Backpropagation Preparation

- k is an output unit, j is an inner unit
- $\mathrm{E(n)} = \frac{1}{2}\sum_{k\in c} e_k^2(n)$
- $\frac{\partial \mathrm{E(n)}}{\partial y_j(n)} = \sum_k e_k(n)\frac{\partial e_k(n)}{\partial y_j(n)} = \sum_k e_k(n)\frac{\partial e_k(n)}{\partial v_k(n)}\frac{\partial v_k(n)}{\partial y_j(n)}$
- $e_k(n) = d_k(n) - y_k(n) = d_k(n) - \varphi_k(v_k(n))$
- $\frac{\partial e_k(n)}{\partial v_k(n)} = -\varphi'(v_k(n))$

$v_j - y_j - v_k - y_k - e_k$