function BACK-PROP-UPDATE(*network, examples*, α) **returns** a network with modified weights

inputs: *network*, a multilayer network
examples, a set of input/output pairs
α, the learning rate

repeat
  for each *e* **in** *examples* **do**
    /* *Compute the output for this example* */
    $\mathbf{O} \leftarrow$ RUN-NETWORK(*network*, $\mathbf{I}^e$)
    /* *Compute the error and* Δ *for units in the output layer* */
    $\mathbf{Err}^e \leftarrow \mathbf{T}^e - \mathbf{O}$
    /* *Update the weights leading to the output layer* */
    $W_{j,i} \leftarrow W_{j,i} + \alpha \times a_j \times Err_i^e \times g'(in_i)$
    for each subsequent layer **in** *network* **do**
      /* *Compute the error at each node* */
      $\Delta_j \leftarrow g'(in_j) \sum_i W_{j,i} \Delta_i$
      /* *Update the weights leading into the layer* */
      $W_{k,j} \leftarrow W_{k,j} + \alpha \times I_k \times \Delta_j$
    end
  end
until *network* has converged
return *network*