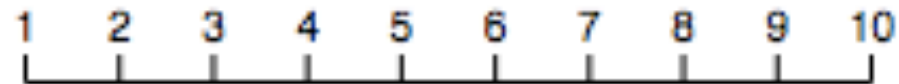


# Axis Components

construct axis generators for given scales

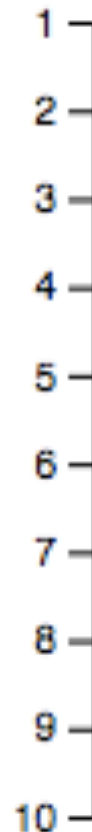
**d3.axisTop()**



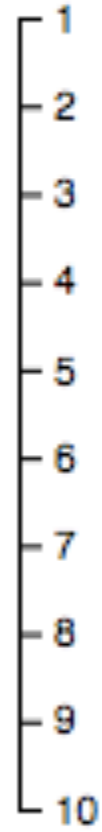
**d3.axisBottom()**



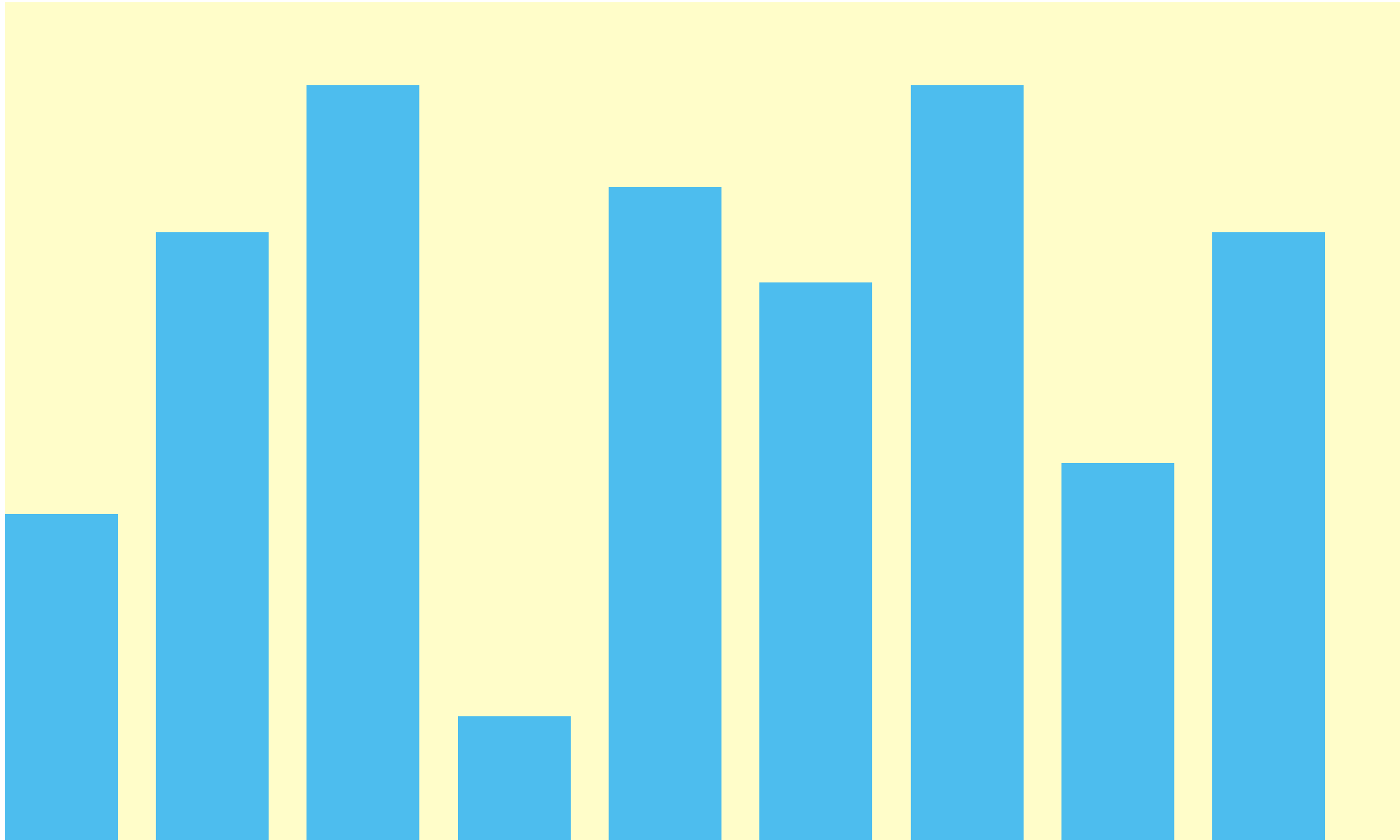
**d3.axisLeft()**



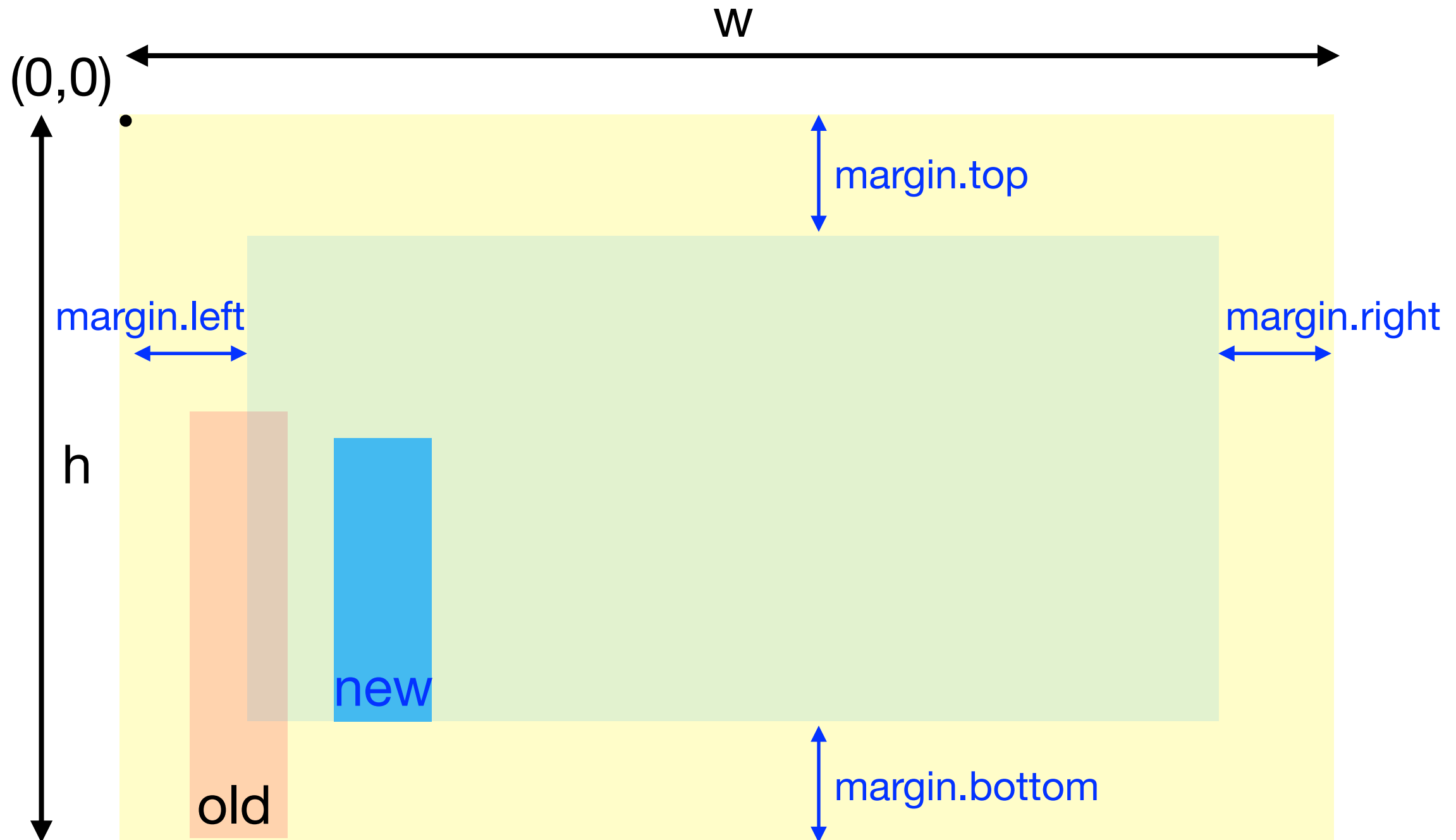
**d3.axisRight()**



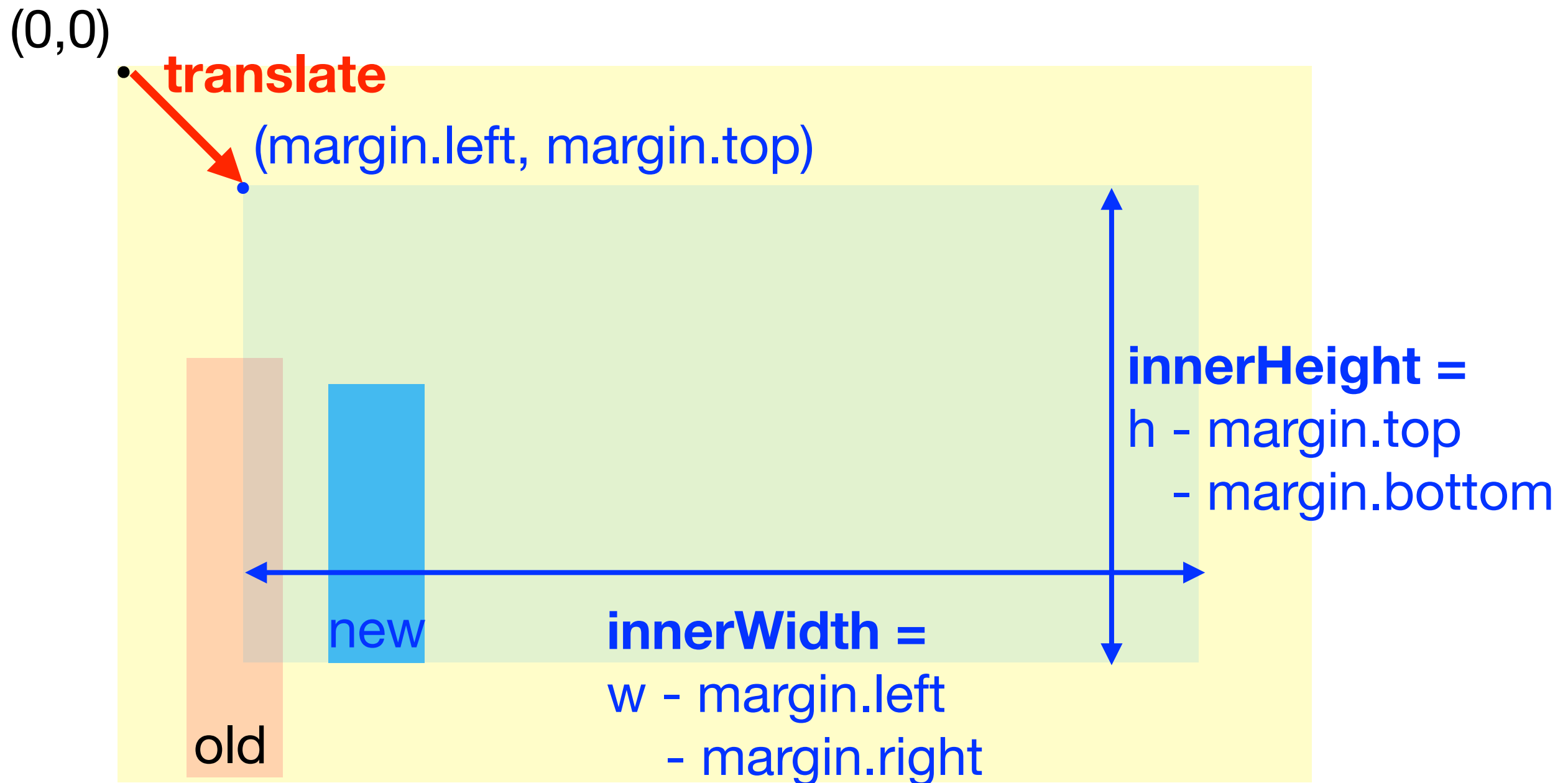
# Axes need space



# Margin convention



# Margin convention



# Add background rectangle

```
