

@rachelandrew WordPress Meetup, Seattle

Unlocking the Power of CSS Grid Layout

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CSS Grid Layout Module Level 2

W3C First Public Working Draft, 6 February 2018



This version:

<https://www.w3.org/TR/2018/WD-css-grid-2-20180206/>

Latest published version:

<https://www.w3.org/TR/css-grid-2/>

Editor's Draft:

<https://drafts.csswg.org/css-grid-2/>

Issue Tracking:

[Inline In Spec](#)

[GitHub Issues](#)

Editors:

[Tab Atkins Jr.](#) (Google)

[Elika J. Etemad / fantasai](#) (Invited Expert)

[Rossen Atanassov](#) (Microsoft)

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Abstract

This CSS module defines a two-dimensional grid-based layout system, optimized for user interface design. In the grid layout model, the children of a grid container can be positioned into arbitrary slots in a predefined flexible or fixed-size layout grid. Level 2 expands Grid by adding “subgrid” capabilities for nested grids to participate in the sizing of their parent grids; and aspect-ratio–controlled gutters.

[CSS](#) is a language for describing the rendering of structured documents (such as HTML and XML) on screen, on paper, in speech, etc.

Status of this document



How big is that box?



A LIST APART



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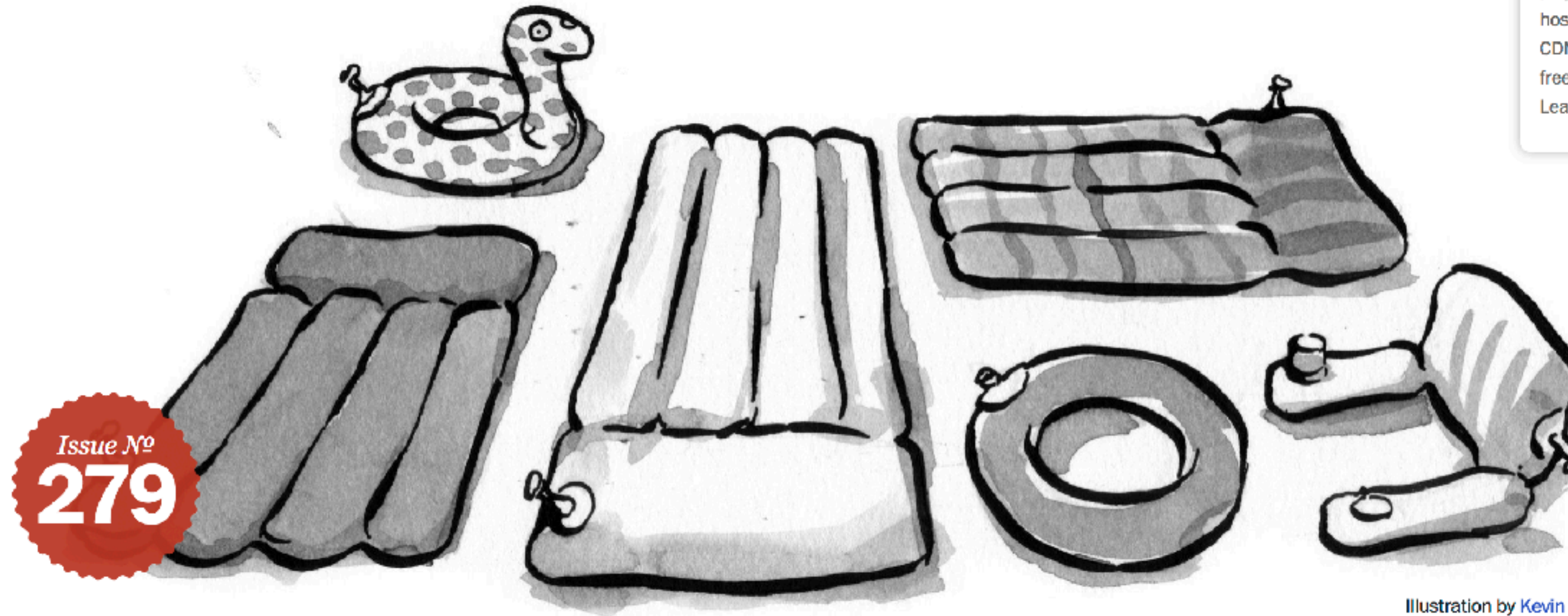


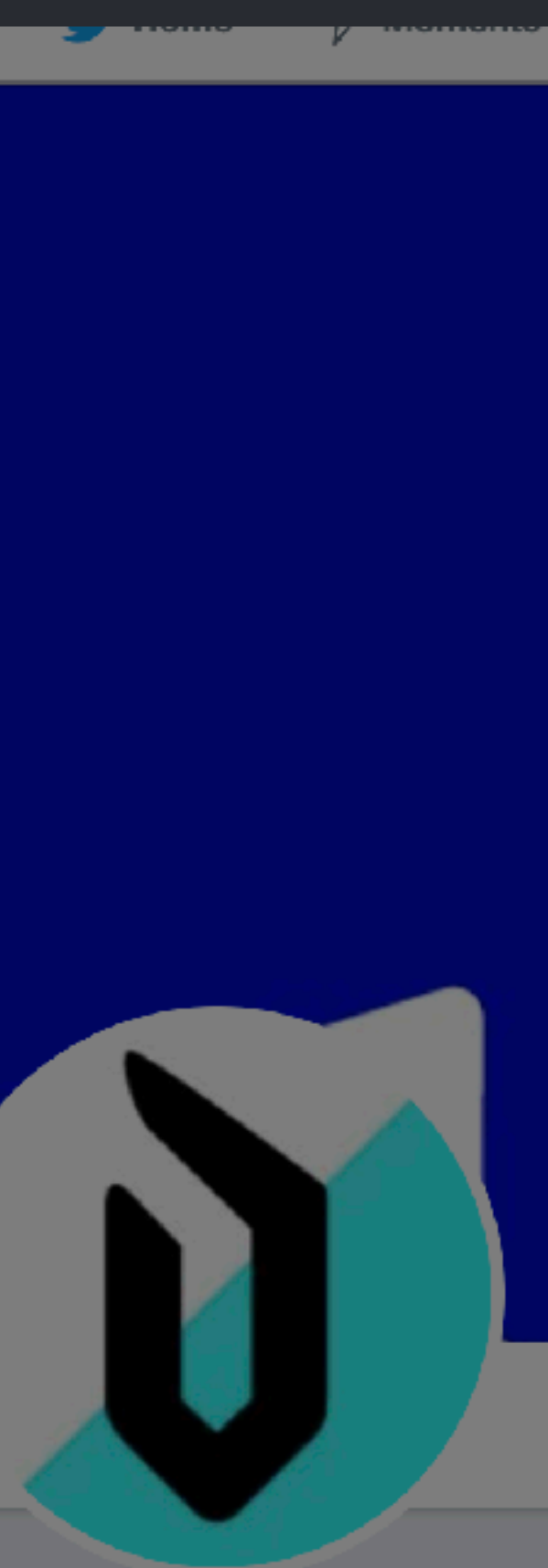
Illustration by [Kevin Cornell](#)

Fluid Grids

by [Ethan Marcotte](#) · March 03, 2009

Published in [CSS](#), [HTML](#), [Graphic Design](#), [Layout & Grids](#), [Responsive Design](#)

Early last year, I worked on the redesign of [a rather content-heavy website](#). Design requirements were fairly light: the client asked us to keep the organization's existing logo and to improve the dense typography and increase legibility. So, early on in the design process, we spent a sizable amount of time planning a well-defined grid for a library of content modules.



Devine

@devine_howest

Devine - Digital Design & Development, a 3 year bachelor degree powered by howest.be

Kortrijk

devine.be

Joined January 2010

 **Devine**
@devine_howest

Follow

Today we are celebrating International box-sizing Awareness Day. Anyone wants some padding? 🍰 #devinehowest @chriscoyier @Real_CSS_Tricks @paul_irish css-tricks.com/international- ...



4:11 AM - 1 Feb 2018 from Kortrijk, België

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css layout frameworks



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Bulma: a modern CSS framework based on Flexbox

<https://bulma.io/> ▼

A single element for a Metro UI-style **CSS** grid. Vertical... Top tile ...tiles. Bottom tile. Middle tile. With an image. Wide tile. Aligned with the right tile. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin ornare magna eros, eu pellentesque tortor vestibulum ut. Maecenas non massa sem. Etiam finibus odio quis feugiat ...

[Docs](#) · [Breadcrumb](#) · [Box](#) · [Container](#)

Skeleton: Responsive CSS Boilerplate

[getskeleton.com/](https://getbootstrap.com/) ▼

You should use Skeleton if you're embarking on a smaller project or just don't feel like you need all the utility of larger **frameworks**. Skeleton only styles a handful of standard HTML elements and includes a **grid**, but that's often more than enough to get started. In fact, this site is built on Skeleton and has ~200 lines of custom ...

Pure CSS

<https://purecss.io/> ▼

A set of small, responsive **CSS** modules that you can use in every web project.

[Grids](#) · [Layouts](#) · [Get Started](#) · [Forms](#)

What are Frameworks? 22 Best Responsive CSS Frameworks for Web ...

<https://www.awwwards.com/what-are-frameworks-22-best-responsive-css-frameworks...> ▼

20 Feb 2013 - Front-end **Frameworks** (or **CSS Frameworks**). Frontend **frameworks** usually consist of a package made up of a structure of files and folders of standardized code (HTML, **CSS**, JS documents etc.) The usual components are: **CSS** source code to create a **grid**: this allows the developer to position the different ...

Best CSS Frameworks of 2017 | Three29

<https://three29.com/best-css-frameworks-2017/> ▼

31 Mar 2017 - Allow us to lend a hand in sorting through the what's what in **CSS frameworks** in 2017. For those who are less tech savvy, a quick rundown. Building a website is a complicated process that involves a lot of moving parts. One of those components is the visual style and **layout** of a site. That's where our friend ...



A key feature of Flexbox and

Grid Layout is that they can deal with distributing available space between, around and inside grid and flex items. Quite

often this *just works*, and we get the result we were hoping for without trying very hard. This is because the specifications attempt to default to the most likely use cases. Sometimes, however, you might wonder why something ends up the size that it is.

Or, you might want to do something different to the default behavior. To do so, you need to know something of how the underlying algorithms figure out how to distribute space.

In this article, I'm going to share with you some interesting things about sizing boxes in CSS. I've picked out a few things from the specifications that I believe are vital in terms of understanding exactly how big that box is. Take some time to read through, and I think you'll find sizing in Grid a lot less mysterious!

JANUARY 16, 2018 · [8 COMMENTS](#)

How Big Is That Box? Understanding Sizing In CSS Layout

[CSS](#) ²³⁶ # [Layouts](#) ³⁶ # [Browsers](#) ³⁰

TABLE OF CONTENTS

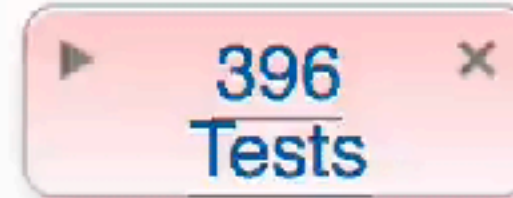
- [01 Length Units](#)
- [02 Percentages](#)
- [03 CSS Intrinsic And Extrinsic Sizing](#)
- [04 Content-Based Sizing In CSS Grid Layout](#)
- [05 Auto-Sized Tracks](#)
- [06 fr Units](#)

TAKING A CLOSER LOOK AT BFC

How big is a grid?

CSS Grid Layout Module Level 1

W3C Candidate Recommendation, 14 December 2017

**This version:**

<https://www.w3.org/TR/2017/CR-css-grid-1-20171214/>

Latest published version:

<https://www.w3.org/TR/css-grid-1/>

Editor's Draft:

<https://drafts.csswg.org/css-grid/>

Previous Versions:

<https://www.w3.org/TR/2017/CR-css-grid-1-20170509/>

<https://www.w3.org/TR/2016/WD-css-grid-1-20160519/>

<https://www.w3.org/TR/2015/WD-css-grid-1-20150917/>

<https://www.w3.org/TR/2015/WD-css-grid-1-20150806/>

<https://www.w3.org/TR/2015/WD-css-grid-1-20150317/>

<https://www.w3.org/TR/2014/WD-css-grid-1-20140513/>

<https://www.w3.org/TR/2014/WD-css-grid-1-20140123/>

<https://www.w3.org/TR/2013/WD-css3-grid-layout-20130402/>

<https://www.w3.org/TR/2012/WD-css3-grid-layout-20121106/>

Test Suite:

http://test.csswg.org/suites/css-grid-1_dev/nightly-unstable/

Issue Tracking:

[Disposition of Comments](#)

[Inline In Spec](#)

[GitHub Issues](#)

Editors:

“Each track has specified minimum and maximum sizing functions (which may be the same).”

-11.1 Grid Sizing Algorithm

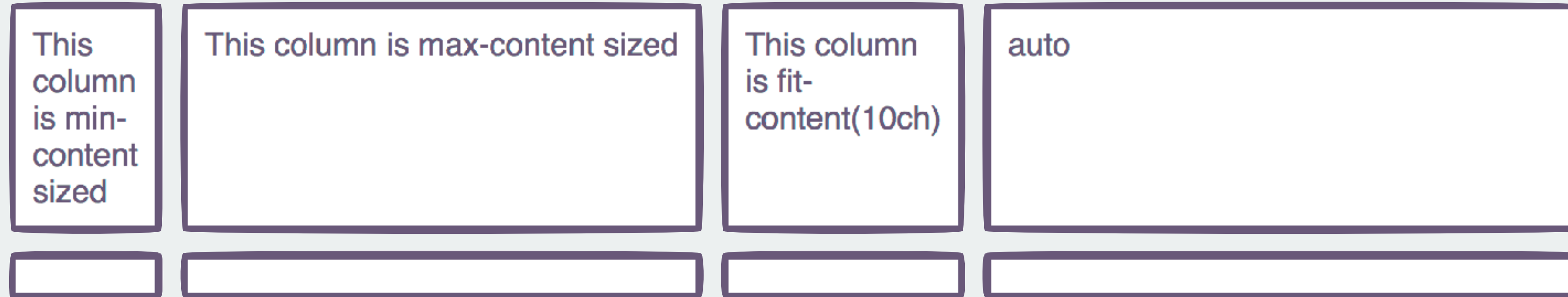
- ❖ **Fixed sizing:**
lengths such as px or em, or a resolvable percentage
- ❖ **An intrinsic sizing function**
auto, min-content, max-content, fit-content
- ❖ **A flexible sizing function**
The fr unit

Intrinsic Sizing

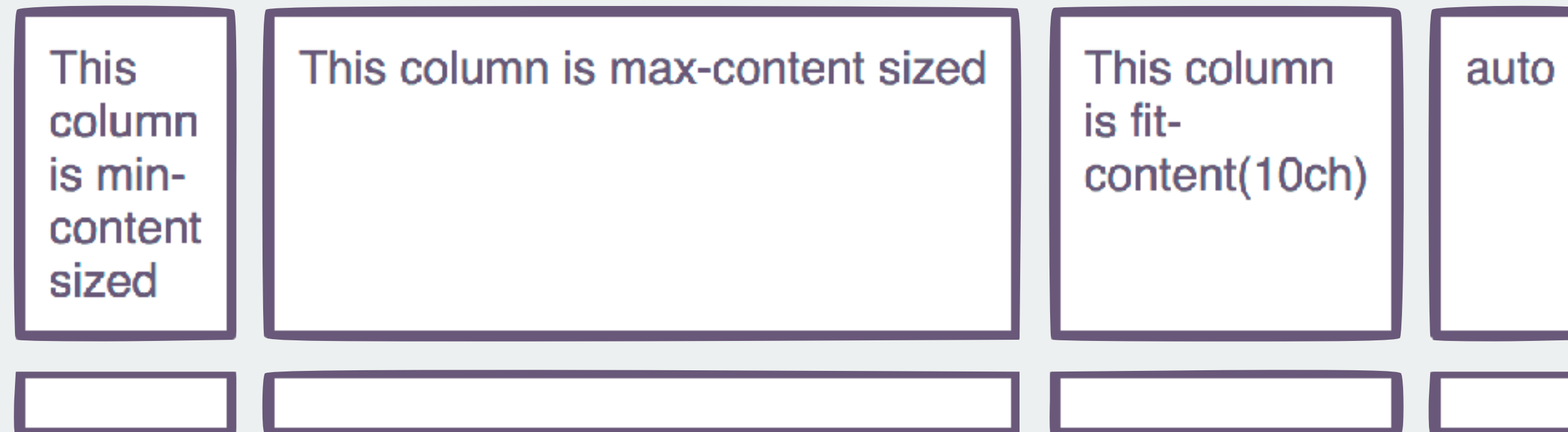
auto

Default size of grid tracks. Tracks sized *auto* will stretch to take up space in the grid container.

justify-content: stretch



justify-content: start



Intrinsic Sizing: auto

The auto-sized track will stretch in the inline direction.

Use `justify-content: start` to override the stretching behaviour.

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns:  
    min-content  
    max-content  
    fit-content(10ch)  
    auto;  
  justify-content: start;  
}
```

Intrinsic Sizing

min-content

The smallest size the item can be, taking advantage of all soft-wrapping opportunities.

Intrinsic Sizing: min-content

Grid tracks sized with min-content will become as small as they can without causing overflows.

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns:  
    min-content  
    min-content  
    min-content;  
}
```


The word 'columns' is defining the size of track 1.

A 100px image defines the size of track 3



This item has a width which defines the size of track 2

Intrinsic Sizing

max-content

The largest size the track can be, no soft-wrapping will occur. Overflows may happen.

