Tree-Learning (TR, Target, Attr)

TR: training examples
Target: target attribute
Attr: set of descriptive attributes

{
  Create a Root node for the tree.
  If TR have the same target attribute value \( t_i \),
    Then Return the single-node tree, i.e. Root, with target attribute = \( t_i \)
  If Attr = empty (i.e. there is no descriptive attributes available),
    Then Return the single-node tree, i.e. Root, with most common value of Target in TR
  Otherwise
    \{
      Select attribute \( A \) from Attr that best classify TR based on an entropy-based measure
      Set \( A \) the attribute for Root
      For each legal value of \( A \), \( v_i \), do
        \{
          Add a branch below Root, corresponding to \( A = v_i \)
          Let \( TR_{v_i} \) be the subset of TR that have \( A = v_i \)
          If \( TR_{v_i} \) is empty,
            Then add a leaf node below the branch with target value = most common value of Target in TR
          Else below the branch, add the subtree learned by
            Tree-Learning(\( TR_{v_i} \), Target, Attr-\{A\})
        \}
    \}
  Return (Root)
}