



## Why

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

## Definition

Let  $I : \{1, 2, \dots, d\} \rightarrow \mathbf{R}$  be a family of  $d$  intervals. A *hyperrectangle* is the set  $\prod_{i=1}^d I_i$ .<sup>1</sup>

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.

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



