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Edge-transitive products.

Under what circumstances is a graph product edge-transitive? A strong product $G \boxtimes H$ is edge-transitive if and only if each factor is a complete graph, whereas a Cartesian product $G \square H$ is edge-transitive if and only if it is the Cartesian power of an edge- and vertex-transitive graph.

This talk focuses on the case of the direct product. We show that if $G \times H$ is not bipartite then it is edge-transitive if and only if both factors are edge-transitive and one is arc-transitive, or if one is edge transitive and the other is a complete graph with loops at each vertex.

We also discuss the bipartite case, which is considerably more subtle. (Received September 20, 2015)