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The number of interlacing equalities resulting from removal of a vertex from a tree.

Summary: We consider the set of Hermitian matrices corresponding to a given graph, that is, Hermitian matrices whose nonzero entries correspond to the edges of the graph. When a particular vertex is removed from a graph a number of eigenvalues of the resulting principal submatrix may coincide with eigenvalues of the original Hermitian matrix. Here, we count the maximum number of “interlacing equalities” when the graph is a tree and the original matrix has distinct eigenvalues. We provide an upper bound and lower bound for the count and discuss some conditions under which the count is equal to the upper bound.

Keywords: eigenvalues; interlacing equalities; parter vertices; trees
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