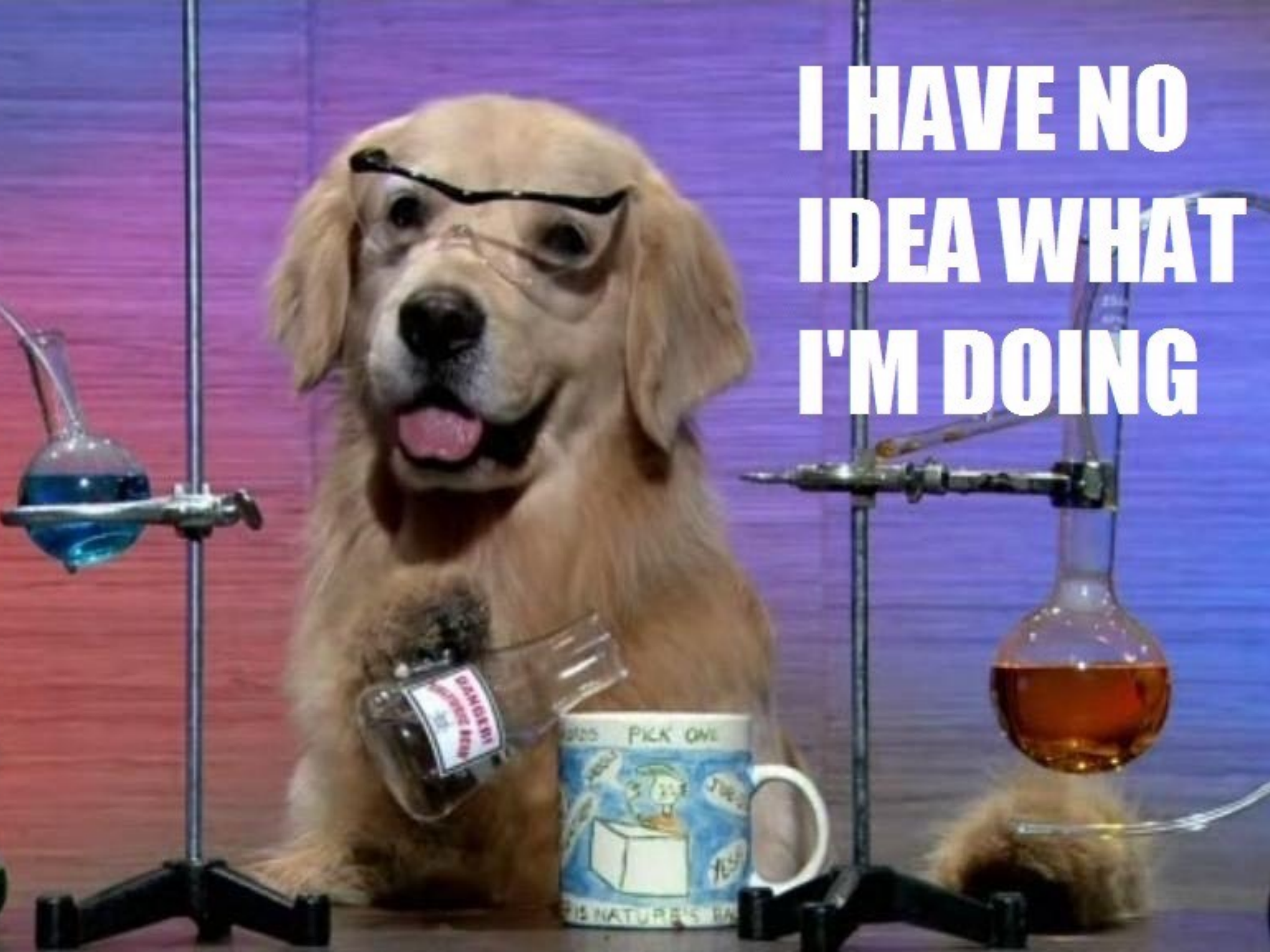
1 Weird Layout Trick UI Devs Use to Avoid Floats! Flexbox Will Shock You! Devsigners Hate Him!

Scott Vandehey — @spaceninja — Devsigner 2015

TL;DR:

```
parent {
    display: flex;
}

child {
    flex: 1;
}
```


I HAVE NO IDEA WHAT I'M DOING
PICK ONE

Flexbox will kick your dog and pee on your rug – CSS Curmudgeon

web.archive.org · November 4, 2011

F- see me after class

I wanted to like flexbox, I really did. I read Paul Irish's Quick hits with flexible box layout and drooled. However, the lack of browser support at the time meant I couldn't do anything more than bookmark the article for future reference.

Then I stumbled across Richard Herrera's Flexie, a JavaScript library to enable flexbox support in bad browsers. It looked incredibly promising, and I resolved to use it the next chance I got.

Well, I got a chance recently to try a flexbox layout. For three frustrating days I struggled with inconsistent browser implementations and unexpected limitations. I watched with growing horror as what should have been a simple,

In Fallout 3, The Presidential Metro Train is actually a hat worn by an NPC hidden under the tracks who runs around at high speeds during the travel cutscene

This can’t be true...

M #: 110.35% (11.03 MB / 10.00 MB)

ts | Stats | Factions | AI Data | AI Packages | Inventory | Actor Effe

Encumbrance 2 / 200

Count	Object ID	O...	H...	Va...
1	DLC03MetroCarArmor		10...	10...

Object: DLC03MetroCarArmor

Count: 1

Health %: 100.00

Owner

NPC: NONE

Faction: NONE

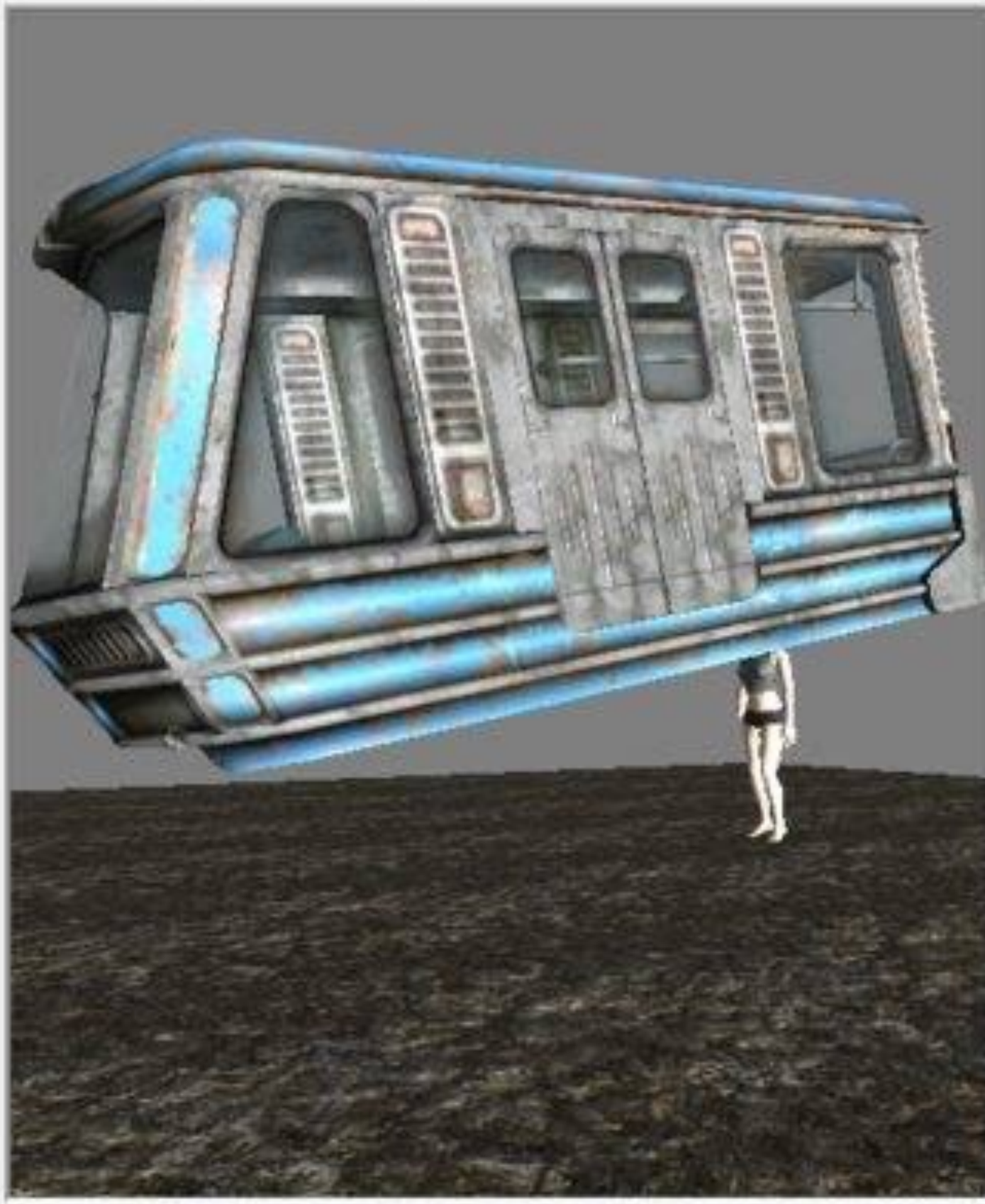
Global Variable: NONE

Required Rank:

Preview Calculated Result

Preview Level: 1

Preview ☑ Full ☐ Head



Matthew Brooks
@brooksoid

Follow

@adrianchm @bchirls I worked on a game where every single object had a flag to indicate whether it was a helicopter taking off or not

RETWEETS 2

FAVORITES 8

8:37 AM - 21 Jul 2015

At First I Was in Shock, Then I Was Outraged. Now, I'm Just Plain Flummoxed. What IS Flexbox?

A New Layout Mode

CSS 2.1 defined four layout modes:

block layout for laying out documents

inline layout for laying out text

table layout for laying out 2D tabular data

positioned layout for explicit positioning

What About Floats?

Floats were never intended for layout! They were a CSS recreation of the old "align" attribute in HTML.

CSS3 introduced new layout methods to offer an alternative to abusing floats and tables:

- Grid layout — divides space into columns & rows
  Like table layouts, but better!

- Flexbox layout — distributes space along 1 column/row
  Like float layouts, but better!

