$H(\text{class}) = H\left(\frac{3}{6}, \frac{3}{6}\right) = 1$ (class = ⊕, class = ⊖)

$H(\text{class} \mid \text{color}) = P(x=\text{red}) \cdot H(Y \mid x=\text{red}) + P(x=\text{blue}) \cdot H(Y \mid x=\text{blue}) + P(x=\text{green}) \cdot H(Y \mid x=\text{green})$

$P(x=\text{red}) = \frac{3}{6} \quad P(x=\text{blue}) = \frac{1}{6} \quad P(x=\text{green}) = \frac{2}{6}$

$H(Y \mid x=\text{red}) = H\left(\frac{2}{3}, \frac{1}{3}\right) = \sum_{i=1}^{2} -p_i \log(p_i)$

3 reds → 2 ⊕, 1 ⊖

$= -\frac{2}{3}\log_2\left(\frac{2}{3}\right) - \frac{1}{3}\log_2\left(\frac{1}{3}\right) = +0.98$

$H(Y \mid x=\text{blue}) = H(1,0) = 0$

$H(Y \mid x=\text{green}) = H(0,1) = 0$

$H(\text{class} \mid \text{color}) = \underbrace{P(x=\text{red})}_{3/6} \times 0.98 + 0 + 0 = 0.459$

$I(\text{class}, \text{color}) = H(\text{class}) - H(\text{class} \mid \text{color}) = 1 - 0.459 = 0.541$