

$$\frac{\partial}{\partial w_i} \left( \frac{1}{N} \sum_{n=1}^N \left( \ln \left( \sum_{i=1}^K \exp(w_i^T x_n) \right) - w_{y_n}^T x_n \right) \right) = \frac{1}{N} \sum_{n=1}^N \left( \frac{\partial}{\partial w_i} \left( \ln \left( \sum_{i=1}^K \exp(w_i^T x_n) \right) - w_{y_n}^T x_n \right) \right)$$