New Adventures In Front-End, Season 2



Saint Petersburg, Russia
Vitaly Friedman, May 19, 2018



Vitaly Friedman, ex-editor-in-chief
and co-founder of SmashingMag

CODING
CSS
HTML
JavaScript
Techniques

DESIGN
Web Design
Responsive
Typography
Inspiration

MOBILE
iPhone & iPad
Android
Design Patterns

GRAPHICS
Photoshop
Fireworks
Wallpapers

BREAKING OUT OF THE BOX

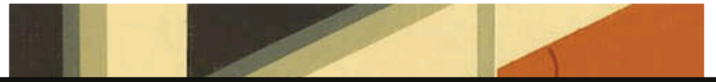
Colorful Inspiration For Gray Days: Illustration And Photography At Their Best

By Veerle Pieters

February 3rd, 2017 Illustrations, Inspiration

0 Comments Edit

If it's still snowy where you live, then you're probably tired of the cold weather by now. Winter may be in full swing but that shouldn't stop us from hunting for inspiration. While the gray days always seem to find a way to make us more and more **anxious for springtime to finally arrive**, it's also a time we can use to reflect on our work and perhaps better decide what it is that we hope to improve or change in the next months.



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Smashing Book 5: "Real-Life Responsive Web Design", our playbook to master all the tricky facets and hurdles of **responsive web design**. Gorgeous hardcover with 584 pages. The eBook is included. Free worldwide shipping. Get your book now!



Today, too many websites are still inaccessible. In our new book *Inclusive*

Smashing Redesign — Smashi ×

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Seriously, red?

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22 comments

CSS 227 # Flexbox 12 # CSS Grid 4



Paul Boag *wrote* — 2 MONTHS AGO

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46 comments

Business 248 # Clients 75

https://staging.smashingmagazine.com/2017/08/what-to-charge-clients/

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Bring red back!



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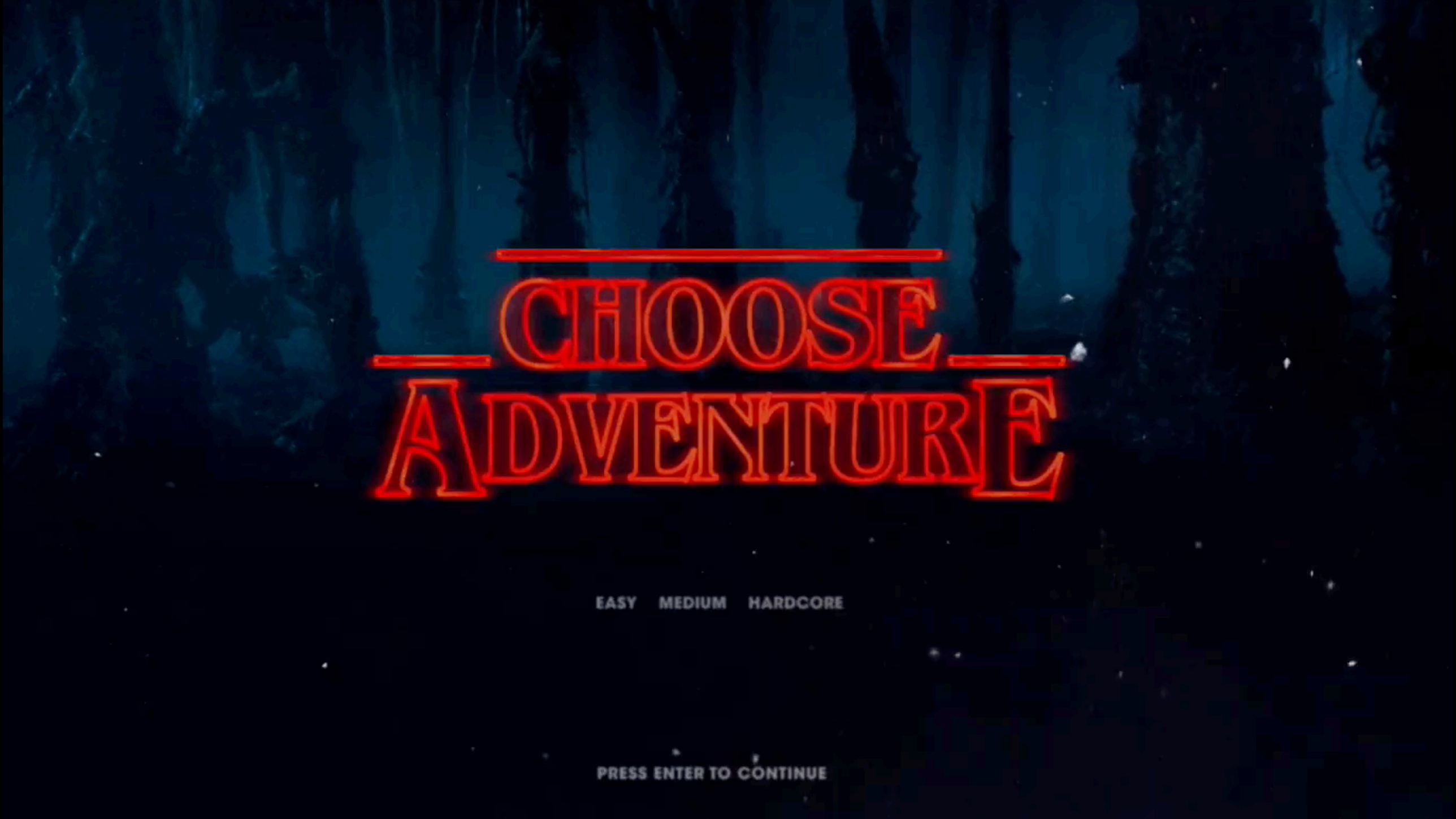
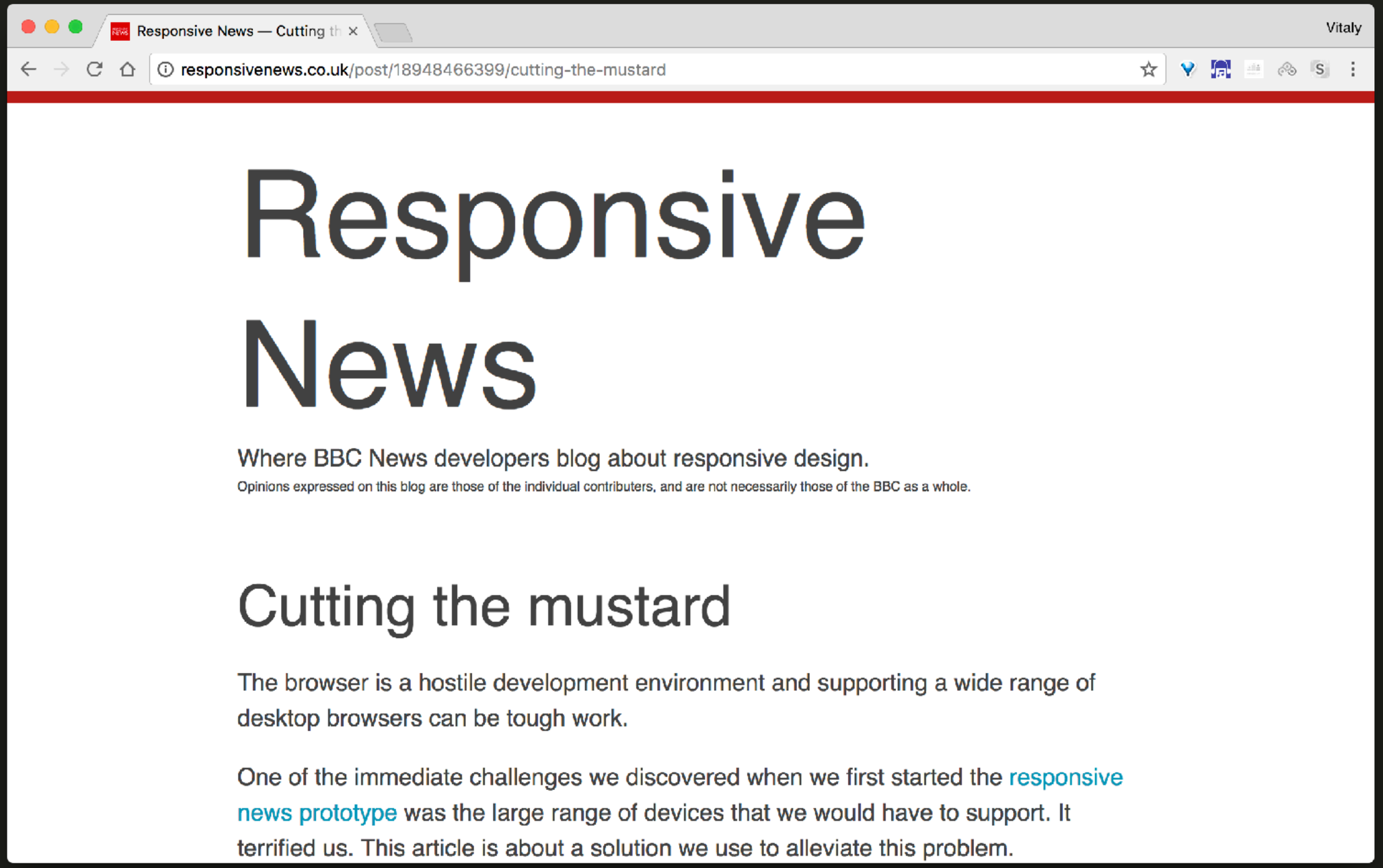
46 comments

Business 248 # Clients 75


RESPONSIVE
ADVENTURES
FRONT-END CHALLENGES YOU'VE NEVER EXPERIENCED BEFORE
GET READY...


CHOOSE
ADVENTURE
EASY MEDIUM HARDCORE
PRESS ENTER TO CONTINUE


LEVEL 1
CRITICAL PATH
INLINING CRITICAL CSS, PWA AND QUIC
GET READY _


Responsive News — Cutting th
Vitaly
responsivenews.co.uk/post/18948466399/cutting-the-mustard
Responsive News
Where BBC News developers blog about responsive design.
Opinions expressed on this blog are those of the individual contributers, and are not necessarily those of the BBC as a whole.
Cutting the mustard
The browser is a hostile development environment and supporting a wide range of desktop browsers can be tough work.
One of the immediate challenges we discovered when we first started the responsive news prototype was the large range of devices that we would have to support. It terrified us. This article is about a solution we use to alleviate this problem.

Cutting The Mustard

- We can use server-side device detection using UA strings with DeviceAtlas, WURFL etc.
- We can use client-side feature detection to split browsers into groups “HTML4” / “HTML5”.
- JS:

```
if (
   'querySelector' in document &&
   'localStorage' in window &&
   'addEventListener' in window ) {
   // HTML5 browser detected; load the JS app
}
```

Cutting The Mustard

- JS:

```
if (
   'querySelector' in document &&
   'localStorage' in window &&
   'addEventListener' in window ) {
   // HTML5 browser detected; load the JS app
}
```

- HTML5 Browsers:

  IE9+, FF 3.5+, Opera 9+, Safari 4+, Chrome 1+, iOS1+, Android phone and tablets 2.1+, Blackberry OS6+, Win 7.5+, Mobile Firefox, Opera Mobile

- HTML4 Browsers:

  IE8-, Blackberry OS5-, Nokia S60 v6-, Nokia S40, Symbian, Windows 7 Phone (pre-Mango), a plethora of legacy devices.

Cutting The Mustard

- JS:

```
if ('visibilityState' in document) {
   // HTML5 browser detected; load the JS app
}
```

- HTML5 Browsers:

  IE9+, FF 3.5+, Opera 9+, Safari 4+, Chrome 1+, iOS1+, Android phone and tablets 2.1+, Blackberry OS6+, Win 7.5+, Mobile Firefox, Opera Mobile

- HTML4 Browsers:

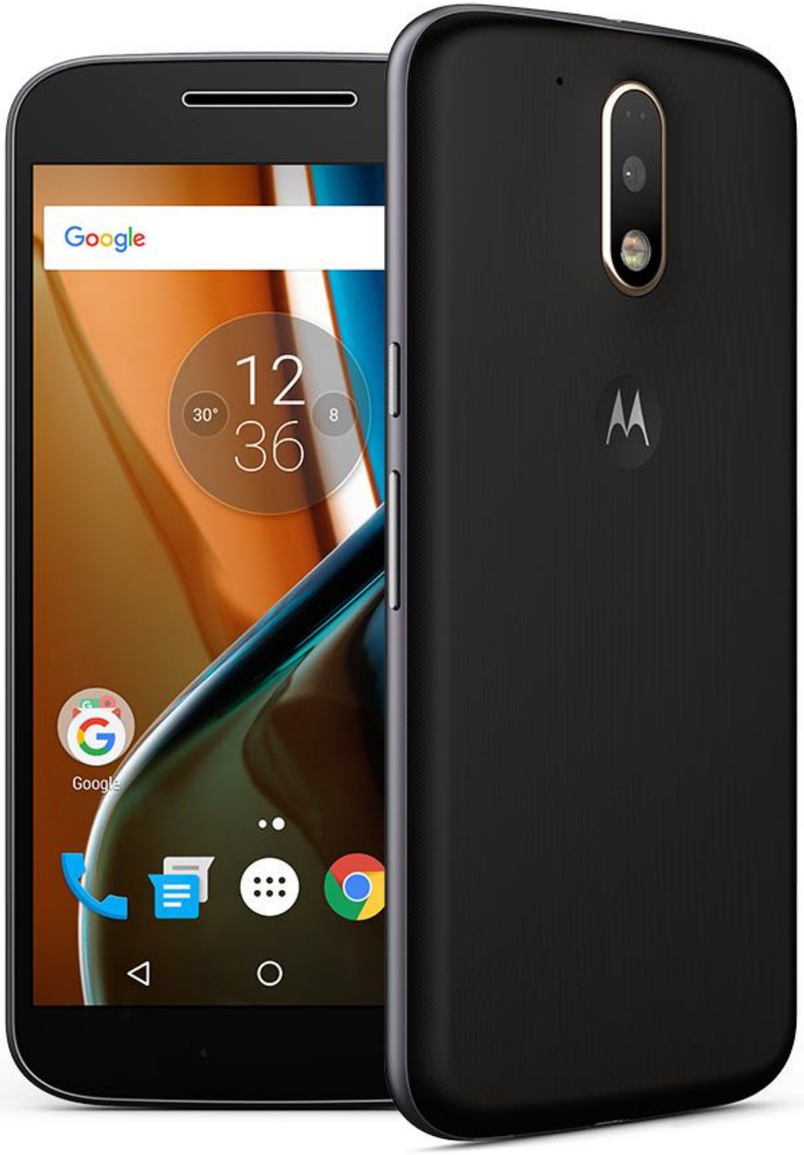
  IE8-, Blackberry OS5-, Nokia S60 v6-, Nokia S40, Symbian, Windows 7 Phone (pre-Mango), a plethora of legacy devices.


Can I use... Support tables
Vitaly
caniuse.com/#feat=pagevisibility
Page Visibility - REC
Global 85.77%
unprefixed: 75.16%
JavaScript API for determining whether a document is visible on the display
Current aligned
Usage relative
Show all
IE
Firefox
Chrome
Safari
Opera
iOS Safari *
Opera Mini *
Android Browser *
Chrome for Android
31
36
37
38
39
40
41
42
43
44
45
8
9
10
11
31
35
36
37
38
39
40
7
7.1
8
27
28
29
7.1
8.3
4.1
4.3
4.4
4.4.4
40
Edge
Notes
Known issues (1)
Resources (7)
Feedback
No notes

“*Cutting the Mustard*” technique deduces device capability from browser version, which is no longer something we can do reliably these days.

