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Forbidding and Enforcing Graphs.

We present a new way of defining classes of graphs based on two types of constraints. Forbidding conditions disallow certain combinations of subgraphs in a graph. Enforcing conditions require that certain subgraphs of a graph are embedded in larger subgraphs of that graph. A forbidding-enforcing system (fe-system) is a construct consisting of a forbidding set and an enforcing set which defines a class of graphs, such that each graph in the class satisfies both sets of constraints. We characterize some familiar classes of graphs, e.g., trees, paths and cycles, bipartite graphs, complete graphs, and k -regular graphs through fe-systems. We prove several normal forms for forbidding sets and for enforcing sets. (Received September 21, 2007)