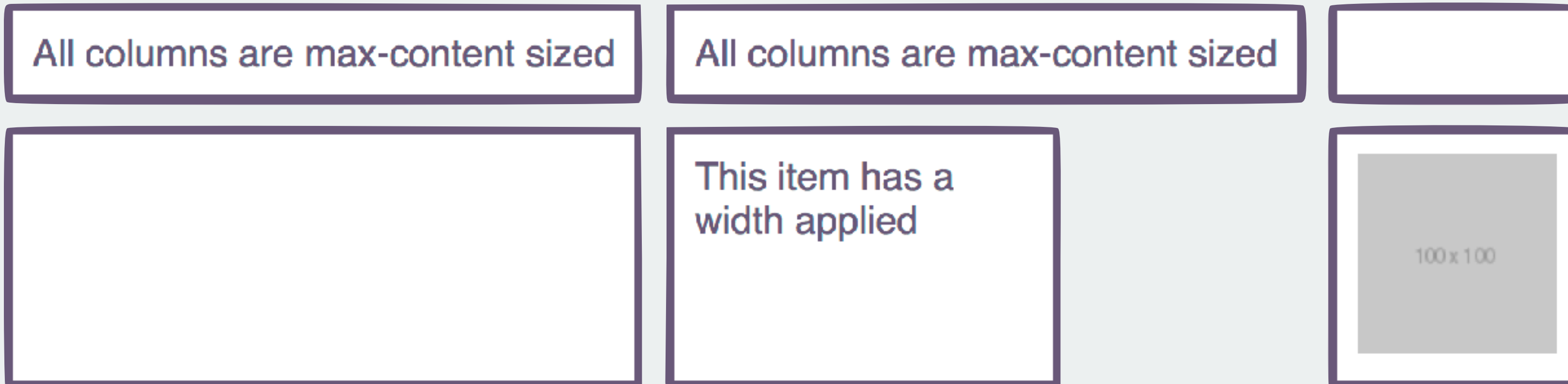
Intrinsic Sizing: max-content

Grid tracks sized with max-content will become as large as needed, and may overflow the grid container.

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns:  
    max-content  
    max-content  
    max-content;  
}
```

Tracks 1 and 2 need to be wide enough to fit the unwrapped text.

A 100px image defines the size of track 3



Intrinsic Sizing

fit-content

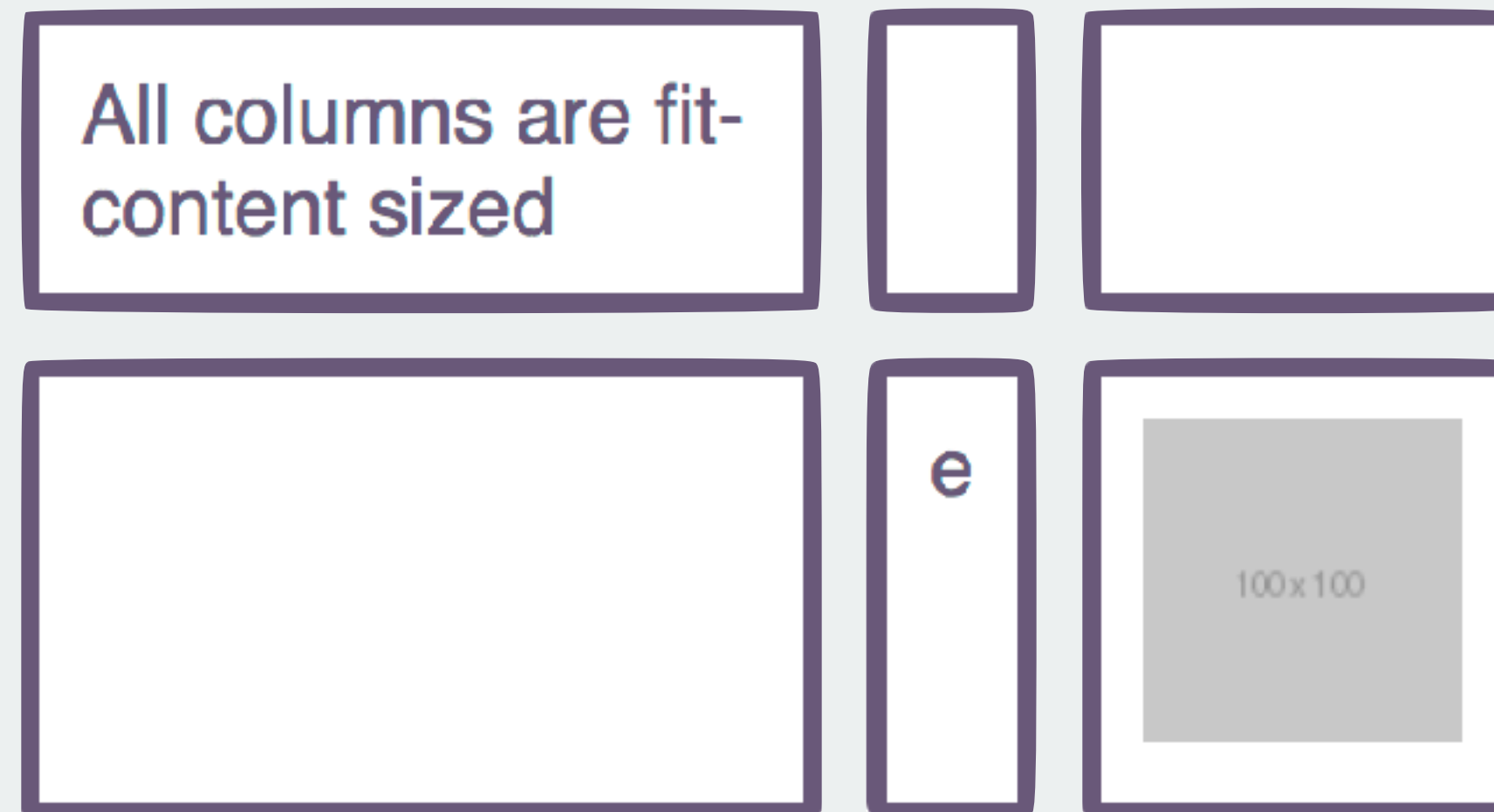
Act like max-content until it reaches the passed in value.

Intrinsic Sizing: fit-content

Grid tracks sized with fit-content will act like max-content until they hit the limit given.

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns:  
    fit-content(10em)  
    fit-content(10em)  
    fit-content(15ch);  
}
```

Columns 1 and 2 are both `fit-content(10em)`. Track 1 wraps at 10em. Track 2 is `max-content`.



Track 3 is `fit-content(15ch)`

Flexible lengths

Sizing with fr units

The fr unit describes a flexible length

Flexible lengths

The fr unit is a <flex> unit and represents a portion of the available space in the Grid Container.

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns: 2fr 1fr 1fr;  
}
```

2fr

1fr

1fr

A

B

C

D

E

F

Minimum & Maximum sizing functions

minmax()

Minimum Sizing Function

The minimum size for these two tracks is 100px, and 10em.

```
.grid {  
  display: grid;  
  grid-template-columns:  
    minmax(100px, auto)  
    minmax(10em, 20em);  
}
```

Minimum Sizing Function

The minimum size of these two tracks is auto.

```
.grid {  
  display: grid;  
  grid-template-columns:  
    10fr  
    fit-content(10em);  
}
```

Minimum Sizing Function

The minimum size of the first track is 100px, the second track is 50px (10% of 500).

```
.grid {  
  width: 500px;  
  display: grid;  
  grid-template-columns:  
    100px  
    10%;  
}
```

Maximum Sizing Function

The maximum size for these two tracks is 400px, and 20em.

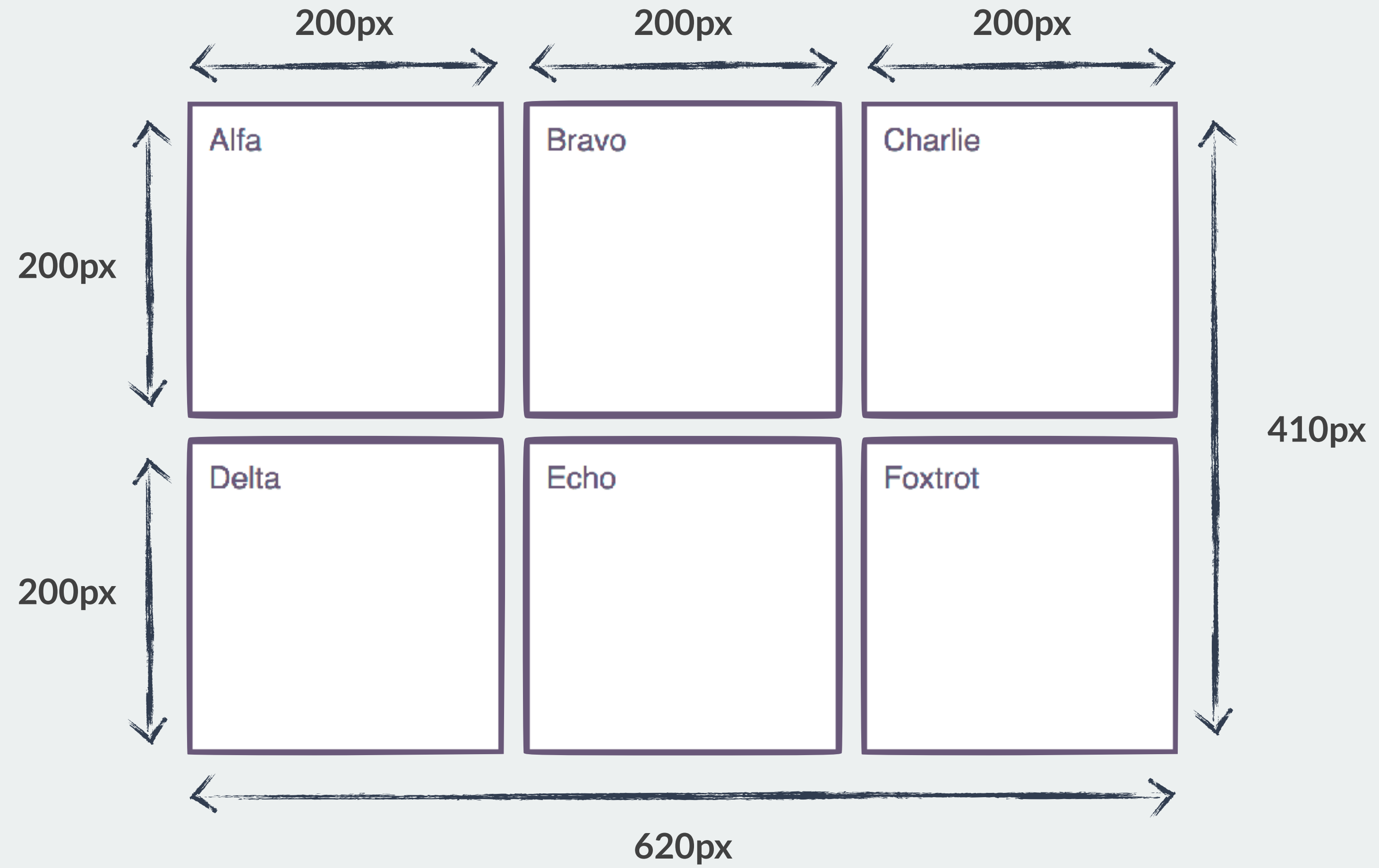
```
.grid {  
  display: grid;  
  grid-template-columns:  
    minmax(100px, 400px)  
    minmax(10em, 20em);  
}
```

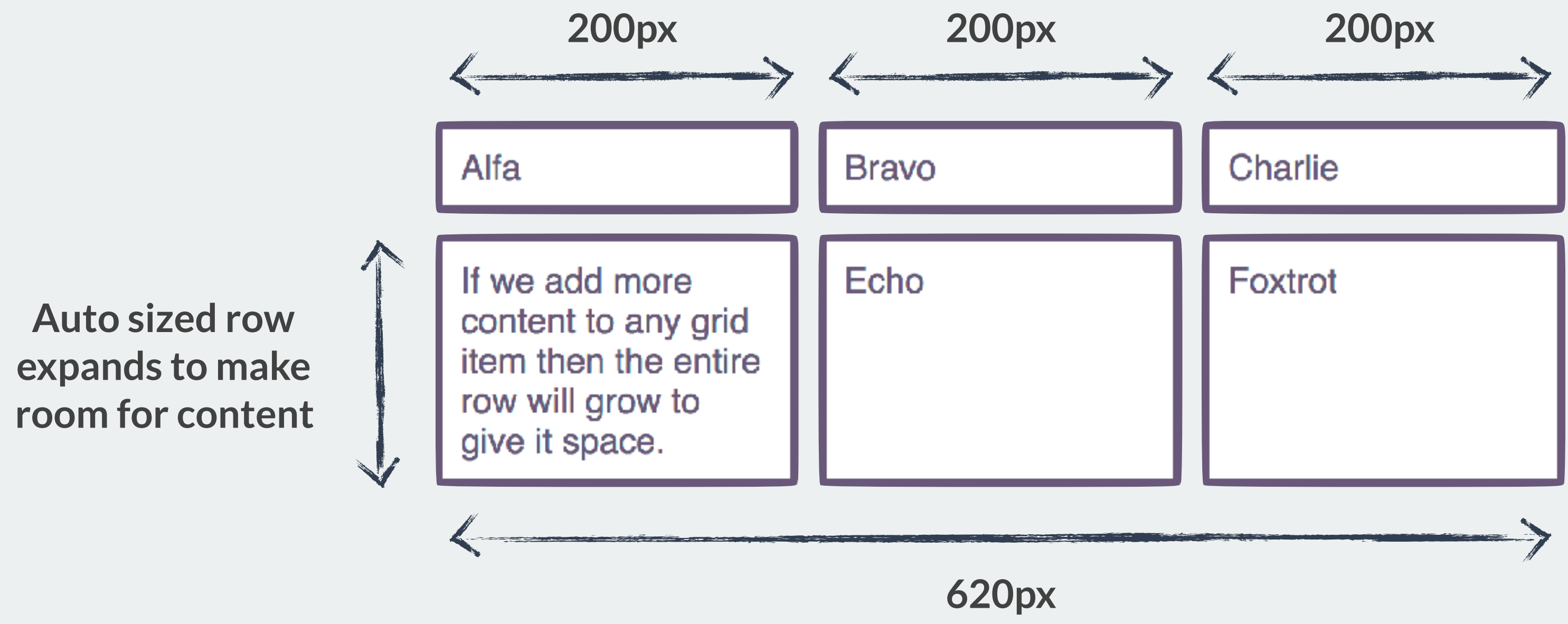

Maximum Sizing Function

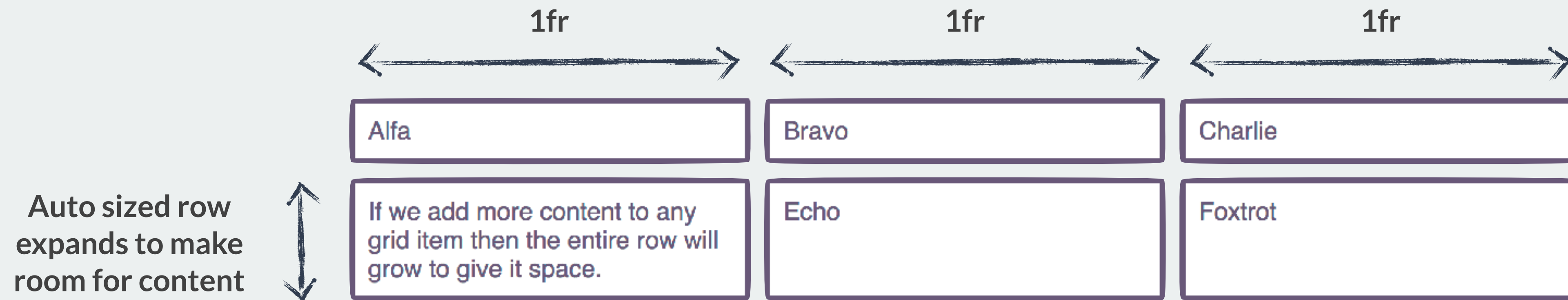
The maximum size for the first track is max-content.

For the second track the maximum is 10em.