> “My goal in doing Flexbox and later Grid was to replace all the crazy float/table/inline-block/etc hacks that I’d had to master as a webdev. All that crap was (a) stupid, (b) hard to remember, and (c) limited in a million annoying ways, so I wanted to make a few well-done layout modules that solved the same problems in simple, easy-to-use, and complete ways.”

—Tab Atkins (@tabatkins), author of the Flexbox and Grid specs

"Optimized for UI Design"

Flexbox items can be laid out horizontally or vertically

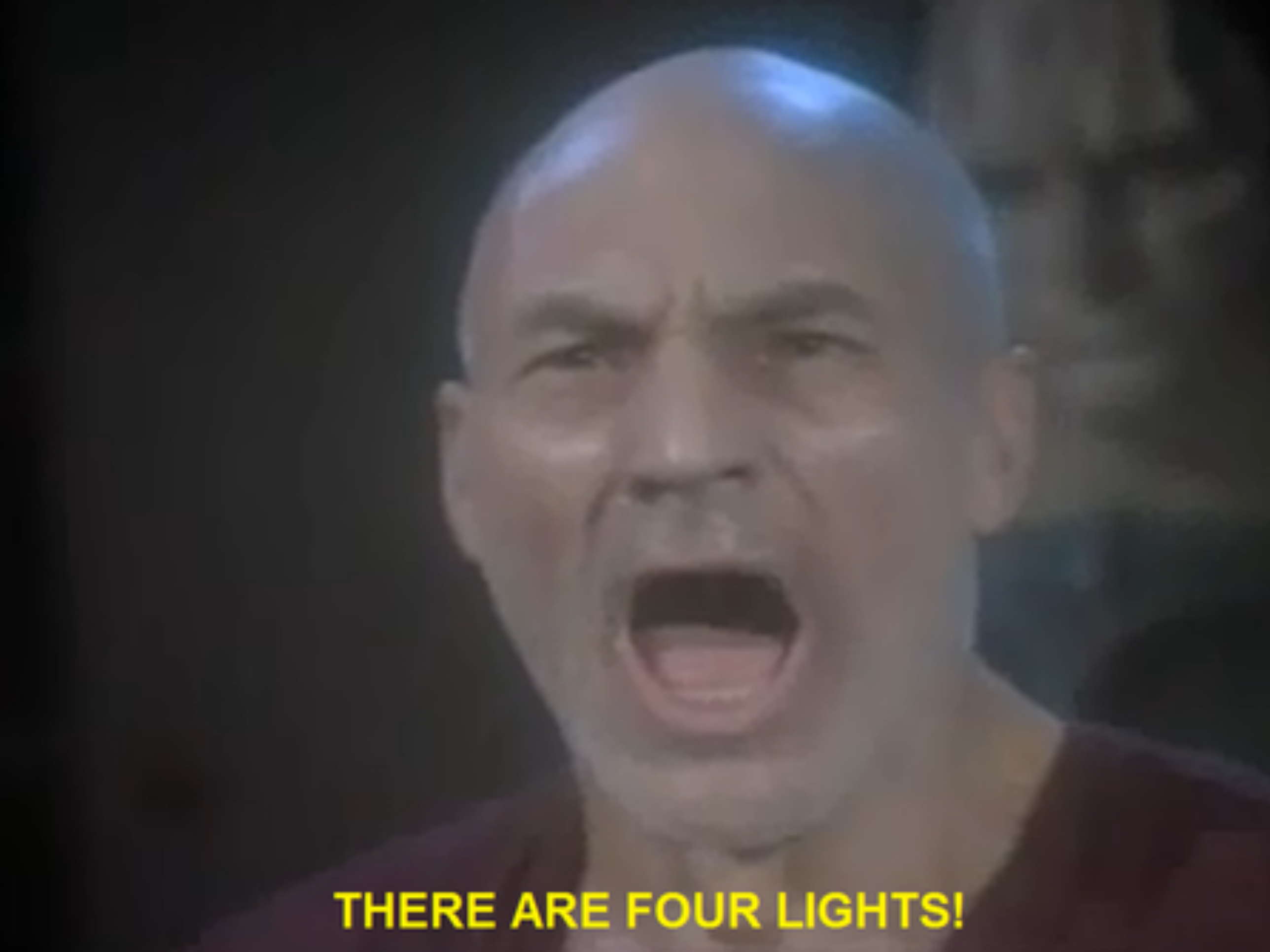
They can "flex" their sizes, growing to fill unused space or shrinking to avoid overflow.

Nested flex containers (horizontal inside vertical, or vice versa) can build more complex layouts.

from the CSS Flexible Box Layout Module Spec

There are

3 Flexbox Specs


THERE ARE FOUR LIGHTS!

3 Specs; Only 1 Matters

display: **box** — old 2009 spec

> No longer relevant.

display: **flexbox** — 2011 "tweener" spec

> Draft spec. Avoid if possible. IE10 only.

display: **flex** — final 2012 spec

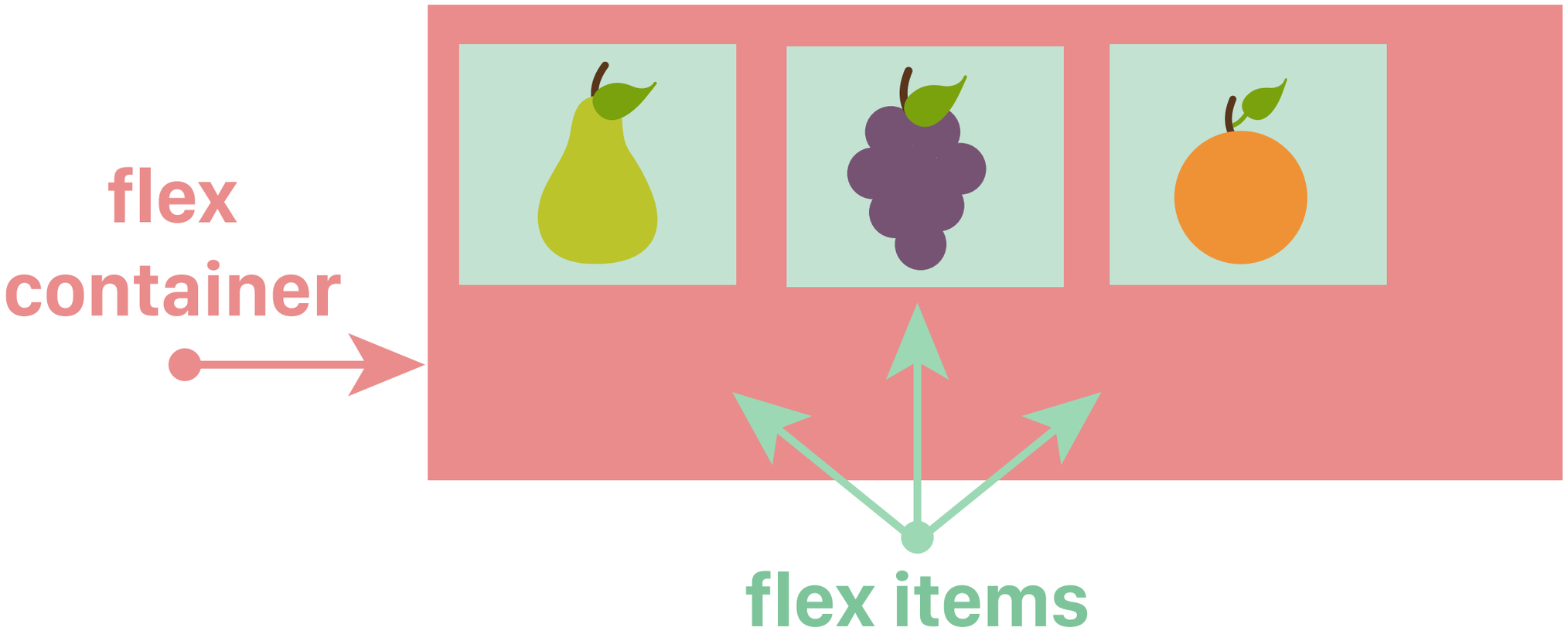
> The new hotness we'll be talking about today!

Flexbox Layouts

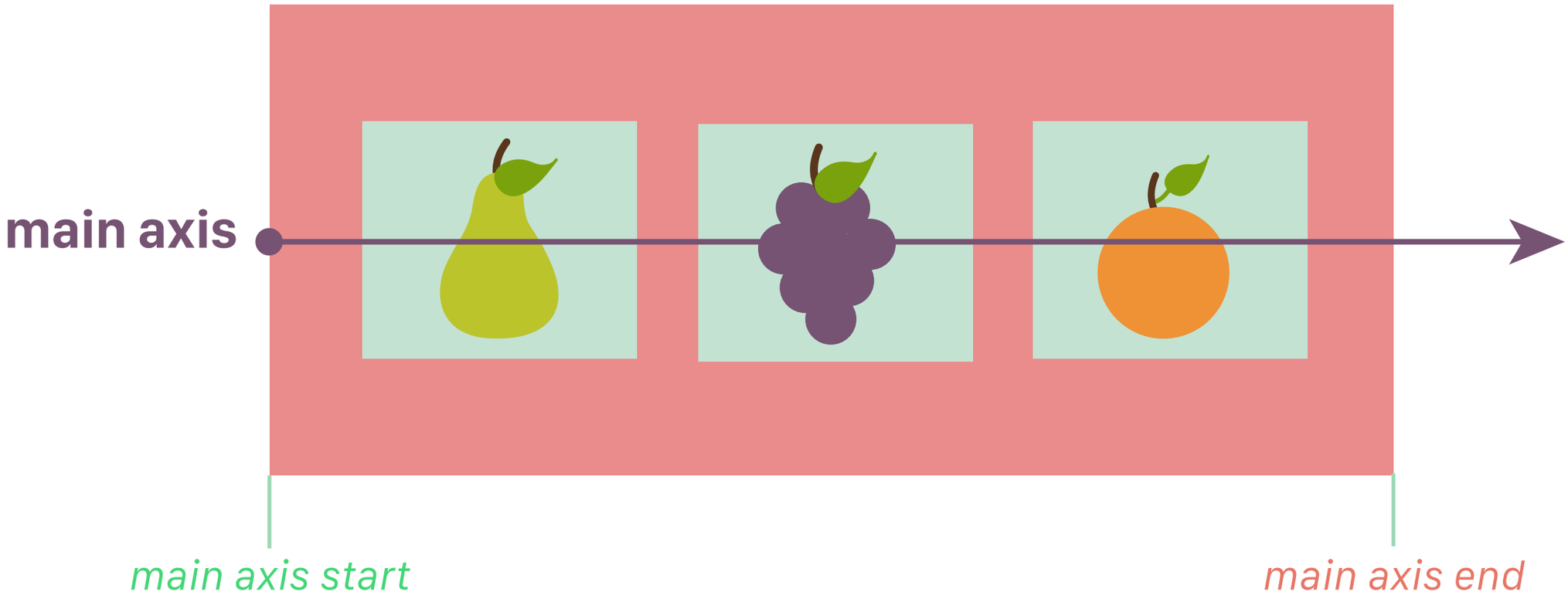
Go in One Direction

Flexbox = One Direction?