svg.append("rect")  
    .attr("x", 0)  
    .attr("y", 0)  
    .attr("width", w)  
    .attr("height", h)  
    .attr("fill", "lightblue");
```

# Groups

```
var bars = svg.append("g")  
    .selectAll("rect").data(bardata)  
    .enter().append("rect");
```

## before

```
<svg>  
  <rect> ... </rect>  
  <rect> ... </rect>  
  <rect> ... </rect>  
</svg>
```

## after

```
<svg>  
  <g>  
    <rect> ... </rect>  
    <rect> ... </rect>  
    <rect> ... </rect>  
  </g>  
</svg>
```

# Groups

```
<svg>  
  <rect> ... </rect>  
  <g>  
    <rect> ... </rect>  
    <rect> ... </rect>  
    <rect> ... </rect>  
  </g>  
</svg>
```

**svg.select("rect")**

**svg.select("g").selectAll("rect")**

# Groups

*add an id*

```
var bars = svg.append("g")  
    .attr("id", "plot")  
    .selectAll("rect")  
    .data(bardata);
```

```
<g id="plot">
```



# Groups

*translate*

```
var bars = svg.append("g")  
    .attr("transform",  
        `translate (${margin.left},  
                    ${margin.top})`)  
    .selectAll("rect")  
    .data(bardata);
```

```
<g transform="translate (25, 25)">
```

# ES6 template literals, use ``

```
var bars = svg.append("g")
    .attr("transform",
        `translate (${margin.left},
                    ${margin.top})`)
    .selectAll("rect")
    .data(bardata);
```

