List Colorings: Some Refinements of Hall's Condition.

Julian Allagan, Benkam Bobga*, Mathew Cropper, Anthony Hilton, Peter Johnson, Jeno Lehel ¨ and Douglas Leonard.

Let C be an infinite set of symbols. A function L is a list assignment to a graph G if L assigns to each vertex of G a non-empty finite subset of C, called a list. A proper L-coloring of G is an assignment of "colors" to the vertices of G, from their lists, so that adjacent vertices are colored with different colors. Interpreted as a theorem about proper list colorings of complete graphs, P. Hall's theorem on systems of distinct representatives inspires a generalization, a necessary condition for proper colorings, known as Hall's Condition (HC). We present some refinements of HC, and explore some conditions for proper L-colorings of the graph G.

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