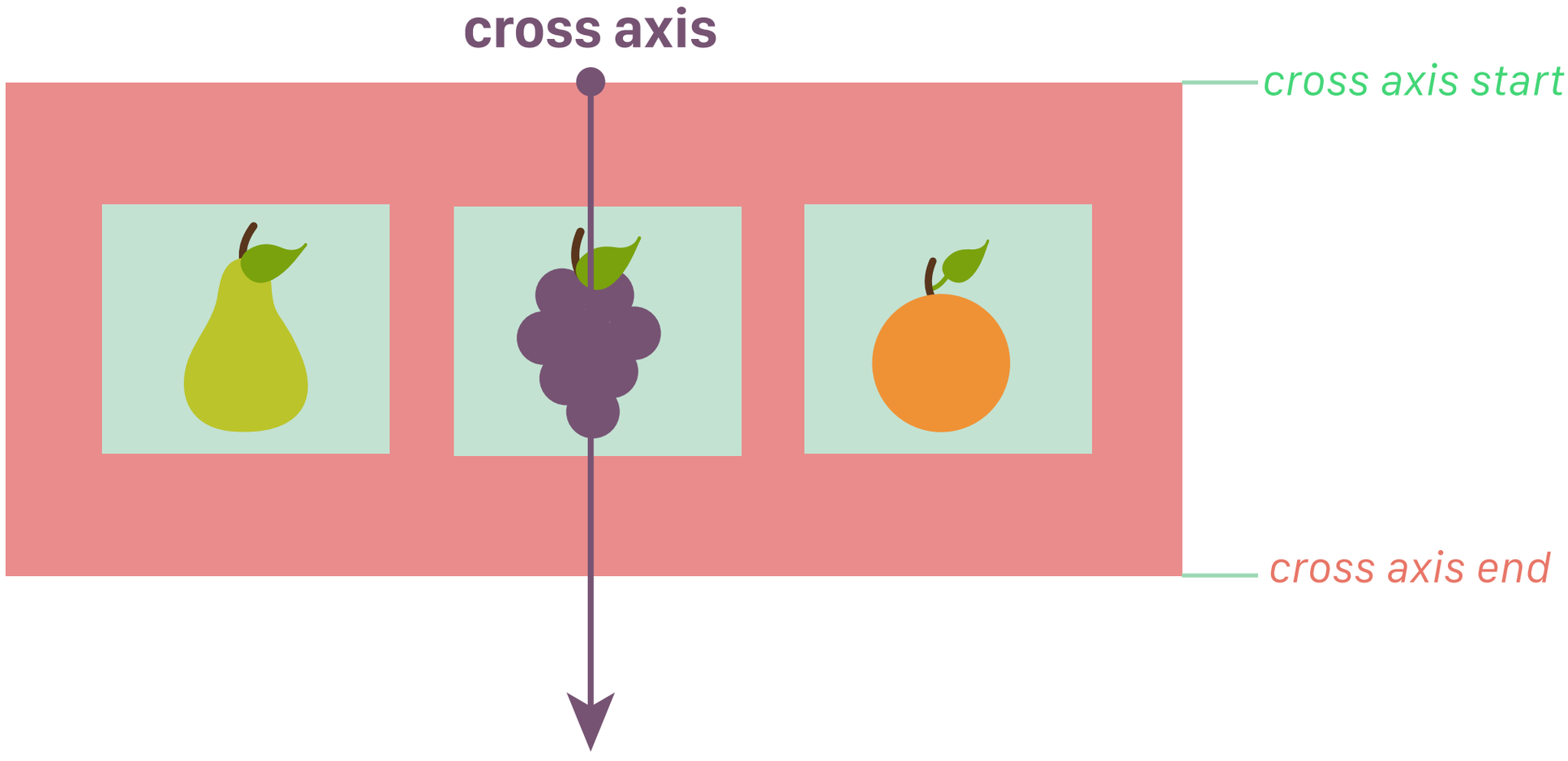

#DadJoke



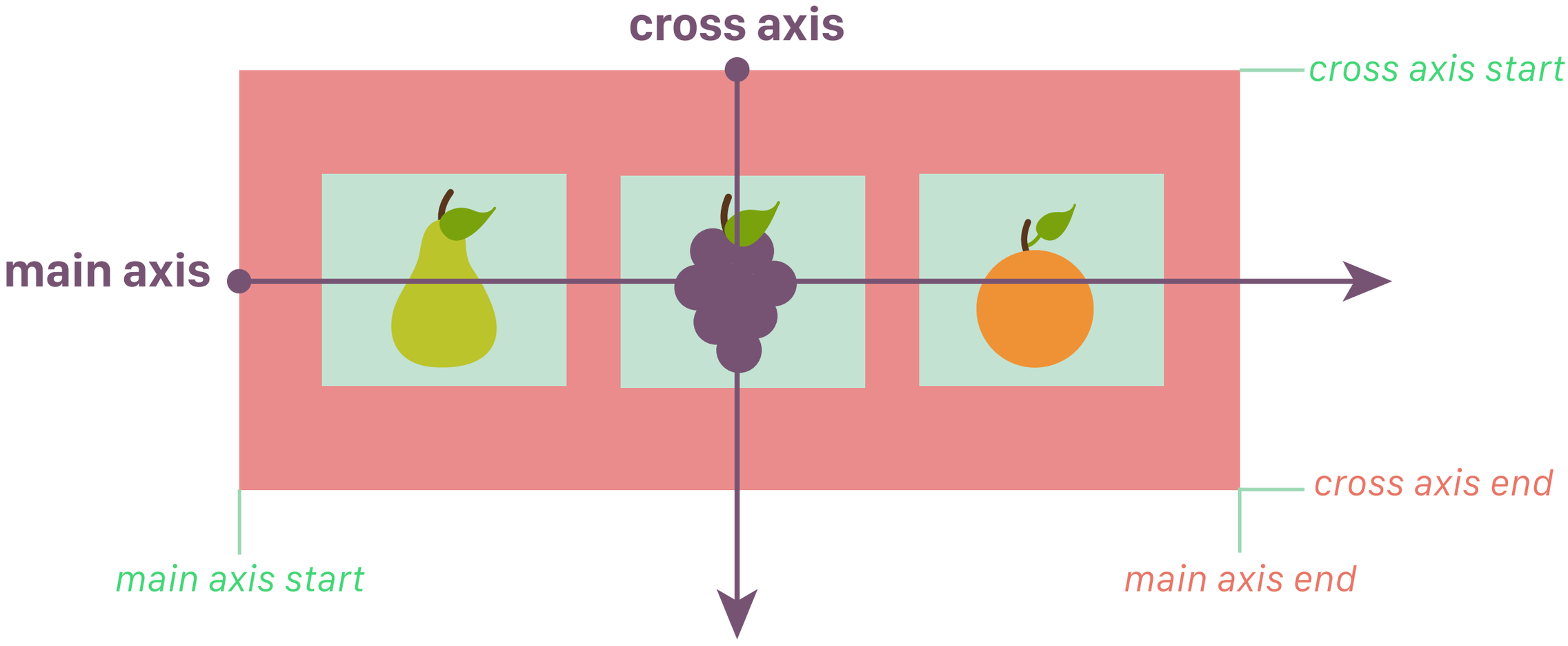
jonibologna.com/flexbox-cheatsheet



jonibologna.com/flexbox-cheatsheet



jonibologna.com/flexbox-cheatsheet



jonibologna.com/flexbox-cheatsheet

The 13 Flexbox Properties That Will Change Your Code... FOREVER

Flex Container Properties

display: flex

This defines a flex container; inline or block depending on the given value. It enables a flex context for all its direct children.

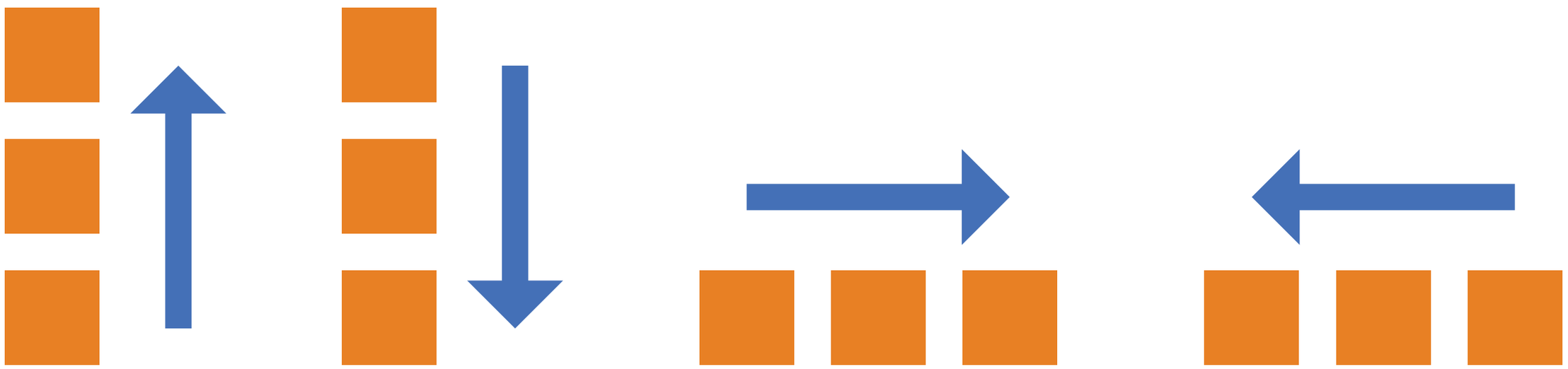
New values: **flex** and **inline-flex**.

css-tricks.com/snippets/css/a-guide-to-flexbox

flex-direction

Establishes the main-axis direction

Values: **row** (default), **row-reverse**, **column**, and **column-reverse**.

