Conditional Entropy

Know nothing about the segment   **Know "eats" is present (X_{eats} =1)**

$$p(X_{meat} = 1) \quad \dashrightarrow \quad p(X_{meat} = 1 \mid X_{eats} = 1)$$

$$p(X_{meat} = 0) \quad \dashrightarrow \quad p(X_{meat} = 0 \mid X_{eats} = 1)$$

$$H(X_{meat}) = -p(X_{meat} = 0) \log_2 p(X_{meat} = 0) - p(X_{meat} = 1) \log_2 p(X_{meat} = 1)$$

$$H(X_{meat} / X_{eats} = 1) = -p(X_{meat} = 0 \mid X_{eats} = 1) \, log_2 \, p(X_{meat} = 0 \mid X_{eats} = 1)$$

$$- p(X_{meat} = 1 \mid X_{eats} = 1) \, log_2 \, p(X_{meat} = 1 \mid X_{eats} = 1)$$

$H(X_{meat} / X_{eats} = 0)$ **can be defined similarly**