

Laboratory 6

16. Determine if a tree of type (2) is balanced (the difference between the depth of two subtrees is equal to 1).

$$\text{myMax}(a, b) = \begin{cases} a, & \text{if } a > b \\ b, & \text{otherwise} \end{cases}$$

$$\text{myDiff}(a, b) = \begin{cases} a - b, & \text{if } a > b \\ b - a, & \text{otherwise} \end{cases}$$

$$\text{myGetDepth}(l_1, l_2, \dots, l_n) = \begin{cases} 0, & \text{if } n = 0 \\ 1 + \text{myMax}(\text{myGetDepth}(l_2), \text{myGetDepth}(l_3)), & \text{otherwise} \end{cases}$$

$$\text{myBalanced}(l_1, \dots, l_n) = \begin{cases} \text{true}, & \text{if } n = 0 \\ \text{nil}, & \text{if } \text{myDiff}(\text{myGetDepth}(l_2), \text{myGetDepth}(l_3)) > 1 \\ \text{nil}, & \text{if } \text{myDiff}(\text{myGetDepth}(l_2), \text{myGetDepth}(l_3)) = 0 \\ \text{myBalanced}(l_2) \text{ and } \text{myBalanced}(l_3), & \text{otherwise} \end{cases}$$