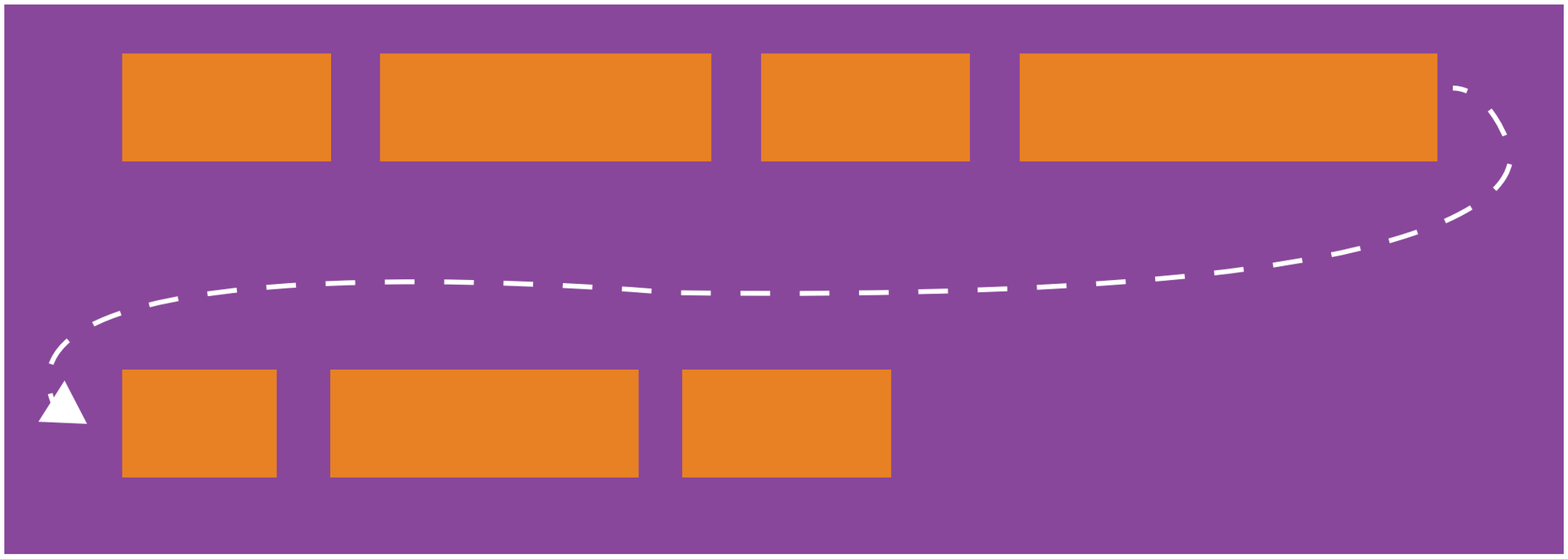


css-tricks.com/almanac/properties/f/flex-direction

flex-wrap

Whether flex items are forced in a single line or can wrap to create multiple lines.

Values: **nowrap** (default), **wrap**, and **wrap-reverse**.



css-tricks.com/almanac/properties/f/flex-wrap

flex-flow (shorthand)

Shorthand for **flex-direction** and **flex-wrap**.

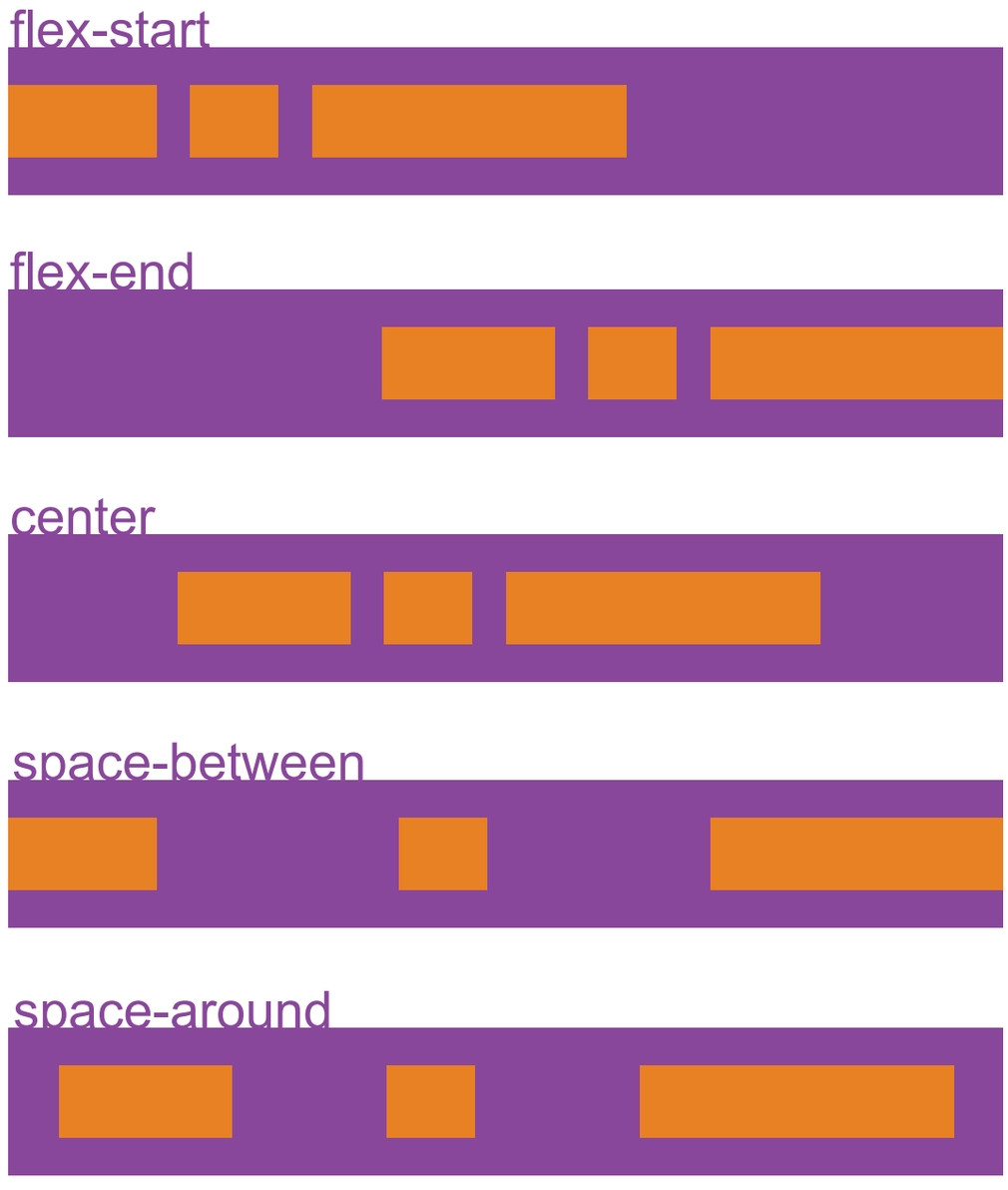
css-tricks.com/almanac/properties/f/flex-flow

justify-content

Defines item alignment and distributes extra space along the **main axis**

Values:

flex-start (default)
flex-end
center
space-between
space-around

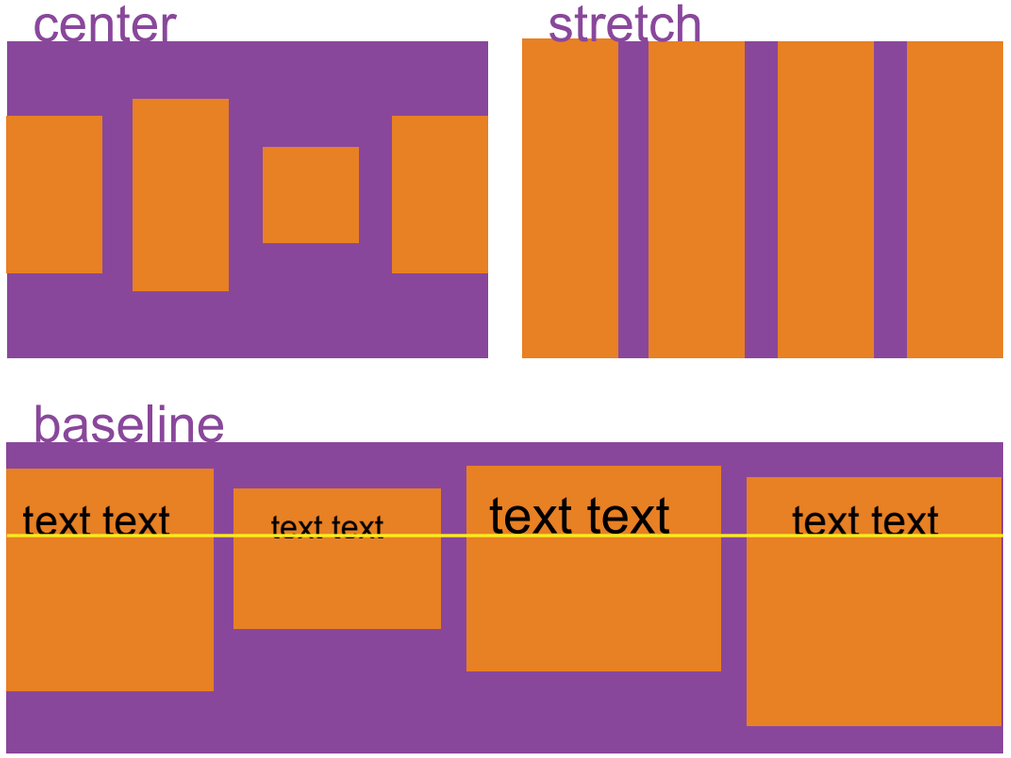


css-tricks.com/almanac/properties/j/justify-content

align-items

Defines item alignment and distributes extra space along the **cross axis**

Values:
flex-start
flex-end
center
baseline
stretch (default)



