

Packing anchored rectangles

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Conjecture: You can cover at least half of the area

Target: You can cover at least a constant Area of 0.09...

Ordering of points

For each point $s \in S$ denote with $x(s)$ and $y(s)$ the coordinates of point s .

$$x(s_i) + y(s_i) \geq x(s_j) + y(s_j)$$

for $1 \leq i < j \leq n$.

Dominance order

For two points, $p = (x_p, y_p)$ and $q = (x_q, y_q)$, we say that $p \preceq q$ (q dominates p) if

$$x_p \leq x_q \text{ and } y_p \leq y_q :$$

With this definition, an axis-aligned rectangle with lower left corner c_1 and upper right corner c_2 can be written as $p \in \mathbb{R}^2 : c_1 \preceq p \preceq c_2$.

Greedy vs Tiling

Lemma: For each point $s_i \in S$, GreedyPacking chooses a rectangle whose area is at least as large as the area of the rectangle chosen by TilePacking.

