

VERTEX INFLATION IN GRAPHS

MONIKA ROSICKA

University of Gdańsk

e-mail: monika.rosicka@ug.edu.pl

We define *vertex inflation* as an operation which transforms a graph G into G_v , (for some vertex $v \in V_G$), in which the vertex v is replaced with a clique K_v as follows,

- Delete the vertex v
- Add a clique $K_v = \{v_{u_1}, \dots, v_{u_k}\}$, where $u_1, \dots, u_k \in N_G(v)$
- Add edges $v_u u$ for each vertex $u \in N_G(v)$.

We study the effects of inflating one or more vertices in a graph on its domination number and provide upper and lower bounds on $\gamma(G_v)$, as well as $\gamma(G')$, where G' is a graph in which every vertex has been inflated.