DISTINGUISHING PRODUCTS OF COUNTABLE GRAPHS

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The distinguishing number $D(G)$ of a graph $G$ is the least number $d$ such that $G$ has a vertex colouring with $d$ colours that is only preserved by the trivial automorphism. This notion was introduced by Albertson and Collins in [1].

We investigate the distinguishing number of the Cartesian product of graphs. Extending previous investigations [2], [3], we considerably relax the conditions for $D(G) \leq 2$ for connected, finite or countably infinite graphs $G$ that are Cartesian products. In particular, $D(G) \leq 2$ when $G$ is a weak Cartesian product or the product of two infinite graphs.

Keywords: vertex colouring, distinguishing number, automorphism, infinite graph, Cartesian and weak Cartesian products.

AMS Subject Classification: 05C25, 05C80, 03E10.

References