OR

```
`translate (" + margin.left + ",
            + margin.top + ")`
```

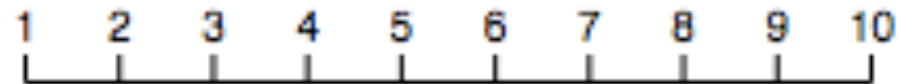
**EDAV6\_1\_scaleLinear.html**

**margins**

# Axis Components

construct axis generators for given scales

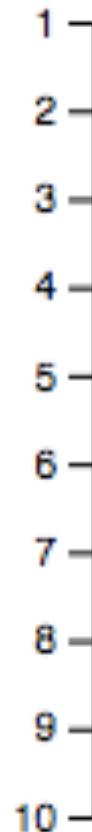
**d3.axisTop()**



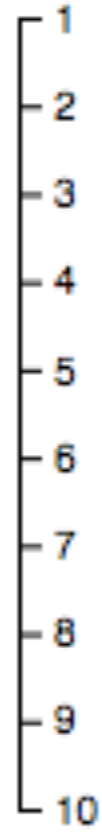
**d3.axisBottom()**



**d3.axisLeft()**

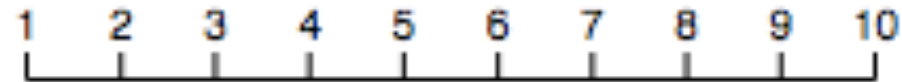


**d3.axisRight()**



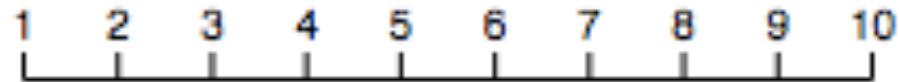
# Axes

**d3.axisBottom()**



# Axes

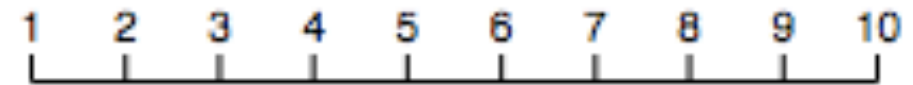
`d3.axisBottom()`



scale

```
var xScale = d3.scaleLinear()  
  .domain([1,10])  
  .range([0,200]);
```

# Axes

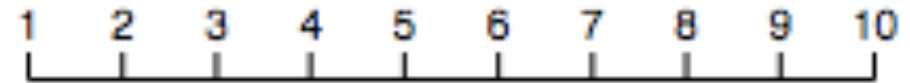


axis generator

```
var xAxis = d3.axisBottom()  
    .scale(xScale);
```

```
or   var xAxis = d3.axisBottom(xScale);
```

# Axes



When called on a selection, the axis generator creates axis SVG elements

```
d3.select("svg").append("g")  
    .call(xAxis);
```

**or**

```
xAxis(d3.select("svg").append("g"));
```



# Generated SVG axis elements

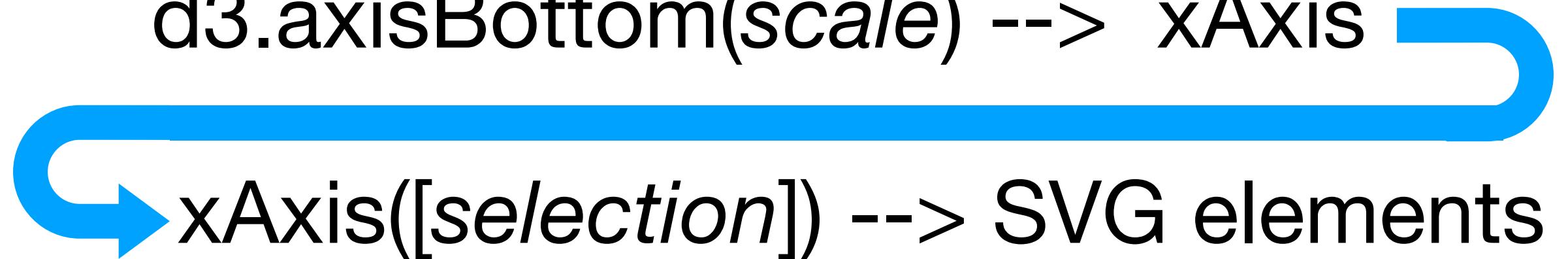
```
<g fill="none" font-size="10" font-family="sans-serif" text-anchor="middle">  
  <path class="domain" stroke="#000" d="M0.5,6V0.5H200.5V6"></path>  
  
  <g class="tick" opacity="1" transform="translate(0.5,0)">  
    <line stroke="#000" y2="6"></line>  
    <text fill="#000" y="9" dy="0.71em">1</text>  
  </g>  
  
  <g class="tick" opacity="1" transform="translate(22.72222222222222,0)">  
    <line stroke="#000" y2="6"></line>  
    <text fill="#000" y="9" dy="0.71em">2</text>  
  </g>  
  
  (8 more tick mark / tick label groups)  
  
</g>
```