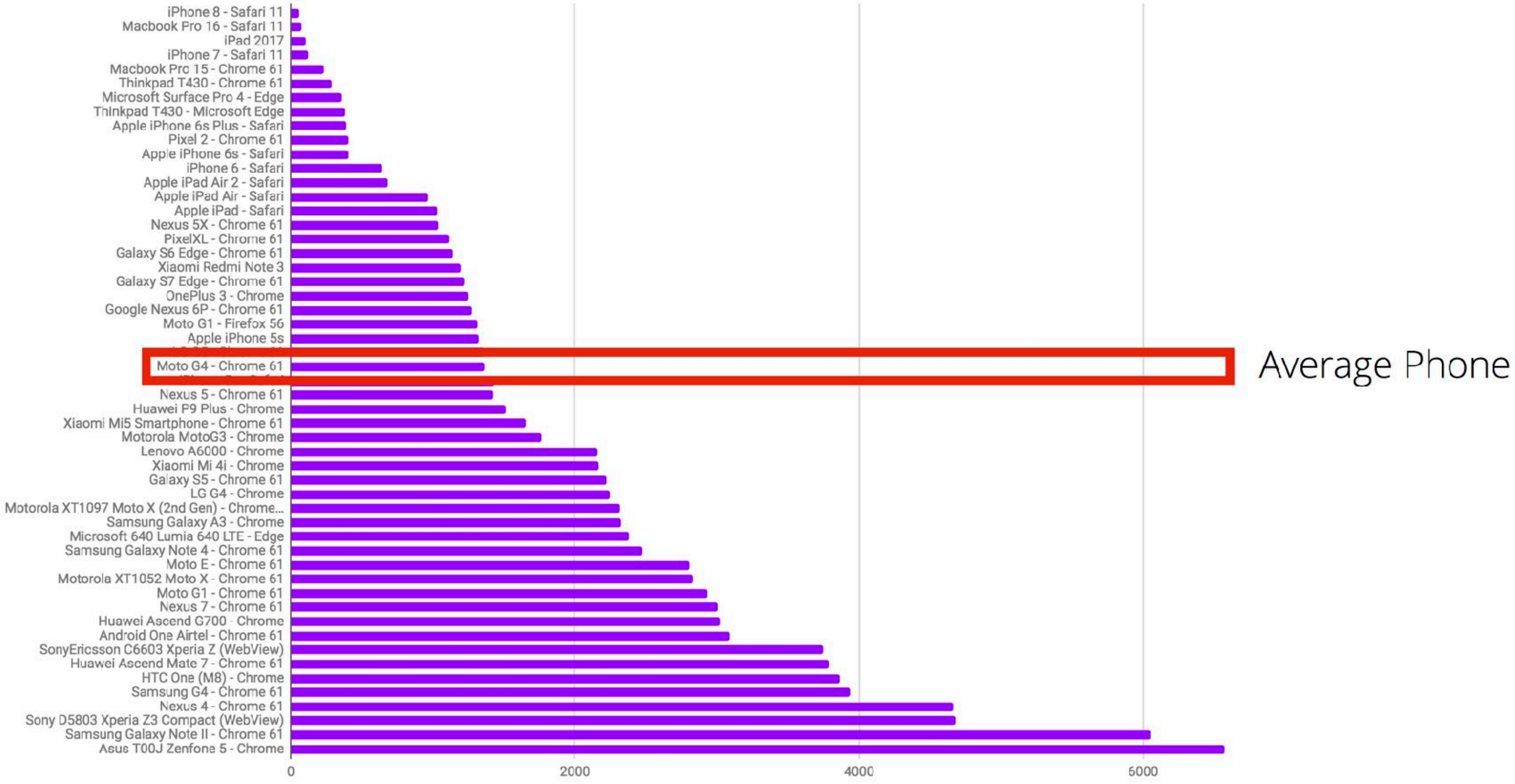
E.g. cheap Android phones in developing countries mostly run Chrome and will cut the mustard despite their *limited memory* and CPU capabilities.

We can target low-end phones with a Device Memory API. Strategy: feature detect based on the API, and fall back to “cutting the mustard” technique only if it’s *not supportred*.


Google
12
36
30°
8
Google

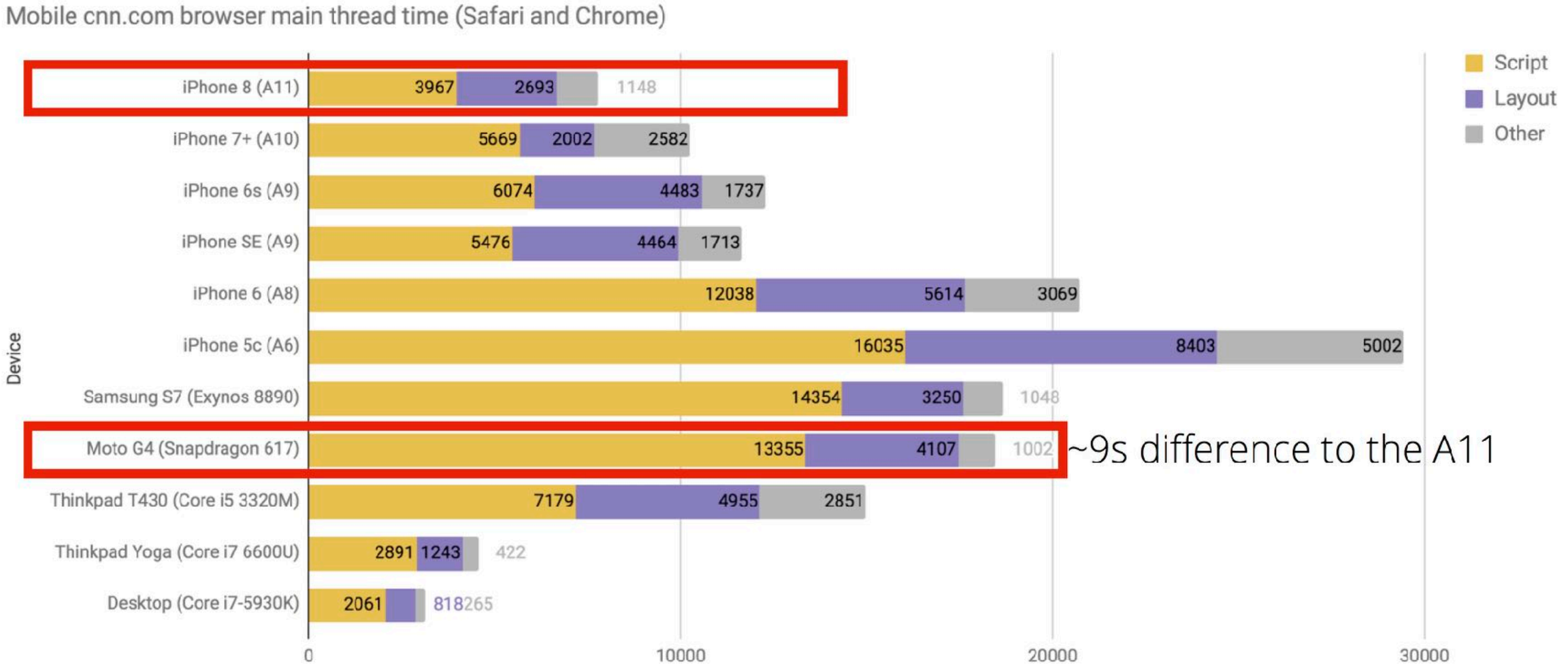
2017 JavaScript Parse Costs

~1MB JavaScript (uncompressed)



Average Phone

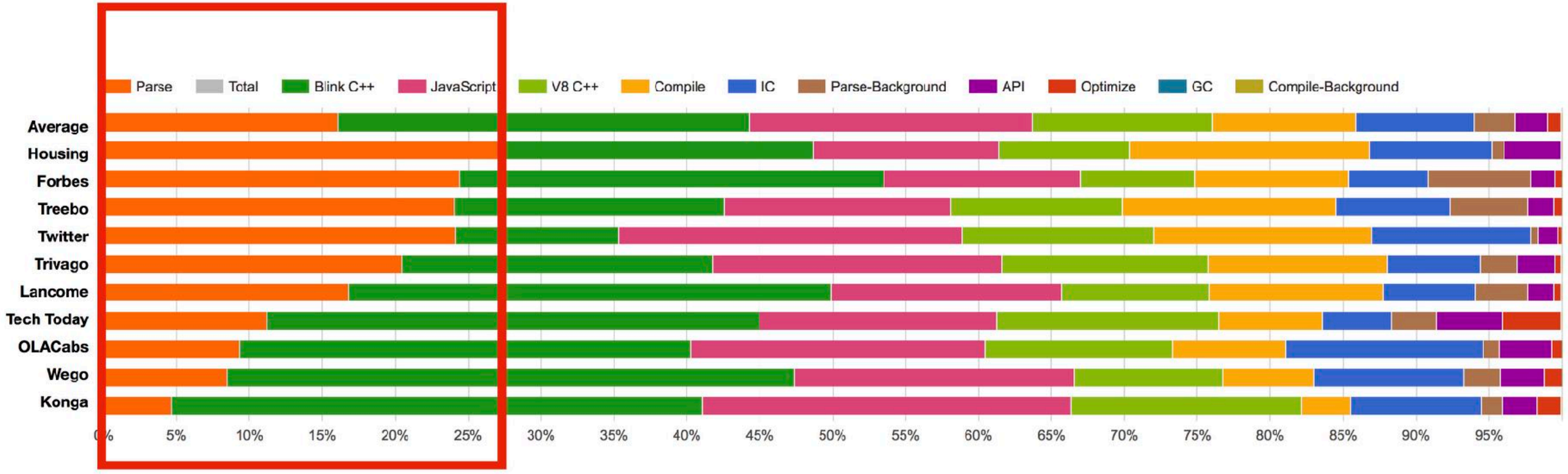
JavaScript Parse Cost On Mobile - CNN



~9s difference to the A11

With thanks to Pat Meenan

Where do mobile sites spend their time loading?



With thanks to Camillo and Mathias @ V8

STATE OF JAVASCRIPT ON MOBILE

SITES ARE SENDING USERS...

P90: ~1MB

P75: 0.6MB

OF JS SPENDING ~4s ON PARSE/COMPILE



http archive

Using Dev Tools mobile emulation, Moto G4 calibrated CPU, Cable (5/1mbps, 28ms)

http://beta.httparchive.org

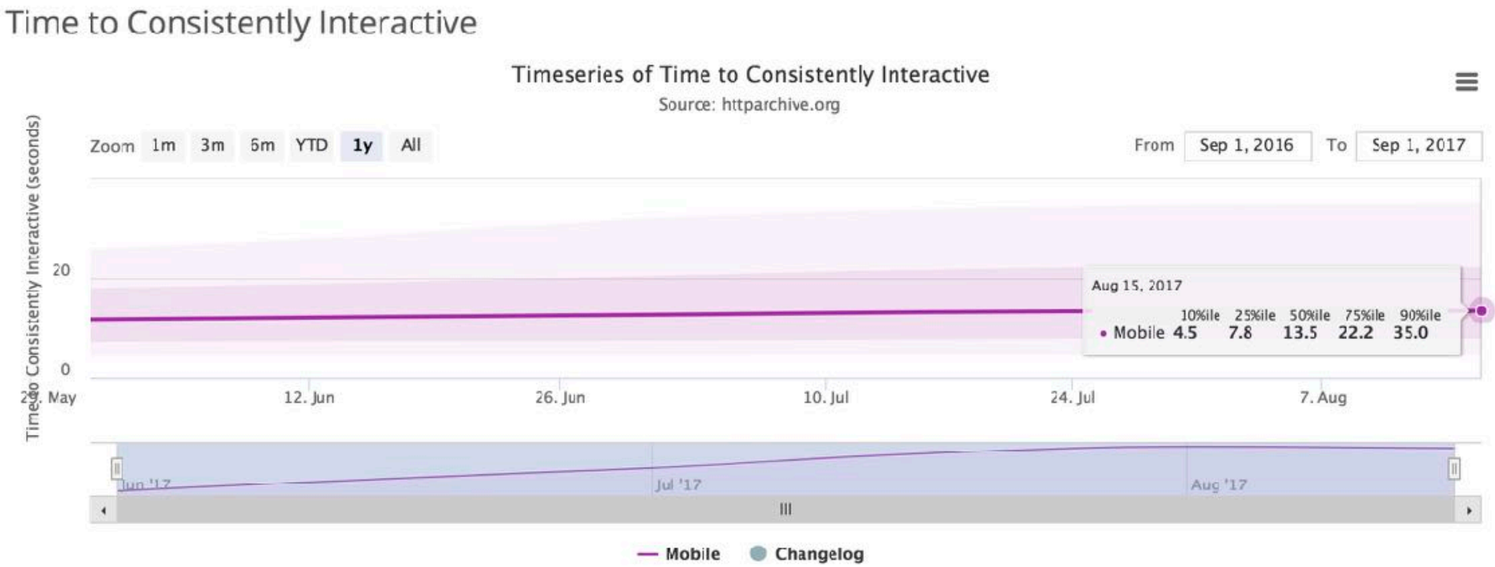
WEB SPEED METRICS ON MOBILE

SITES ARE INTERACTIVE IN..

P90: 35s

P75: 22s

P90: 11s before First Meaningful Paint



http archive

Using Dev Tools mobile emulation, Moto G4 calibrated CPU, Cable (5/1mbps, 28ms)

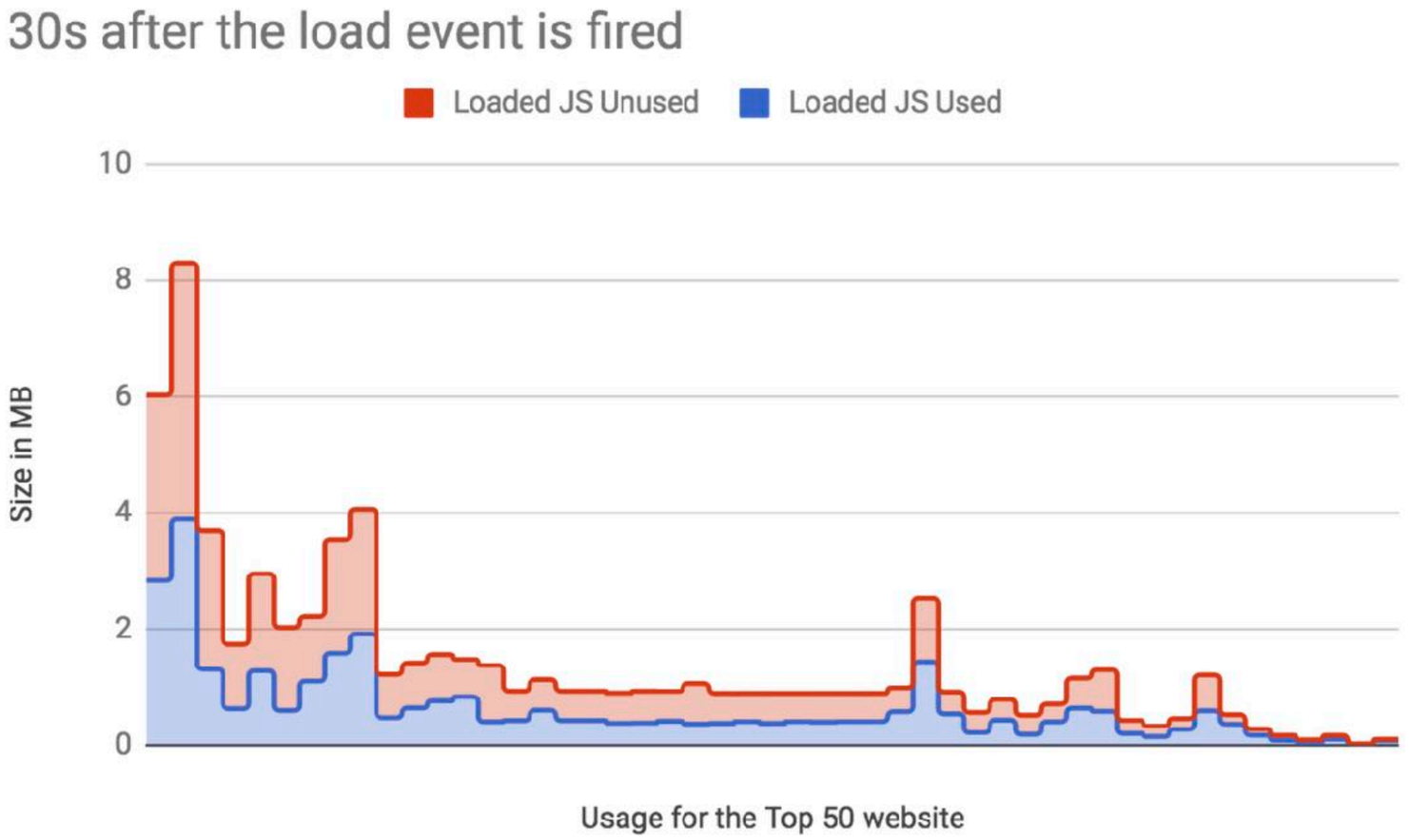
http://beta.httparchive.org

JS CODE COVERAGE OF TOP 50 SITES

SITES MAY USE ONLY

40%

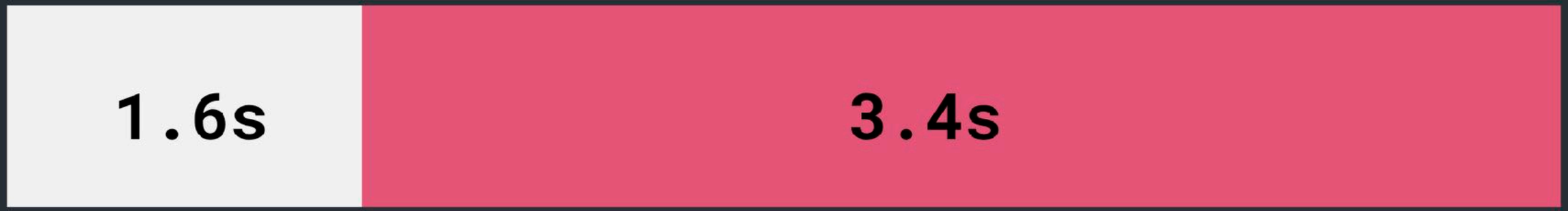
OF THE JAVASCRIPT THEY LOAD UPFRONT.



