ICA and the NEM

September 2019
The Cocktail Party problem

Mixtures
The cocktail Party problem

Original signals are independent

Mixtures are Partially dependent
The Cocktail Party problem

Mixtures are Partially dependent

Transform to Make independent
The Cocktail Party problem (derived signals)
• The signals were separated based on their statistical/probability properties – in particular by minimising their Mutual Information content
Relationships between Information and Entropy (Uncertainty)

\[ H(X,Y) \]
\[ H(X) \]
\[ H(Y) \]
\[ I(X,Y) \]
Figure 3: IC2 (typical wind farm output) vs IC5 (typical solar farm output)