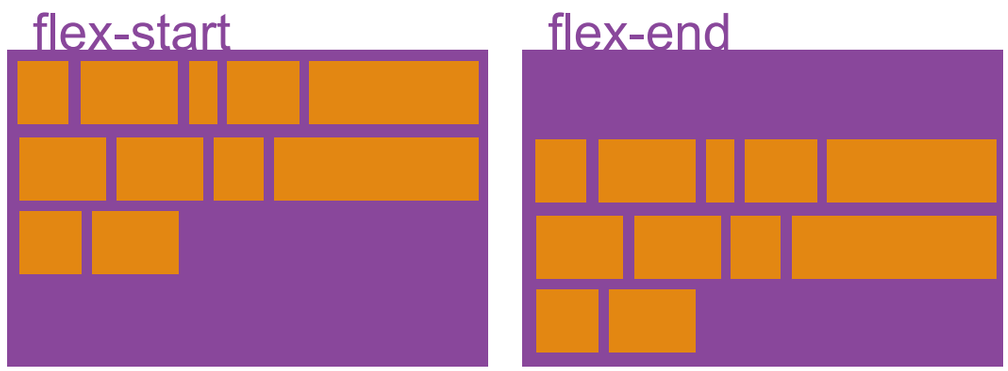
css-tricks.com/almanac/properties/a/align-items

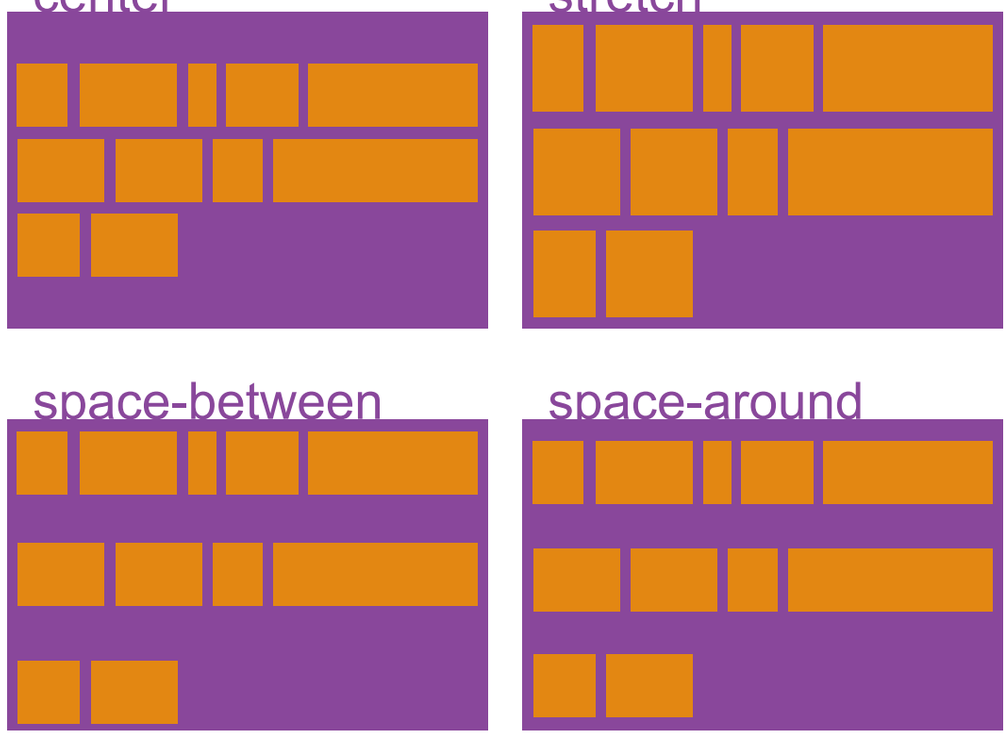
align-content

Defines **line** alignment and distributes extra space along the cross axis

Has no effect when the flexbox does not wrap

Values: **flex-start**, **flex-end**, **center**, **space-between**, **space-around**, and **stretch** (default)





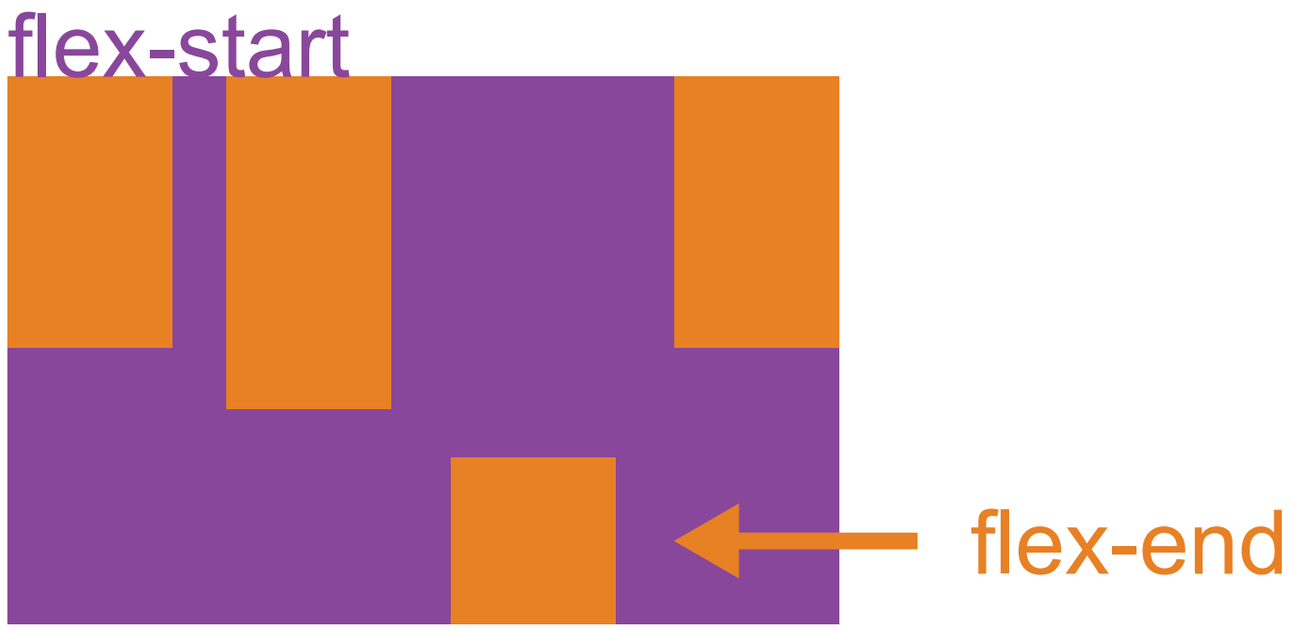
css-tricks.com/almanac/properties/a/align-content

Flex Item Properties

align-self

Overrides the **align-items** value for specific flex items.

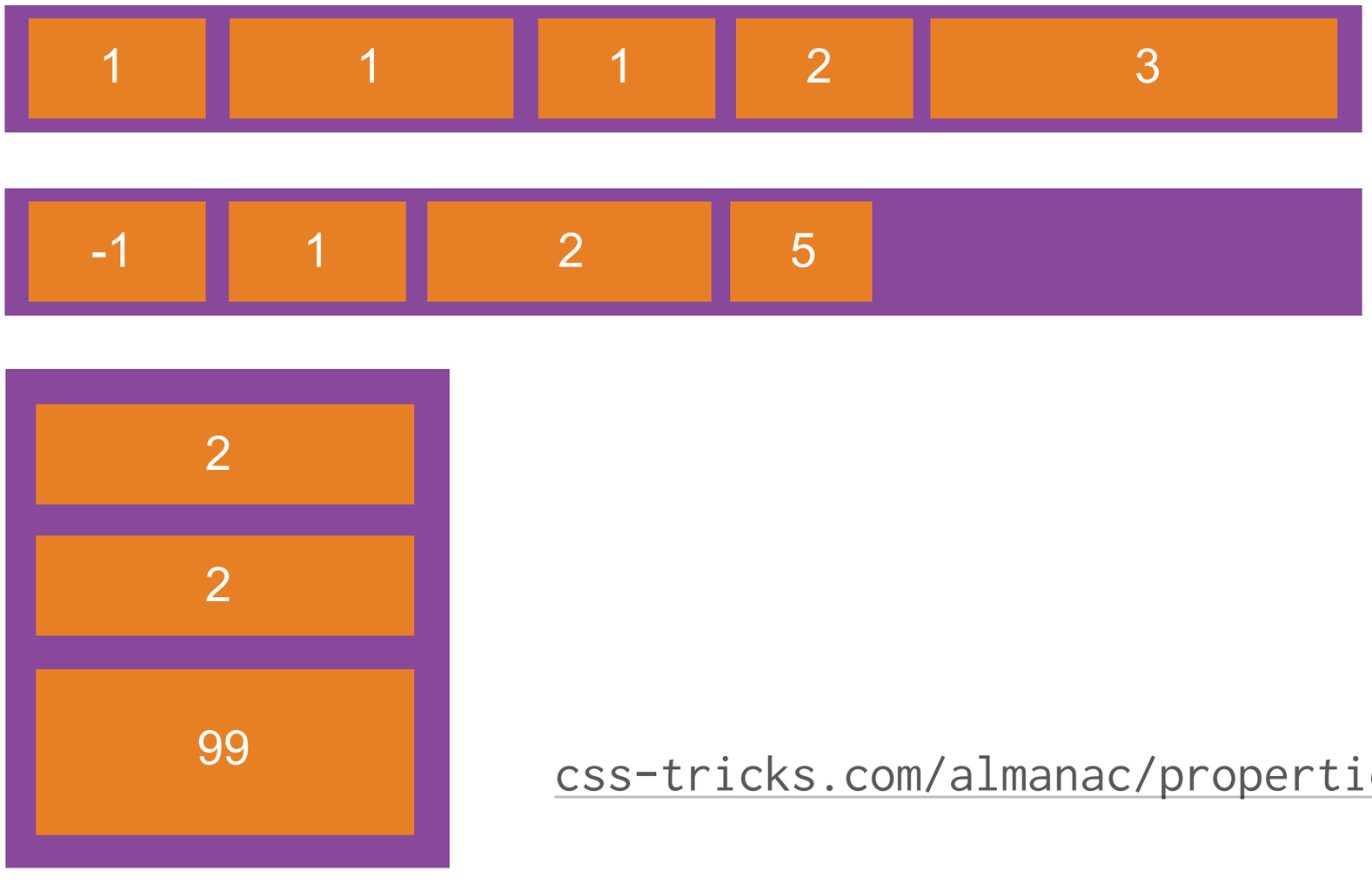
Accepts the same values as align-items.



css-tricks.com/almanac/properties/a/align-self

order

Flex items are displayed in the same order as they appear in the source document by default. The order property can be used to change this ordering.

