Graph Subset Parameters from the ViewPoint of LP Duality and Complementarity

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Abstract

Many graph subset parameters (such as the domination and independence numbers) can be formulated as integer linear programming problems. In *Domination in Graphs: Advanced Topics*, Slater describes several of these parameters and their corresponding linear (LP) and integer (IP) programs. These parameters have natural "dual" and "complement" parameters which can be described using LP duality and complementarity. These LP/IP programs can be "generalized" to describe new graph subset parameters. Here, we discuss the basics of formulating graph subset parameters as IP's, linear programming duality and complementarity, Slater's 8-cycle, and how these techniques have been used to describe new graph subset parameters.