With thanks to fmeawad@chromium.org

Time to Interactive Budget

5s



DNS LOOKUP
TCP HANDSHAKE
HTTPS HANDSHAKE

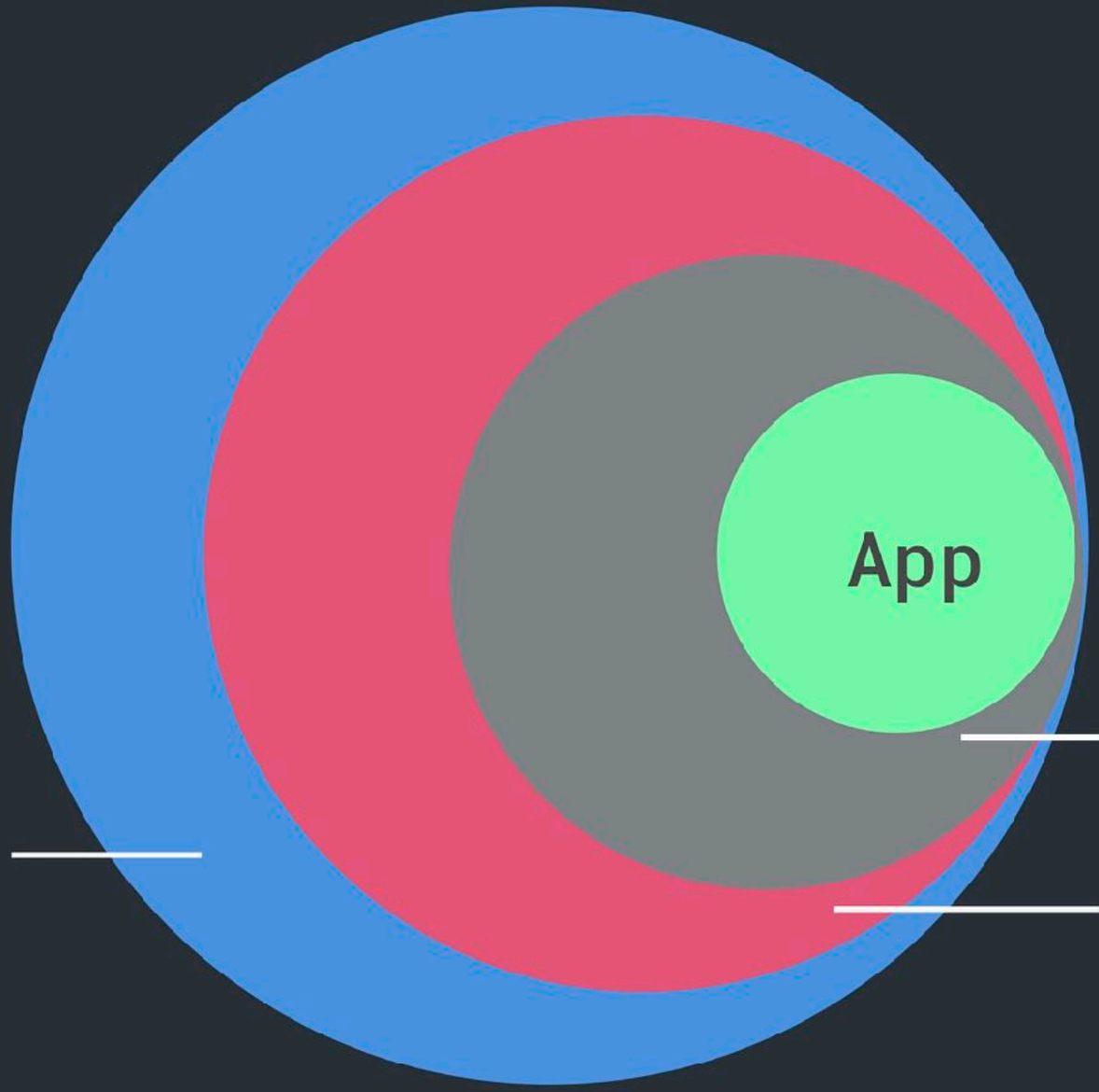
At 400Kbps we can send 3.4 x 50KB = 170KB

Baseline is ~$200 Android phone
On a slow 3G network, emulated at:

400ms RTT, 400Kbps transfer

File size Budget

170KB gzipped JS
= ~0.8-1MB decompressed
= ~1s to parse/compile



Framework

Critical-path
JS/CSS/HTML

Router,
State management,
Utiliies

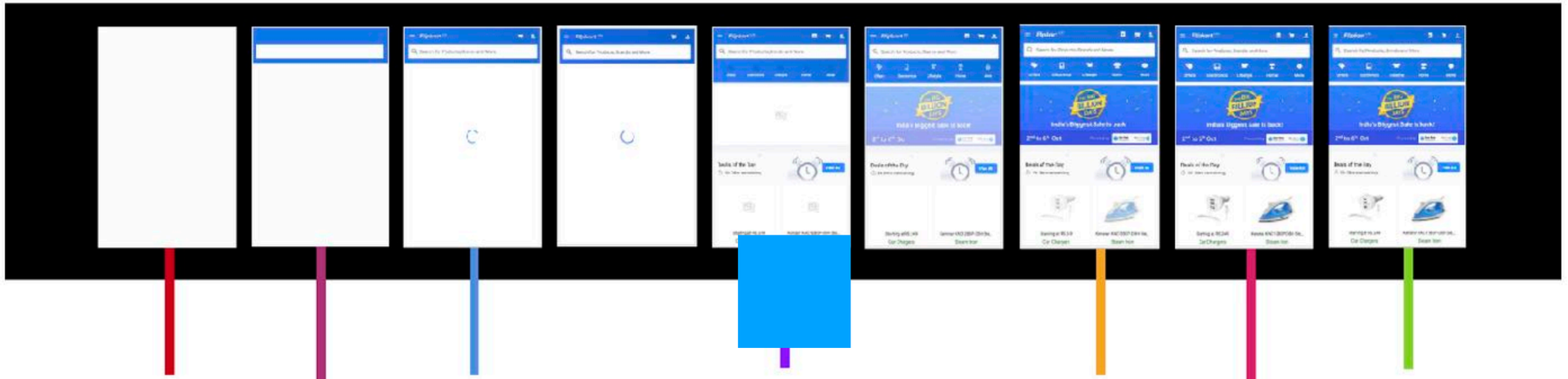
170KB

Perceived performance matters most

is it happening?

is it useful?

is it usable?



Navigation begins

Time to first byte

First Paint

The first non-blank paint on screen

First Contentful Paint

Navigation has successfully started

First Meaningful Paint

Page's primary content is visible

Visually ready

Page looks nearly done

Time to Interactive

Visually usable and engagable

Fully Loaded

End of load lifecycle

By Addy Osmani,
http://bit.ly/2o0YBgu

Choose A Performance Baseline

- *Define custom metrics*: how fast can we render important pixels and provide input responsiveness for them.

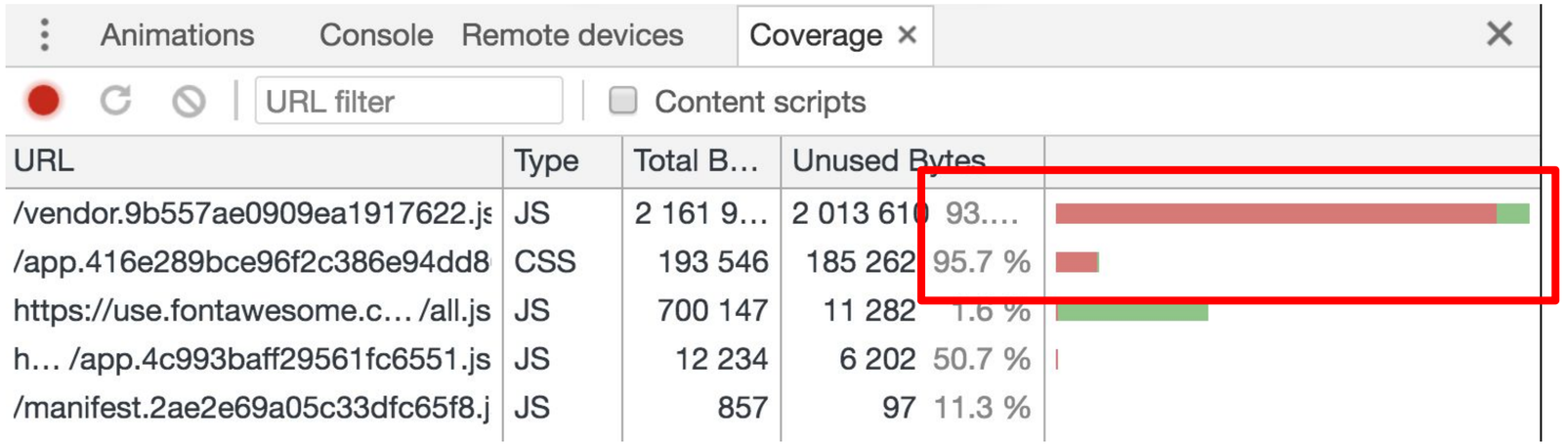
  — *Test devices:* Moto G4, mid-range Samsung, Nexus 5X,
  — *Throttle:* 300ms RTT, 1.5/0.7Mbps up with 5× CPU slowdown,
  — *Budget:* SpeedIndex < 1250, TTI < 5s, Critical budget < 170Kb,
  — *Critical payload:* first 14–16Kb (with 400ms RTT in 1s).
  — *JavaScript* has the heaviest cost of the experience.
  — *Parse/exec times* can be 2–5x times higher on low-end devices.
  — *CPU hogs/memory* are becoming a new bottleneck,
  — *Optimize with* tree-shaking, scope hoisting, code-splitting etc.
  — *Goal:* keep the time-to-interactive close to first meaningful paint.

Check Code Coverage



▼ Unused CSS rules — 2,280 ms, 419 KB

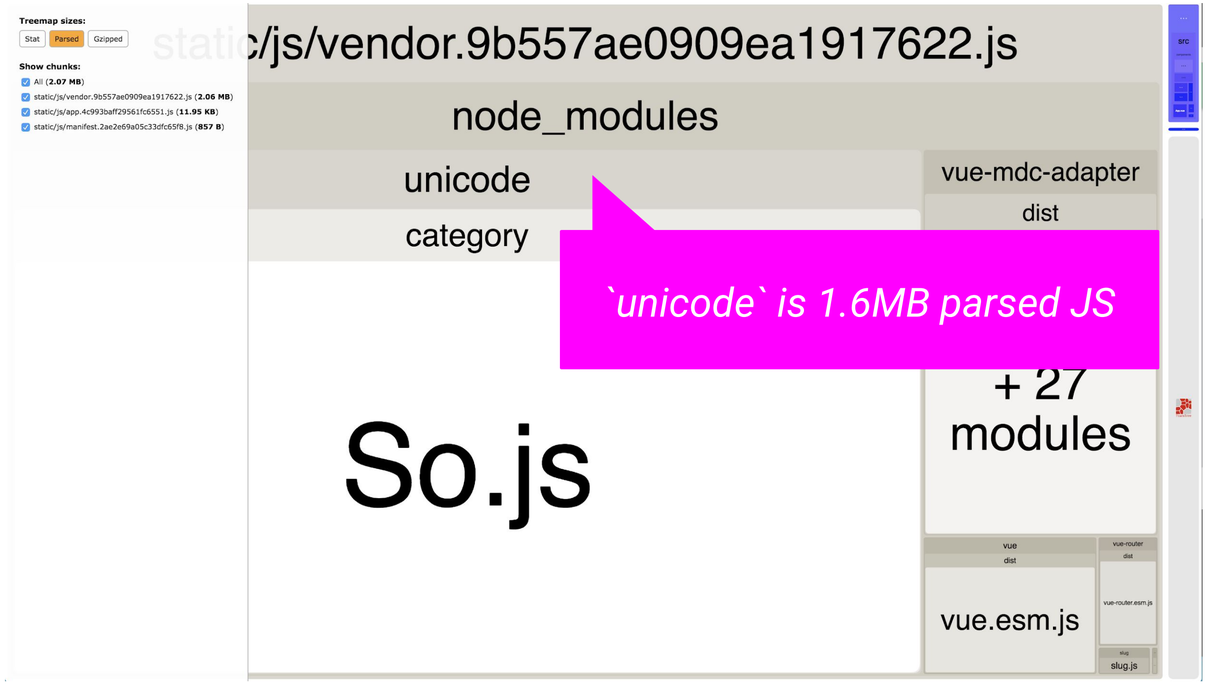




95% unused

JavaScript Bundle Auditing

Webpack Bundle Analyzer



npm run build --report

import-cost for Visual Code

```
<script>
import slug from 'slug'   1.7M (gzipped: 98.6K)

export default {
  name: 'DoodleSlider',
```

