

Example:

Train	-	just plain boring
	-	entirely predictable & lacks energy
	-	no surprises & very few laughs
	+	very powerful
	+	the most fun film of the summer
Test	?	predictable with no fun

vocabulary: just, plain, boring, entirely, predictable, and, lacks, energy, no, surprises, very few, laughs, powerful, the, most, fun, film, of, summer

Prior From training:

$$P(c_j) = \frac{N_{c_j}}{N_{\text{total}}}$$

$$P(-) = \frac{3}{5} \text{ and } P(+) = \frac{2}{5}$$

$$P(w/c) = \frac{\text{count}(w, c) + 1}{\text{count}(c) + |V|}$$

$$|V| = 20$$

$$P(\text{Predictable} / -) = \frac{1+1}{14+20} = \frac{2}{34} = \frac{1}{17}$$

$$P(\text{Predictable} / +) = \frac{0+1}{9+20} = \frac{1}{29}$$

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

$$\text{Ily, } P(\text{no} / +) = \frac{1}{39}$$

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

$$P(\text{fun} / +) = \frac{1+1}{4+20} = \frac{2}{24}$$

Scoring:

$$\begin{aligned} P(- / \text{test}) &= P(-) \cdot P(\text{test} / -) \\ &= \frac{3}{5} \times \frac{2}{34} \times \frac{1}{34} \times \frac{1}{34} = \frac{2}{3086520} \\ &= \frac{12}{5929605} = 0.00000000897 \\ &= 0.000000259 \end{aligned}$$

$$\begin{aligned} P(+ / \text{test}) &= P(+) \cdot P(\text{test} / +) \\ &= \frac{2}{5} \times \frac{1}{29} \times \frac{1}{29} \times \frac{3}{29} = \frac{6}{121945} = 0.000000049 \end{aligned}$$

$$P(- / \text{test}) > P(+ / \text{test})$$

- Probability: Predictable with no. Fun \in - class