

$$\sum_{i=1}^N \mathbb{1}(x_i \neq y_i) = \mathbb{I} \left[ N \epsilon(\delta) \leq \left( \frac{1}{\alpha} + \log N \right) \right]$$
$$= \sum_{i=1}^N \mathbb{1}(x_i \neq y_i) + \rho_{\text{TV}} \times \|M(x_i, \cdot) - M(y_i, \cdot)\|_{\text{TV}}$$
$$\rho_{\text{TV}}(x, y) = \frac{1}{2} \left( 1 + \|M(x_i, \cdot) - M(y_i, \cdot)\|_{\text{TV}} \right)$$
$$\rho_{\text{TV}}(x, y) = \frac{1}{2} \left( \sum_{r \in \mathcal{R}} |P_r(x_i) - P_r(y_i)| \right)$$
$$\frac{M(x_i, \theta)}{M(y_i, \theta)}$$

