

$$\frac{\partial^2 F}{\partial A^2} = \frac{1}{N} \sum_{n=1}^N -y_n z_n \frac{\partial \theta(H)}{\partial H} \frac{\partial H}{\partial A} = \frac{1}{N} \sum_{n=1}^N -y_n z_n \theta(H)(1-\theta(H))(-y_n z_n) = \frac{1}{N} \sum_{n=1}^N z_n^2 p_n(1-p_n)$$