CSE 344 Section 5

February 5, 2016

Consider a graph of colored vertices and undirected edges where the vertices can be red, green, blue. In particular, you have the relations

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Vertex(x, color)
Edge(x, y)
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The Edge relation is symmetric in the if (x, y) is in Edge, then (y, x) is in Edge. Your goal is to write a datalog program to answer each of the following questions.

1. Find all green vertices.

2. Find all pairs of blue vertices connected by one edge.

3. Find all triangles where all the vertices are the same color. Output the three vertices and their shared color.

4. Find all vertices that don't have any neighbors.

5. Find all vertices such that they only have red neighbors.

6. Find all vertices such that they only have neighbors with the same color. Return the vertex and color.

7. (Optional) For some vertex v, find all vertexes connected to v by blue vertexes (this one require recursion).