

In this thesis we explore ways to extend graphs to supergraphs that are vertex-transitive. We introduce a template system for their construction. This system is used to provide a construction of vertex-transitive supergraphs of exponential size for general graphs and of quadratic size for bipartite graphs. For general graphs we also provide a quadratic lower bound. We also sketch an approach that could lead to bridging the time complexity gap between the graph isomorphism problem and the problem of recognizing vertex-transitive graphs.