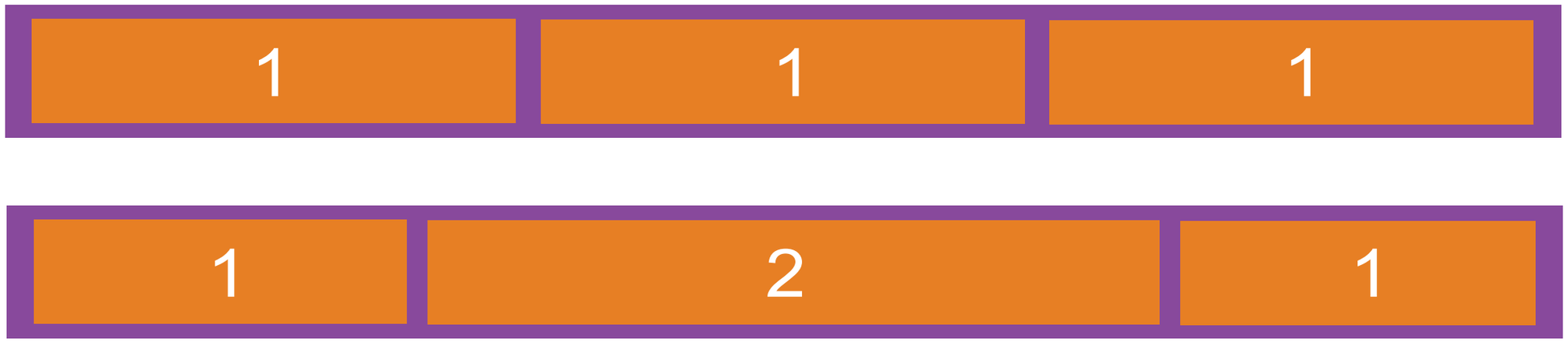


css-tricks.com/almanac/properties/o/order

flex-grow

Allows a flex item to grow if necessary. Accepts a unitless value that defines a **proportion** of the available space the item should occupy.

Think of this as the numerator of the fraction of available space. eg, 1/3 or 2/4.



css-tricks.com/almanac/properties/f/flex-grow

flex-shrink

Allows a flex item to shrink if necessary. Accepts a unitless value that defines a **proportion** of the space to trim from the item if the flex container doesn't have enough space for all the items in the row.

Essentially the opposite of flex-grow.

css-tricks.com/almanac/properties/f/flex-shrink

flex-basis

Specifies the initial size of the flex item, before any available space is distributed according to the flex factors.

When set to **auto**, sizes the item according to its **width/height** property (which can itself be set to auto, which sizes the item based on its content).

When set to **0**, sizes the item based on flex-grow and flex-shrink allocating available space.

css-tricks.com/almanac/properties/f/flex-basis

flex (shorthand)

Shorthand for flex-grow, flex-shrink, and flex-basis

flex: initial; (default, same as **flex: 0 1 auto;**)
Item cannot grow, but can shrink from initial size

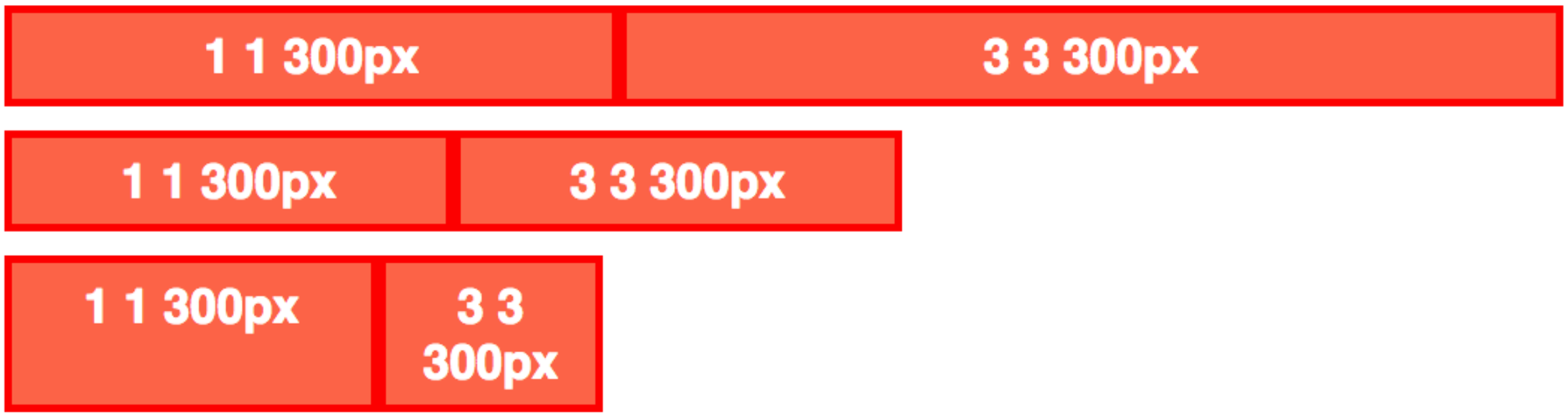
flex: auto; (same as **flex: 1 1 auto;**)
Item can grow & shrink from initial size

flex: none; (same as **flex: 0 0 auto;**)
Item cannot grow or shrink from initial size

flex: *N*; (same as **flex: *N* 1 0;**)
Item can grow & shrink, ignores initial size, uses avail. space

css-tricks.com/almanac/properties/f/flex

a flex example



Both items want to be 300px wide.

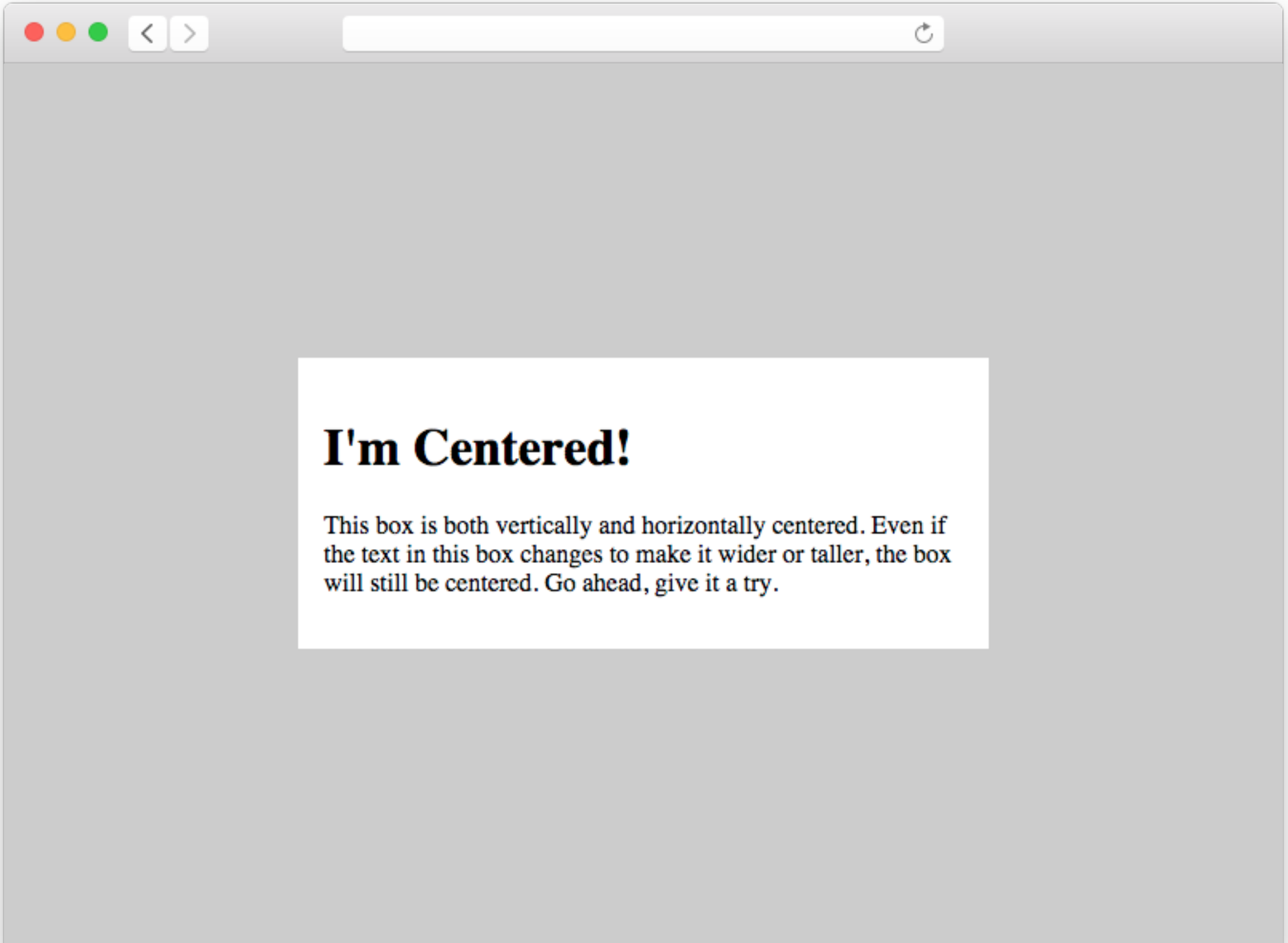
Container > 600px: Item 2 gains 3x as much remaining space

Container < 600px: Item 2 loses 3x as much space

codepen.io/HugoGiraudel/pen/95aeaf737efab9c2c1c90ea157c091c6

Speaker Calls CSS Layout "Difficult," Gets DESTROYED Before a Live Audience by these Flexbox Examples

Vertical Centering



Vertical Centering

```
<main>
  <h1>I'm Centered!</h1>
  <p>Wheee!</p>
</main>
```

```
body {
  min-height: 100vh;
  display: flex;
  align-items: center;
  justify-content: center;
}
main {
  max-width: 50%;
}
```

codepen.io/spaceninja/pen/WvXvyj

Media Object/Card

Media Object

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Asperiores, eum perspiciatis nostrum provident optio, velit doloribus eius reprehenderit possimus est, dolorem quis id. Labore fuga quos, officia corporis ea veritatis.

