Assume that we embed the path $P_n$ as a subgraph of a 2-dimensional grid, namely, $P_k \times P_l$. Given such an embedding, we consider the ordered set of subpaths $L_1, L_2, \ldots, L_m$ which are maximal straight segments in the embedding, and such that the end of $L_i$ is the beginning of $L_{i+1}$. Suppose that $L_i \cong P_2$, for some $i$ and that some vertex $u$ of $L_{i-1}$ is at distance 1 in the grid to a vertex $v$ of $L_{i+1}$. An elementary transformation of the path consists in replacing the edge of $L_i$ by a new edge $uv$. A tree $T$ of order $n$ is said to be a path-like tree, when it can be obtained from some embedding of $P_n$ in the 2-dimensional grid, by a sequence of elementary transformations. Thus, the maximum degree of a path-like tree is at most 4.

Intuitively speaking, a tree admits a linear configuration if it can be described by a sequence of paths in such a way that only vertices from two consecutive paths, which are at the same distance of the end vertices are adjacent. In this work, we characterize path-like trees of maximum degree 3, with an even number of vertices of degree 3, from linear configurations. We also show that the characterization of path-like trees of maximum degree 4 can be reduced to the characterization of path-like tree of maximum degree 3.

[1] S.C. López, F. A. Muntaner-Batle, Characterizing path-like trees from linear configurations, arXiv:1705.08802 [math.CO].