

Ion & hack - 3

Idea: Create two more binary variables such that one would punish the cuts between same ^{set of} nodes (S_{vw}) and one would encourage cuts between different set of nodes (D_{vw})

$$D_{vw} = x_v + x_w - 2x_v x_w$$

$$S_{vw} = 1 - D_{vw}$$

$$D_{vw} = \frac{1}{2} (1 - z_v z_w) \quad \text{check!}$$

$$S_{vw} = 1 - \left[\frac{1}{2} (1 - z_v z_w) \right]$$

$$H_S = \lambda_S \sum_{v \in V} \left(1 - \sum_{(v,w) \in E} S_{vw} \right)^2$$

$$H_D = \lambda_D \sum_{v \in V} \left(1 - \sum_{(v,w) \in \bar{E}} D_{vw} \right)^2$$

$$\text{Total } H = H_{\text{original}} + H_S + H_D, \quad \lambda = 1 \text{ (for now)}$$