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Media Object

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Media Object

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Media Object/Card

```
<div class="media">
  <img class="figure">
  <div class="content">
  …</div>
</div>
```

```
.media {
  display: flex;
}
.media-figure {
  margin-right: 1em;
}
.media-content {
  flex: 1;
}
```

codepen.io/spaceninja/pen/PqOWwW

Grid of Cards

Media Object

Lorem ipsum dolor sit amet, consectetur adipisicing elit. Asperiores, eum perspiciatis nostrum provident optio, velit doloribus eius reprehenderit possimus est, dolorem quis id. Labore fuga quos, officia corporis ea veritatis.

Media Object

Donec imperdiet sem leo...

Media Object

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Media Object

Donec imperdiet sem leo...

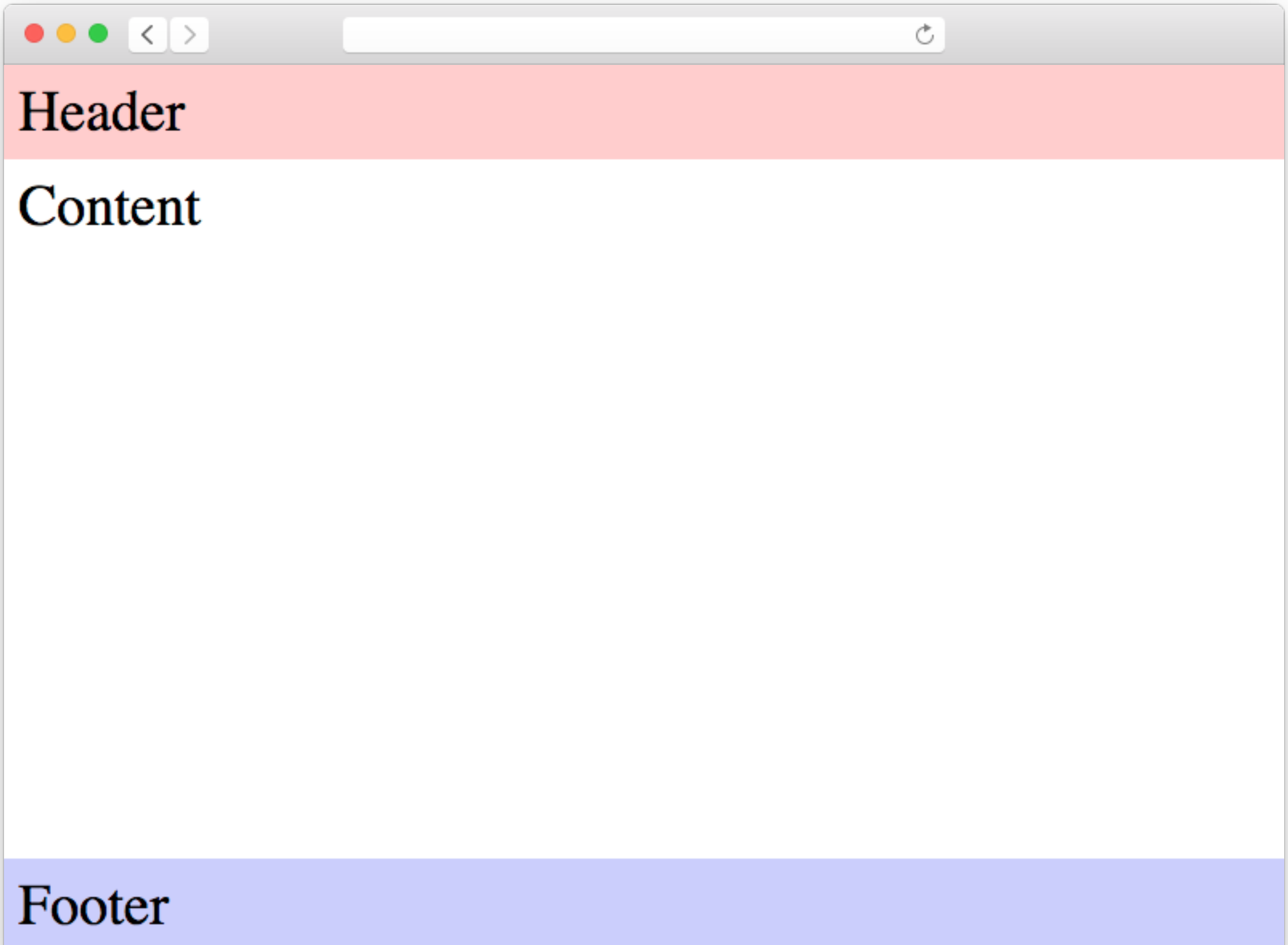
Grid of Cards

```
<div class="media-grid">
 <div class="media">…</div>
 <div class="media">…</div>
 <div class="media">…</div>
 <div class="media">…</div>
</div>
```

```
.media-grid {
  display: flex;
  flex-wrap: wrap;
}
.media {
  width: 350px;
}
// and all the previous
// media styles
```

codepen.io/spaceninja/pen/ZGaZVO

Sticky Footer



Sticky Footer

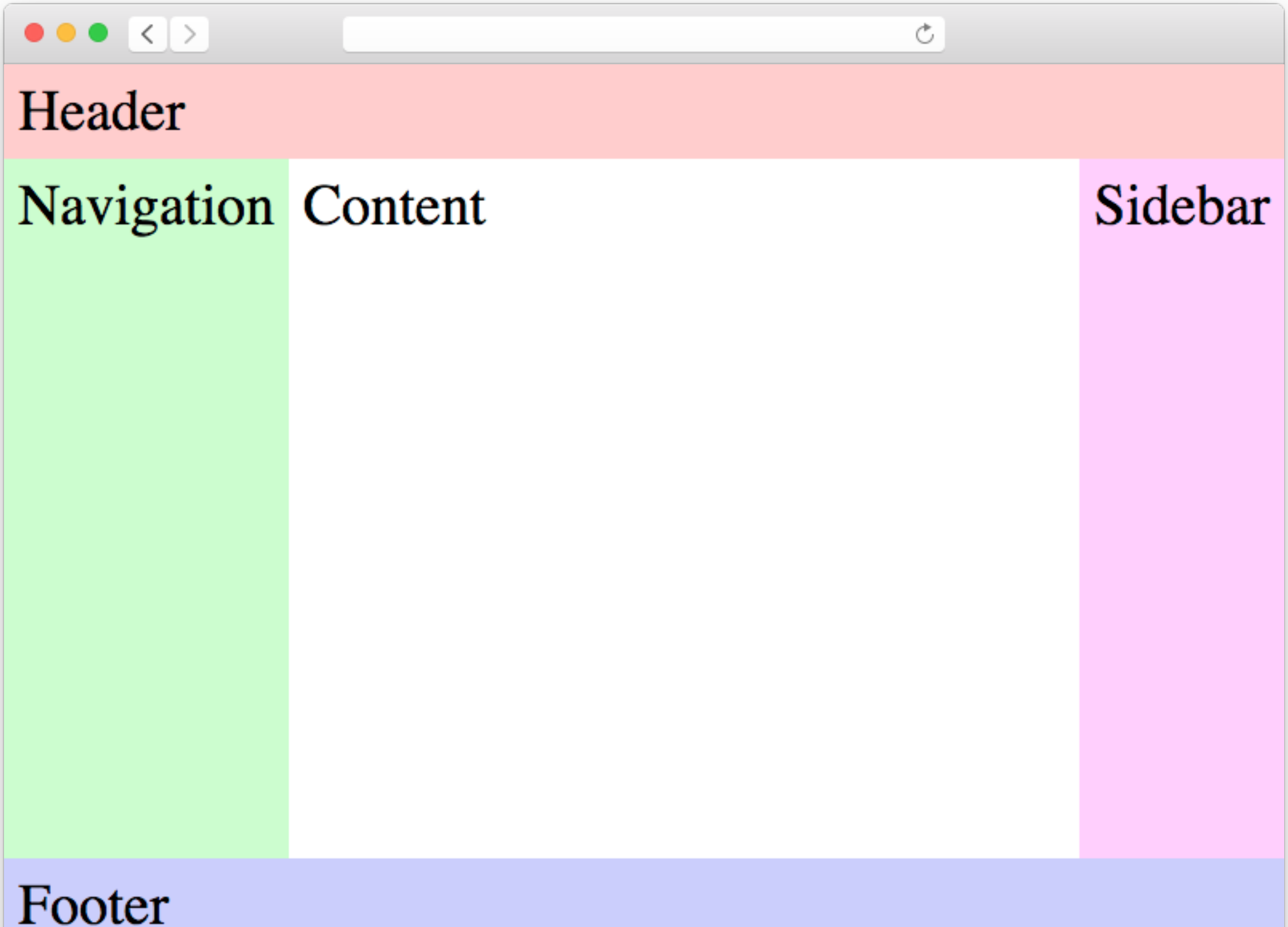
```
<body>
  <header>…</header>
  <main>…</main>
  <footer>…</footer>
</body>
```

```
body {
  min-height: 100vh;
  display: flex;
  flex-direction: column;
}

main {
  flex: 1;
}
```