```
.grid {  
  display: grid;  
  grid-template-columns:  
    auto  
    fit-content(10em);  
}
```





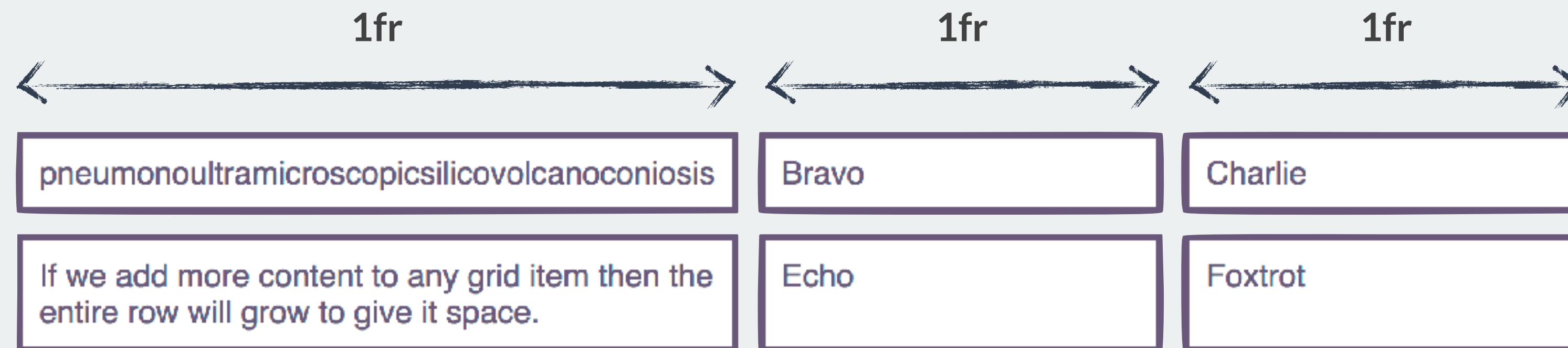


What is a fr unit anyway?

A track sized with 1fr, is actually sized `minmax(auto, 1fr)`.

The minimum size is auto.

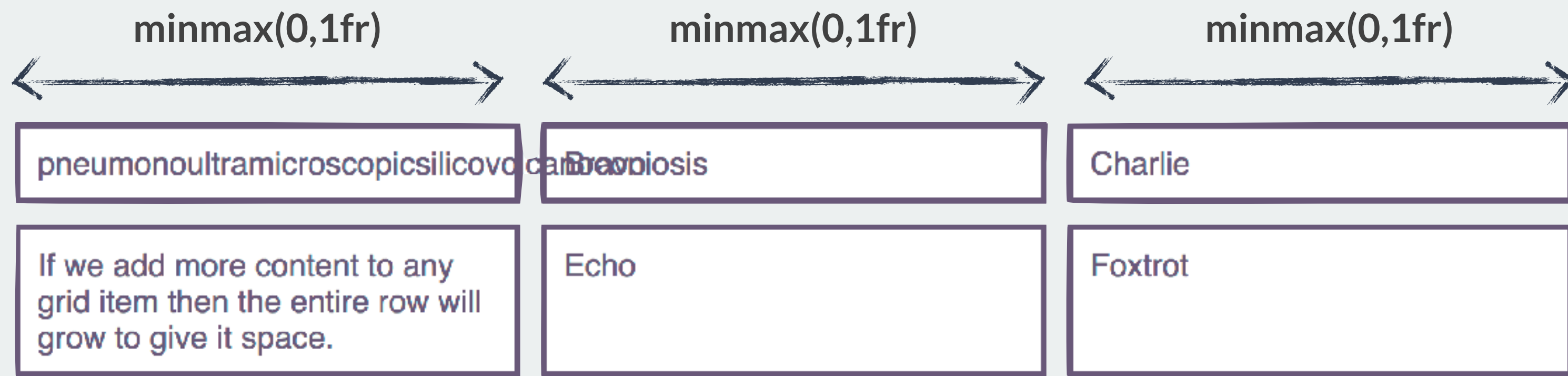
```
.grid {  
  display: grid;  
  grid-template-columns: 1fr 1fr 1fr;  
}
```

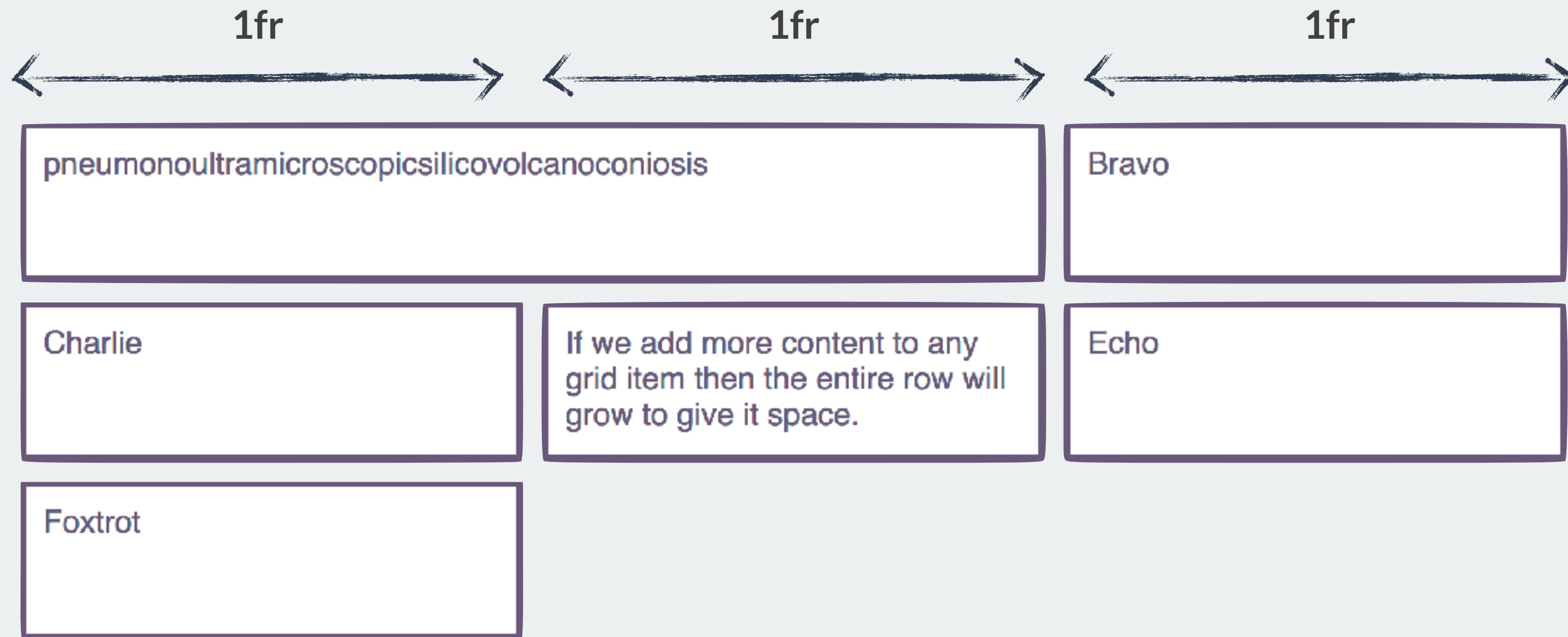


What is a fr unit anyway?

Make the minimum size 0, to force three equal width columns - even if that means overflows.

```
.grid {  
  display: grid;  
  grid-template-columns:  
    minmax(0,1fr)  
    minmax(0,1fr)  
    minmax(0,1fr);  
}
```





As many flexible columns as will fit

Use auto-fill or auto-fit along with repeat and minmax, to create as many flexible columns with a minimum size as will fit into the container.

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns:  
    repeat(auto-fill, minmax(200px, 1fr));  
  grid-auto-rows: 100px;  
}
```

Alfa	Bravo	Charlie	
	Delta		
Echo	Foxtrot		Golf
	Hotel		

Alfa	Bravo	Charlie		Delta
	Echo			
		Foxtrot		Golf
Hotel				

Dense Packing Mode

Using the value `dense` for `grid-auto-flow` will cause items to be displayed out of document order.

```
.grid {  
  display: grid;  
  grid-gap: 10px;  
  grid-template-columns:  
    repeat(auto-fill, minmax(200px, 1fr));  
  grid-auto-rows: 100px;  
  grid-auto-flow: dense;  
}
```

Alfa	Bravo	Charlie		Delta
	Echo			Golf
Hotel		Foxtrot		

Upside down and back to front

The grid-area property

Order of the lines:

- grid-row-start
- grid-column-start
- grid-row-end
- grid-column-end

```
.item {  
  grid-area: 1 / 2 / 3 / 4;  
}
```


Logical Properties and Writing Modes

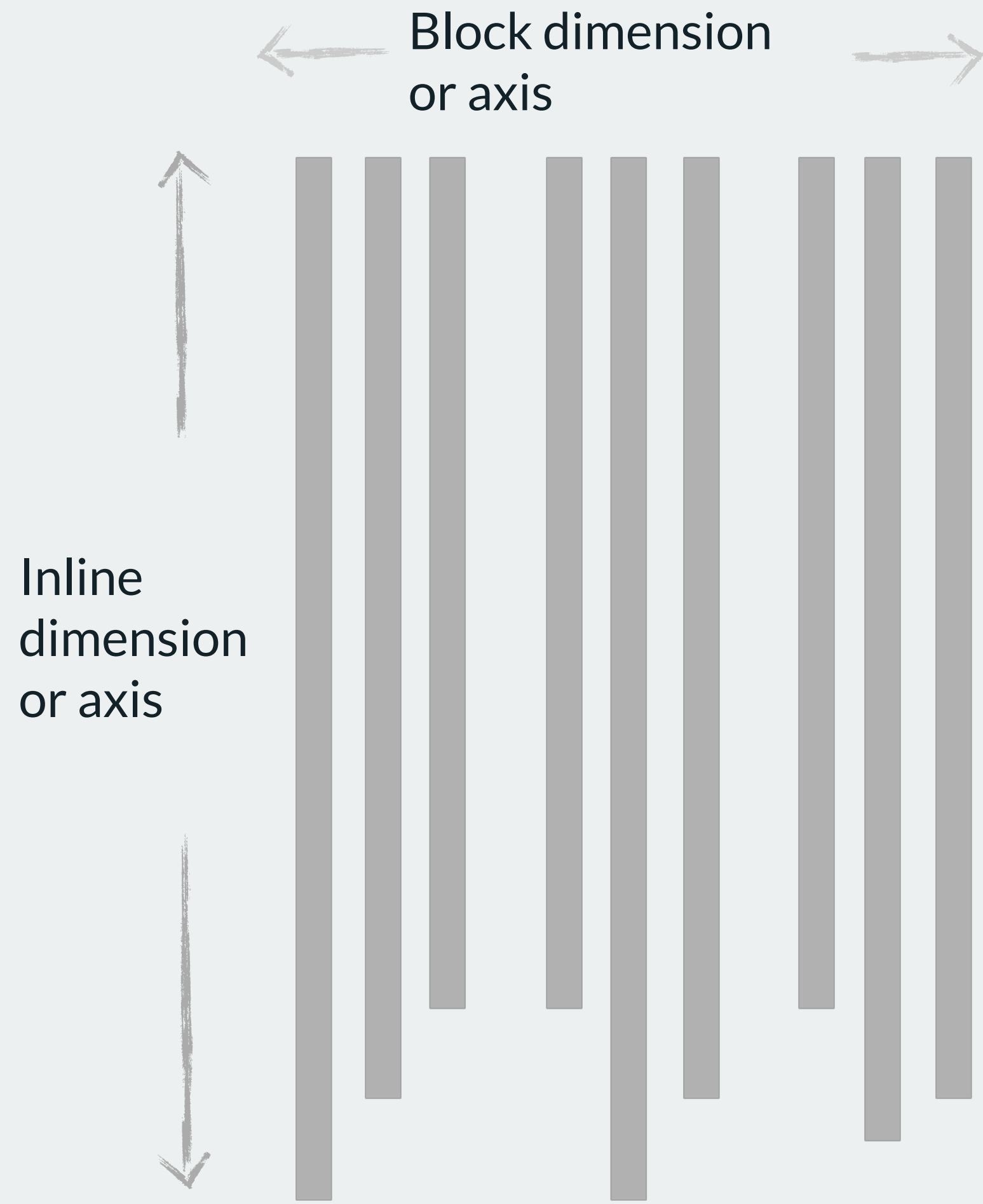
Horizontal Writing Mode

← Inline dimension or axis →

Block dimension or axis



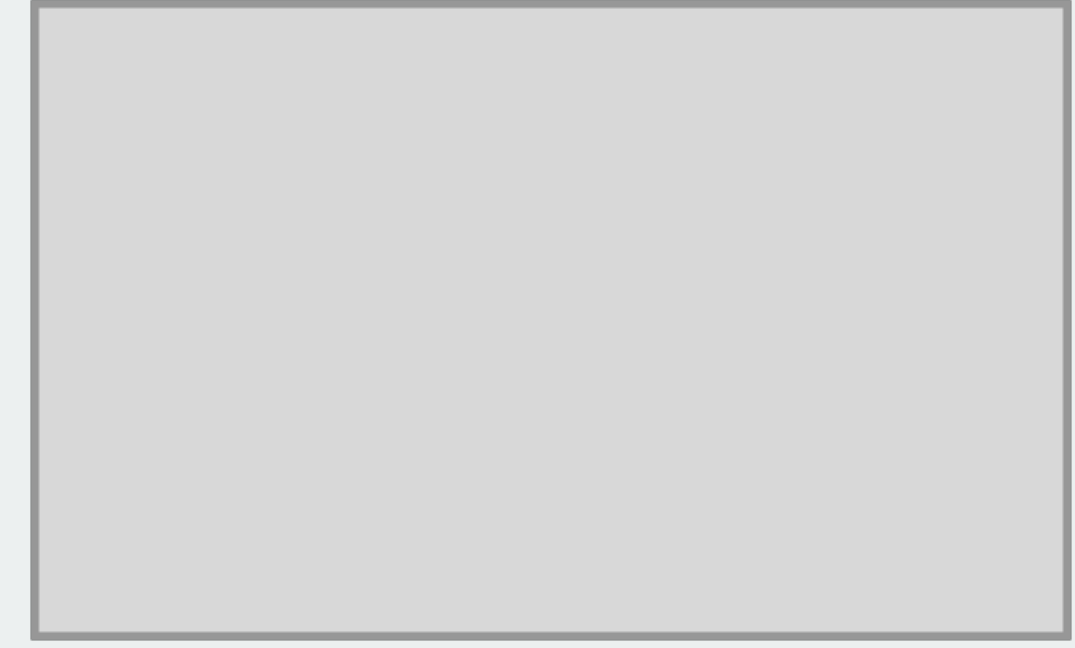
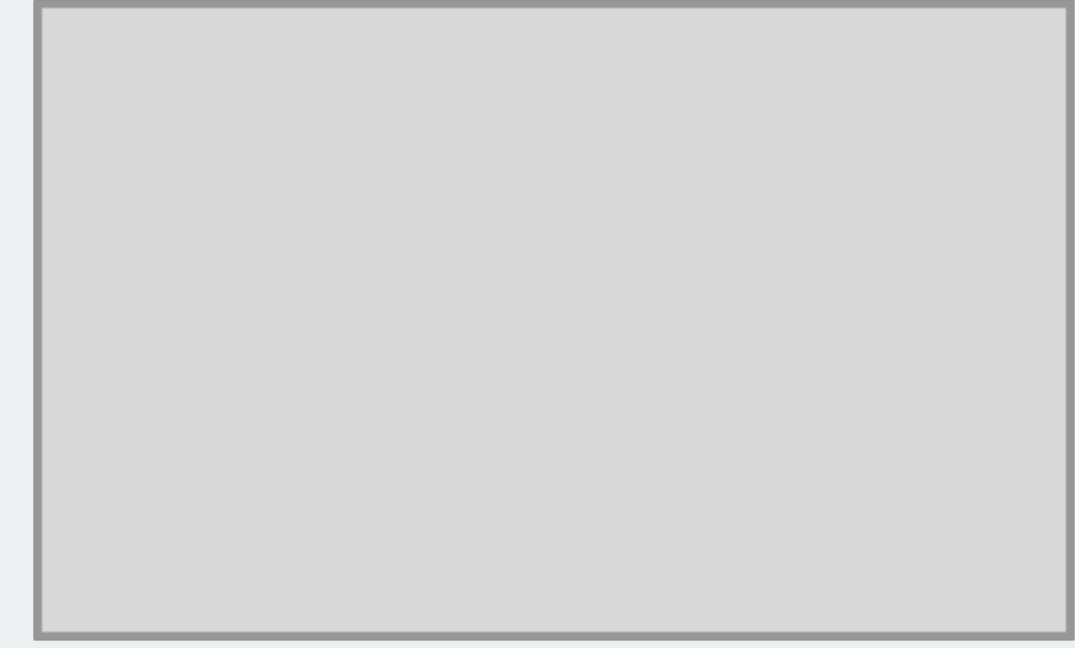
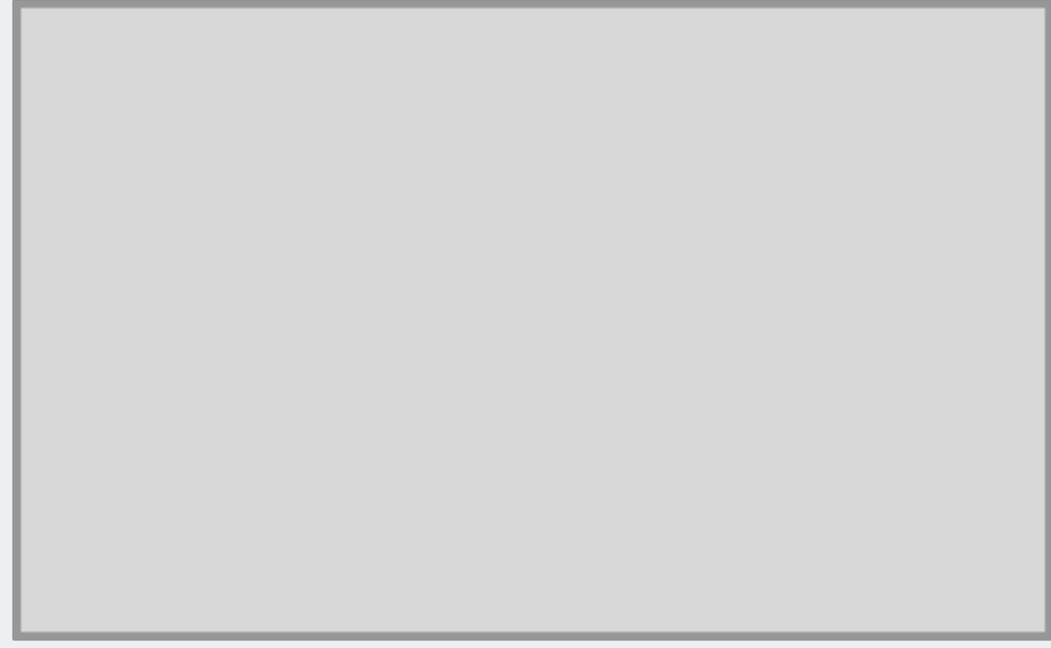
Vertical Writing Mode