BundlePhobia

slugify@1.2.9

BUNDLE SIZE

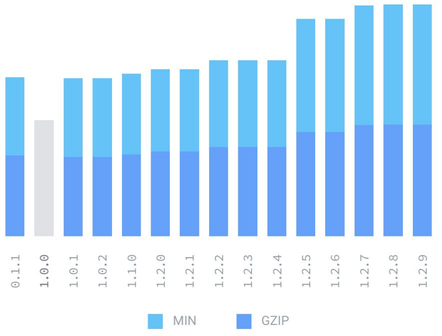
4.6kB MINIFIED

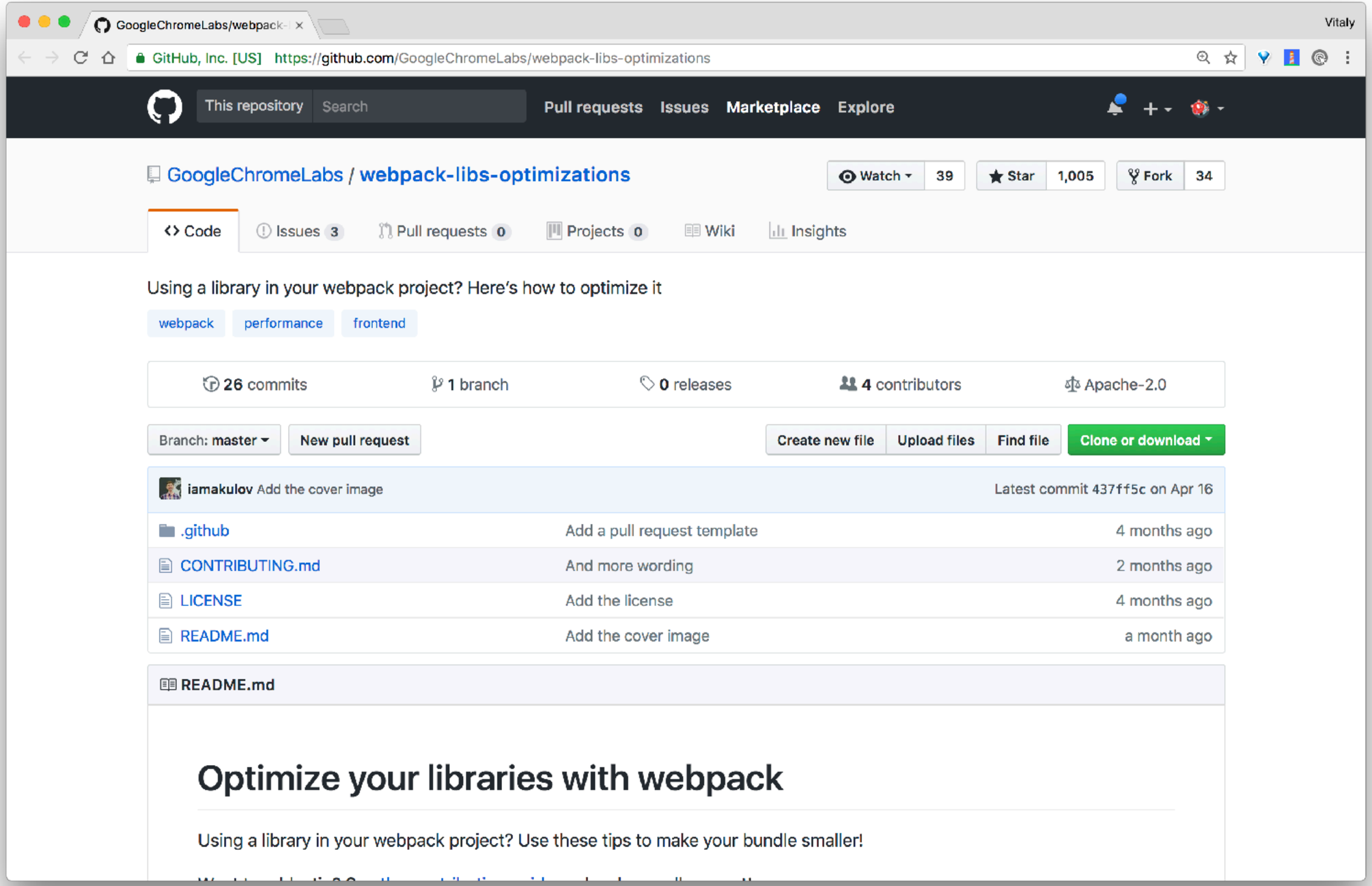
2.2kB MINIFIED + GZIPPED

DOWNLOAD TIME

74ms 2G EDGE

44ms EMERGING 3G

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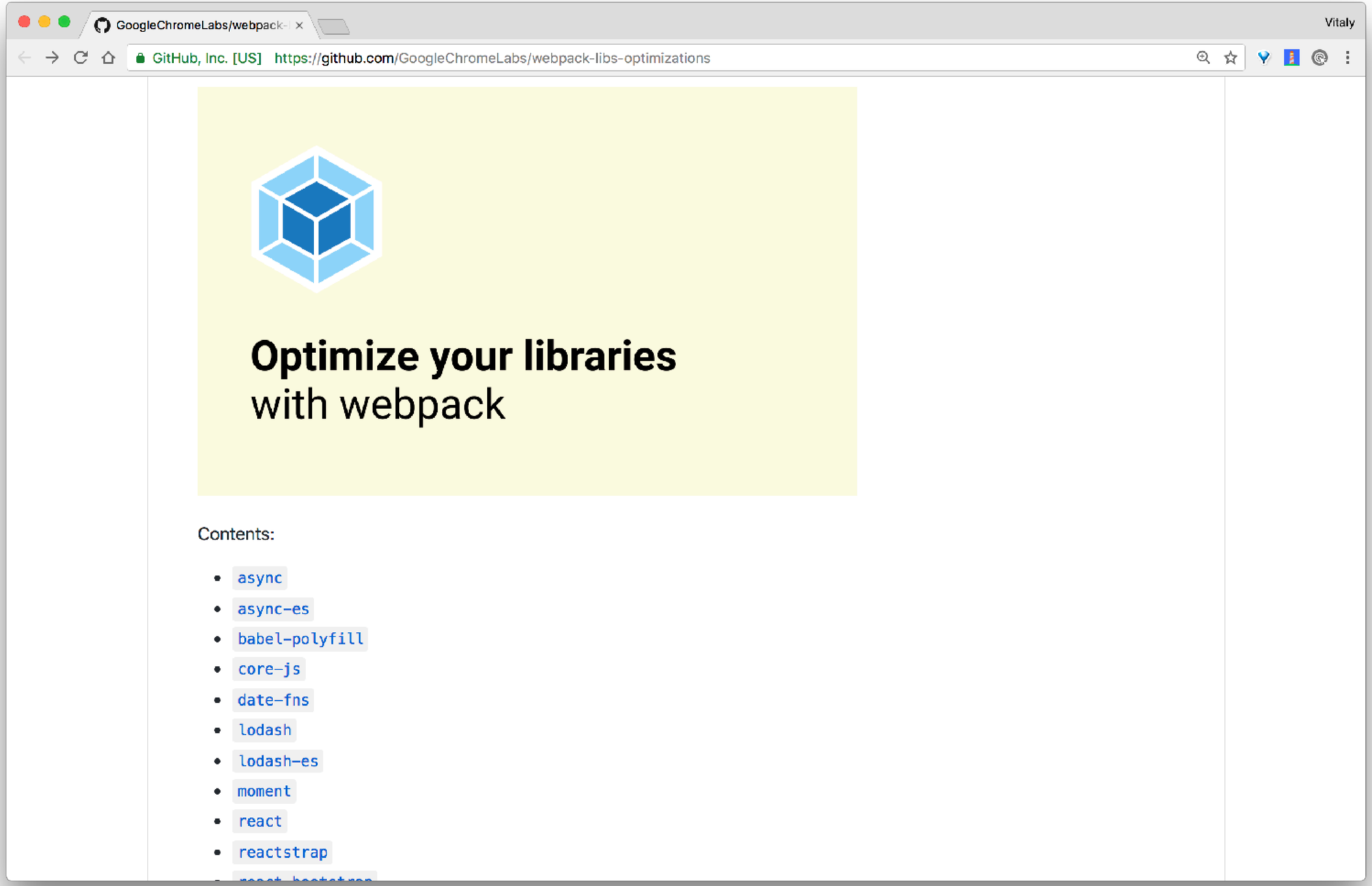
GitHub, Inc. [US] https://github.com/GoogleChromeLabs/webpack-libs-optimizations
This repository
Search
Pull requests
Issues
Marketplace
Explore
GoogleChromeLabs / webpack-libs-optimizations
Watch 39
Star 1,005
Fork 34
Code
Issues 3
Pull requests 0
Projects 0
Wiki
Insights
Using a library in your webpack project? Here's how to optimize it
webpack
performance
frontend
26 commits
1 branch
0 releases
4 contributors
Apache-2.0
Branch: master
New pull request
Create new file
Upload files
Find file
Clone or download
iamakulov Add the cover image
Latest commit 437ff5c on Apr 16
.github
Add a pull request template
4 months ago
CONTRIBUTING.md
And more wording
2 months ago
LICENSE
Add the license
4 months ago
README.md
Add the cover image
a month ago
README.md
Optimize your libraries with webpack
Using a library in your webpack project? Use these tips to make your bundle smaller!



GoogleChromeLabs/webpack-

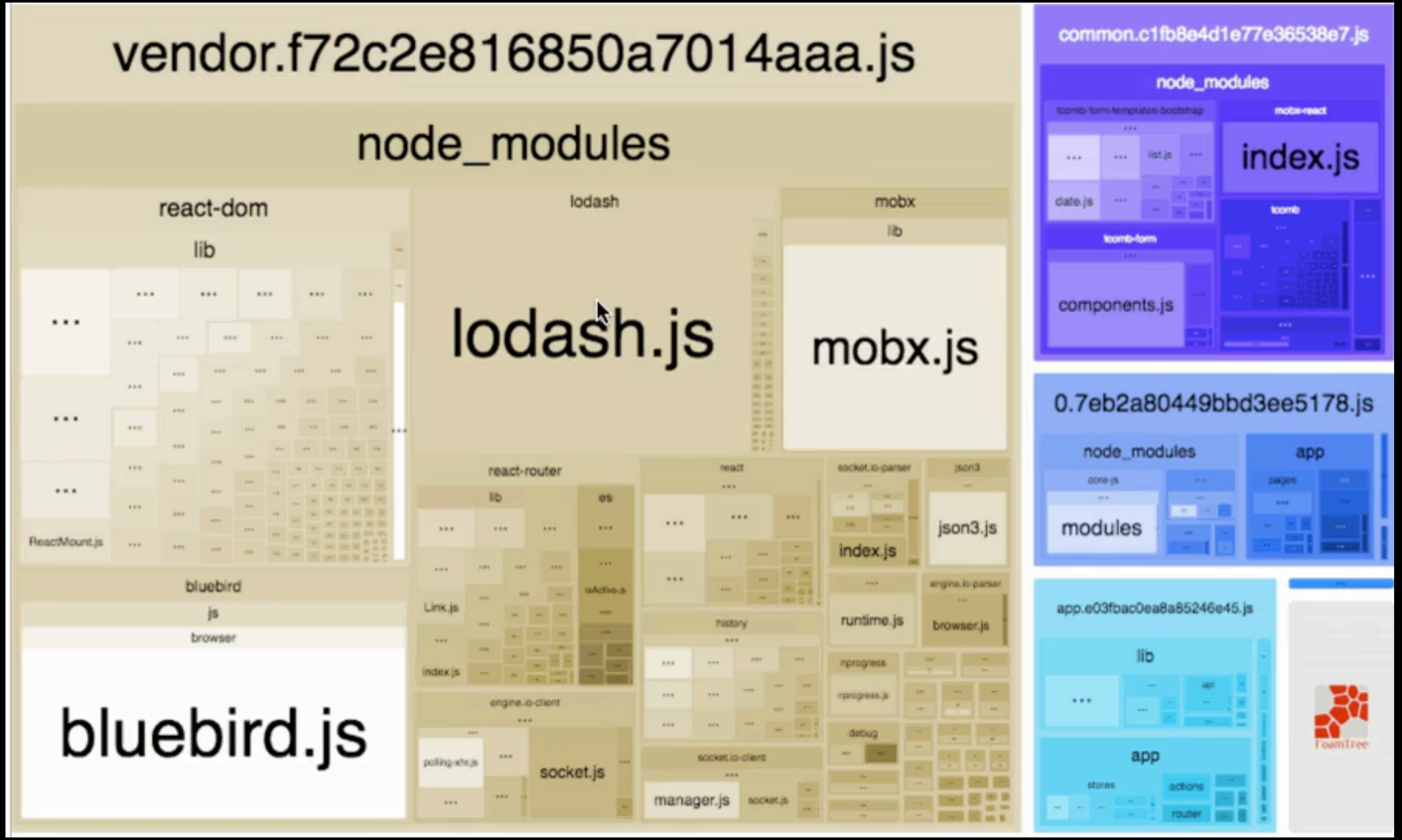
Vitaly

GitHub, Inc. [US] https://github.com/GoogleChromeLabs/webpack-libs-optimizations

Optimize your libraries
with webpack

Contents:

- `async`
- `async-es`
- `babel-polyfill`
- `core-js`
- `date-fns`
- `lodash`
- `lodash-es`
- `moment`
- `react`
- `reactstrap`


vendor.f72c2e816850a7014aaa.js
node_modules
react-dom
lib
ReactMount.js
lodash
lodash.js
mobx
lib
mobx.js
bluebird
js
browser
bluebird.js
react-router
lib
es
Link.js
index.js
isActive.js
react
history
socket.io-client
manager.js
socket.io-parser
index.js
json3
json3.js
runtime.js
engine.io-parser
browser.js
nprogress
nprogress.js
debug
engine.io-client
polling-xhr.js
socket.js
common.c1fb8e4d1e77e36538e7.js
node_modules
toomb-form-templates-bootstrap
list.js
date.js
mobx-react
index.js
toomb
toomb-form
components.js
0.7eb2a80449bbd3ee5178.js
node_modules
core-js
modules
app
pages
app.e03fbac0ea8a85246e45.js
lib
app
stores
actions
router
FoamTree

Replace Animated GIFs with <video>




```
<img src="animation.gif">
```

7.3MB



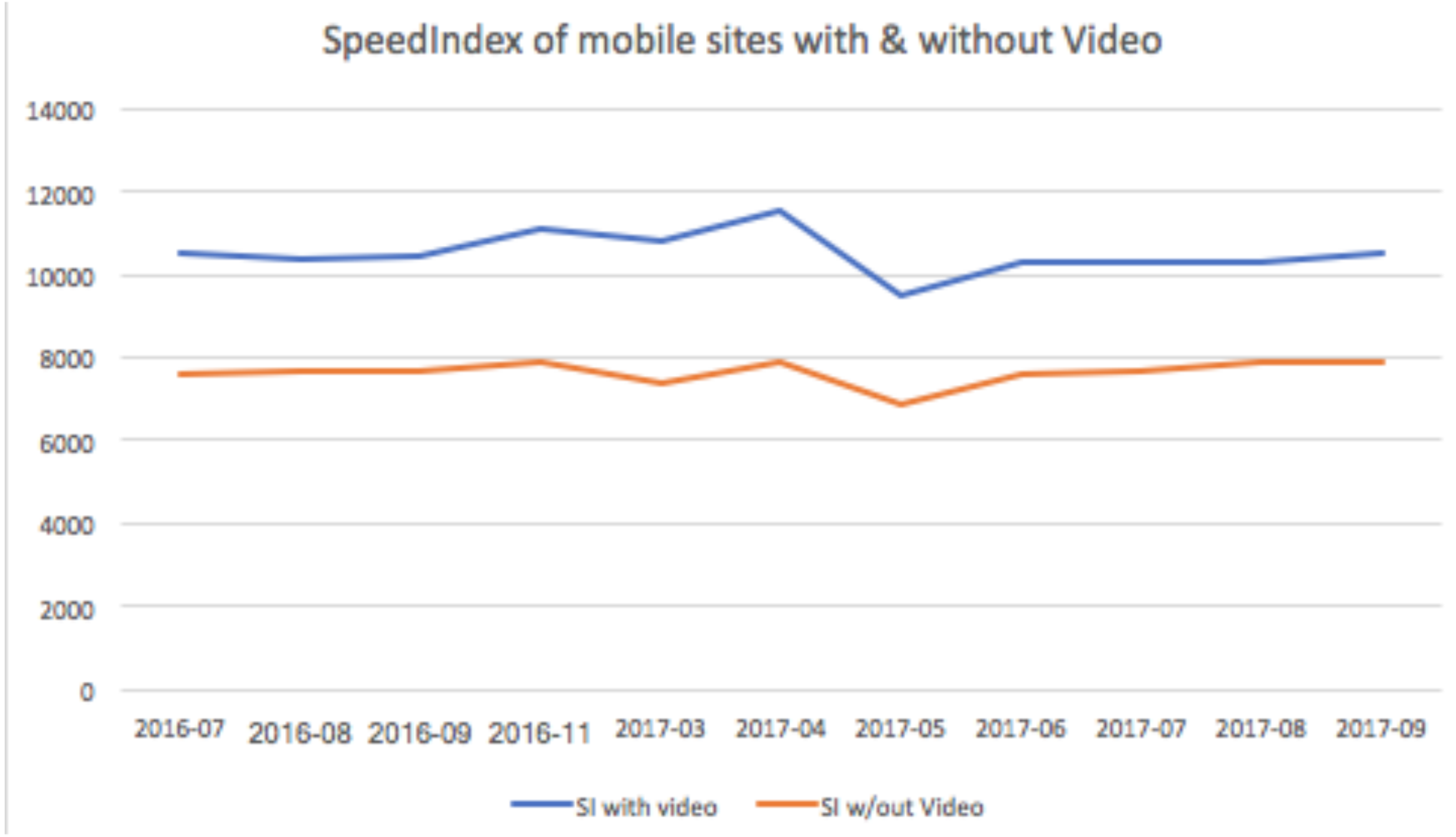

```
<video autoplay muted playsinline>
  <source src="video.webm" type="video/webm">
  <source src="video.mp4" type="video/mp4">
</video>
```

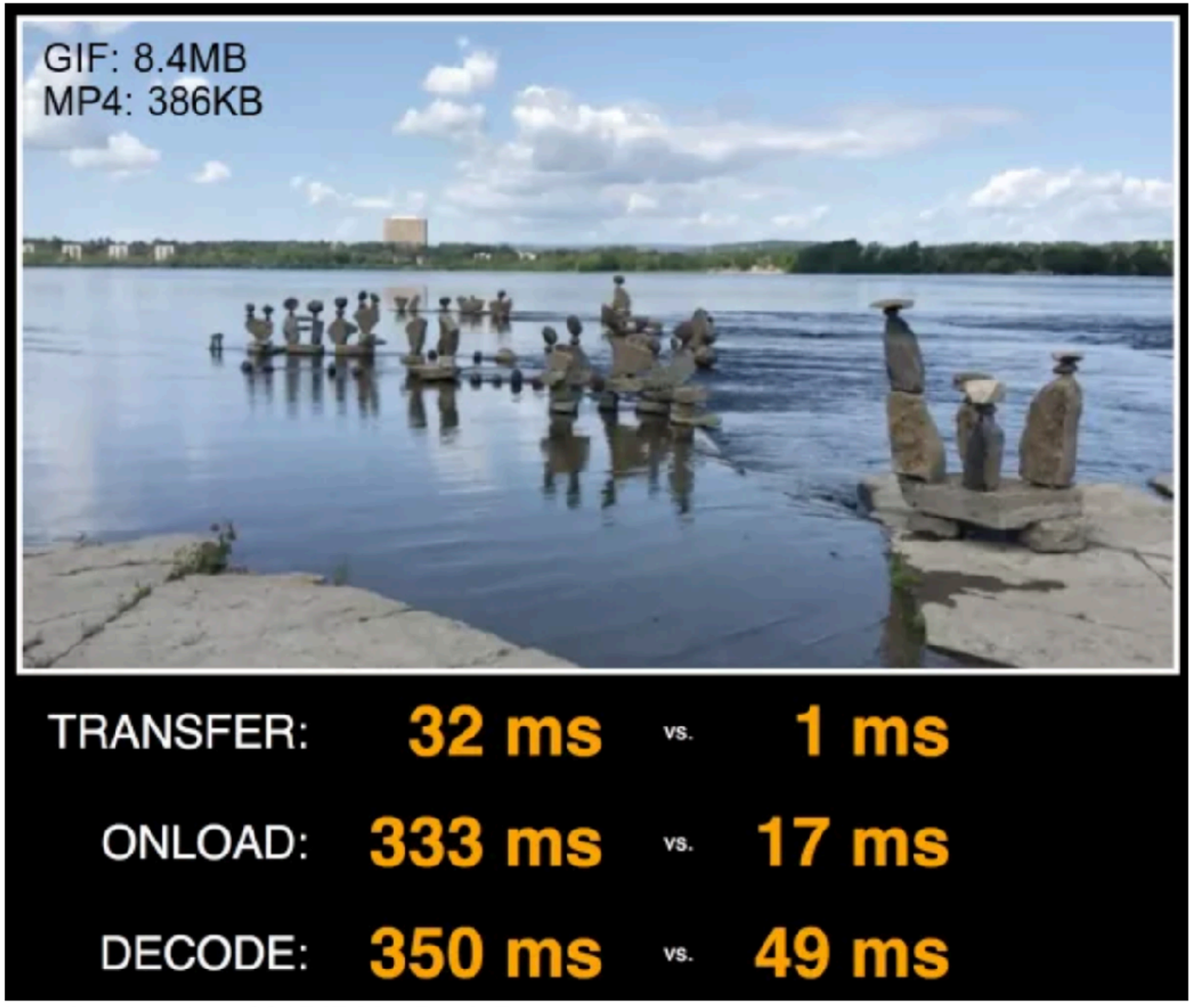
960KB
1.3MB

80%+ savings

FFmpeg

```
ffmpeg -i animation.gif -b:v 0 -crf 40 -vf scale=600:-1 video.mp4
```


SpeedIndex of mobile sites with & without Video
14000
12000
10000
8000
6000
4000
2000
0
2016-07
2016-08
2016-09
2016-11
2017-03
2017-04
2017-05
2017-06
2017-07
2017-08
2017-09
SI with video
SI w/out Video



Localhost test on 2017 i7 MacBook Pro

Responsive Image Breakpoints

Vitaly

www.responsivebreakpoints.com

RESPONSIVE BREAKPOINTS

Responsive Image Breakpoints Generator v2.0

Like 187 Share | Tweet | Share | Share

Easily generate the optimal responsive image dimensions

One image for all screen resolutions and different devices is not enough. An image per pixel is too much - so how can someone automatically choose the optimal responsive image sizes? **Learn more...**