codepen.io/spaceninja/pen/MwOwYm

Holy Grail Layout



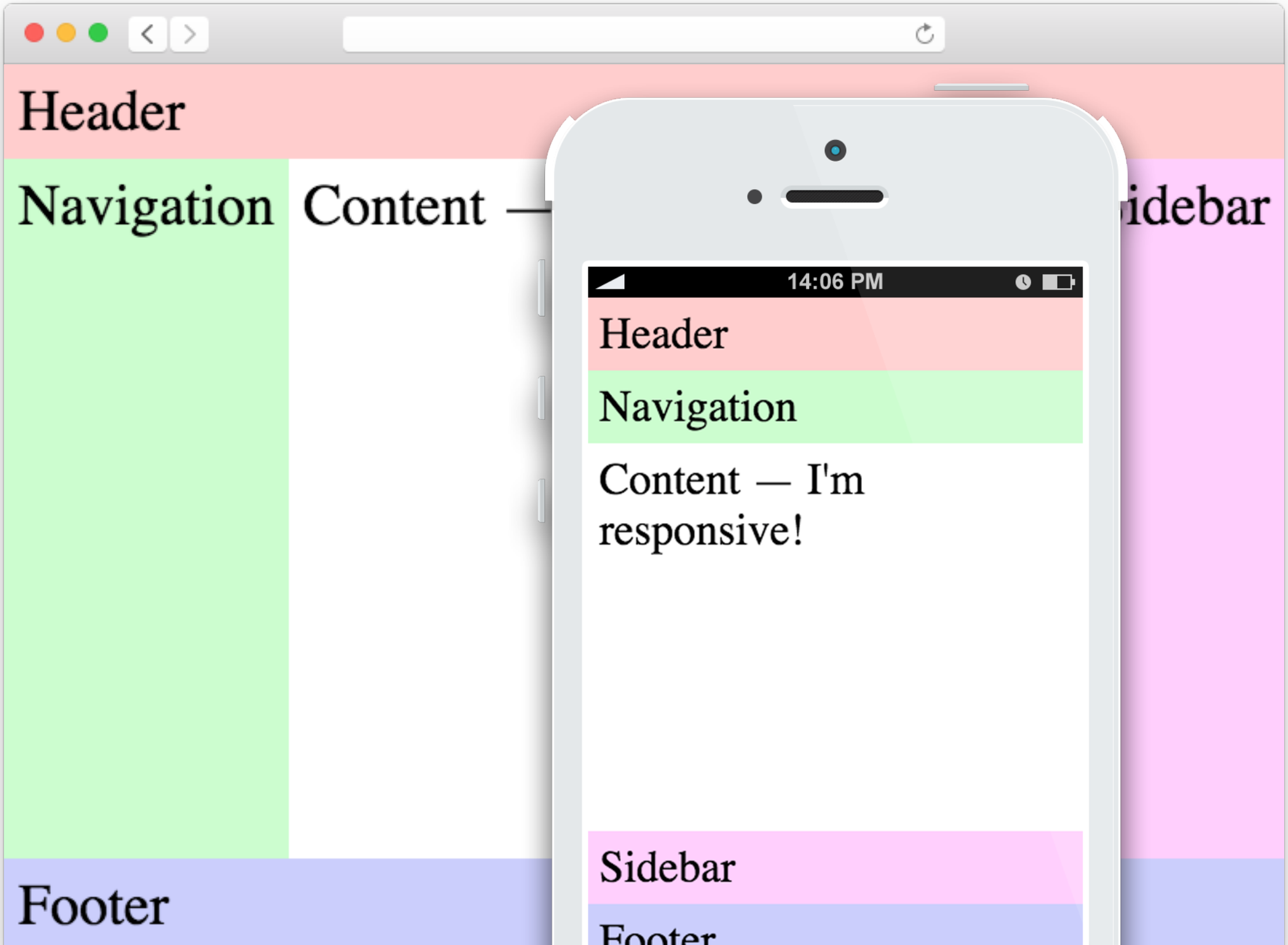
Holy Grail Layout

```
<header>…</header>
<div class="wrapper">
  <main>…</main>
  <nav>…</nav>
  <aside>…</aside>
</div>
<footer>…</footer>
```

```
body {
  min-height: 100vh;
  display: flex;
  flex-direction: column;
}
.wrapper {
  flex: 1;
  display: flex;
}
main {
  flex: 1;
}
```

codepen.io/spaceninja/pen/xGPGpQ

Responsive Holy Grail



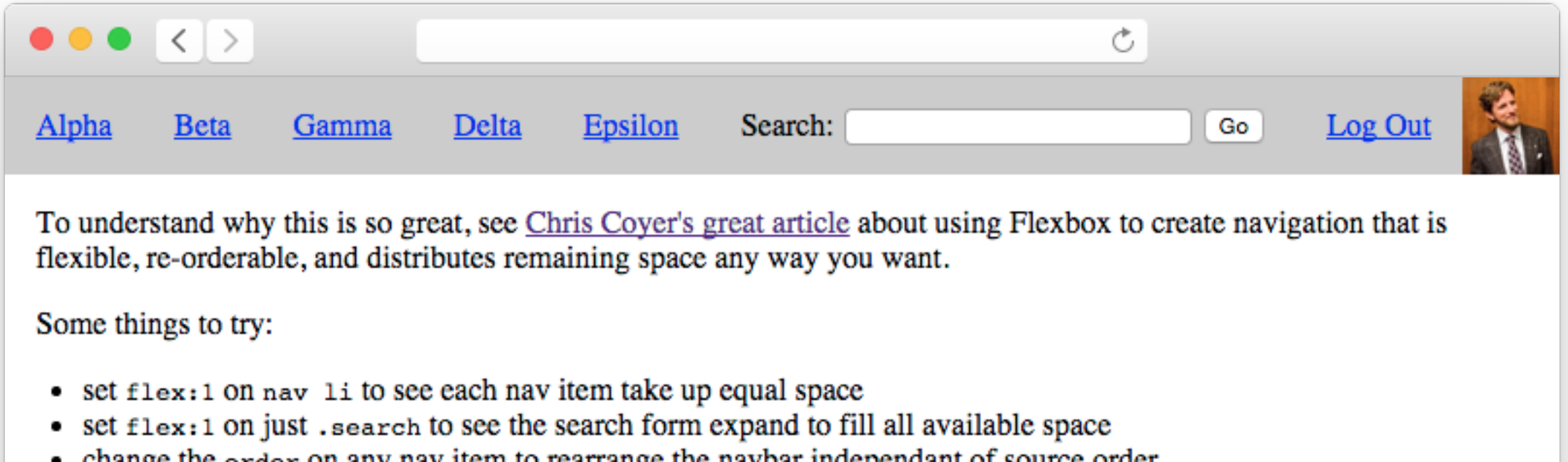
Responsive Holy Grail

```
<header>…</header>
<div class="wrapper">
  <main>…</main>
  <nav>…</nav>
  <aside>…</aside>
</div>
<footer>…</footer>
```

```
body { min-height: 100vh; }
body, .wrapper {
  display: flex;
  flex-direction: column;
}
.wrapper, main {
  flex: 1;
}
@media (min-width: 768px) {
  .wrapper {
    flex-direction: row;
}}
```

codepen.io/spaceninja/pen/qdVdbM

Flexible Navigation



To understand why this is so great, see Chris Coyer's great article about using Flexbox to create navigation that is flexible, re-orderable, and distributes remaining space any way you want.

Some things to try:

- set `flex:1` on `nav li` to see each nav item take up equal space
- set `flex:1` on just `.search` to see the search form expand to fill all available space
- change the `order` on any nav item to rearrange the navbar independant of source order.
- set `flex-wrap:wrap` on `nav ul` to allow the navbar to wrap to two lines when there's not enough room.

Flexible Navigation

```
<nav>
  <ul>
    <li><a>A</a></li>
    <li><a>B</a></li>
    <li><a>C</a></li>
    <li class=“search”>
      <input type=“search”>
    </li>
 </ul>
</nav>
```

```
nav ul {
  display: flex;
}
.search {
  flex: 1;
}
// or
input {
  flex: 1;
}
```

codepen.io/spaceninja/pen/WvXggV

Will Lack of Browser Support Kill Flexbox?

You Won't BELIEVE What Happens Next.

Current Browser Support

Chrome
21+

Opera
12.1+

Firefox
22+

Safari
6.1+

IE
10+

IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
8							1 4.3	
9							4.4	
2 10	37	42			7.1		4.4.4	
11	38	43	8	30	8.3	8	40	42
Edge	39	44	9	31	9			
	40	45		32				
	41	46						

IE10 only supports the 2011 tweener spec (display:flexbox)

caniuse.com/#feat=flexbox

But What Can We Do About IE?


38

Options

Best-case scenario: Degrade gracefully to a vertically-stacked mobile-style layout for non-flexbox browsers.

If you must support non-flexbox, you can easily provide a fallback float-based layout using Modernizr.

Note: Browser prefixes are only needed for Safari & IE10. Chrome, Firefox, Opera, and IE11 don’t need any!

Modernizr Example

```
.flexbox {
  .parent {
    display: flex;
  }
  .child {
    flex: 1;
  }
}
```

```
.no-flexbox {
 .child {
    float: left;
    width: 50%;
  }
  .parent::after {
    /* clearfix */
    content: "";
    display: table;
    clear: both;
  }
}
```

Modernizr 2.8.3 flexbox test returns true in IE10. Details: git.io/vtGbT

I Thought Flexbox Would be Hard to Learn, But These Resources Restored My Faith in HUMANITY

- CSS Tricks: Guide to Flexbox
- Solved by Flexbox
- Flexbox Cheatsheet
- Visual Guide to Flexbox Properties
- Sass Flexbox Mixins
- Articles: Using Flexbox Today, Dive into Flexbox, MDN Flexbox Guide
- Presentations: Putting Flexbox into Practice, Deep Dive: Flexbox, Leveling Up with Flexbox, SassBites: Flexbox

`git.io/vtlRa`

What Isn't This Speaker Telling You? Discover the SHOCKING Secrets of Grid Layout!


GRID LAYOUT IS COMING
HBO Game of Thrones™
memegenerator.net

What is Grid Layout?

I don’t know a ton about it yet, but the people I pay attention to are really excited about it.

Essentially no browser support yet — IE10+ only!

It will to allow you to divide the container into rows and columns, and let items span multiple columns and rows, like table layouts used to do.

Will compensate for some weaknesses of Flexbox. (eg, requires additional wrapper elements for nested layouts)

In Conclusion:

```
parent {
    display: flex;
}

child {
    flex: 1;
}
```