

# Example

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

**V** -ve = [Just, plain, boring, entirely, **predictable**, and, lacks, energy, **no**, surprises, very, few, laughs]

**V** +ve = [very, powerful, the, most, **fun**, film, of, summer]

**V** = [Just, plain, boring, entirely, predictable,  
and, lacks, energy, no, surprises,  
very, few, laughs, powerful, the,  
most, fun, film, of, summer]

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Priors

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

Likelihood

$$\begin{aligned}
 P(\text{"predictable"}|-) &= \frac{1+1}{14+20} & P(\text{"predictable"}|+) &= \frac{0+1}{9+20} \\
 P(\text{"no"}|-) &= \frac{1+1}{14+20} & P(\text{"no"}|+) &= \frac{0+1}{9+20} \\
 P(\text{"fun"}|-) &= \frac{0+1}{14+20} & P(\text{"fun"}|+) &= \frac{1+1}{9+20}
 \end{aligned}$$

Posterior

$$\begin{aligned}
 P(-)P(S|-) &= \frac{3}{5} \times \frac{2 \times 2 \times 1}{34^3} = 6.1 \times 10^{-5} \\
 P(+)P(S|+) &= \frac{2}{5} \times \frac{1 \times 1 \times 2}{29^3} = 3.2 \times 10^{-5}
 \end{aligned}$$