UPLOAD FILE

Or select one of the predefined images

Breakpoints generation settings

Resolution ? From 200 To 1400

50 200 480 1080 2180 3840

Size step ? Size (KB) 20

5KB 25KB 45KB 65KB 85KB

Maximum images ? Quantity 20

3 10 18 25 33 40

Retina resolution

Include double resolution (DPR 2.0) images

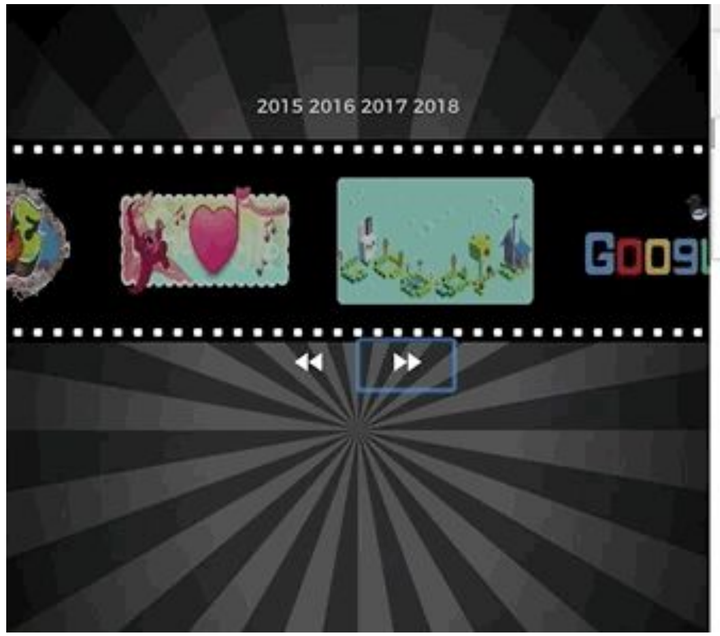
LazySizes

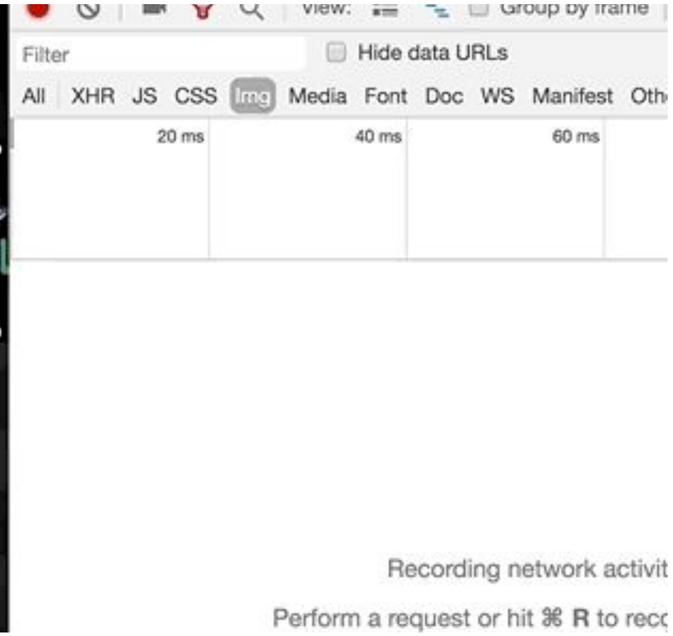
1. Include library

```
import lazysizes from 'lazysizes'
<script src="lazysizes.min.js"></script>
```

2. Use

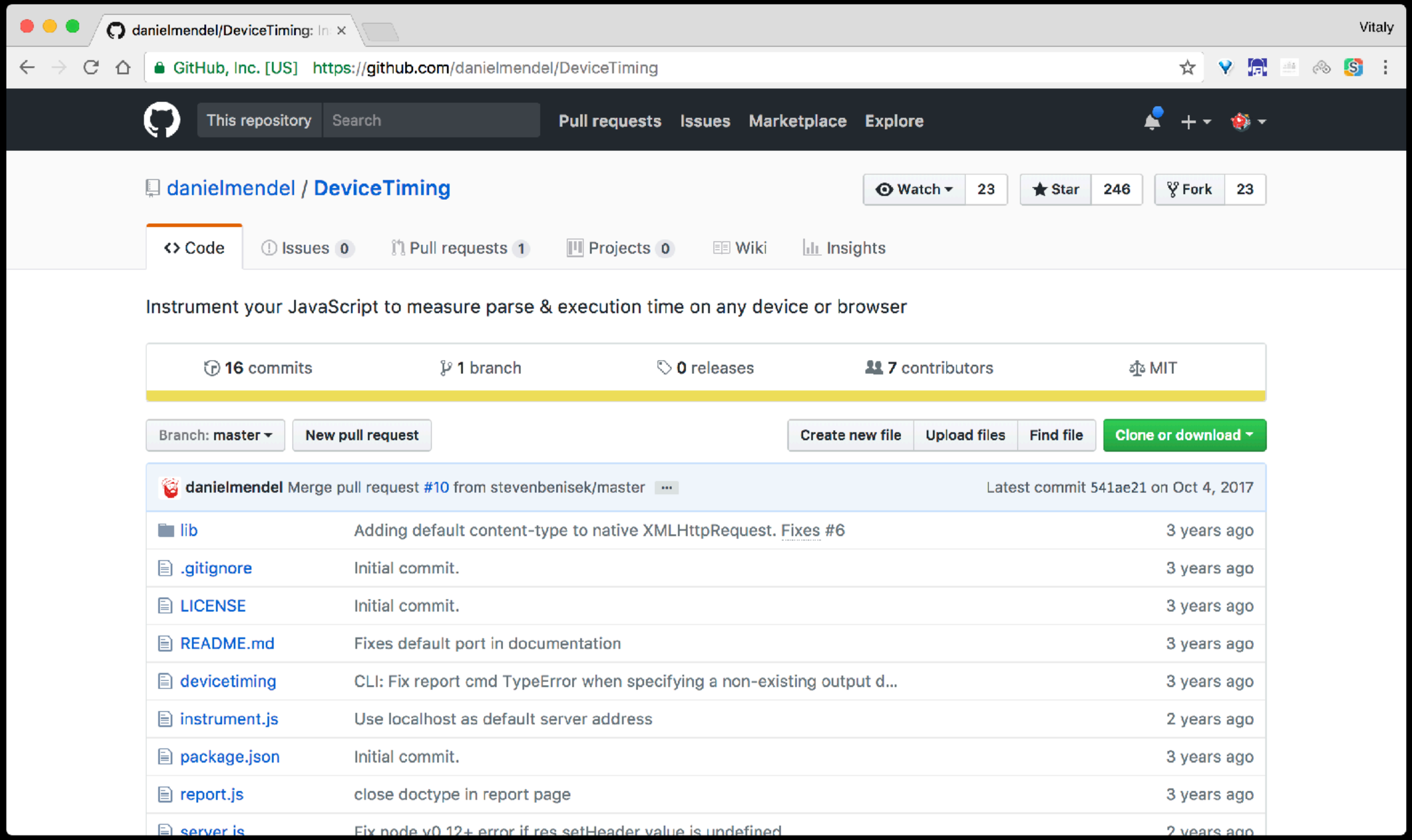
```
<!-- non-responsive: -->
<img data-src="image.jpg"
     class="lazyload"/>
<!-- responsive: -->
<img class="lazyload"
  data-sizes="auto"
  data-src="image2.jpg"
  data-srcset="image1.jpg 300w,
    image2.jpg 600w,
    image3.jpg 900w"/>
```







▶ Offscreen images


danielmendel/DeviceTiming: In
Vitaly
GitHub, Inc. [US] https://github.com/danielmendel/DeviceTiming
This repository
Search
Pull requests
Issues
Marketplace
Explore
danielmendel / DeviceTiming
Watch 23
Star 246
Fork 23
Code
Issues 0
Pull requests 1
Projects 0
Wiki
Insights
Instrument your JavaScript to measure parse & execution time on any device or browser
16 commits
1 branch
0 releases
7 contributors
MIT
Branch: master
New pull request
Create new file
Upload files
Find file
Clone or download
danielmendel Merge pull request #10 from stevenbenisek/master
Latest commit 541ae21 on Oct 4, 2017
lib Adding default content-type to native XMLHttpRequest. Fixes #6 3 years ago
.gitignore Initial commit. 3 years ago
LICENSE Initial commit. 3 years ago
README.md Fixes default port in documentation 3 years ago
devicetiming CLI: Fix report cmd TypeError when specifying a non-existing output d... 3 years ago
instrument.js Use localhost as default server address 2 years ago
package.json Initial commit. 3 years ago
report.js close doctype in report page 3 years ago
server.js Fix node v0.12+ error if res.setHeader value is undefined 2 years ago



Experimental Feature: Priority Hints

```
<link rel="preload" as="script" href="critical-script.js">
<link rel="preload" as="style" href="theme.css" importance="low" onload="this.rel=stylesheet">

<style>/* critical-path styles */</style>
<img src="hero.jpg" importance="high">
<img src="meme.gif" importance="low">

<!-- superfluous fetch requests -->
<script>
  fetch('/api/related.json', { importance: 'low' });
</script>

<!-- scripts at the end of the document -->
<script src="critical-script.js"></script>
```

github.com/WICG/priority-hints

Critical path optimisation

```
<head>
 <style>/* Inlined critical styles */</style>
  <link href="app.css" rel="preload" as="style"
    onload="this.onload=null;this.rel='stylesheet'">
</head>
<body>
  <div id="app">
    <!-- AppShell markup -->
  </div>
  <noscript>
    <link href="app.css"
          rel="stylesheet">
  </noscript>
</body>
```



Tools

Critical
Penthouse
loadCSS

> Even with HTTP/1, putting *critical CSS* in a separate file on the root domain has benefits, sometimes even more than inlining due to caching. Browsers speculatively open a *second HTTP connection* to the root domain when requesting the page, which removes the need for a TCP connection to fetch CSS.

— *Philip Tellis*

https://www.smashingmagazine.com/2018/01/front-end-performance-checklist-2018-pdf-pages/

Indicate push of critical styles with Link preload header:

```
Link: <critical.css>; rel="preload"; as="style"
```



Convert inline styles into normal link rel="stylesheet" declaration and async the main styles

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8">
        <title>FT.com</title>

