List k-fold coloring cycles with Hall's condition

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Abstract

The k-fold Hall number of a graph G, , is the minimum positive integer mk such that if L is any list assignment with —L(v)—m for every vV(G) then there is a k-fold list coloring of G whenever G and L satisfy Hall's condition (a natural necessary condition). Here we shall investigate this parameter for cycles. Specifically we determine that for all cycles with equality when n is odd and demonstrate an arrangement showing . As a corollary of these results we obtain combinatorial proofs for the values of the k-fold choice number of cycles.

Keywords: Hall's condition, list coloring, k-fold coloring (list), multicoloring.