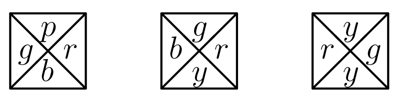
University of Colorado
Department of Mathematics
Problem of the Month
February 2013

You wish to tile the plane with 1×1 square tiles which have a color on each edge. Tiles must be arranged so that abutting edges of adjacent tiles have the same color. Tiles may not be rotated or reflected. You have access to only finitely many types of tiles, but infinitely many tiles of each available type.

Show that if you can tile the first quadrant of the plane with the set of tiles you have available, then you can tile the entire plane.

Sample tiles



r=red, b=blue, g=green, y=yellow, p=purple, ...

(In this example, the first and second tiles may be placed adjacent to the third tile on its left. The first tile may be placed adjacent to the third tile on its right, too, but the second tile may not be.)