        <link rel="stylesheet" href="critical.css" />
        <link rel="preload" href="main.css" as="style" onload="this.rel='stylesheet'" />
        ...

```







Guess.js alpha

github.com/guess-js

Guess.js: Predictive Fetching

github.com/guess-js

GA module



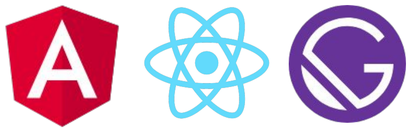
Google Analytics

Analyze User Navigations

Guess Parser



Map “Pages” to JavaScript router



Guess Webpack Plugin



Model Next Page Predictions
(Markov Chains)



Bundle JavaScript routes into chunks



Prefetch next JavaScript chunks a user is likely to visit as they browse.

+ Experimental support for predictive prefetching for static sites

By Minko Gechev, Addy Osmani, Kyle Mathews & Katie Hempenius

https://loutish-car.surge.sh/Ch ×

Minko

Secure | https://loutish-car.surge.sh/Cheese/

Guess.js/Gatsby Wikipedia Demo

For other uses, see Cheese (disambiguation).

Cheese is a dairy product derived from milk that is produced in a wide range of flavors, textures, and forms by coagulation of the milk protein casein. It comprises proteins and fat from milk, usually the milk of cows, buffalo, goats, or sheep. During production, the milk is usually acidified, and adding the enzyme rennet causes coagulation. The solids are separated and pressed into final form.[1] Some cheeses have molds on the rind, the outer layer, or throughout. Most cheeses melt at cooking temperature.

Hundreds of types of cheese from various countries are produced. Their styles, textures and flavors depend on the origin of the milk (including the animal's diet), whether they have been pasteurized, the butterfat content, the bacteria and mold, the processing, and aging. Herbs, spices, or wood smoke may be used as flavoring agents. The yellow to red color of many cheeses, such as Red Leicester, is produced by adding annatto. Other ingredients may be added to some cheeses, such as black pepper, garlic, chives or cranberries.

For a few cheeses, the milk is curdled by adding acids such as vinegar or lemon juice. Most cheeses are acidified to a lesser degree by bacteria, which turn milk sugars into lactic acid, then the addition of rennet completes the curdling. Vegetarian alternatives to rennet are available; most are



Coulommiers cheese



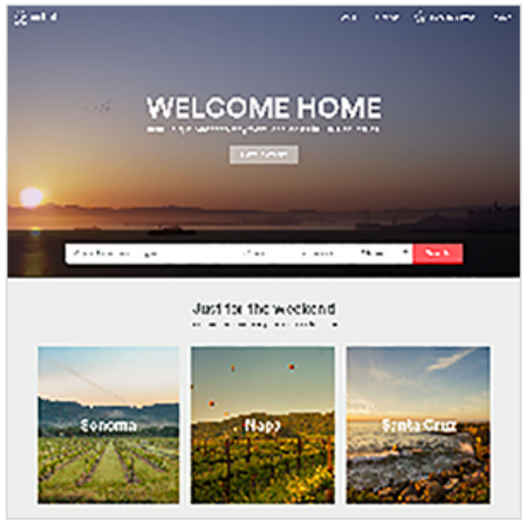
A platter with cheese and garnishes

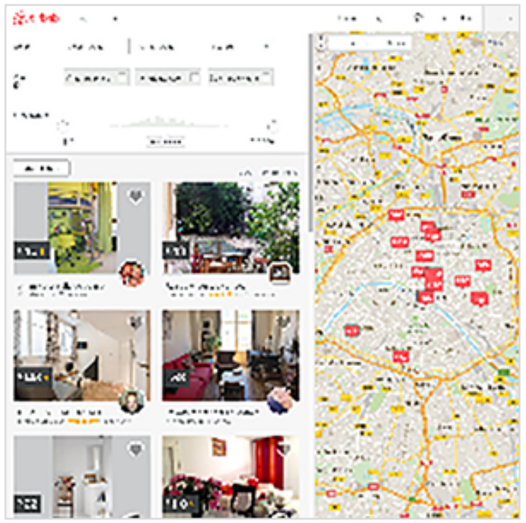


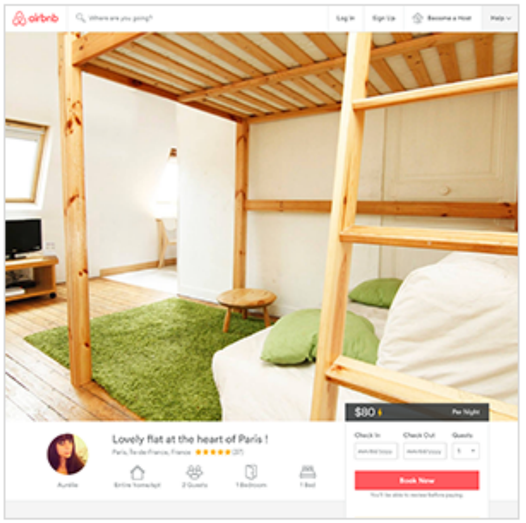
Web iPhone iPad Nexus 7 Nexus 9

Web > Guest > Booking Flow

2 15 32







View full flow
+20 screens

Web > Host > Message Flow

2 15 30

air/shots

dls ios ✕

iPhone 6 ✕

Pages and Flows

ZH-HANT ✕ EN ✕ FR ✕

ES ✕ RU ✕

Showing 56 flows

Narrow your selection with the filters above.

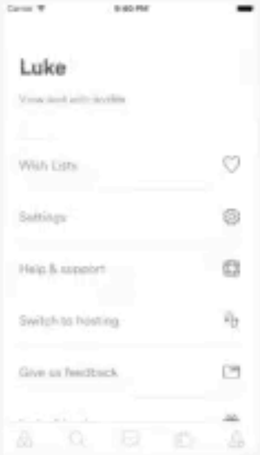
Try out different combinations of Device Type, User Flow and Language.

If you leave a filter empty, you'll see all screens for that



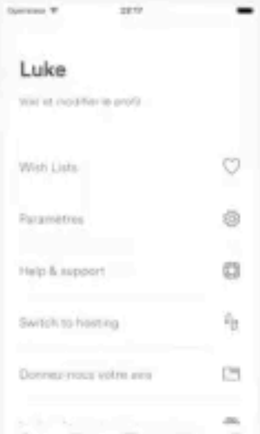


dls ios / iPhone 6 / EN / Settings





dls ios / iPhone 6 / FR / Settings





air/shots

Galaxy S5 EN DLS | iPhone 6 EN DLS | iPad EN DLS | Nexus Tablet EN DLS | Galaxy S5 EN v15.14 | iPhone 6 EN v15.14 | iPad EN v15.14 | Nex EN

