ON THE DIAMETER OF GAMMA-GRAPHS OF TREES

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We provide tight bounds on the diameter of $\gamma$-graphs, which are reconfiguration graphs of the minimum dominating sets of a graph $G$. In particular, we prove that for any tree $T$ of order $n \geq 3$, the diameter of its $\gamma$-graph is at most $\frac{n}{2}$ in the single vertex replacement adjacency model, while in the slide adjacency model, it is at most $2^{(n-1)\frac{3}{2}}$. Our proof is constructive, leading to a simple linear-time algorithm for determining the optimal sequence of moves between two minimum dominating sets of a tree.

Keywords: domination, tree-graph, diameter.

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References

