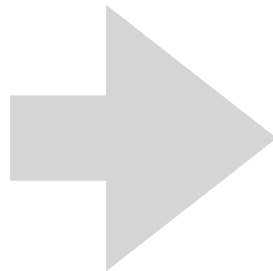
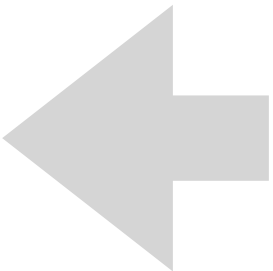
$$P(\text{正常}) \times P(\text{“您好”}|\text{正常}) \times P(\text{“话费”}|\text{正常}) = 0.75 \times \frac{5}{16} \times \frac{4}{16} = 0.059$$

其次，计算机根据其学习成果，

判断新收到短信中每一个词在两类中的概率，并相乘。

$$\begin{aligned} P(\text{“您好”}|\text{垃圾}) &= \frac{2}{8} \\ P(\text{“话费”}|\text{垃圾}) &= \frac{1}{8} \\ P(\text{“链接”}|\text{垃圾}) &= \frac{5}{8} \\ P(\text{“验证码”}|\text{垃圾}) &= \frac{0}{8} \end{aligned}$$

$$P(\text{垃圾}) \times P(\text{“您好”}|\text{垃圾}) \times P(\text{“话费”}|\text{垃圾}) = 0.25 \times \frac{2}{8} \times \frac{1}{8} = 0.0078125$$

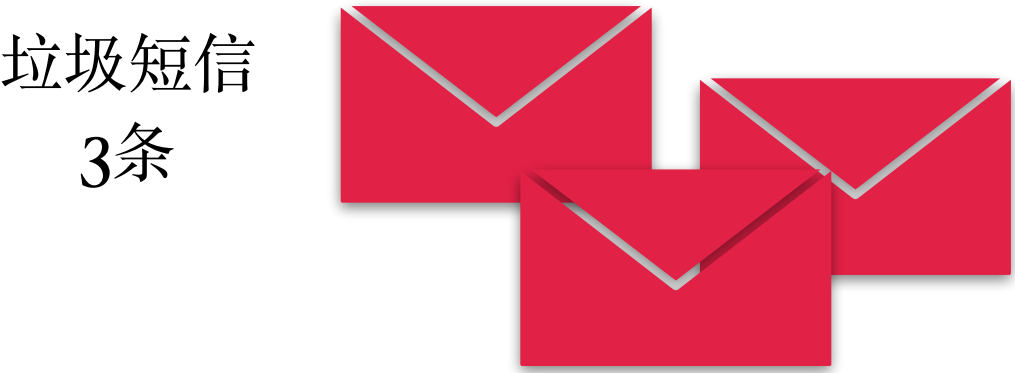


## 2. 计算机-应用结果：



$P(\text{正常}) = 0.75$

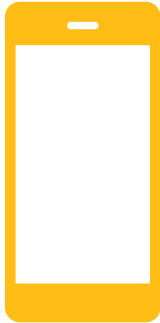
$$\begin{aligned} P(\text{“您好”}|\text{正常}) &= \frac{5}{16} \\ P(\text{“话费”}|\text{正常}) &= \frac{4}{16} \\ P(\text{“链接”}|\text{正常}) &= \frac{1}{16} \\ P(\text{“验证码”}|\text{正常}) &= \frac{6}{16} \end{aligned}$$



$P(\text{垃圾}) = 0.25$

$$\begin{aligned} P(\text{“您好”}|\text{垃圾}) &= \frac{2}{8} \\ P(\text{“话费”}|\text{垃圾}) &= \frac{1}{8} \\ P(\text{“链接”}|\text{垃圾}) &= \frac{5}{8} \\ P(\text{“验证码”}|\text{垃圾}) &= \frac{0}{8} \end{aligned}$$

此时，我们手机收到一条短信：  
**“您好 话费”**



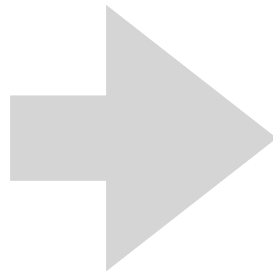
$P(\text{正常}) \times P(\text{“您好”}|\text{正常}) \times P(\text{“话费”}|\text{正常}) = 0.75 \times \frac{5}{16} \times \frac{4}{16} = 0.059$

“您好 话费”为正常短信的概率

最后，计算所得的结果就是收到这条短信后，判断为某一类短信的概率。

$P(\text{垃圾}) \times P(\text{“您好”}|\text{垃圾}) \times P(\text{“话费”}|\text{垃圾}) = 0.25 \times \frac{2}{8} \times \frac{1}{8} = 0.0078125$

“您好 话费”为垃圾短信的概率



## 2. 计算机-应用结果：

正常短信  
9条



$$\begin{aligned} P(\text{“您好”}|\text{正常}) &= \frac{5}{16} \\ P(\text{“话费”}|\text{正常}) &= \frac{4}{16} \\ P(\text{“链接”}|\text{正常}) &= \frac{1}{16} \\ P(\text{“验证码”}|\text{正常}) &= \frac{6}{16} \end{aligned}$$

此时，我们手机收到一条短信：  
“您好 话费”



$$P(\text{正常}) = \frac{\text{正常短信数量}}{\text{总短信数量}} = \frac{9}{9 + 3} = 0.75$$

首先，计算机进行盲猜，根据之前收到的两类短信的数量做出初步判断

垃圾短信  
3条



$$\begin{aligned} P(\text{“您好”}|\text{垃圾}) &= \frac{2}{8} \\ P(\text{“话费”}|\text{垃圾}) &= \frac{1}{8} \\ P(\text{“链接”}|\text{垃圾}) &= \frac{5}{8} \\ P(\text{“验证码”}|\text{垃圾}) &= \frac{0}{8} \end{aligned}$$

$$P(\text{垃圾}) = \frac{\text{垃圾短信数量}}{\text{总短信数量}} = \frac{3}{9 + 3} = 0.25$$