# Generated SVG axis elements

axis component

axis generator

d3.axisBottom(*scale*) --> xAxis



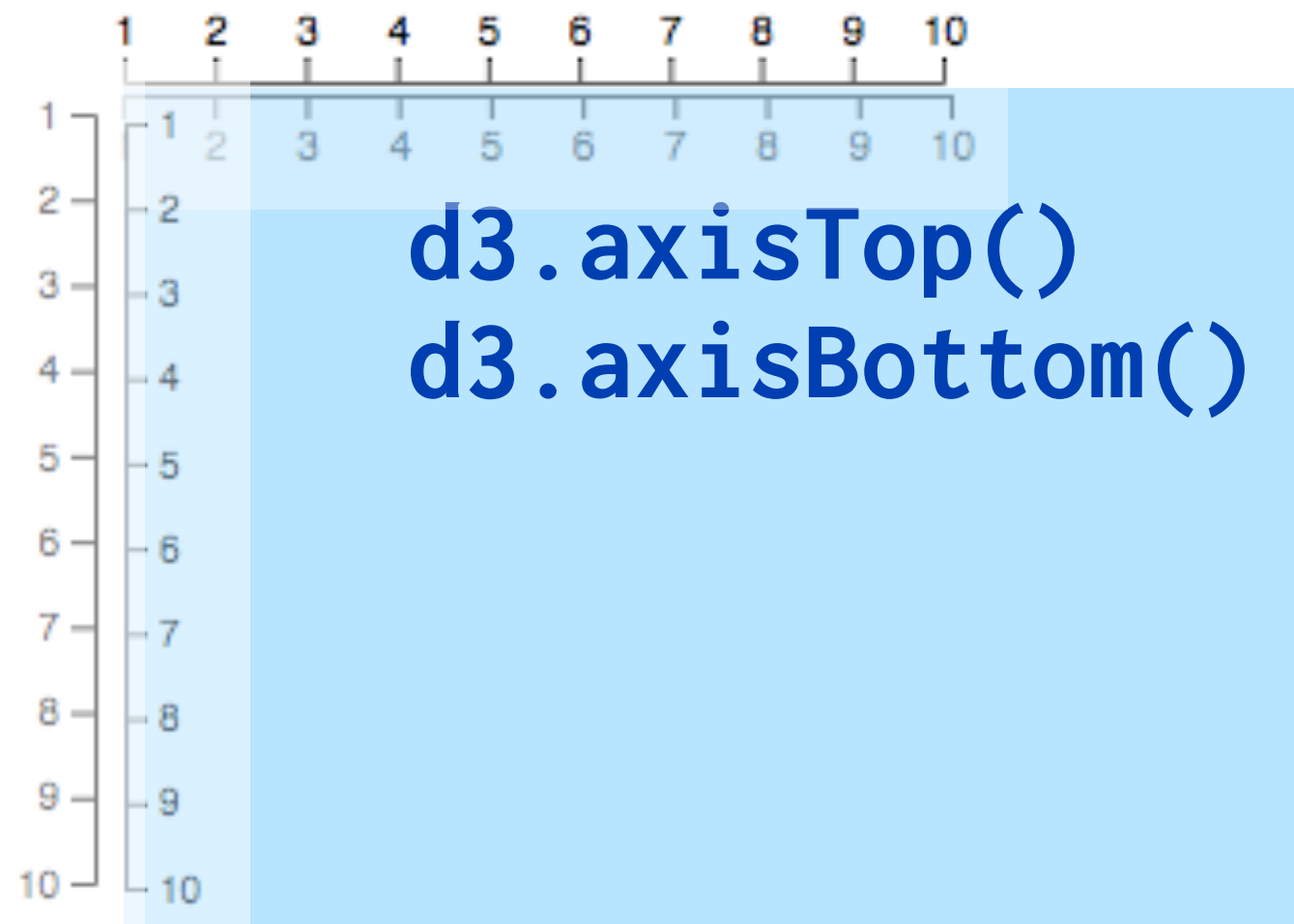
Possible, but not advisable:

```
d3.axisBottom(d3.scaleLinear()  
  .domain([1,10])  
  .range([0,200]))(d3.select("svg")  
  .append("g"));
```

# Axis Components

control orientation not location on the svg  
**all axes are rendered at the origin**

`d3.axisLeft()`  
`d3.axisRight()`





**EDAV6\_2\_yaxis.html**

**Practice: add x-axis**