

Fast winning strategies for Staller in the Maker-Breaker domination game

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The Maker-Breaker domination game is played on a graph G by two players, called Dominator and Staller, who alternately choose a vertex that was not played so far. Dominator wins the game if he forms a dominating set. Staller wins if she claims all vertices from a closed neighborhood of a vertex $v \in V(G)$. In this talk, we will discuss possible optimal strategies for Staller when she can win the game. We will introduce the invariant $\gamma'_{\text{SMB}}(G)$ (resp., $\gamma_{\text{SMB}}(G)$) which is the smallest integer k such that, under any strategy of Dominator, Staller can win the game by playing at most k vertices, if Staller (resp., Dominator) starts the game.

We will prove some basic properties of $\gamma_{\text{SMB}}(G)$ and $\gamma'_{\text{SMB}}(G)$ and study the effect to parameters under some elementary operators. We will also present graphs with small winning numbers and consider the game on some classes of graphs, in particular on subclasses of trees.

References

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