

Restrained domination in directed graphs

Kim A. S. Factor, Marquette University

Extensions of domination in graphs includes restrained domination, as introduced by Domke, Hattingh, Hedetniemi, Laskar and Markus in the 1990's. Let $G = (V, E)$ be a graph with vertex set V and edge set E . A set $S \subseteq V$ is a *restrained dominating set* if every vertex in $V - S$ is adjacent to a vertex in S and another vertex in $V - S$. The cardinality of a minimum restrained dominating set is the *restrained domination number*, denoted $\gamma_r(G)$. Here, we examine initial results of the directed graph extension of this concept, the *directed restrained dominating set* of a digraph $D = (V, A)$. Similarities between graphs and digraphs are discussed, as well as interesting differences that occur when we add direction to the edges.