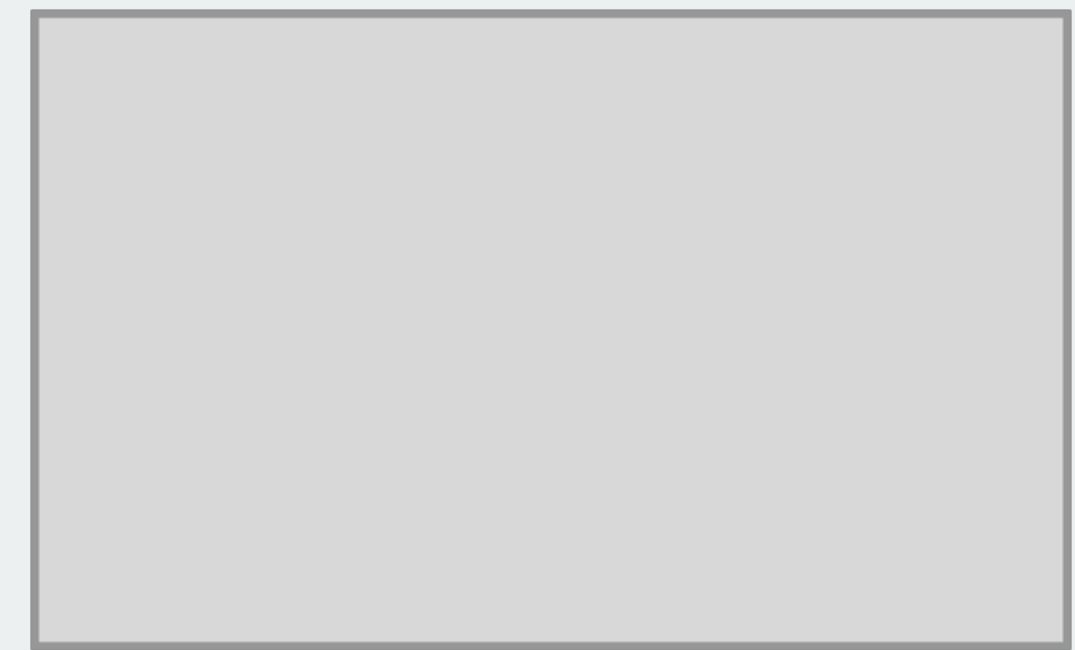
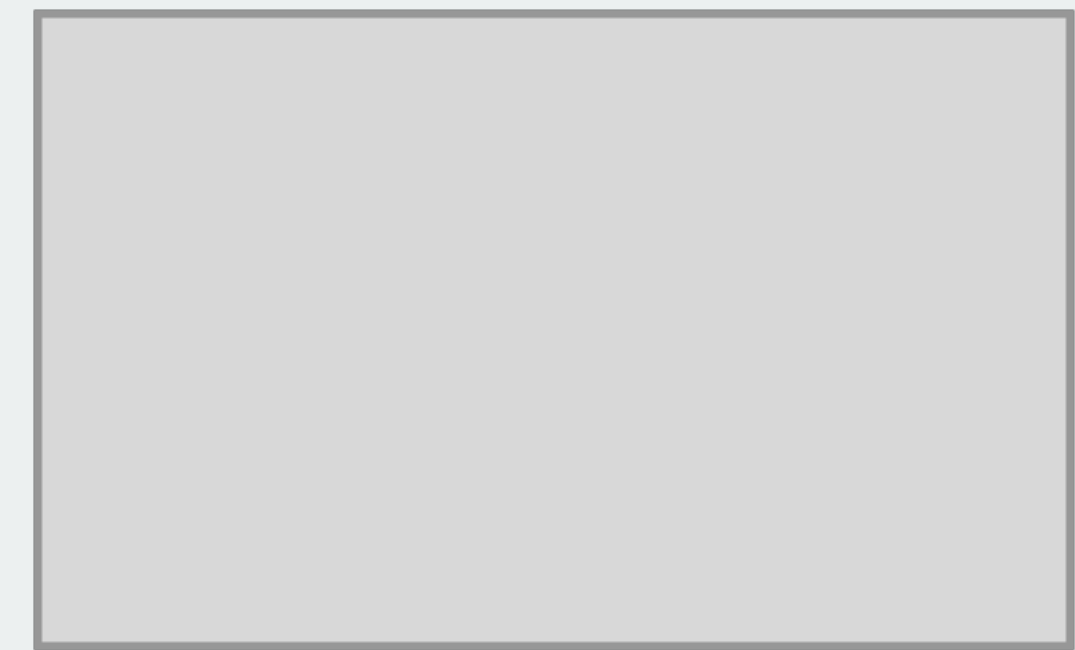
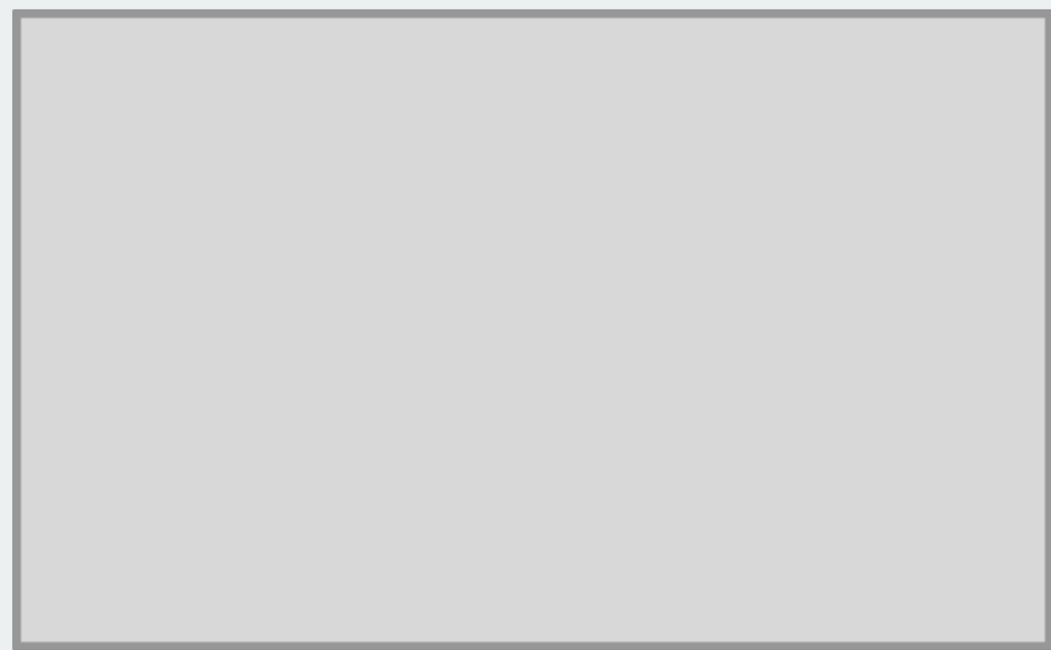
Grid Layout in Horizontal Writing Mode



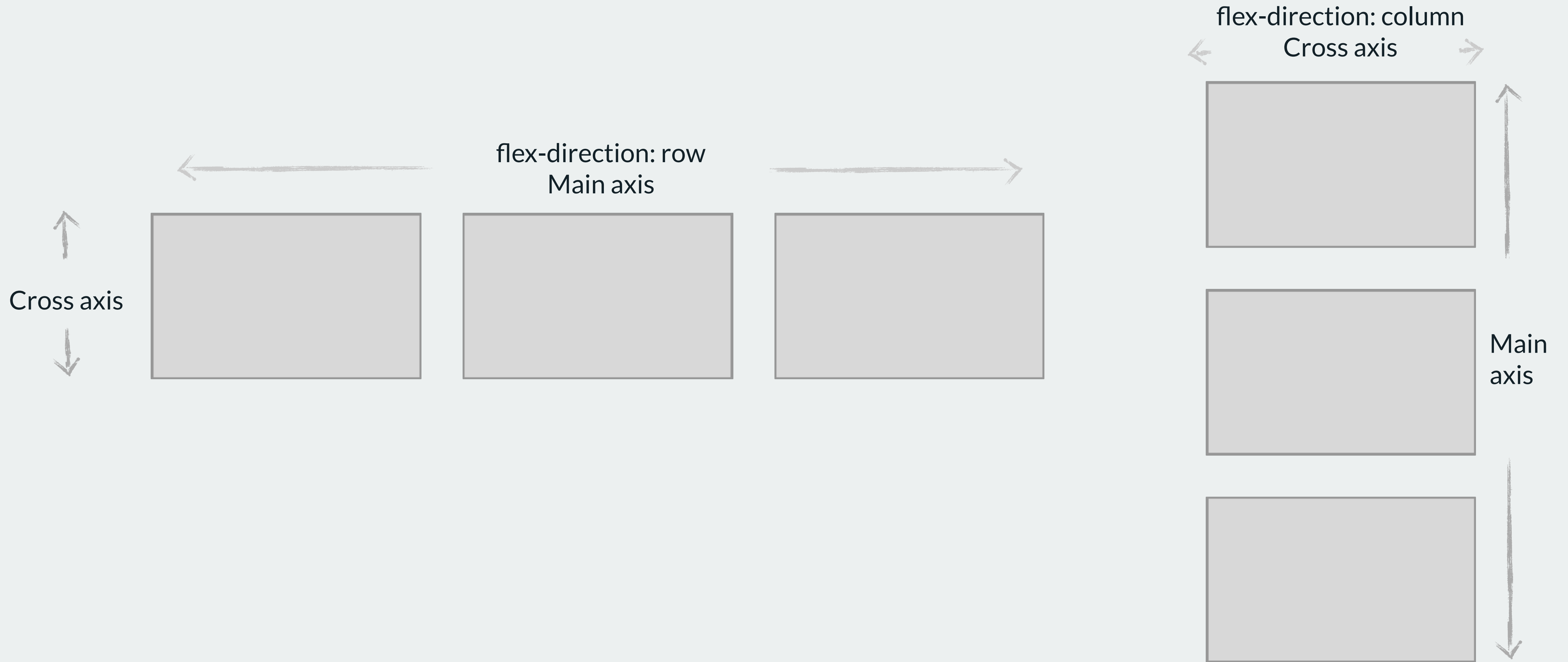
Inline / Row axis



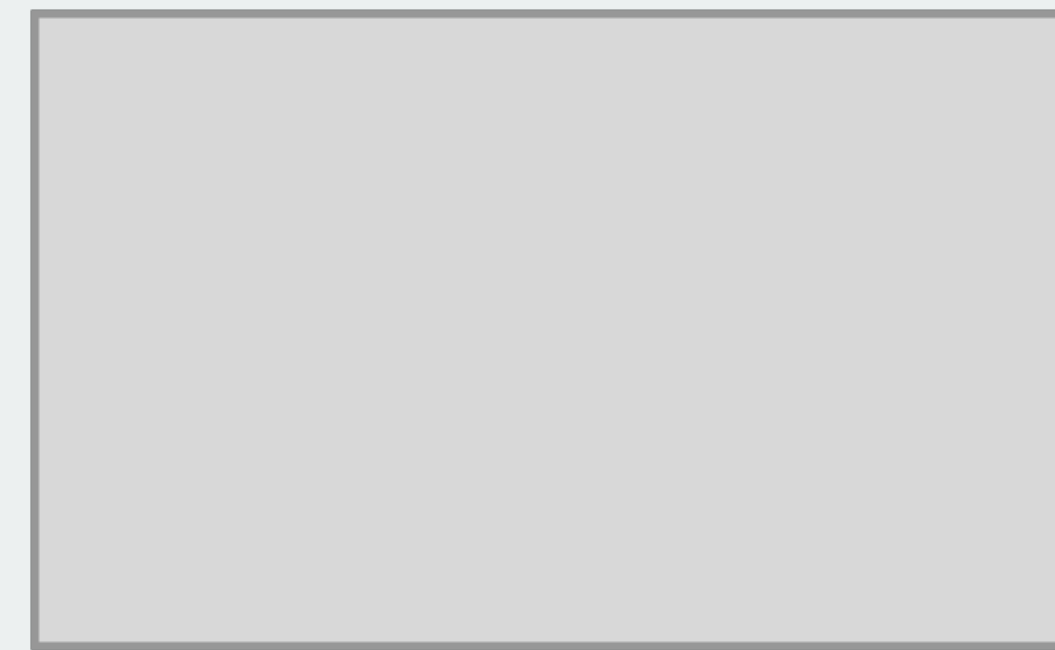
Block / Column axis



Flex Layout in Horizontal Writing Mode



Horizontal LR



Horizontal LR

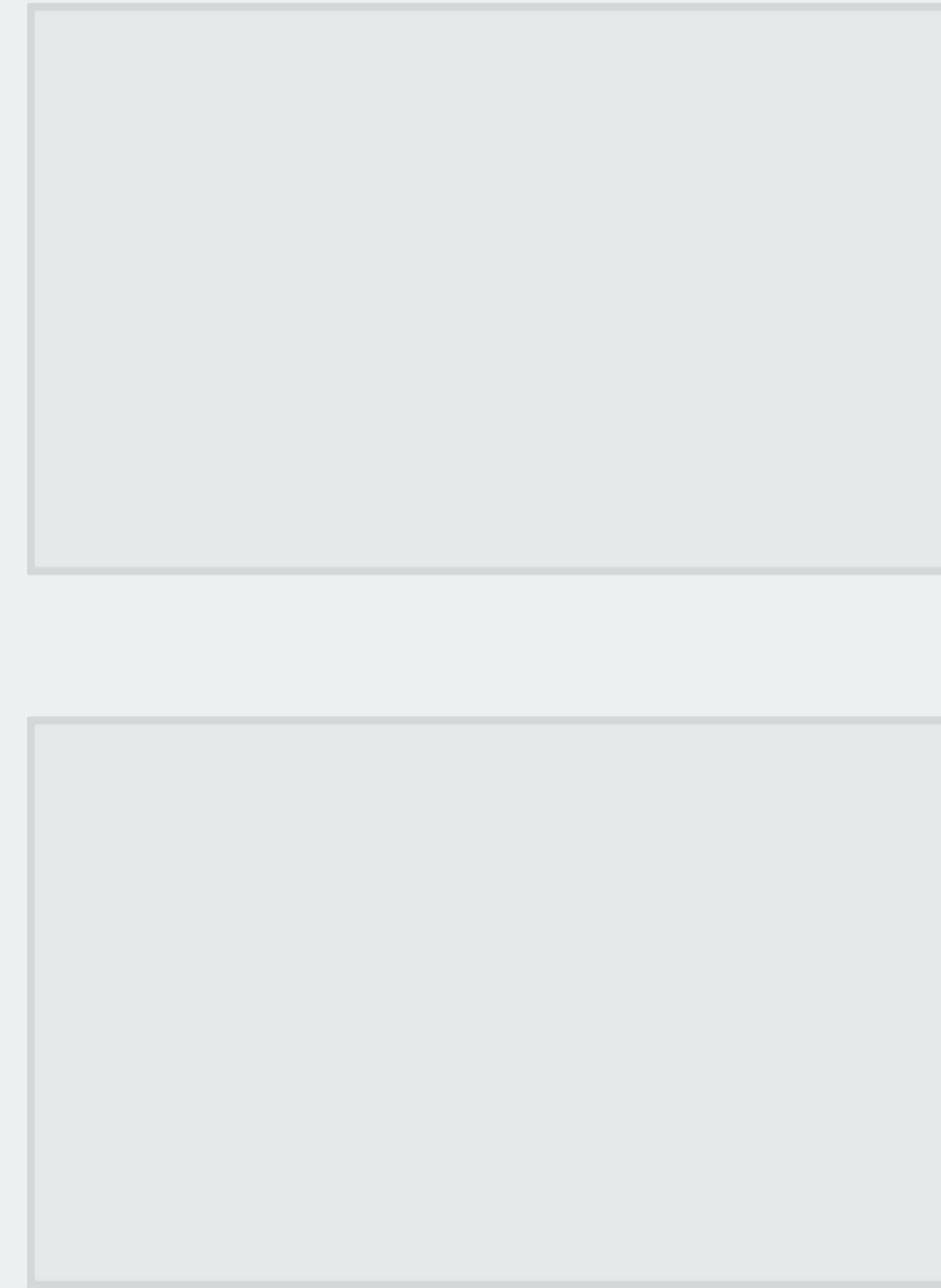
grid-row-start: 1

grid-column-start: 1



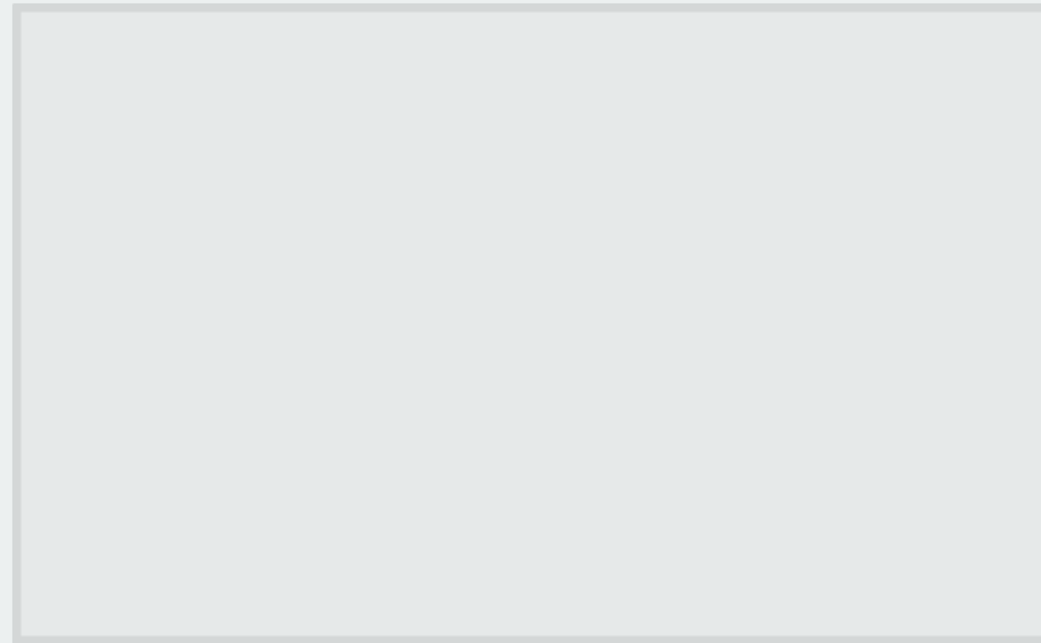
grid-column-end: 3

grid-row-end: 3



Horizontal RL

grid-row-start: 1



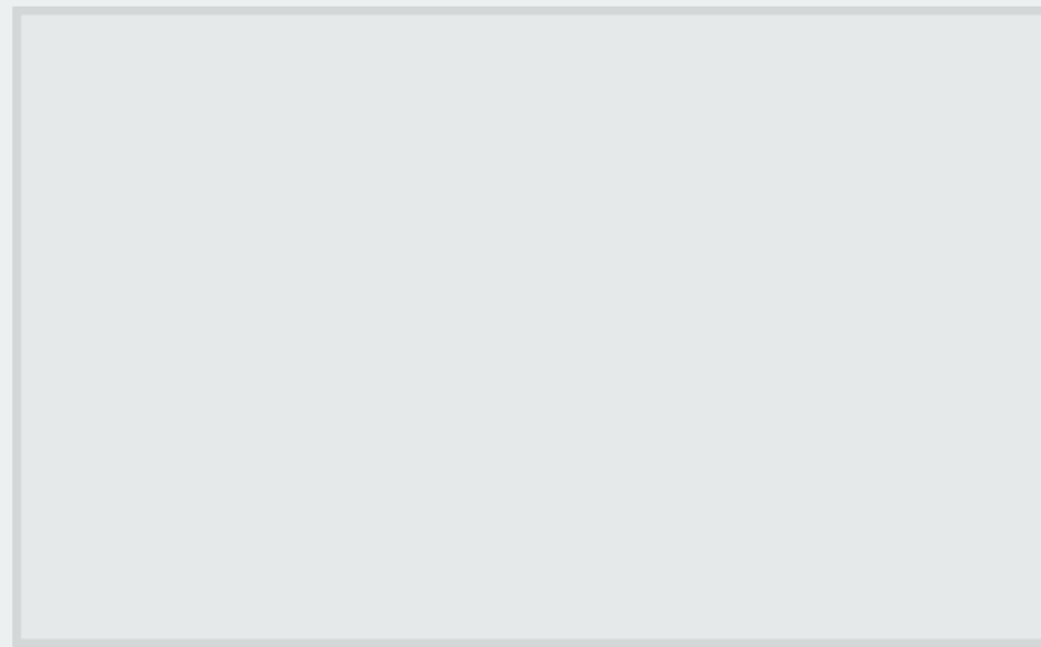
grid-column-end: 3



grid-area: 1 / 1 / 3 / 3;

