

## Hyperrectangles

## Why

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

## Definition

Let  $I:\{1,2,\ldots,d\}\to \mathbf{R}$  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.

<sup>&</sup>lt;sup>1</sup>Some authors use the term rectangle or n-dimensional rectangle. Some authors use the term box or n-box.

