Discrete example: spam

- Separate spam from valid email, attributes = words

D1: "send us your password"	spam
D2: "send us your review"	ham
D3: "review your password"	ham
D4: "review us"	spam
D5: "send your password"	spam
D6: "send us your account"	spam

new email: "review us now"

P (spam) = 4/6 P (ham) = 2/6

spam	ham	
2/4	1/2	password
1/4	2/2	review
3/4	1/2	send
3/4	1/2	us
3/4	1/2	your
1/4	0/2	account

$P(\text{no password, review, no send, us, no your, no account} \mid \text{spam}) = (1-\frac{2}{4}) \times \frac{1}{4} \times (1-\frac{3}{4}) \times \frac{3}{4} \times (1-\frac{3}{4}) \times (1-\frac{1}{4}) = \frac{9}{2048}$

$P(\text{no password, review, no send, us, no your, no account} \mid \text{ham}) = (1-\frac{1}{2}) \times \frac{2}{2} \times (1-\frac{1}{2}) \times \frac{1}{2} \times (1-\frac{1}{2}) \times (1-\frac{0}{2}) = \frac{1}{16}$

$P(\text{spam} \mid \text{no password, review, no send, us, no your, no account}) = \dfrac{\frac{9}{2048} \times \frac{4}{6}}{\frac{9}{2048} \times \frac{4}{6} + \frac{1}{16} \times \frac{2}{6}} \fallingdotseq 0.123$

Therefore the new e-mail is not a spam mail.