Versions

iPhone 4 ✕ iPhone 6 ✕

Signup ✕

Language

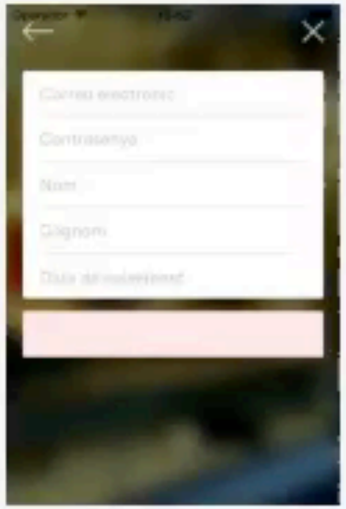
Showing 52 flows

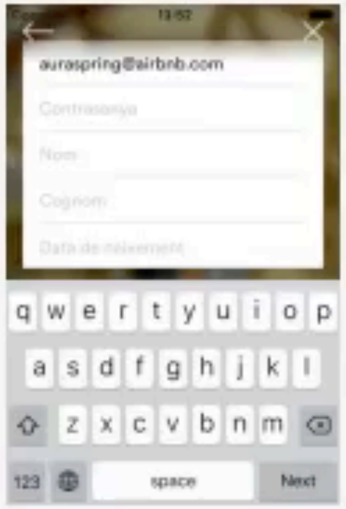
Links

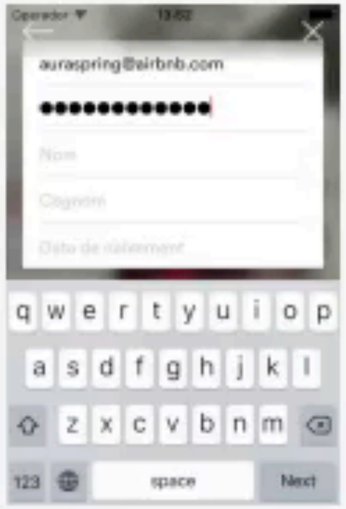
FAQ/About

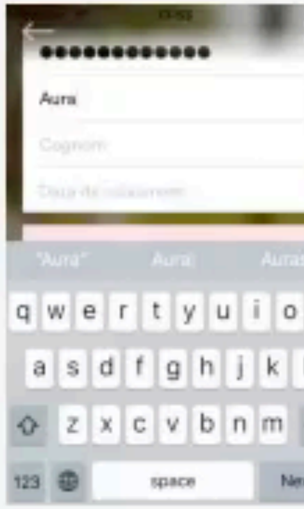
Feedback Form

ios v15.14 / iPhone 4 / CA / Signup

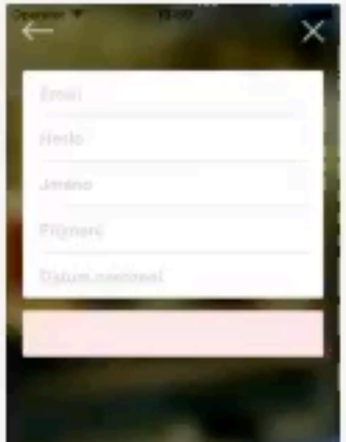


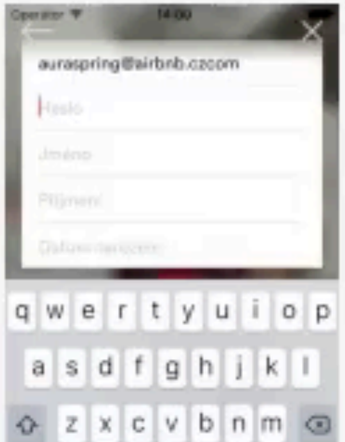


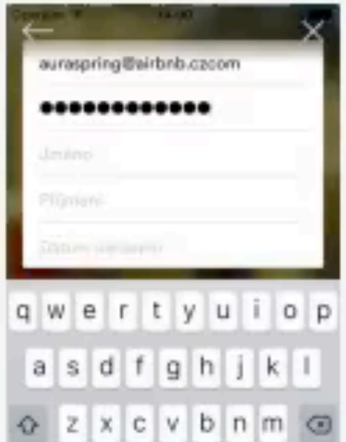


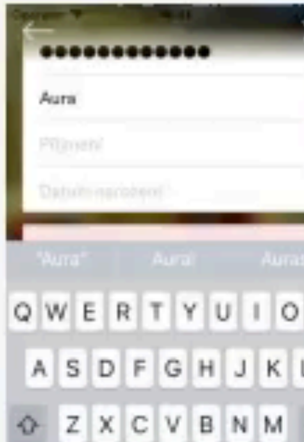


ios v15.14 / iPhone 4 / CS / Signup





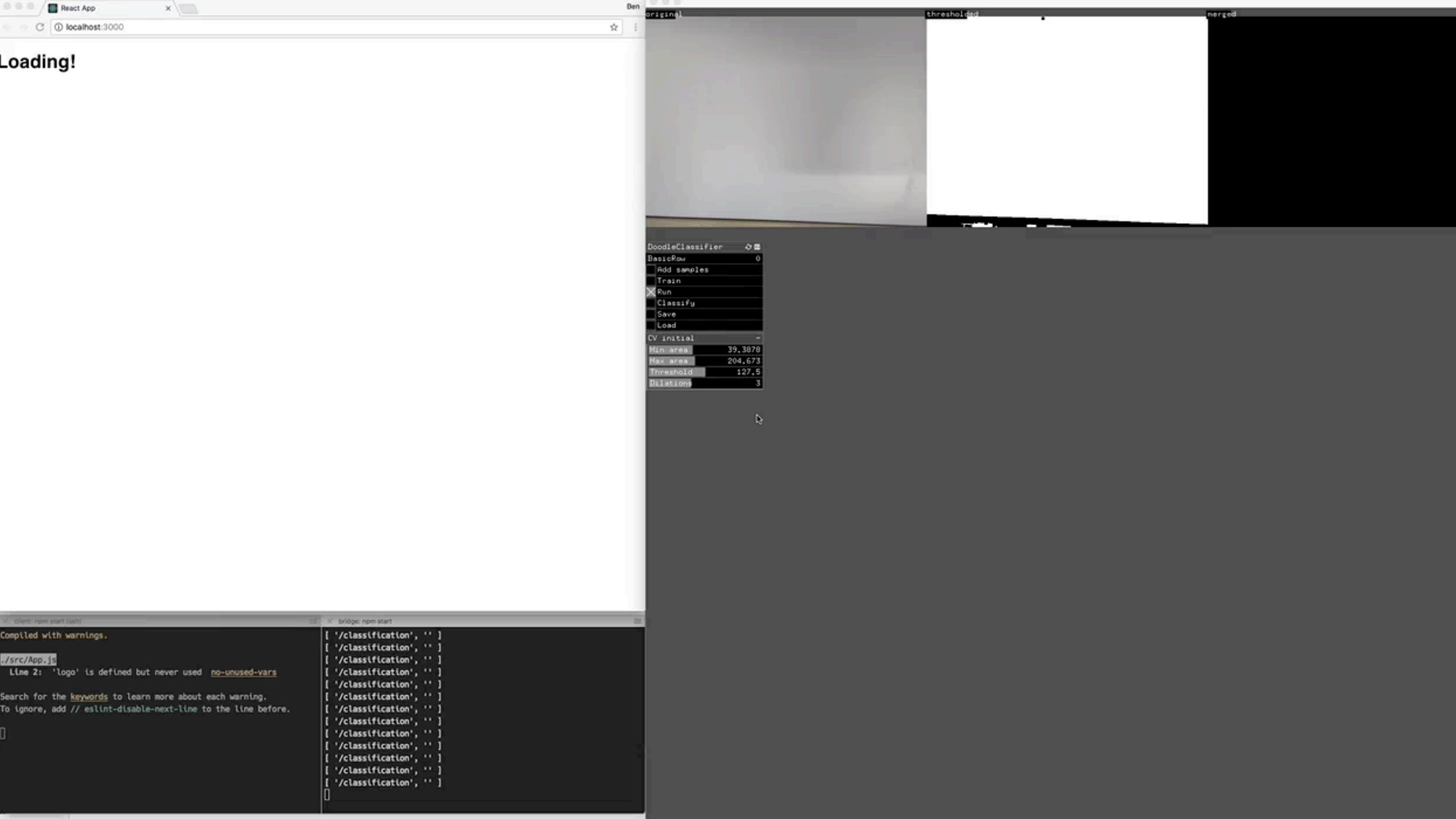




> If machine learning algorithms can classify a complex set of thousands of handwritten symbols — such as handwritten Chinese characters — with a high degree of accuracy, then we should be able to classify the ***150 components*** within our system and teach a machine to recognize them.

— Benjamin Walkins

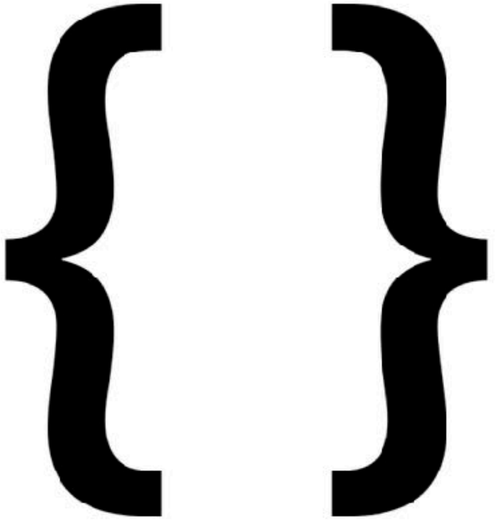
https://airbnb.design/sketching-interfaces/


React App
Ben
localhost:3000
Loading!
original
thresholded
merged
DoodleClassifier
BasicRow 0
Add samples
Train
Run
Classify
Save
Load
CV initial
Min area 39.3878
Max area 204.673
Threshold 127.5
Dilations 3
client: npm start (ssh)
Compiled with warnings.
./src/App.js
Line 2: 'logo' is defined but never used no-unused-vars
Search for the keywords to learn more about each warning.
To ignore, add // eslint-disable-next-line to the line before.
bridge: npm start
['/classification', '']

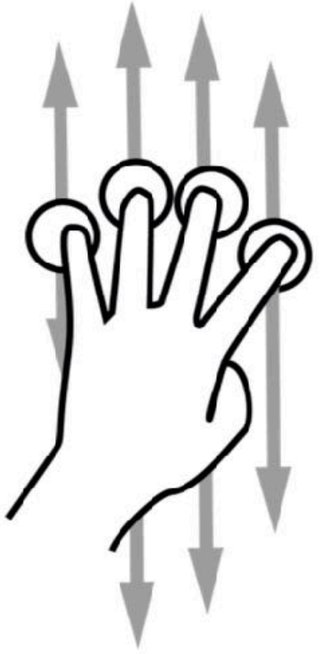
Evaluating the performance of Web Frameworks



NETWORK TRANSFER



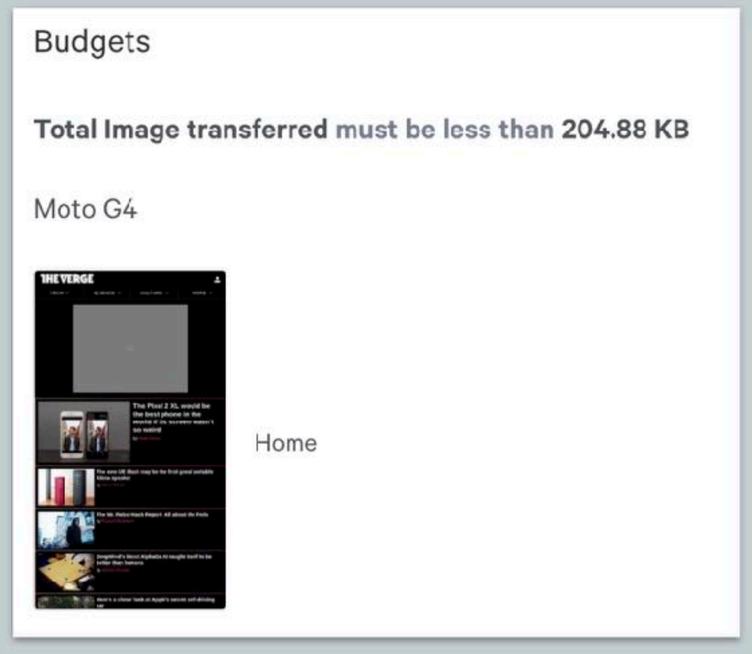
PARSE/COMPILE

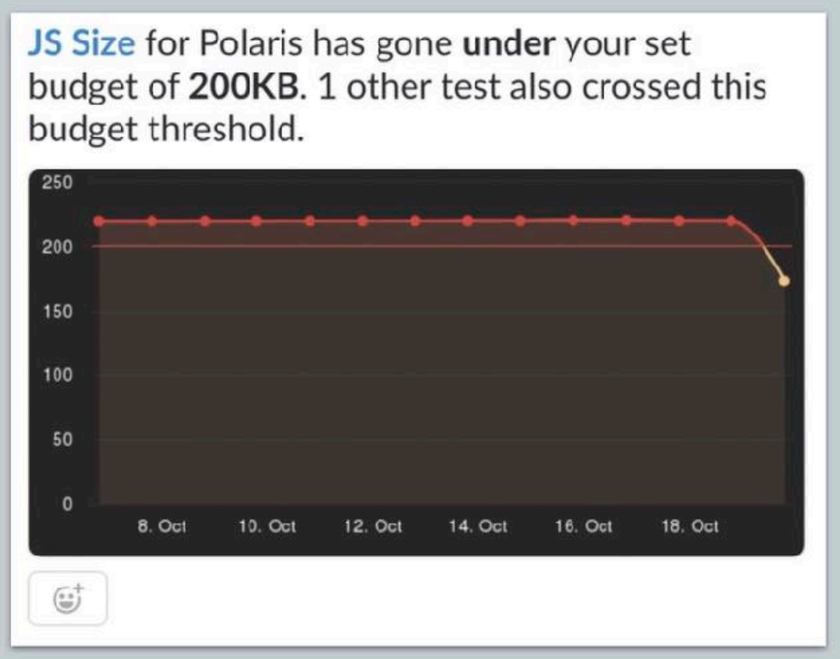


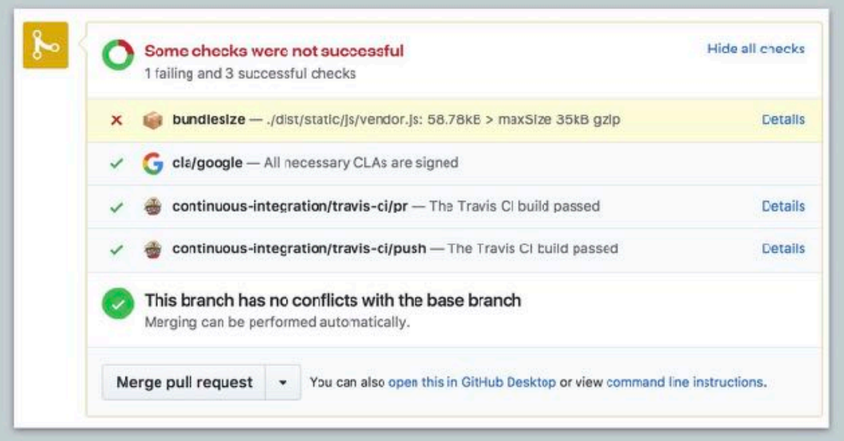
RUNTIME COST

https://twitter.com/kristoferbaxter/status/908144931125858304

Performance Budget Tools







CALIBRE **SPEEDCURVE** **BUNDLESIZE**



Thomas Kelly
@thommaskelly

Follow

The @Shopify Montreal office now has a simulated 3G WiFi network for easy access to real-world testing! Thank you @slightlylate for the recommended throttling config! 400kbps never felt so good 🤓



4:24 PM - 5 Dec 2017

85 Retweets **257** Likes




TUES
2G

Facebook's '2G Tuesdays' sim

Vitaly

Secure https://www.theverge.com/2015/10/28/9625062/facebook-2g-tue...

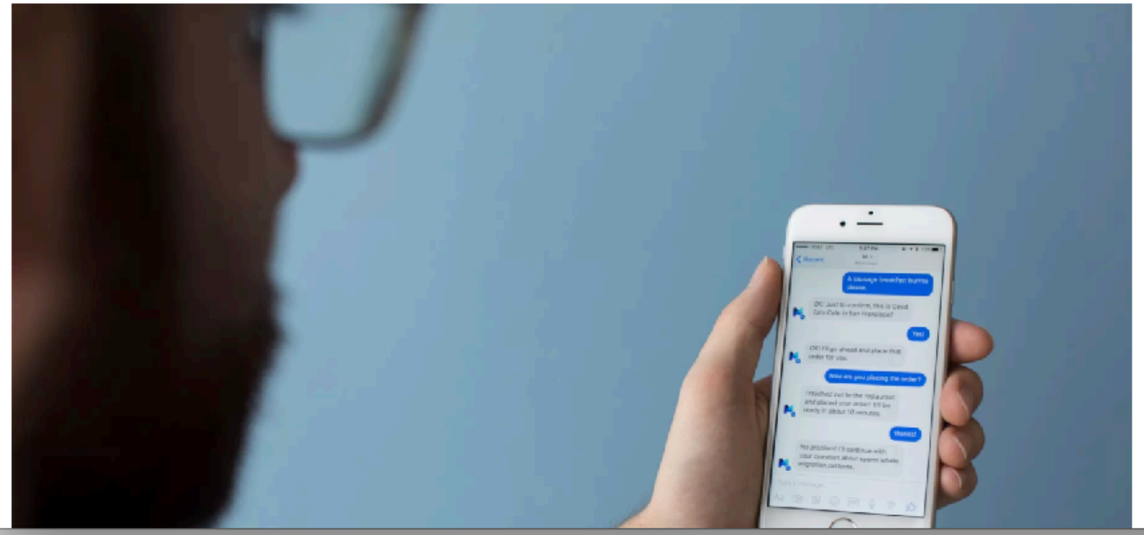
THE VERGE TECH SCIENCE CULTURE CARS REVIEWS LONGFORM MORE

WEB ENTERTAINMENT FACEBOOK

Facebook's '2G Tuesdays' simulate super slow internet in the developing world

By Rich McCormick | Oct 28, 2015, 5:58am EDT

SHARE TWEET LINKEDIN

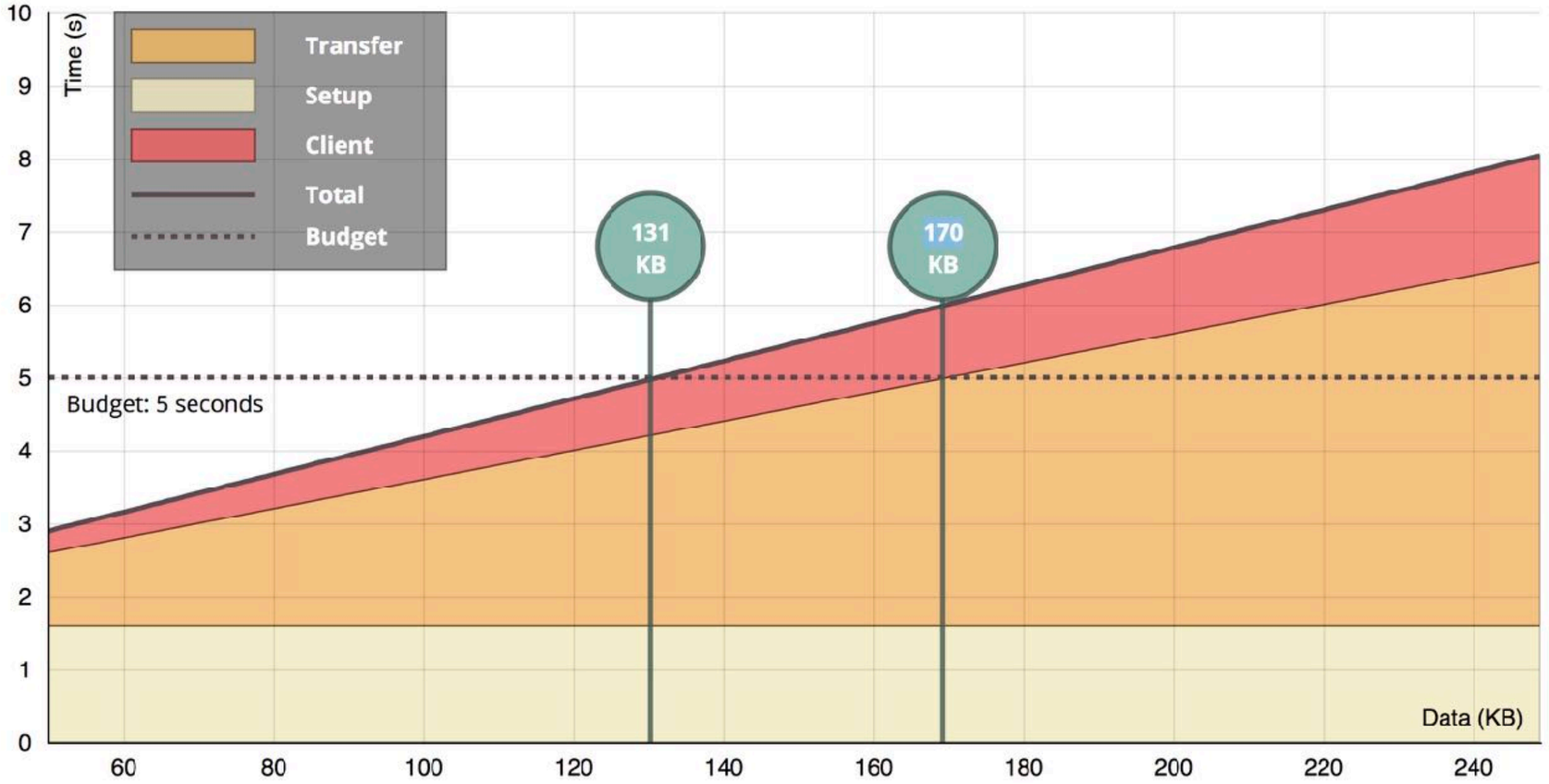


NOW TRENDING



Jony Ive is retaking control of

REAL-WORLD WEB PERF BUDGETS





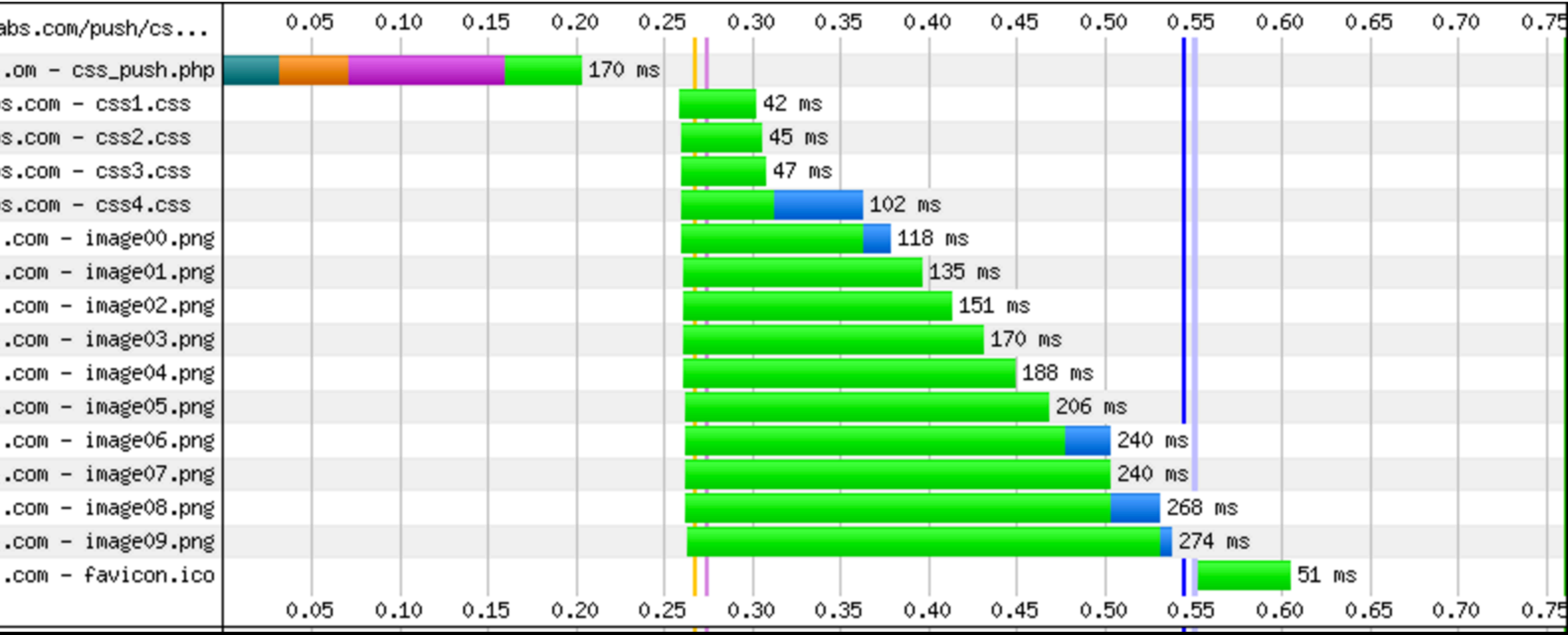
bit.ly/perf-budgets

HTTP/1 vs HTTP/2

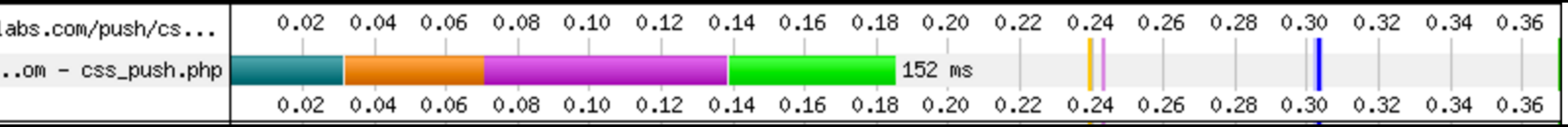
URL tested: http://domain.io



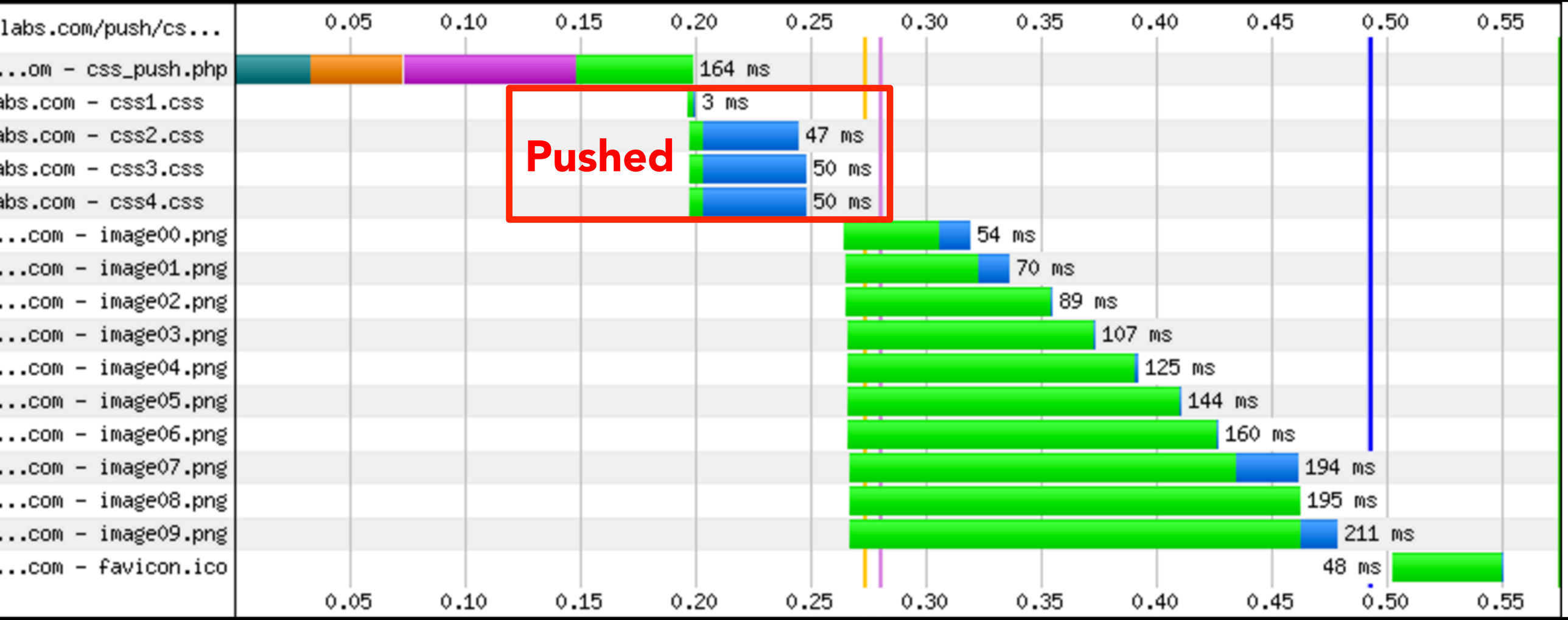
No push – first view



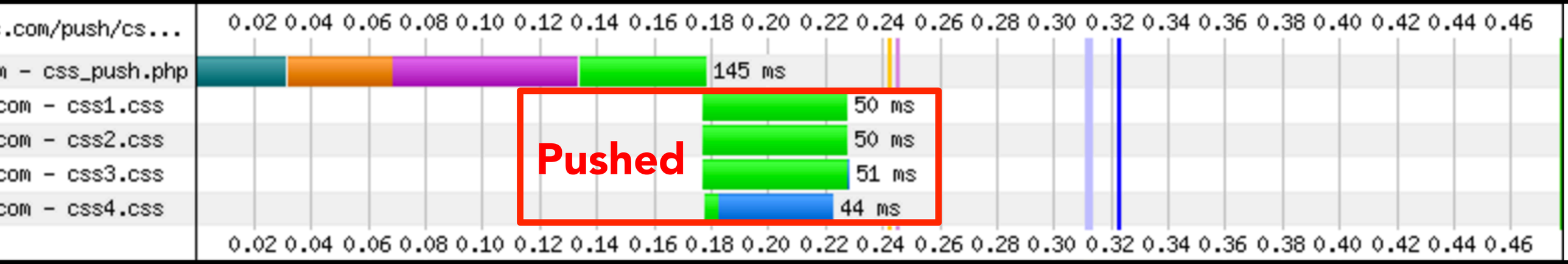
No push – repeat view



Push – first view



Push – repeat view



QUIC is better than TCP, HTTP/2 (and 1.1) (on lossy networks)



20% less rebuffering for YouTube in India

14% faster than TCP (H1.1 and H2) on 4G