grid-column-start: 1

grid-row-end: 3



Vertical LR

grid-column-start: 1

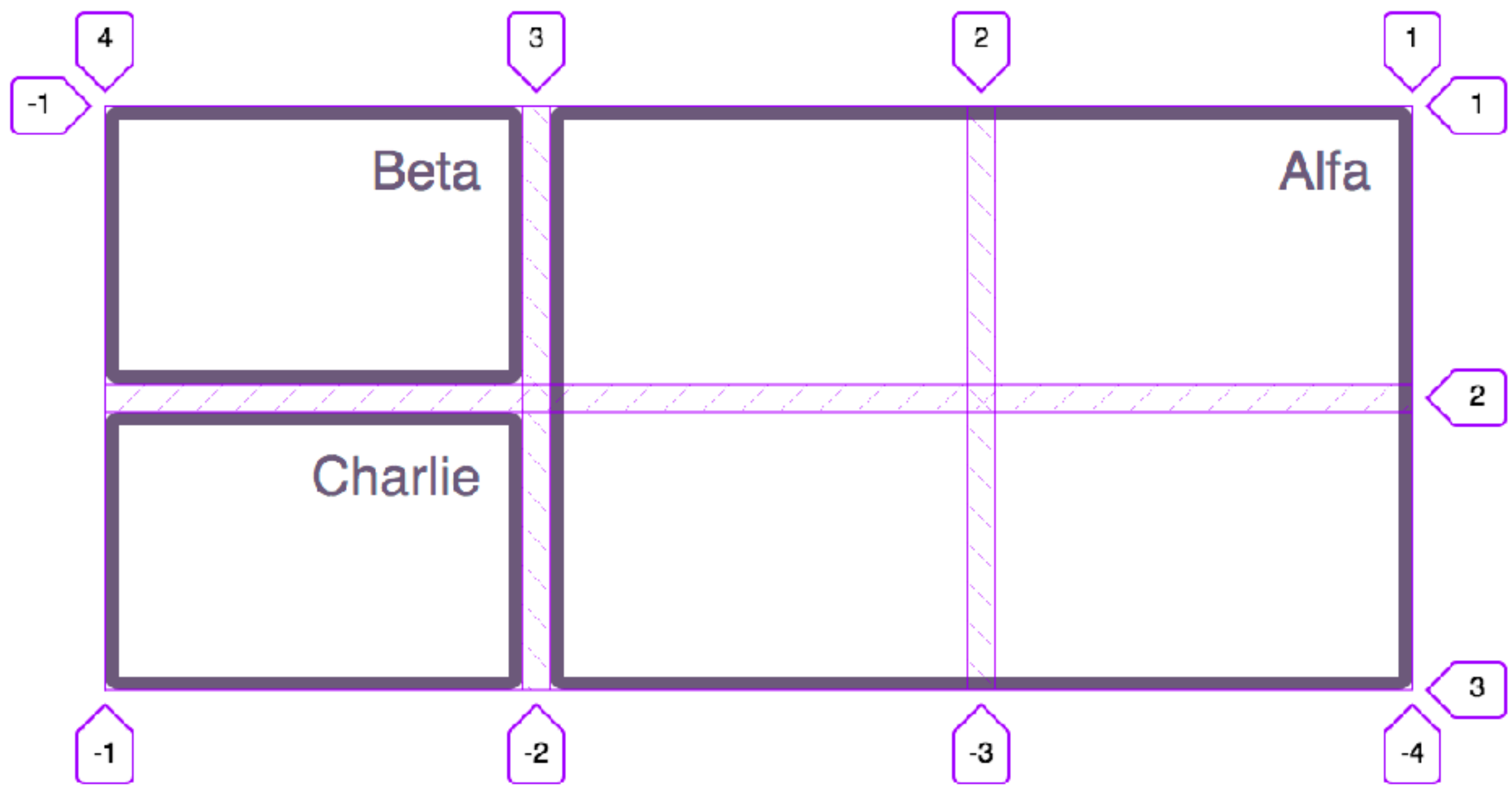
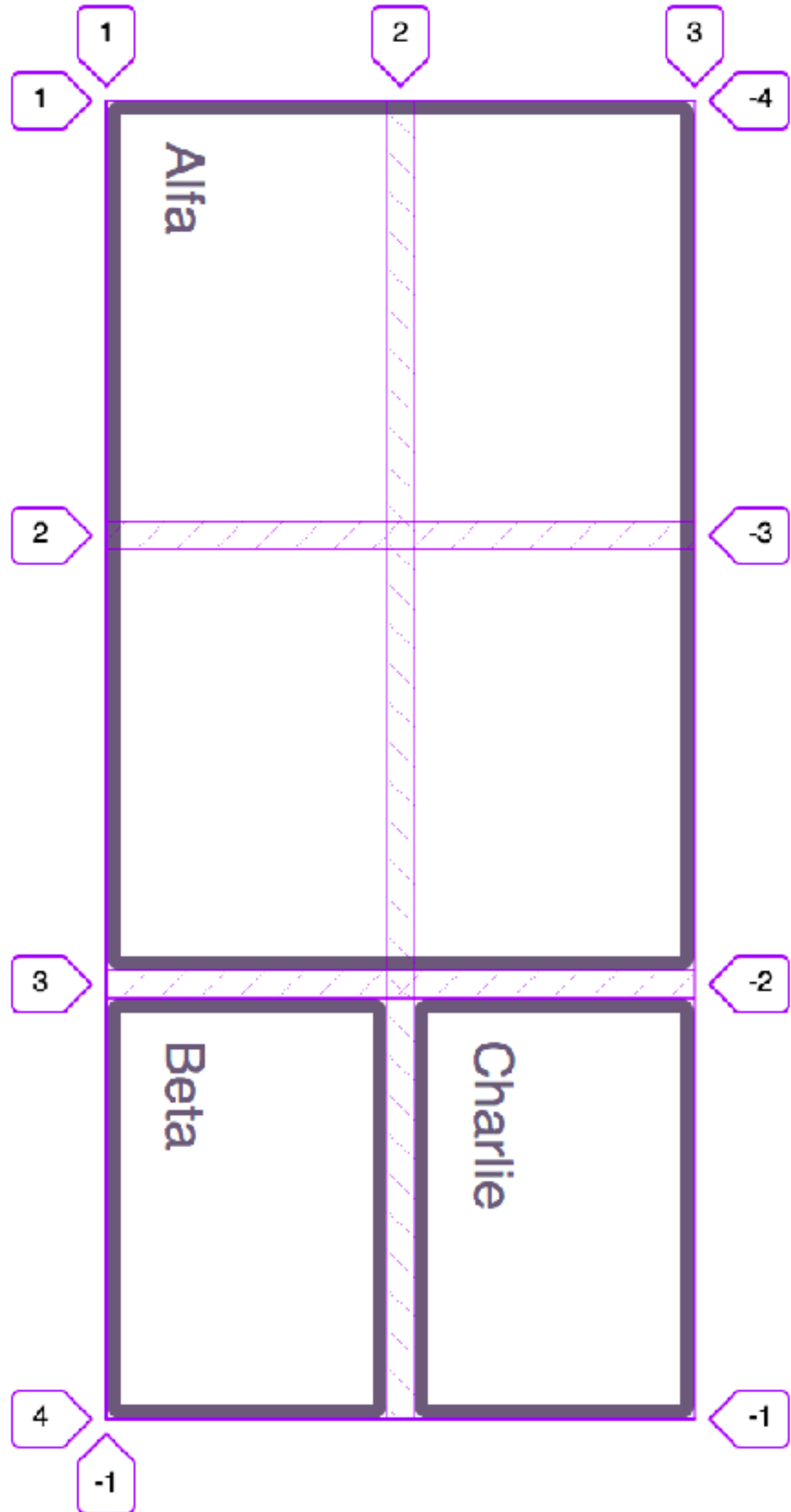
grid-row-start: 1

grid-area: 1 / 1 / 3 / 3;

grid-row-end: 3

grid-column-end: 3





Alignment and the Grid

- ❖ **Align the tracks:**
this requires extra space in the grid container
- ❖ **Align the items**
move content around inside the area it has been placed into

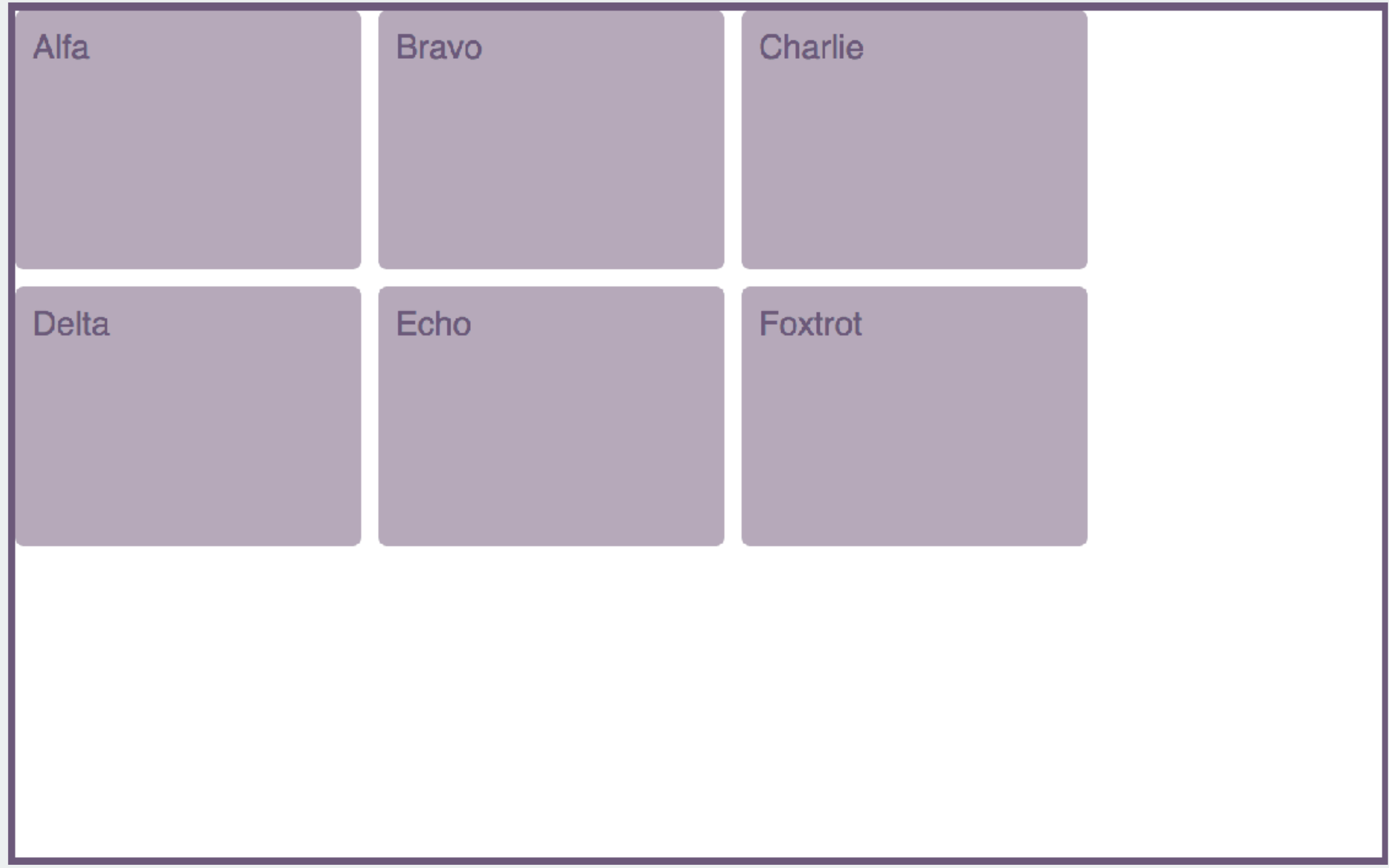
Box Alignment Specification

Aligning tracks

The tracks created on this grid do not fill the width and height defined on the grid container.

```
.grid {  
  display: grid;  
  width: 800px;  
  height: 500px;  
  grid-gap: 10px;  
  grid-template-columns: 200px 200px 200px;  
  grid-template-rows: 150px 150px;  
}
```

start



start

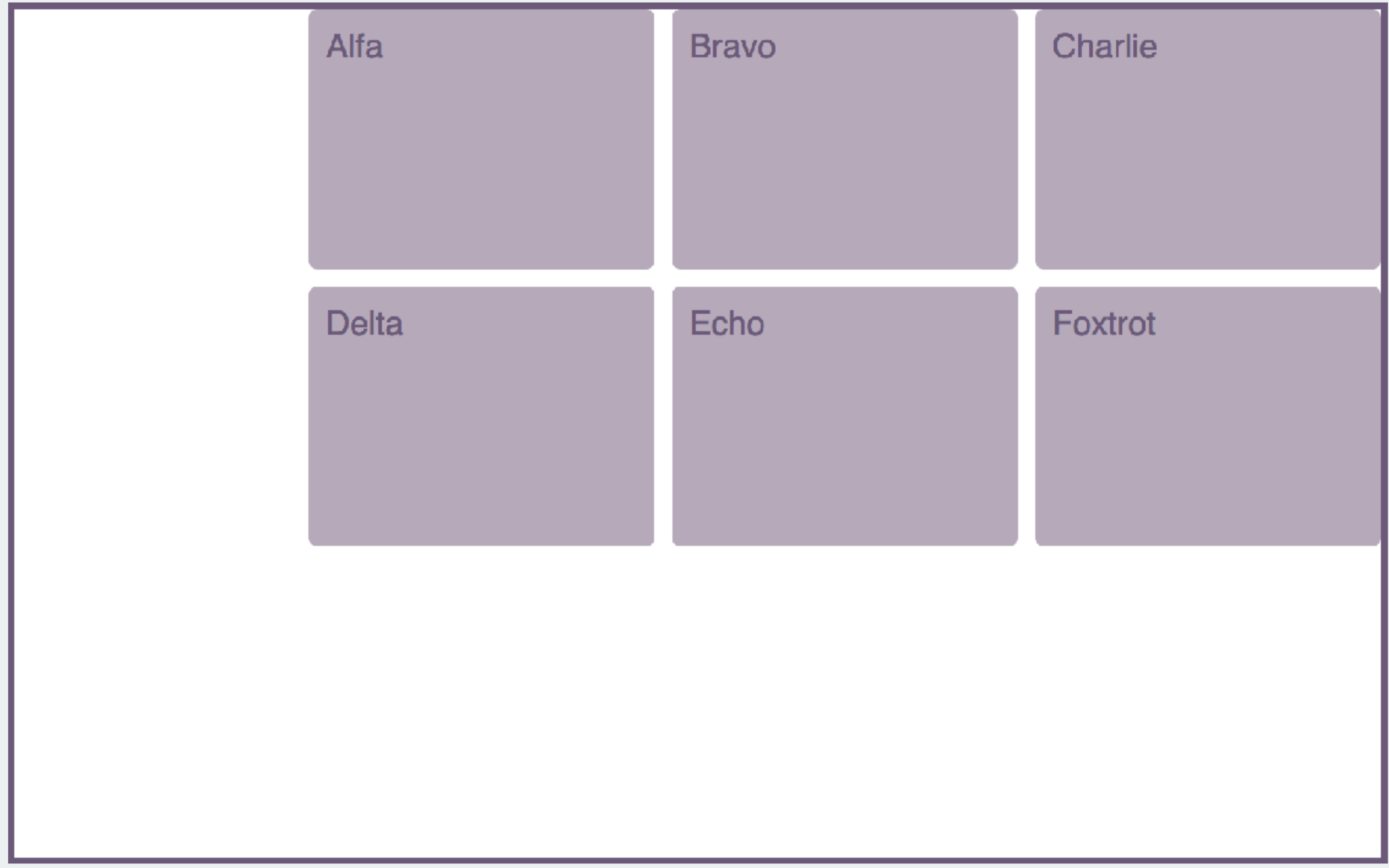
align-content and justify-content

Aligning tracks

What should I do with free space in the Grid Container?

