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H Tracy Hall* (h.tracy@gmail.com). *The Boustrophedon Conjecture: Using vertex orderings to strengthen the Graph Complement Conjecture for maximum nullity of a graph.*

A graph nullity parameter $M_s(G, \sigma)$ is introduced that depends not only on the simple graph G but on an ordering σ of its vertices. (The subscript stands for *sequential*.) Maximizing $M_s(G, \sigma)$ over all orderings σ yields $M_s(G)$, which is shown to be a lower bound for maximum semidefinite Strong Arnold Property nullity: $M_s(G) \leq \nu(G)$.

Boustrophedon Conjecture. *Let G be a graph with $|V(G)| = n$. Then there exists an ordering σ of $V(G)$ such that*

$$M_s(G, \sigma) + M_s(\overline{G}, \overleftarrow{\sigma}) \geq n - 2,$$

where \overline{G} denotes the complement of G and $\overleftarrow{\sigma}$ denotes the reversal of σ .

This would imply for example GCC_ν , the Graph Complement Conjecture for $\nu(G)$. While not quite combinatorial, $M_s(G, \sigma)$ does have the advantage that it can be computed fairly easily for any given graph and vertex ordering. It thus lends itself to computerized explorations, validating particular cases of the Boustrophedon Conjecture. (Received September 14, 2020)