Exponential Loss as Entropy Optimization

- all vectors $\mathbf{d}_t$ created by AdaBoost have form:

$$d(i) = \exp\left(-y_i \sum_j \lambda_j g_j(x_i)\right)$$

- let $\mathcal{Q} = \{$ all vectors $\mathbf{d}$ of this form $\}$
- can rewrite exponential loss:

$$\begin{aligned}
\inf_{\boldsymbol{\lambda}} \sum_i \exp\left(-y_i \sum_j \lambda_j g_j(x_i)\right) &= \inf_{\mathbf{d}\in\mathcal{Q}} \sum_i d(i) \\
&= \min_{\mathbf{d}\in\overline{\mathcal{Q}}} \sum_i d(i) \\
&= \min_{\mathbf{d}\in\overline{\mathcal{Q}}} \mathrm{RE}\left(\mathbf{0} \parallel \mathbf{d}\right)
\end{aligned}$$

- $\overline{\mathcal{Q}} =$ closure of $\mathcal{Q}$