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Training	Cat	Documents
	-	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, lacks, energy, no, surprise, very, few, laughs, powerful, most, fun, film, of, summer

$P(+) = 2/5$	}	+ words :- very, powerful, the, most fun film of the summer
$P(-) = 3/5$		- words :- just, plain, boring, entirely, predictable, and, lacks, energy, no, surprise, very, few, laughs

$$P(+ | \text{predictable with no fun}) = \frac{P(\text{predictable with no fun} | +) \cdot P(+)}{P(\text{predictable with no fun})}$$

$$P(- | \text{predictable with no fun}) = \frac{P(\text{predictable with no fun} | -) \cdot P(-)}{P(\text{predictable with no fun})}$$

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$$P(\text{predictable with no fun} | +) = P(\text{predictable} | +) \cdot P(\text{with} | +) \cdot P(\text{no} | +) \cdot P(\text{fun} | +)$$

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

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

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

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

$$\therefore P(\text{predictable with no fun} | +) = \frac{1}{29} \times \frac{1}{29} \times \frac{1}{29} \times \frac{2}{29} = \frac{2}{29^4}$$

$$= P(\text{predictable with no fun} | -) = P(\text{predictable} | -) \cdot P(\text{with} | -) \cdot P(\text{no} | -) \cdot P(\text{fun} | -)$$

where

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

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

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

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

$$P(\text{predictable with no fun} | -) = \frac{4}{34^4}$$

Scoring -

$$P(+). P(\text{predictable with no fun} | +) = \frac{2}{5} \times \frac{2}{(29)^4}$$

$$= 0.00000011316558$$

$$P(-). P(\text{predictable with no fun} | -) = \frac{3}{5} \times \frac{4}{(24)^4}$$

$$= 0.00000017923593$$

\therefore 'predictable with no fun' belongs to -ve category i.e. negative category.