

Rendering Pixel-Perfect Polygon Tilings

Aresh Pourkavoos

April 22, 2022

Given a tiling of the plane by non-self-intersecting polygons, now do you assign each point to a unique polygon? The interiors don't overlap, so they can be assigned unambiguously, but what about the edges and vertices? It's possible to assign some arbitrary ordering to the polygons and simply choose the "first" one that contains a given point. However, it would be nice if the assignment depended only on the shapes themselves and not on any additional information.

- Non-vertical edges are assigned to the polygon directly below them.
- Vertical edges are assigned to the polygon directly to their right.
- Vertices with no downward-pointing edge are assigned to the polygon directly below them.
- Vertices with a downward-pointing edge are assigned to the polygon directly to the right of said edge.

4	3	2	2	1
4	4	2	1	1
5	5	7	8	8
5	6	7	7	8
6	6	7	7	7