# 2018 COMP20008 Workshop 6

# Example: Unbiased Coin (Head / Tail)

Pr (Head) = ½ = 0.5

Pr (Tail) = ½ = 0.5

Entropy:

- – Pr (Head) log2(Pr (Head)) – Pr (Tail) log2(Pr (Tail))
- – 0.5 log2(0.5) – 0.5 log2(0.5) = 1
- Entropy -> Uncertainty

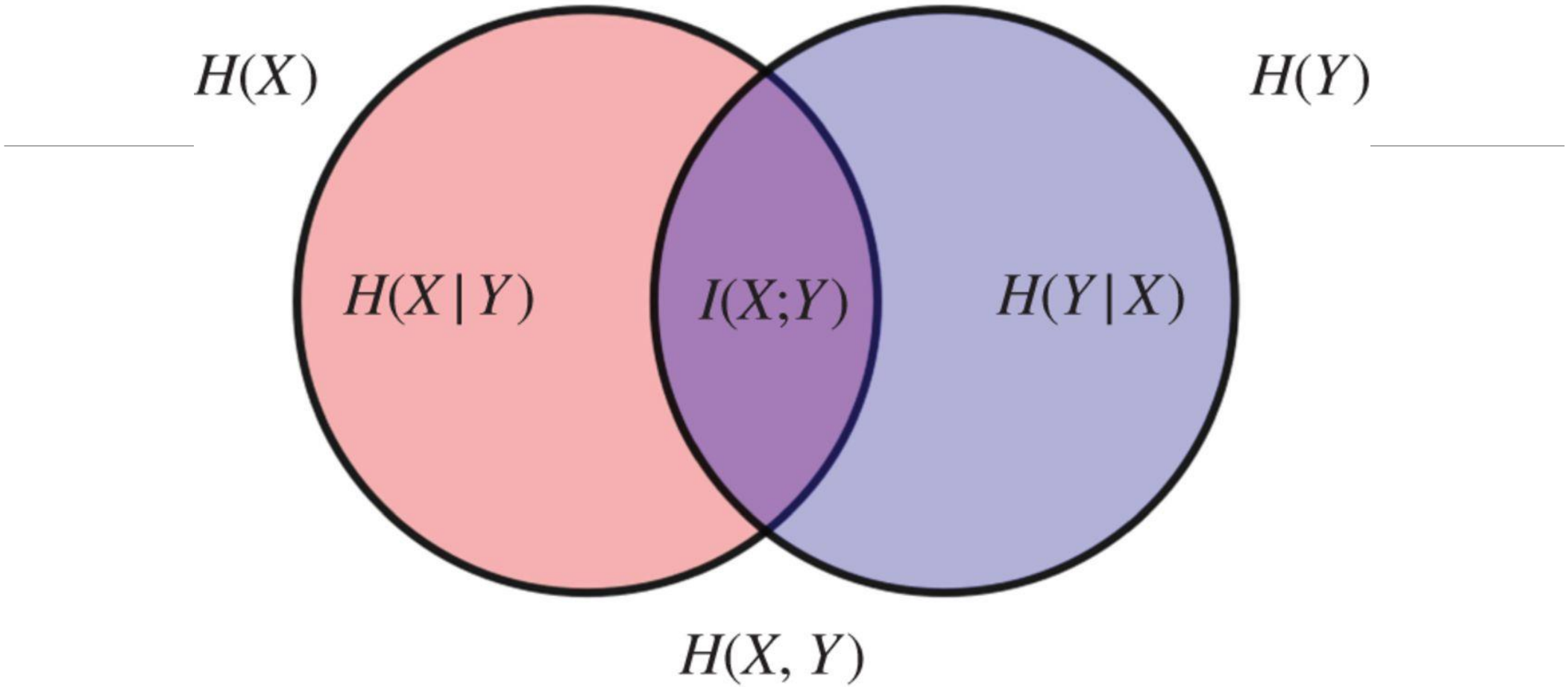
# Example: Biased Coin (Head / Tail)

Pr (Head) = 1

Pr (Tail) = 0

Entropy:

- – Pr (Head) log2(Pr (Head))
- – 1 log2(1) = 0
- What does that mean?


H(X)
H(Y)
H(X | Y)
I(X;Y)
H(Y | X)
H(X, Y)