

$$\begin{aligned}
R(\theta) &= \frac{1}{N} \sum_{n=0}^N L(y_n - f(x_n)) \\
&= \frac{1}{N} \sum_{n=0}^N \frac{1}{2} (y_n - f(x_n))^2 \\
&= \frac{1}{N} \sum_{n=0}^N \frac{1}{2} \left( y_n - g \left( \sum_k w_{kl} g \left( \sum_j w_{jk} g \left( \sum_i w_{ij} x_{n,i} \right) \right) \right) \right)^2
\end{aligned}$$