Non-trivial Self-stabilizing Algorithm for Minimal Perfect Domination in an Arbitrary Graph
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Self-stabilizing algorithms are algorithms designed for distributed systems in which, no matter the start state, will cause the system to converge to a correct state in a finite number of steps. Perfect domination, first studied by Weichsel, is a parameter where there is a subset of vertices in a graph such that every node not in the set is adjacent to exactly one node in the set. The trivial solution for a minimal perfect dominating set is to have every vertex in the graph be part of the subset. The goal of this paper is to outline an algorithm to find a non-trivial minimal subset using a self-stabilizing algorithm with a serial daemon.
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