

1077-05-2903

**Liam Rafferty\*** ([rafferty@member.ams.org](mailto:rafferty@member.ams.org)), Dr. Liam Rafferty, 2139 S 4th W Apt. A, Missoula, MT 59801. *An alternate proof that any graph that is  $mn$ -colorable is decomposable into two graphs that are  $m$ -colorable and  $n$ -colorable, respectively.* Preliminary report.

Stefan A. Burr (A Ramsey-theoretic result involving chromatic numbers. J. Graph Theory 4 (1980), no. 2, 241–242) proved that a graph that is  $mn$ -colorable can be decomposed into two graphs that are  $m$ -colorable and  $n$ -colorable, respectively. While Burr explicitly constructed the colorings, we prove the same result using graph homomorphisms. We also provide a new corollary to this theorem. (Received September 22, 2011)