

Hyperrectangles

Why

We want to generalize rectangles and cubes to n-dimensional space.

Definition

Let $I: \{1, 2, ..., d\} \to \mathbb{R}$ be a family of d intervals. A hyperrectangle is the set $\prod_{i=1}^{d} I_i$.¹

As a result of this definition, an interval, a rectangle, and a cube are all hyperrectangles. Of course, in our definition we include four, five, and "dimensional" rectangles.

As with intervals, rectangles, and cubes, we call a hyperrectangle open, closed, left-open, right-open accordingly.

¹Some authors use the term rectangle or n-dimensional rectangle. Some authors use the term box or n-box.

