

K-Oil

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$$\rightarrow \text{Prior } P(c) = \frac{N_c}{N_{\text{total}}}$$

$$P(-) = 3/5, \quad P(+) = 2/5$$

\* The likelihood from the training set for "predictable", "no", "fun".

$$\rightarrow P(\text{'predictable'}|-) = \frac{1+1}{14+20} = \frac{2}{34} = \frac{1}{17}$$

$$P(\text{'predictable'}|+) = \frac{0+1}{9+20} = \frac{1}{29}$$

$$\rightarrow P(\text{'no'}|-) = \frac{1+1}{14+20} = \frac{2}{34} = \frac{1}{17}$$

$$P(\text{'no'}|+) = \frac{0+1}{9+20} = \frac{1}{29}$$

$$\rightarrow P(\text{'fun'}|-) = \frac{0+1}{14+20} = \frac{1}{34}$$

$$\rightarrow P(\text{'fun'}|+) = \frac{1+1}{9+20} = \boxed{\frac{2}{29}}$$

- \* For test set where  
 $S = \text{"predictable with no fun"}$   
 will remove 'with'.

$$P(-) P(S|-) = \frac{3}{5} \times \frac{2 \times 2 \times 1}{34 \times 34 \times 34}$$

$$= \boxed{0.0061 \times 10^{-2}}$$

$$P(+) P(S|+) = \frac{2}{5} \times \frac{1 \times 1 \times 2}{29 \times 29 \times 29}$$

$$= \boxed{0.000032}$$

$\therefore$  Thus, class is negative for the test sentence.