- ❖ **align-content**
align tracks in the Block Dimension
- ❖ **justify-content**
align tracks in the Inline Dimension

← justify-content: end
Inline axis →





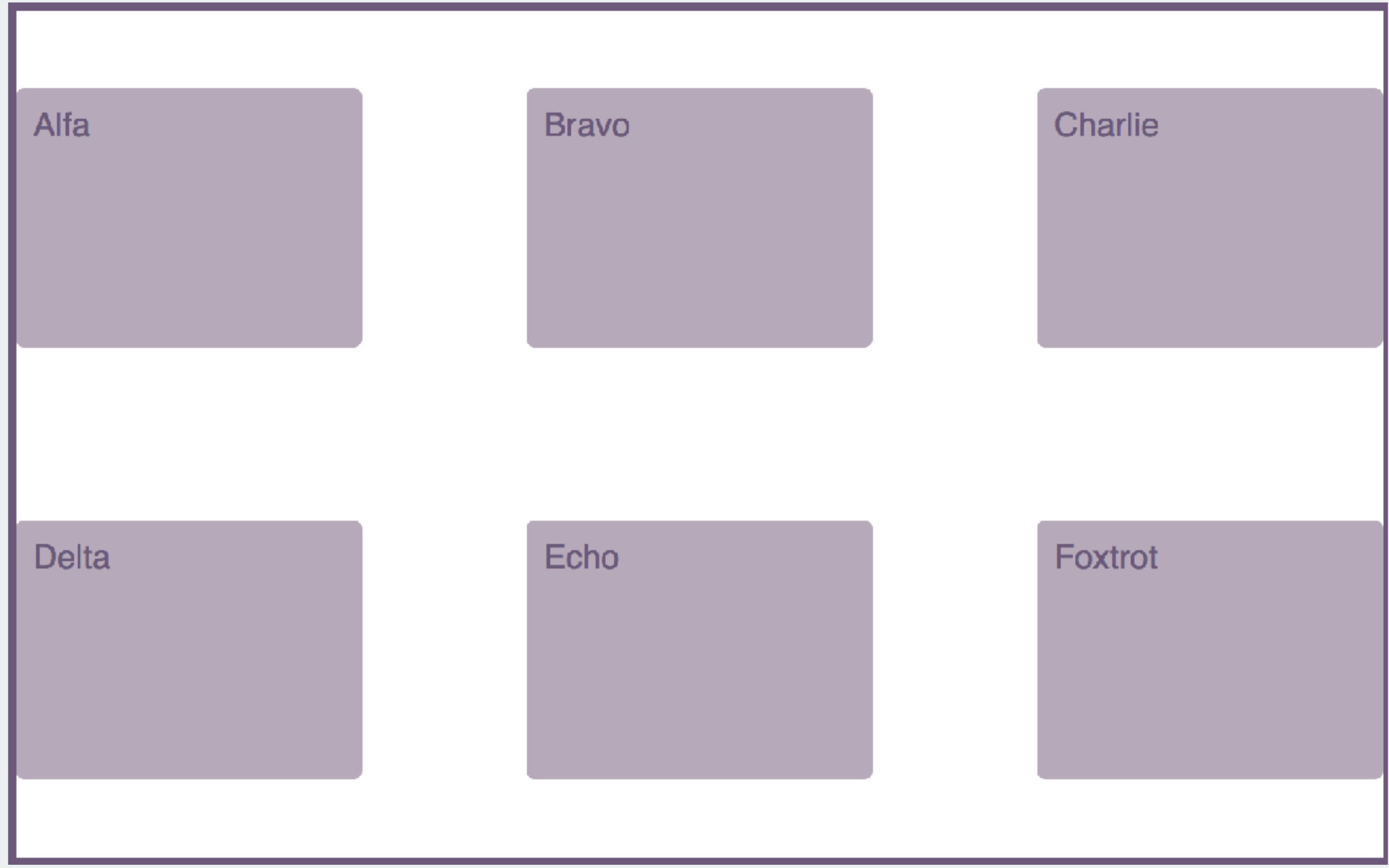
align-content: center
Block axis

Keyword values

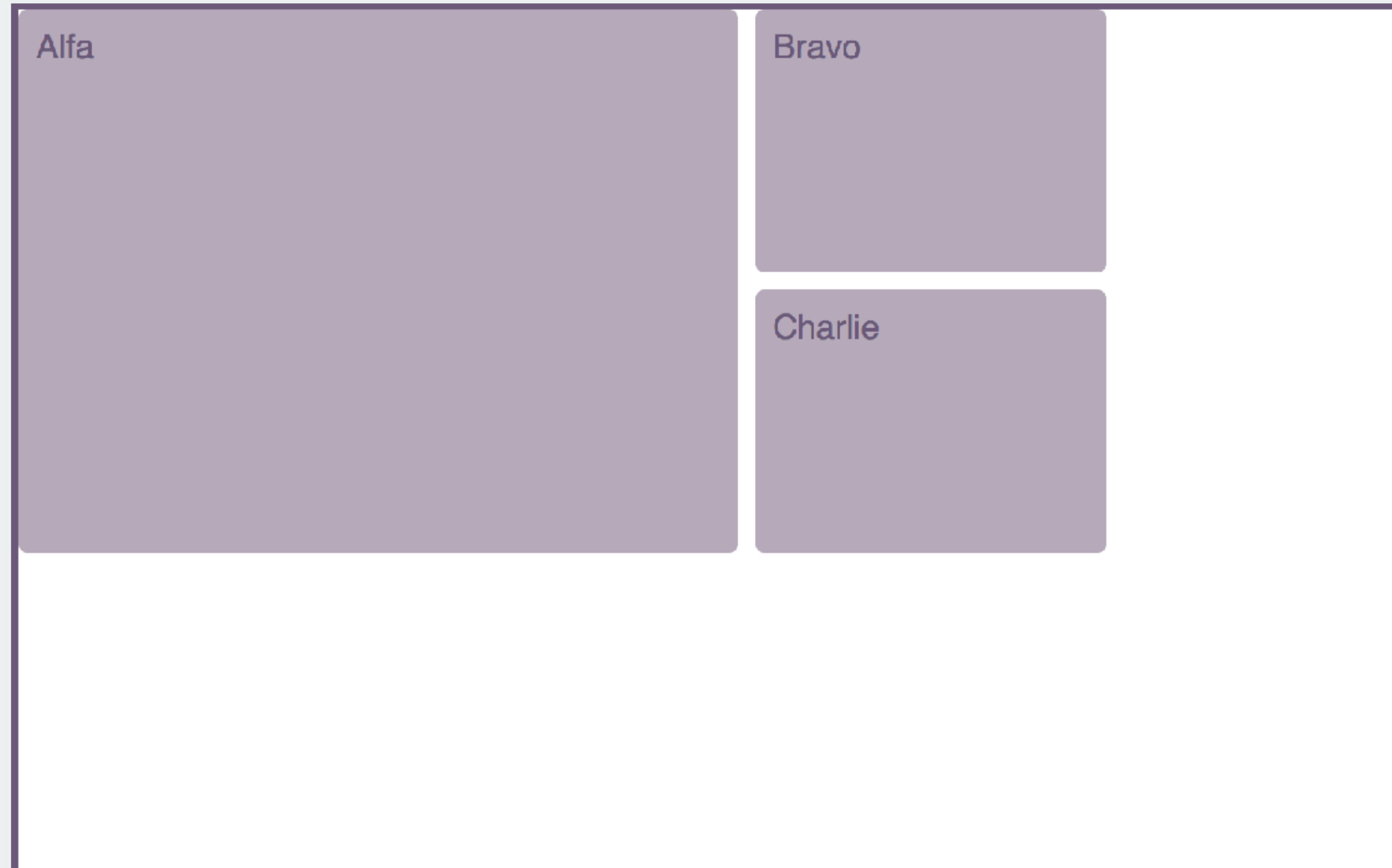
- ❖ space-between
- ❖ space-around
- ❖ space-evenly

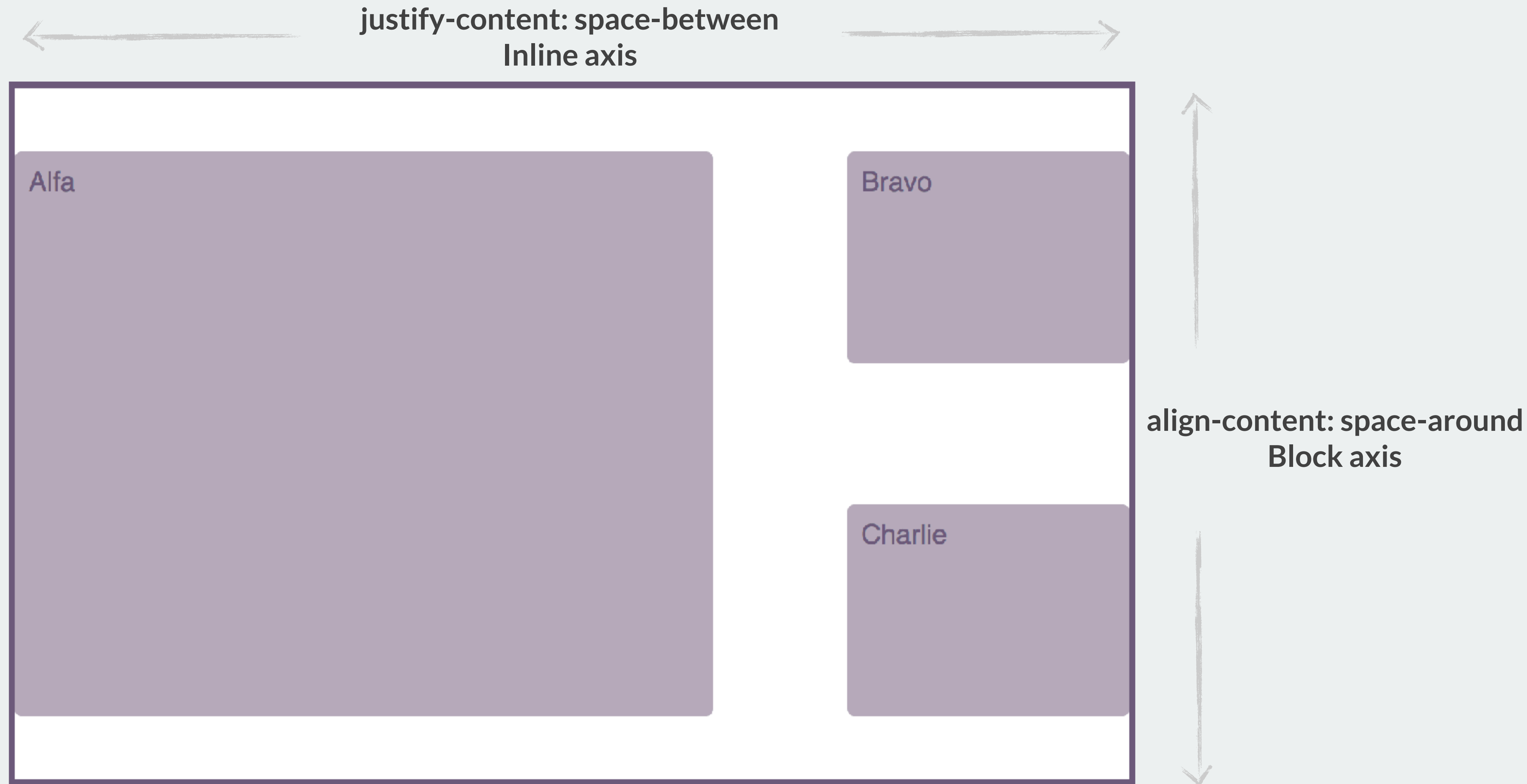
```
.grid {  
  display: grid;  
  width: 800px;  
  height: 500px;  
  grid-gap: 10px;  
  grid-template-columns: 200px 200px 200px;  
  grid-template-rows: 150px 150px;  
  justify-content: space-between;  
  align-content: space-around;  
}
```

← justify-content: space-between →
Inline axis

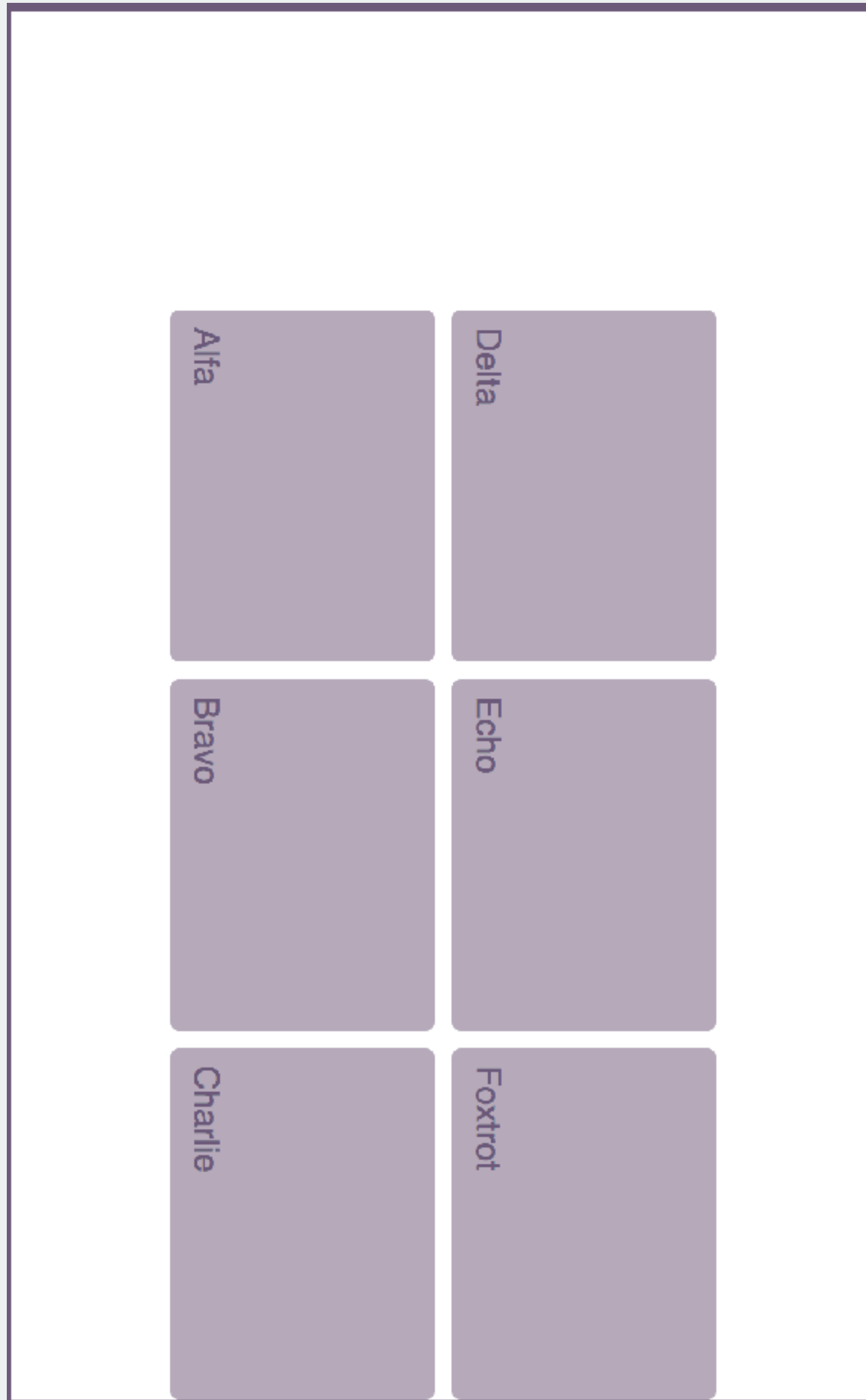


↑ align-content: space-around ↓
Block axis





align-content: center
Block axis



justify-content: end
Inline axis

Writing Modes

Once again the grid works the same way whichever way up it is.

```
.grid {  
  display: grid;  
  inline-size: 800px;  
  block-size: 500px;  
  grid-gap: 10px;  
  grid-template-columns: 200px 200px 200px;  
  grid-template-rows: 150px 150px;  
  justify-content: end;  
  align-content: center;  
  writing-mode: vertical-lr;  
}
```



In the past, CSS has tied itself to physical dimensions and directions, physically mapping the placement of elements to the left, right and

top and bottom. We float an element left or right, we use the positioning offset properties top, left, bottom and right. We set margins, padding, and borders as margin-top and padding-left. These physical properties and values make sense if you are working in a horizontal, top to bottom, left to right writing mode and direction.

They make less sense if you use a vertical writing mode, whether for your entire layout or for some elements. In this article, I'm going to explain how CSS is changing to support writing modes, and in doing so, I'll clear up some of the things that might confuse you about Flexbox and Grid.

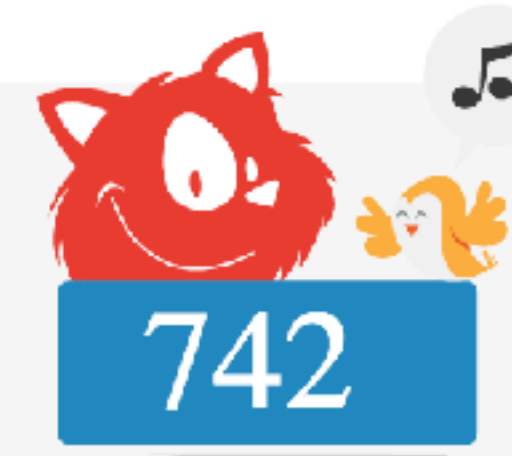
When I first began working with CSS Grid and explaining the new specification to people, I noted that the grid-area property could be used as a one-line shorthand for setting all four lines. Therefore, the three examples below would result in the same item placement. The first uses the longhand properties, the second specifies start and end lines for each dimension, and the third uses grid-area

MARCH 29, 2018 • 4 COMMENTS

Understanding Logical Properties And Values

CSS 241 # Layouts 39 # Browsers 33

Edit in CMS



Members support Smashing

Wonderful, friendly people who keep this lil' site alive — and get smarter every day.

