Vertex colorings of acyclic digraphs, efficiencies and discrepancies

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Abstract

Vertex coloring of an acyclic digraph in such a way that two vertices with a common ancestor receive distinct colors in an optimal fashion by the smallest number of colors can be applied to space reduction of certain genetic data structures and can be connected to problems for hypergraphs, BIBDs and finite geometries. This talk is an expanded version of a talk given at the JMM in Baltimore in January 2019 in honor of T. S. Michael at the USNA who passed away in November 2016. – This is joint work with Ágúst Egilsson then at deCODE genetics and Magnús M. Halldórsson at the University of Reykjavík.

Keywords: vertex coloring, acyclic digraph, hypergraph, poset, finite geometries.