

An Even Simpler Linear-Time Algorithm for Verifying Minimum Spanning Trees

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Abstract. A new linear-time algorithm is presented for the *tree-path-maxima* problem of, given a tree T with real edge weights and a list of pairs of distinct nodes in T , computing for each pair (u, v) on the list a maximum-weight edge on the path in T between u and v . Linear-time algorithms for the tree-path-maxima problem were known previously, but the new algorithm may be considered significantly simpler than the earlier solutions. A linear-time algorithm for the tree-path-maxima problem implies a linear-time algorithm for the *MST-verification* problem of determining whether a given spanning tree of a given undirected graph G with real edge weights is a minimum-weight spanning tree of G .