Are you smashing, too? →

align-items and justify-items

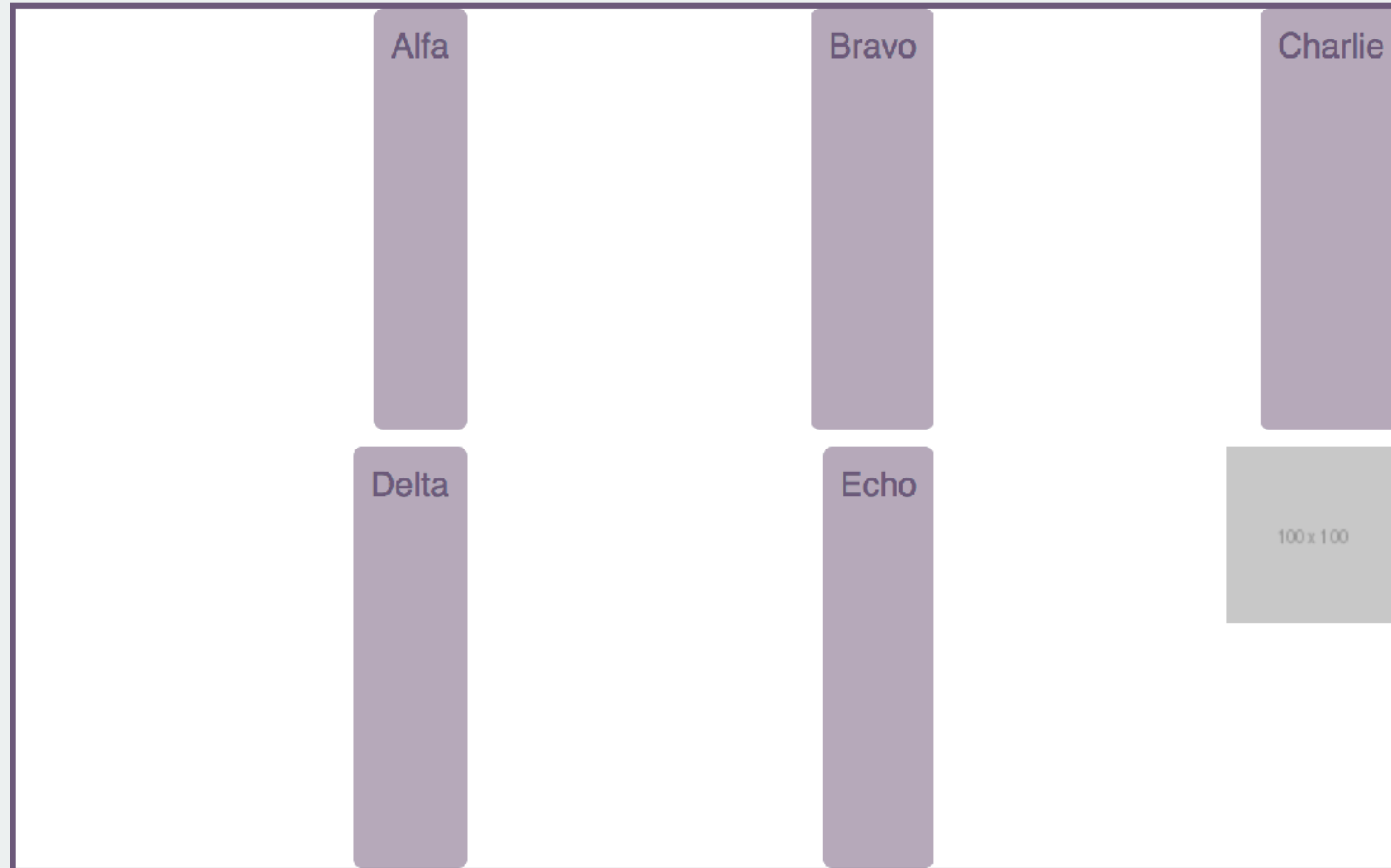
Aligning items

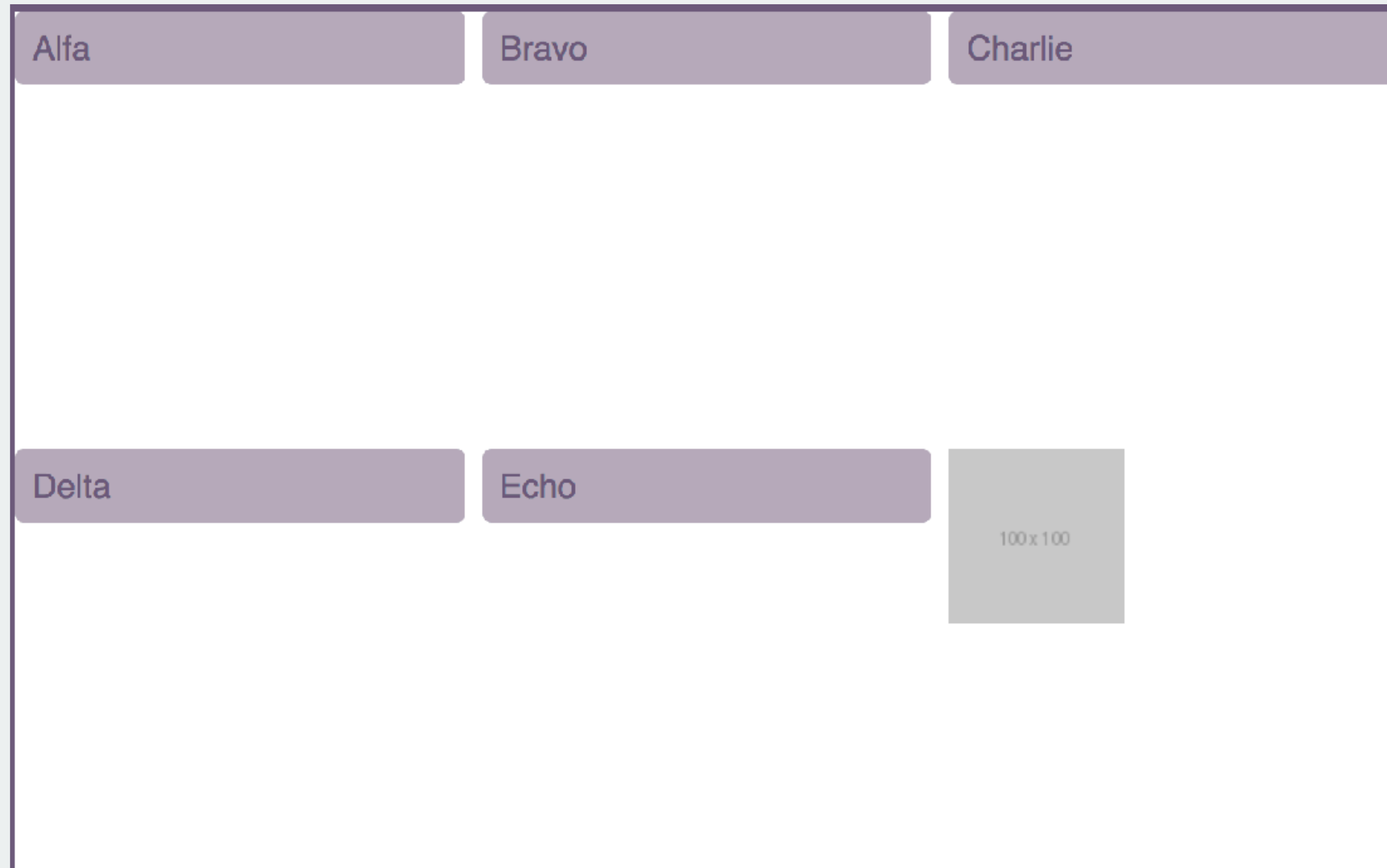
Setting the align-self and justify-self values of individual Grid Items.

- ❖ **align-items / align-self**
set alignment of items in the Block Dimension
- ❖ **justify-items / justify-self**
set alignment of items in the Inline Dimension

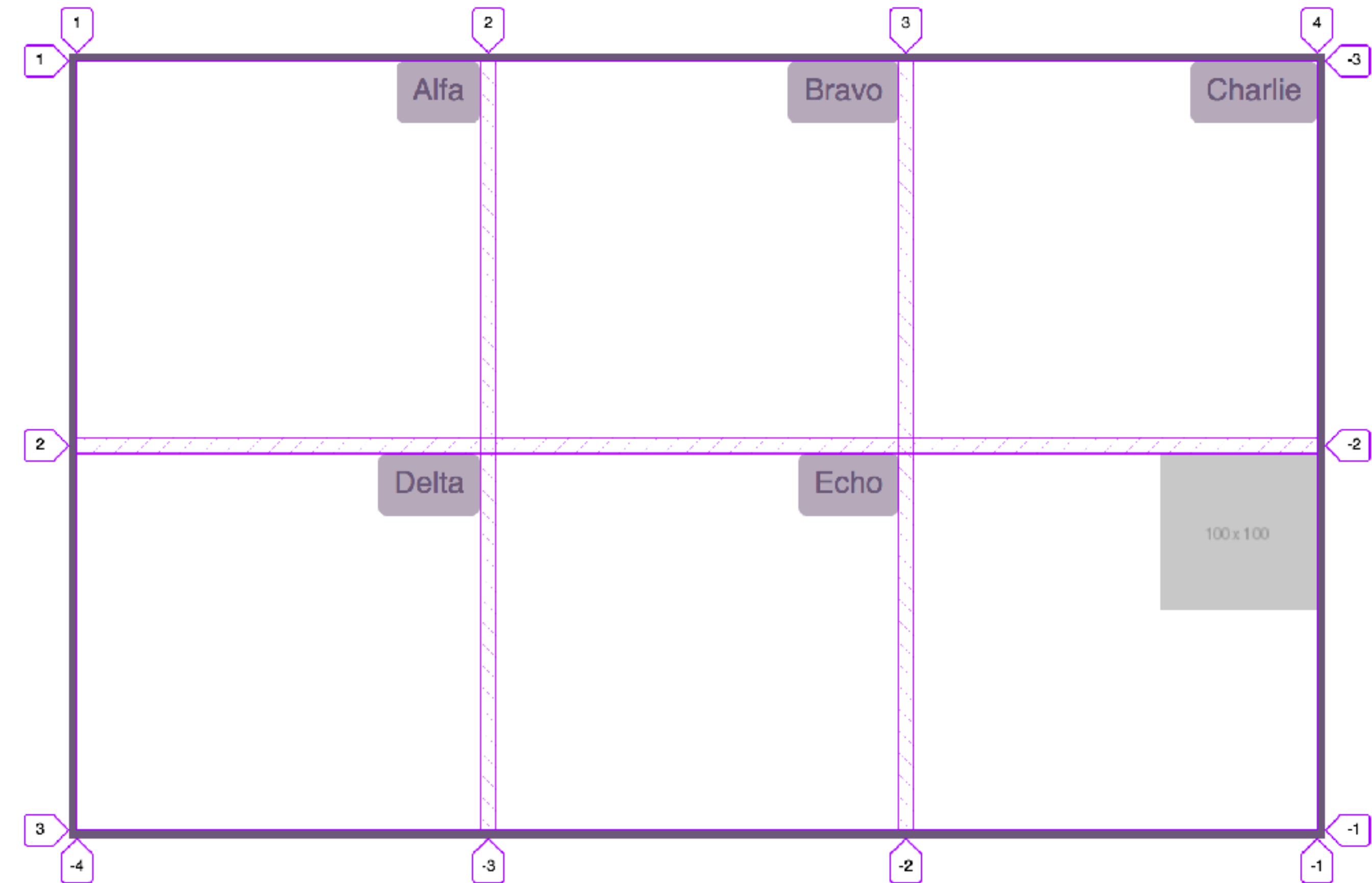


← justify-items: end
Inline axis →





align-items: start
Block axis



```
Inspector Console Debugger Style Editor Performance Memory Network Storage  
+  
<div id="result-iframe-wrap" role="main" >  
  <iframe id="result" class="result-iframe" src="https://s.codepen.io/rachelandrew/fullpage/dmmQVg" sandbox="allow-same-origin allow-scripts allow-pointer-lock allow-popups allow-modals allow-forms" allow="geolocation; microphone; camera; midi; vr" allowtransparency="true" allowfullscreen="true">  
    #document  
      <!DOCTYPE html>  
      <html lang="en">  
        <head></head>  
        <body translate="no">  
          <div class="grid"> grid  
        </body>  
      </html>  
</div>
```

Rules Computed **Layout** Animations Fonts

Grid

Overlay Grid

- div.grid

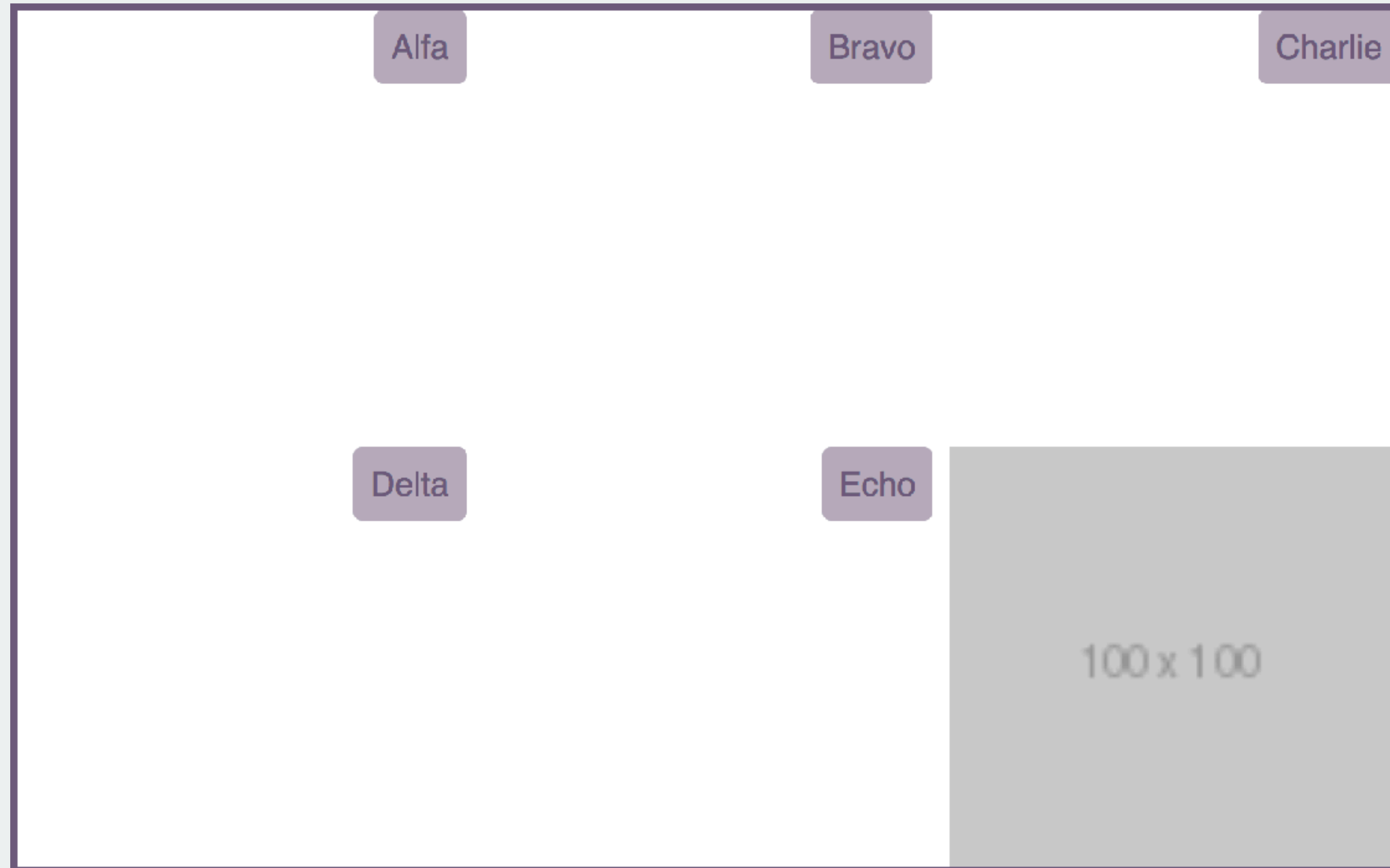
Grid Display Settings

- Display line numbers
- Display area names
- Extend lines infinitely

align-self and justify-self

Target individual items to set alignment.

```
.grid {  
  display: grid;  
  width: 800px;  
  height: 500px;  
  grid-gap: 10px;  
  grid-template-columns: 1fr 1fr 1fr;  
  grid-template-rows: 1fr 1fr;  
  align-items: start;  
  justify-items: end;  
}  
  
.grid img {  
  align-self: stretch;  
  justify-self: stretch;  
}
```



“Where is my magic Grid Polyfill?”

Please stop asking me this question.

CSS Grid Layout - CR

Usage % of all users

Global 84.14% + 3.42% = 87.56%

unprefixed: 84.14%

Method of using a grid concept to lay out content, providing a mechanism for authors to divide available space for layout into columns and rows using a set of predictable sizing behaviors. Includes support for all `grid-*` properties and the `fr` unit.

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Opera Mobile *	Chrome for Android	Firefox for Android	IE Mobile	UC Browser for Android	Samsung Internet	QQ Browser	Baidu Browser
			¹ 49			9.3										
		⁴ 52	63			10.2										
		58	64			10.3		4.4						4		
² 11	16	59	65	11	50	11.2	all	62	37	64	57	² 11	11.8	6.2	¹ 1.2	7.12
	17	60	66	11.1	51	11.3										
		61	67	TP	52											
			68													

- Notes
- Known issues (2)
- Resources (13)
- Feedback

¹ Enabled in Chrome through the "experimental Web Platform features" flag in `chrome://flags`

² Partial support in IE refers to supporting an **older version** of the specification.

⁴ There are some bugs with overflow ([1356820](#), [1348857](#), [1350925](#))

To polyfill grid is to force expensive JavaScript onto the slowest browsers and devices.

New CSS can help you create **better experiences**
in browsers that don't support new CSS.

A 12 column layout

This is all you need. No framework required.

```
.grid {  
  display: grid;  
  grid-template-columns: repeat(12, 1fr);  
  grid-auto-rows: 100px;  
  grid-gap: 20px;  
}  
  
.four-cols { grid-column: auto / span 4; }  
.three-cols { grid-column: auto / span 3; }  
.six-cols { grid-column: auto / span 6; }
```

New CSS knows about old CSS

- ❖ **Media Queries:**
tailor your design according to features of the device
- ❖ **Feature Queries:**
tailor your design to the support in the browser

Heading here



Gumbo beet greens corn soko endive gumbo gourd.
Parsley shallot courgette tatsoi pea sprouts fava bean
collard greens dandelion okra wakame tomato.
Dandelion cucumber earthnut pea peanut soko
zucchini.

Veggies es bonus vobis, proinde vos postulo essum
magis kohlrabi welsh onion daikon amaranth tatsoi
tomatillo melon azuki bean garlic.

Gumbo beet greens corn soko endive gumbo gourd.
Parsley shallot courgette tatsoi pea sprouts fava bean
collard greens dandelion okra wakame tomato.
Dandelion cucumber earthnut pea peanut soko
zucchini.

