



FIG. 2. An illustration of the construction in the proof of Theorem 3 applied to a toy graph G with edge set E' (dashed) and $s = 8$. Graph G has treewidth 3 but after removing the dashed edges graph H has treewidth 2. A tree-decomposition for H is shown and the leaf node at the top chosen to be the root. For each edge h in the tree-decomposition the parameter d_h is depicted and the edge oriented toward the node if $d_h < 8$. Note this defines node i , edge e and component T_e as shown.