

On-line Supplement to
 “Efficient Computation of Sparse Hessians
 using Coloring and Automatic Differentiation”
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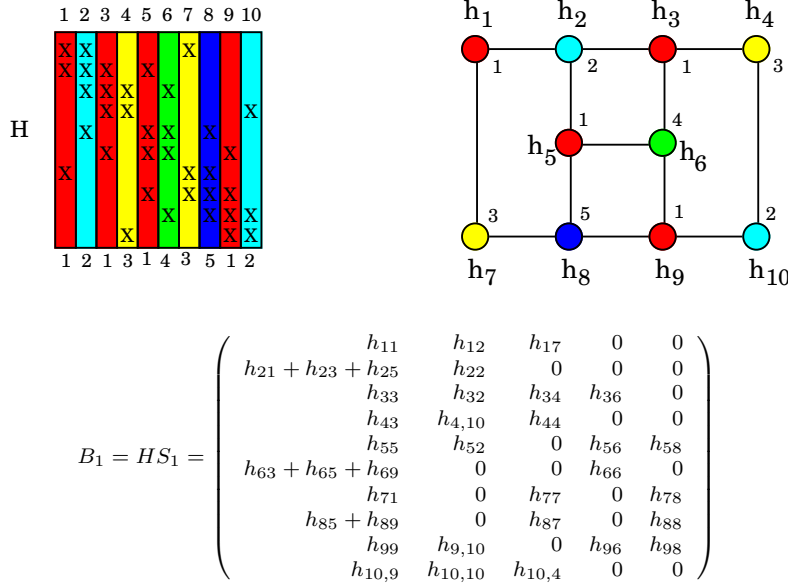


Figure 1: Top—a symmetrically orthogonal partition of the columns of a Hessian and its representation as a star coloring of the adjacency graph. The illustration uses five colors—red, blue, yellow, green and navy blue—which are also represented by the integers 1, 2, 3, 4 and 5, respectively, as shown at the bottom edge of the matrix as well as adjacent to the vertices of the graph. Bottom—the compressed matrix obtained by adding together columns that belong to the same group in the partitioning.

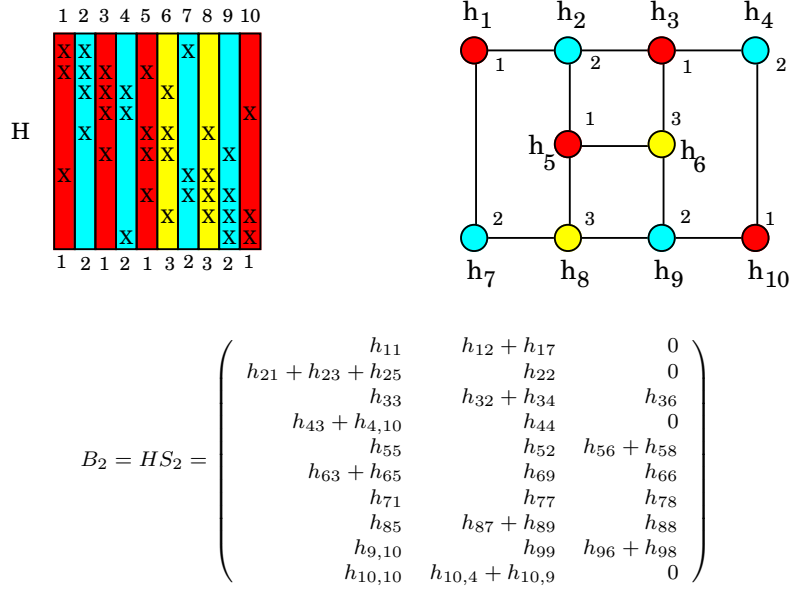


Figure 4: Top—a substitutable partition of the columns of a Hessian and its representation as an acyclic coloring of the adjacency graph. The illustration uses three colors—red, blue and yellow—which are also represented by the integers 1, 2 and 3, respectively, as shown at the bottom edge of the matrix as well as adjacent to the vertices of the graph. Bottom—the compressed matrix obtained by adding together columns that belong to the same group in the partitioning.