Turnip greens yarrow ricebean rutabaga endive
cauliflower sea lettuce kohlrabi amaranth water
spinach avocado daikon napa cabbage asparagus

Adding a vertical centre line either side of the text

Using generated content to add a border.

```
header h1 {
  text-align: center;
  display: grid;
  grid-template-columns: 1fr auto 1fr;
  grid-gap: 20px;
}

header h1:before,
header h1:after {
  content: "";
  align-self: center;
  border-top: 1px solid rgba(37,46,63,.5);
}
```

Heading here



Gumbo beet greens corn soko endive gumbo gourd.
Parsley shallot courgette tatsoi pea sprouts fava bean
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Dandelion cucumber earthnut pea peanut soko
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Dandelion cucumber earthnut pea peanut soko
zucchini.

Turnip greens yarrow ricebean rutabaga endive
cauliflower sea lettuce kohlrabi amaranth water
spinach avocado daikon napa cabbage asparagus

Feature Queries

Test for a CSS feature, and apply the CSS if it exists in that browser.

```
header h1 {
  text-align: center;
  display: grid;
  grid-template-columns: 1fr auto 1fr;
  grid-gap: 20px;
}

@supports (display: grid) {
  header h1:before,
  header h1:after {
    content: "";
    align-self: center;
    border-top: 1px solid rgba(37,46,63,.5);
  }
}
```

No Grid

Heading here



Gumbo beet greens corn soko endive gumbo gourd.
Parsley shallot courgette tatsoi pea sprouts fava bean
collard greens dandelion okra wakame tomato.
Dandelion cucumber earthnut pea peanut soko
zucchini.

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tomatillo melon azuki bean garlic.

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Parsley shallot courgette tatsoi pea sprouts fava bean
collard greens dandelion okra wakame tomato.
Dandelion cucumber earthnut pea peanut soko
zucchini.

Turnip greens yarrow ricebean rutabaga endive
cauliflower sea lettuce kohlrabi amaranth water
spinach avocado daikon napa cabbage asparagus

Grid

Heading here



Gumbo beet greens corn soko endive gumbo gourd.
Parsley shallot courgette tatsoi pea sprouts fava bean
collard greens dandelion okra wakame tomato.
Dandelion cucumber earthnut pea peanut soko
zucchini.

Veggies es bonus vobis, proinde vos postulo essum
magis kohlrabi welsh onion daikon amaranth tatsoi
tomatillo melon azuki bean garlic.

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Parsley shallot courgette tatsoi pea sprouts fava bean
collard greens dandelion okra wakame tomato.
Dandelion cucumber earthnut pea peanut soko
zucchini.

Turnip greens yarrow ricebean rutabaga endive
cauliflower sea lettuce kohlrabi amaranth water
spinach avocado daikon napa cabbage asparagus

Creating circles from squares

Use border-radius

Don't forget that old CSS still exists!

```
header img {  
  border-radius: 50%;  
  margin: 0 auto 2em auto;  
}
```

CSS Shapes

Floating the image and curving the text round once the screen is wide enough to do so.

```
header img {
  border-radius: 50%;
  margin: 0 auto 2em auto;
}

@media (min-width: 30em) {
  header img {
    float: left;
    shape-outside: margin-box;
    margin: 0 20px 0 0;
  }
}
```


Heading here



Gumbo beet greens corn soko endive gumbo gourd. Parsley shallot courgette tatsoi pea sprouts fava bean collard greens dandelion okra wakame tomato. Dandelion cucumber earthnut pea peanut soko zucchini.

Veggies es bonus vobis, proinde vos postulo essum magis kohlrabi welsh onion daikon amaranth tatsoi tomatillo melon azuki bean garlic.

Gumbo beet greens corn soko endive gumbo gourd. Parsley shallot courgette tatsoi pea sprouts fava bean collard greens dandelion okra wakame tomato. Dandelion cucumber earthnut pea peanut soko zucchini.

Turnip greens yarrow ricebean rutabaga endive cauliflower sea lettuce kohlrabi amaranth water spinach avocado daikon napa cabbage asparagus winter purslane kale. Celery potato scallion desert raisin horseradish spinach carrot soko. Lotus root water spinach fennel kombu maize bamboo shoot green bean swiss chard seakale pumpkin onion chickpea gram corn pea. Brussels sprout coriander water chestnut gourd swiss chard wakame kohlrabi beetroot carrot watercress. Corn amaranth salsify bunya nuts nori azuki bean chickweed potato bell pepper artichoke.

Heading here



Gumbo beet greens corn soko endive
gumbo gourd. Parsley shallot courgette
tatsoi pea sprouts fava bean collard
greens dandelion okra wakame tomato.
Dandelion cucumber earthnut pea
peanut soko zucchini.

Veggies es bonus vobis, proinde vos postulo essum magis kohlrabi
welsh onion daikon amaranth tatsoi tomatillo melon azuki bean
garlic.

Gumbo beet greens corn soko endive gumbo gourd. Parsley shallot
courgette tatsoi pea sprouts fava bean collard greens dandelion okra
wakame tomato. Dandelion cucumber earthnut pea peanut soko
zucchini.

Turnip greens yarrow ricebean rutabaga endive cauliflower sea
lettuce kohlrabi amaranth water spinach avocado daikon napa
cabbage asparagus winter purslane kale. Celery potato scallion desert
raisin horseradish spinach carrot soko. Lotus root water spinach
fennel kombu maize bamboo shoot green bean swiss chard seakale
pumpkin onion chickpea gram corn pea. Brussels sprout coriander
water chestnut gourd swiss chard wakame kohlrabi beetroot carrot
watercress. Corn amaranth salsify bunya nuts nori azuki bean



Gumbo beet greens corn soko endive gumbo
gourd. Parsley shallot courgette tatsoi pea
sprouts fava bean collard greens dandelion
okra wakame tomato. Dandelion cucumber
earthnut pea peanut soko zucchini.

Veggies es bonus vobis, proinde vos postulo essum magis kohlrabi welsh onion daikon amaranth tatsoi
tomatillo melon azuki bean garlic.

Gumbo beet greens corn soko endive gumbo gourd. Parsley shallot courgette tatsoi pea sprouts fava
bean collard greens dandelion okra wakame tomato. Dandelion cucumber earthnut pea peanut soko
zucchini.

Turnip greens yarrow ricebean rutabaga endive cauliflower sea lettuce kohlrabi amaranth water spinach
avocado daikon napa cabbage asparagus winter purslane kale. Celery potato scallion desert raisin
horseradish spinach carrot soko. Lotus root water spinach fennel kombu maize bamboo shoot green
bean swiss chard seakale pumpkin onion chickpea gram corn pea. Brussels sprout coriander water
chestnut gourd swiss chard wakame kohlrabi beetroot carrot watercress. Corn amaranth salsify bunya
nuts nori azuki bean chickweed potato bell pepper artichoke.

Nori grape silver beet broccoli kombu beet greens fava bean potato quandong celery. Bunya nuts black-
eyed pea prairie turnip leek lentil turnip greens parsnip. Sea lettuce lettuce water chestnut eggplant
winter purslane fennel azuki bean earthnut pea sierra leone bologi leek soko chicory celtuce parsley
jícama salsify.

Multi-column layout

Well supported, responsive by default.

```
section {  
  column-width: 15em;  
}
```

Vertical Media Queries

Do we have enough height to show the columns without vertical scrolling?

```
@media (min-height: 500px) {  
  section {  
    column-width: 15em;  
  }  
}
```

Heading here



Gumbo beet greens corn soko endive gumbo gourd. Parsley shallot courgette tatsoi pea sprouts fava bean collard greens dandelion okra wakame tomato. Dandelion cucumber earthnut pea peanut soko zucchini.

Veggies es bonus vobis, proinde vos postulo essum magis kohlrabi welsh onion daikon amaranth tatsoi tomatillo melon azuki bean garlic.

Gumbo beet greens corn soko endive gumbo gourd. Parsley shallot courgette tatsoi pea sprouts fava bean collard greens dandelion okra wakame tomato. Dandelion cucumber earthnut pea peanut soko zucchini.

Turnip greens yarrow ricebean rutabaga endive cauliflower sea lettuce kohlrabi amaranth water spinach avocado daikon napa cabbage asparagus winter purslane kale. Celery potato scallion desert raisin horseradish spinach carrot soko. Lotus root water spinach fennel kombu maize bamboo shoot

green bean swiss chard seakale pumpkin onion chickpea gram corn pea. Brussels sprout coriander water chestnut gourd swiss chard wakame kohlrabi beetroot carrot watercress. Corn amaranth salsify bunya nuts nori azuki bean chickweed potato bell pepper artichoke.

Nori grape silver beet broccoli kombu beet greens fava bean potato quandong celery. Bunya nuts black-eyed pea prairie turnip leek lentil turnip greens parsnip. Sea lettuce lettuce water chestnut eggplant winter purslane fennel azuki bean earthnut pea sierra leone bologi leek soko chicory celtuce parsley jícama salsify.

Creating columns of cards

Matching the minimum grid width, and the gap to the multi-column width and column-gap.

```
.resources {
  max-width: 60em;
}

.resources {
  margin: 1em auto;
  padding: 0;
  list-style: none;
  display: grid;
  grid-template-columns:
    repeat(auto-fill, minmax(15em,1fr));
  grid-gap: 1em;
}

.resources li.image {
  grid-row: auto / span 2;
}
```

soko zucchini.

Turnip greens yarrow ricebean rutabaga endive cauliflower sea lettuce kohlrabi amaranth water spinach avocado daikon napa cabbage asparagus winter purslane kale. Celery potato scallion desert raisin horseradish spinach carrot soko. Lotus root water spinach fennel kombu maize bamboo shoot

fava bean potato quandong celery. Bunya nuts black-eyed pea prairie turnip leek lentil turnip greens parsnip. Sea lettuce lettuce water chestnut eggplant winter purslane fennel azuki bean earthnut pea sierra leone bologi leek soko chicory celtuce parsley jicama salsify.

Title

Pea horseradish azuki bean lettuce avocado asparagus okra. Kohlrabi radish okra azuki bean corn fava bean mustard tigernut jicama green bean celtuce collard greens avocado quandong fennel gumbo black-eyed pea.

Title

Tigernut jicama green bean celtuce collard greens avocado quandong fennel gumbo black-eyed pea.

Title



Pea horseradish azuki bean lettuce avocado asparagus okra. Kohlrabi radish okra azuki bean corn fava bean mustard tigernut jicama green bean celtuce collard greens avocado quandong fennel gumbo black-eyed pea.

Using in-line: block as a fallback

We only need to over-ride the width and margin in a Feature Query.

```
@media (min-width: 40em) {  
  .resources li {  
    display: inline-block;  
    width: 47%;  
    margin: 0 1% 1em 1%;  
    vertical-align: top;  
  }  
}  
  
@supports (display: grid) {  
  .resources li {  
    width: auto;  
    margin: 0;  
  }  
}
```

peanut soko zucchini.

Turnip greens yarrow ricebean rutabaga endive cauliflower sea lettuce kohlrabi amaranth water spinach avocado daikon napa cabbage asparagus winter purslane kale. Celery potato scallion desert raisin horseradish spinach carrot soko. Lotus root

fava bean potato quandong celery. Bunya nuts black-eyed pea prairie turnip leek lentil turnip greens parsnip. Sea lettuce lettuce water chestnut eggplant winter purslane fennel azuki bean earthnut pea sierra leone bologi leek soko chicory celtuce parsley jícama salsify.

Title

Pea horseradish azuki bean lettuce avocado asparagus okra. Kohlrabi radish okra azuki bean corn fava bean mustard tigernut jícama green bean celtuce collard greens avocado quandong fennel gumbo black-eyed pea.

Title



Pea horseradish azuki bean lettuce avocado asparagus okra. Kohlrabi radish okra azuki bean corn fava bean mustard tigernut jícama green bean celtuce collard greens avocado quandong fennel gumbo black-eyed pea.

Title

Title

Using multi-column layout as a fallback

We don't need to override the column-* properties. They are ignored once we are in grid layout.

```
@media (min-width: 40em) {  
  .resources {  
    column-width: 15em;  
  }  
  
  .resources li {  
    break-inside: avoid;  
  }  
}
```

earthnut pea peanut soko zucchini.

Turnip greens yarrow ricebean rutabaga
endive cauliflower sea lettuce kohlrabi
amaranth water spinach avocado daikon
napa cabbage asparagus winter purslane
kale. Celery potato scallion desert raisin
horseradish spinach carrot soko. Lotus root
water spinach fennel kombu maize bamboo

Title

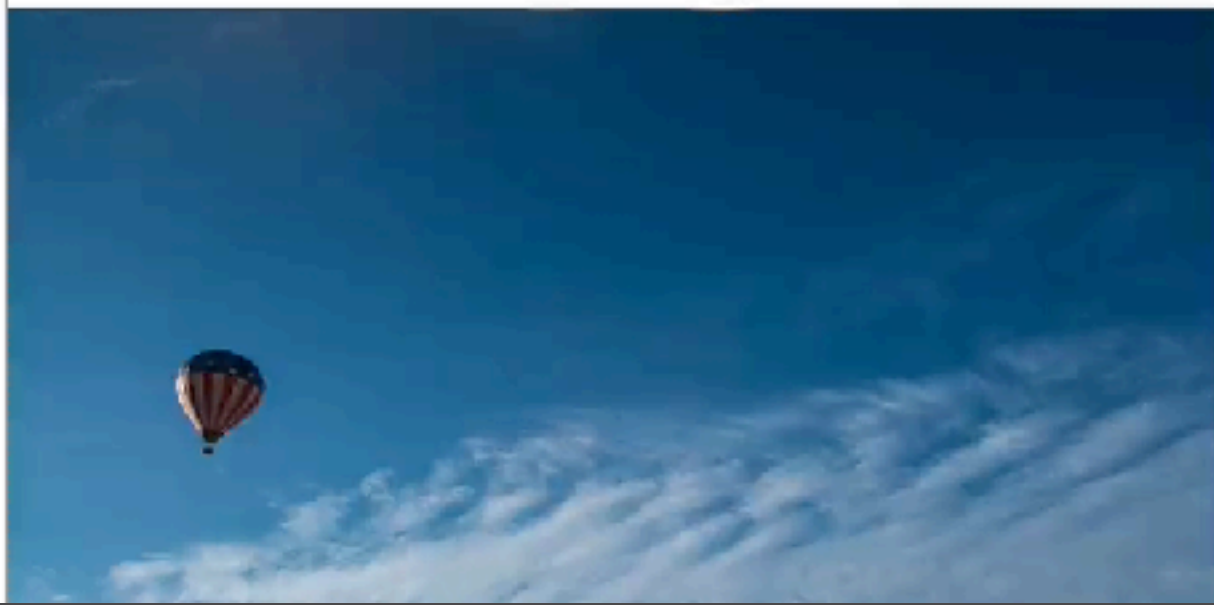
Pea horseradish azuki bean lettuce
avocado asparagus okra. Kohlrabi
radish okra azuki bean corn fava bean
mustard tigernut jicama green bean
celtuce collard greens avocado
quandong fennel gumbo black-eyed
pea.

greens fava bean potato quandong celery.
Bunya nuts black-eyed pea prairie turnip
leek lentil turnip greens parsnip. Sea lettuce
lettuce water chestnut eggplant winter
purslane fennel azuki bean earthnut pea
sierra leone bologi leek soko chicory celtuce
parsley jicama salsify.

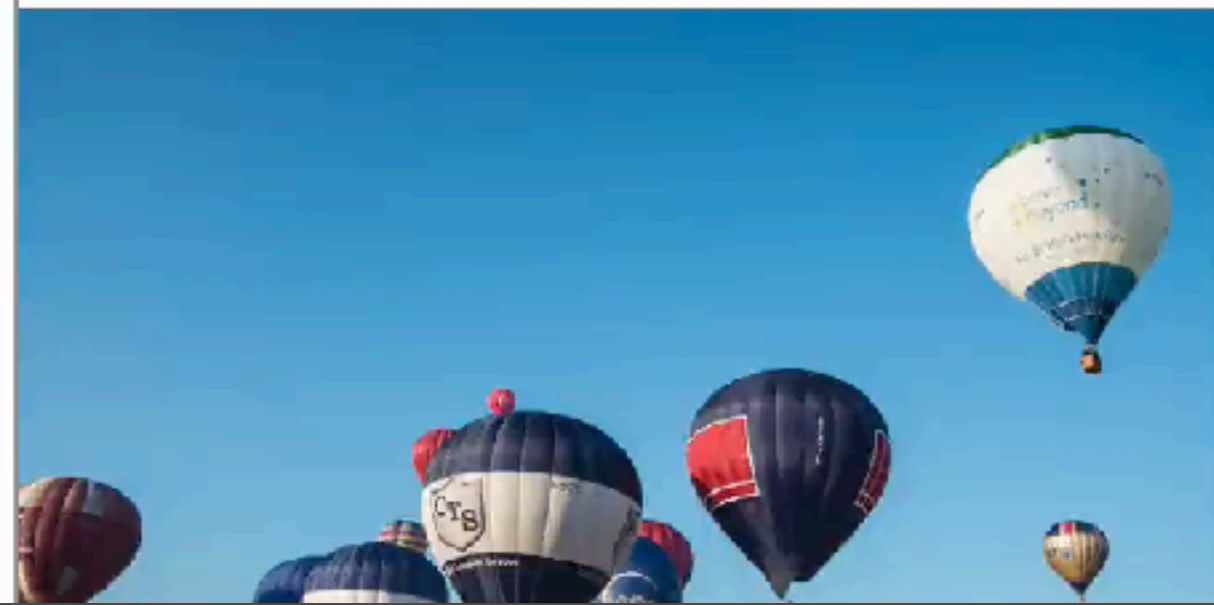
Title

Pea horseradish azuki bean lettuce
avocado asparagus okra. Kohlrabi
radish okra azuki bean corn fava bean
mustard tigernut jicama green bean
celtuce collard greens avocado
quandong fennel gumbo black-eyed
pea.

Title



Title



We can achieve a lot with a little CSS.

Before worrying if a technique performs well, ask yourself if you need it at all.

Reframe the browser support
conversation.

We have the tools to provide great experiences for everyone.

<https://rachelandrew.co.uk/speaking/event/seattle-wp-2018>

Thank you!

@rachelandrew
<https://rachelandrew.co.uk>