20% slower with loss vs TCP H1.1 100% and H2 >200%

Langley et al., *The QUIC Transport Protocol: Design and Internet-Scale Deployment*, 2017

Cook et al., *QUIC: Better for What and for Whom?*, 2017

Megyesi et al., *How quick is QUIC?*, 2016

Is QUIC really better than TCP, HTTP/2 (and 1.1) ?



Up to 75% less Mbps than TCP for DASH streaming

100% slower than TCP if packet re-ordering

30% slower than TCP H1.1 on fast lossy network

Bhat et al., *Not so QUIC: A Performance Study of DASH over QUIC*, 2017

Kakhki et al., *Taking a Long Look at QUIC*, 2017

Carlucci et al., *HTTP over UDP: an Experimental Investigation of QUIC*, 2015

Userspace overhead

QUIC COSTS

≈2X CPU

COMPARED TO TCP/TLS

Langley et al., *The QUIC Transport Protocol: Design and Internet-Scale Deployment*, 2017

Userspace overhead

58% OF TIME

CPU, NOT NETWORK

WAS SLOWDOWN CAUSE

ON MOBILE



Kakhki et al., *Taking a Long Look at QUIC*, 2017


PWA
WWW
WWW
WWW

Progressive Web App Features



Instant Loading

Service workers allow your apps to load nearly instantly and reliably, no matter what kind of network connection your user is on.



Add to Home Screen

Web app install banners give you the ability to let your users quickly and seamlessly add your web app to their home screen, making it easy to launch and return to your app.



Push Notifications

Web push notifications makes it easy to re-engage with users by showing relevant, timely, and contextual notifications, even when the browser is closed.



Fast

Smooth animations, scrolling, and navigations keep the experience silky smooth.



Secure

HTTPS secures the connection between you and your users, ensuring your users information is protected and isn't tampered with.

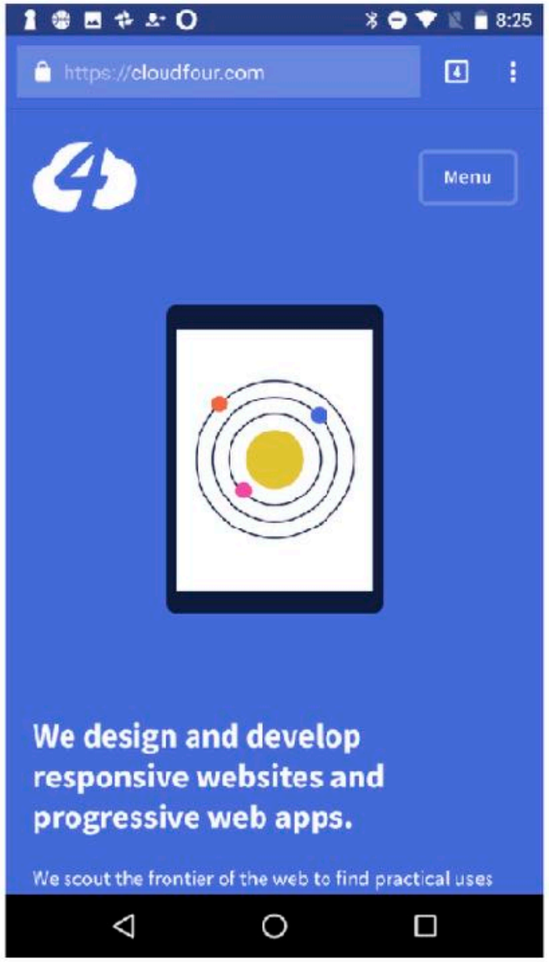


Responsive

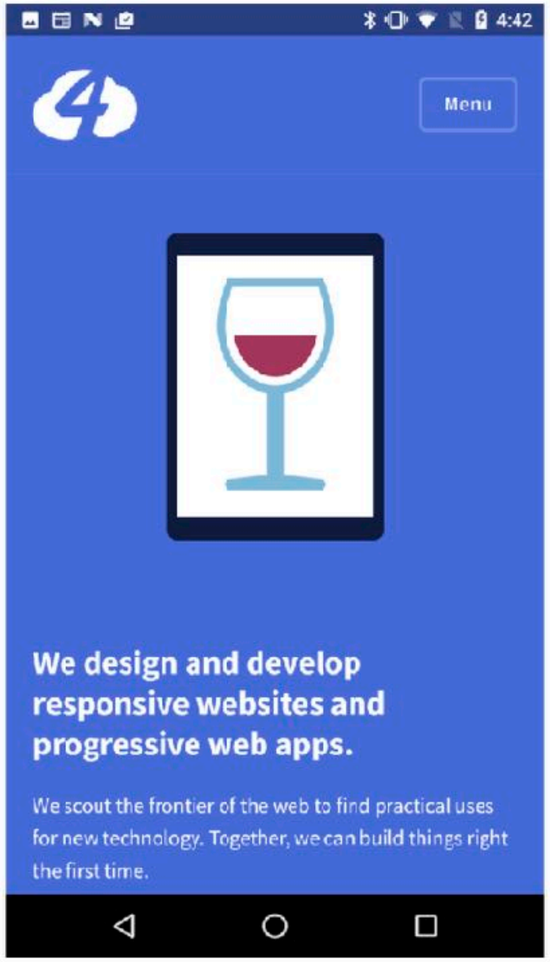
Modern users live on phones, tablets and laptops; your apps and websites should do the same. Learn how to structure and code your content to look great on screens of any size.

Source: Google Developers, http://bit.ly/1X36bm2 | Original definition: http://bit.ly/1K8Tm4L

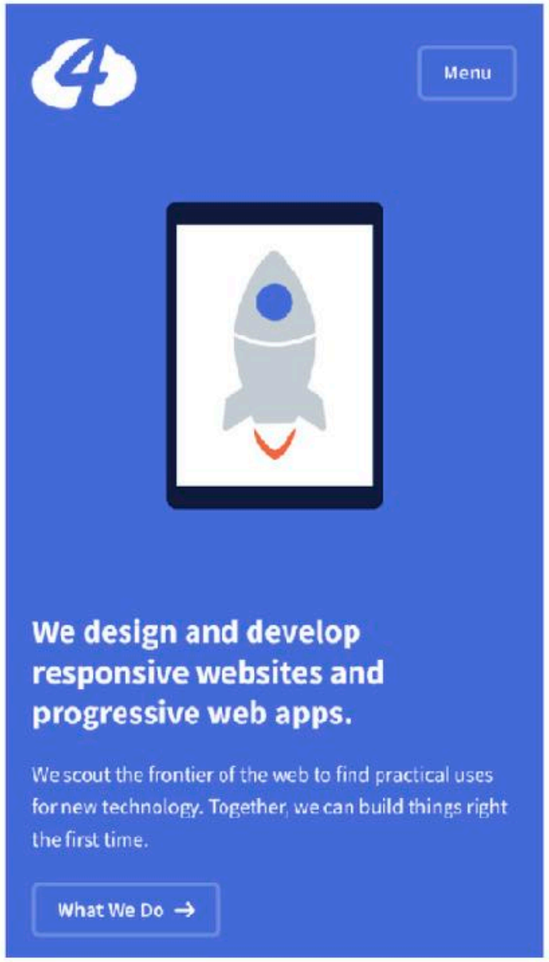
What happens when you remove browser chrome?



display: "browser"



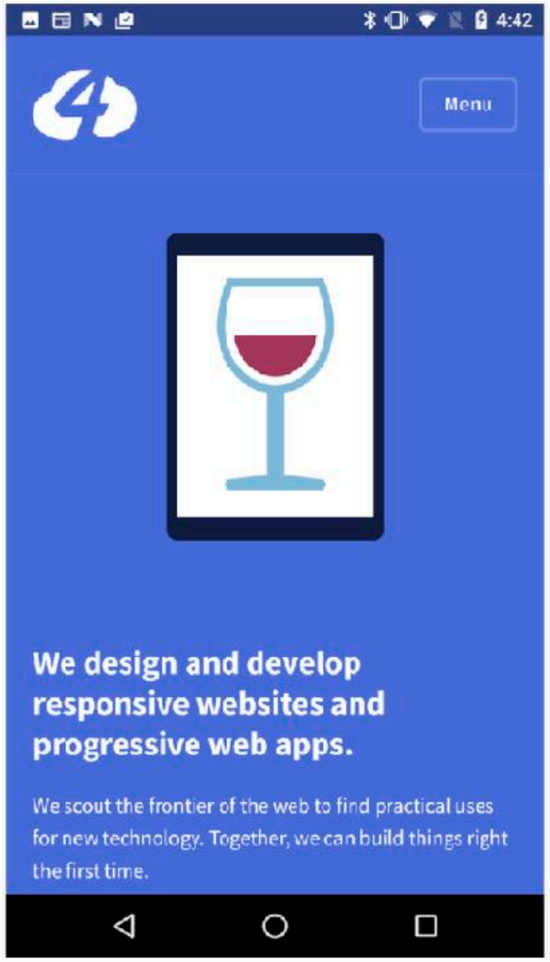
display: "standalone"



display: "fullscreen"

What happens when you remove browser chrome?

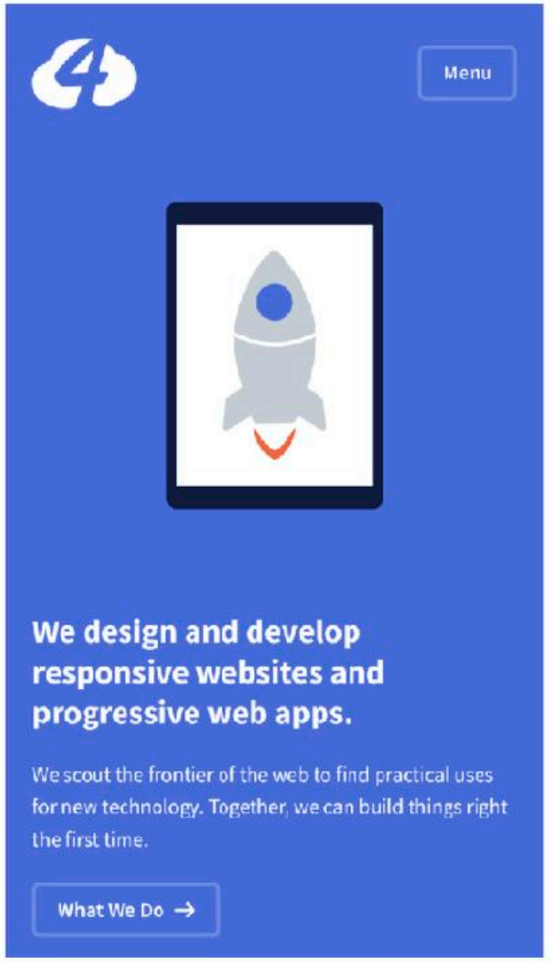
status bar →



navigation bar →

No URL, tabs, or menu

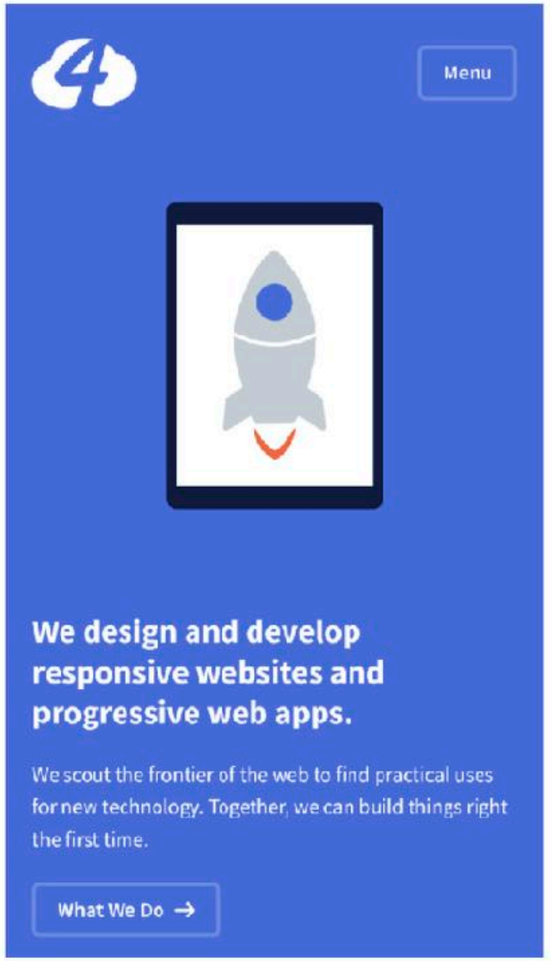
display: "standalone"



display: "fullscreen"

What happens when you remove browser chrome?

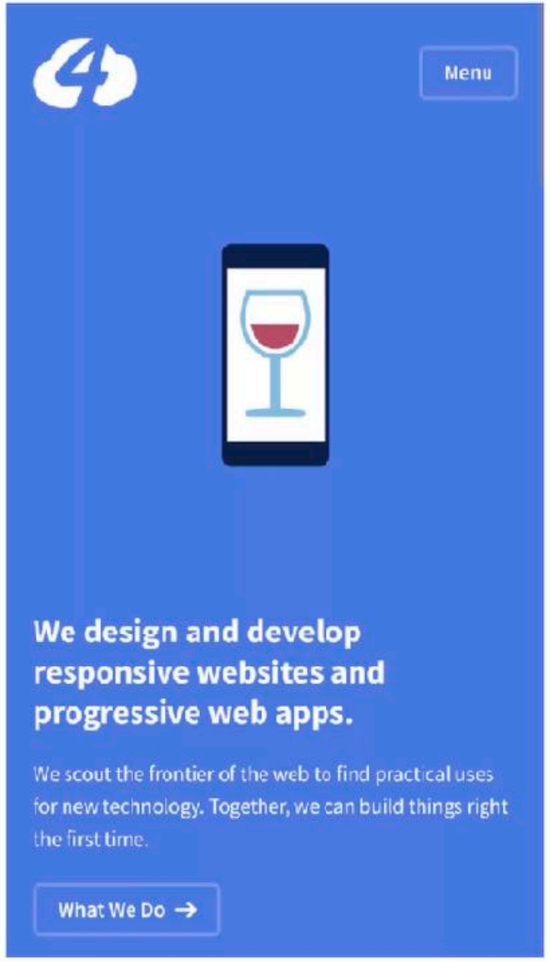
No URL, tabs, menu or back button!

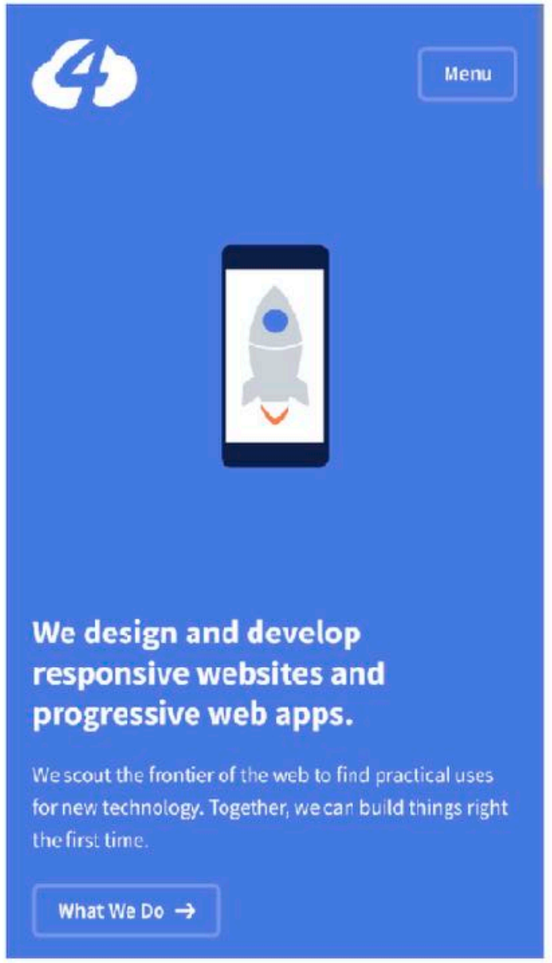


display: "fullscreen"

Full screen does have hidden controls

Pull down for reload

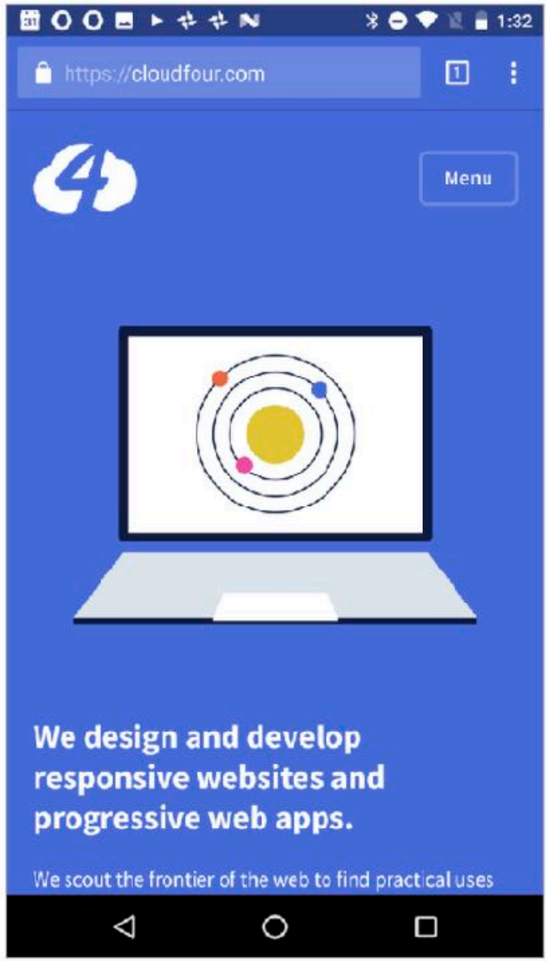




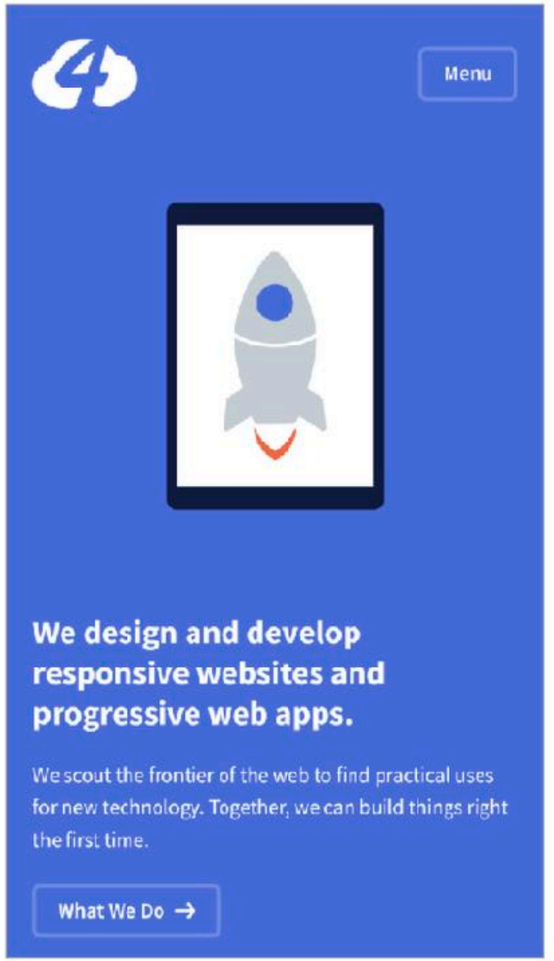
Swipe from bottom for navigation bar

The warm comforts of the browser

status bar →
address bar →



navigation bar →



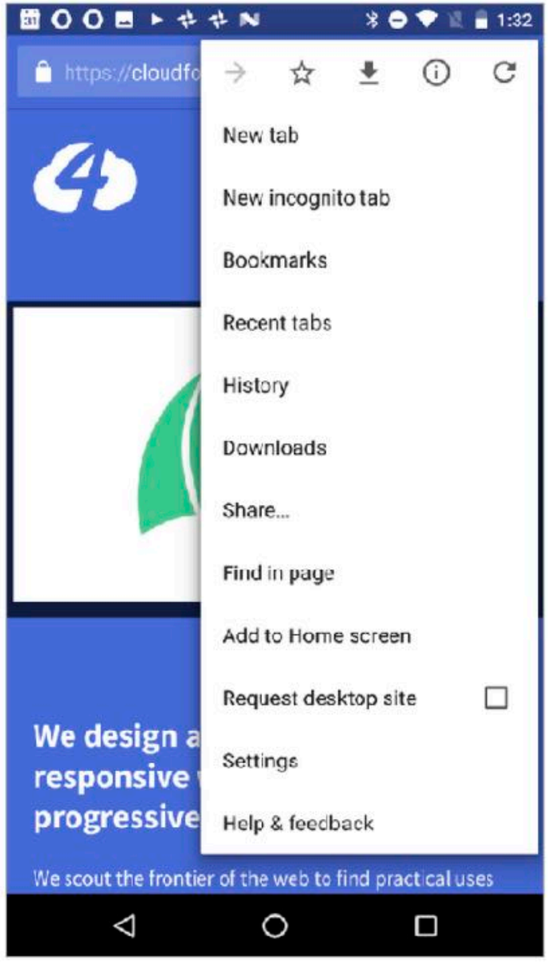
The warm comforts of the browser

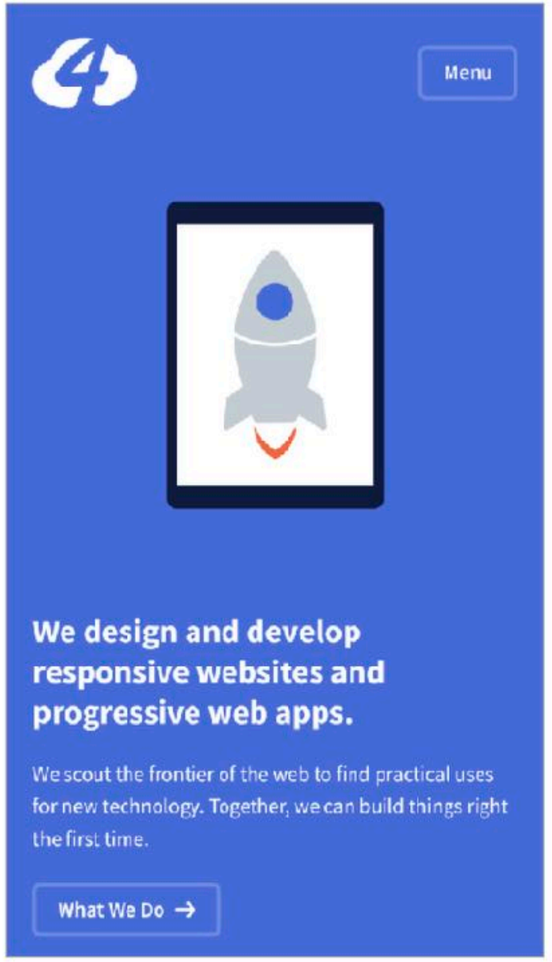
info, refresh, download →

tabs →

downloads →

find in page →



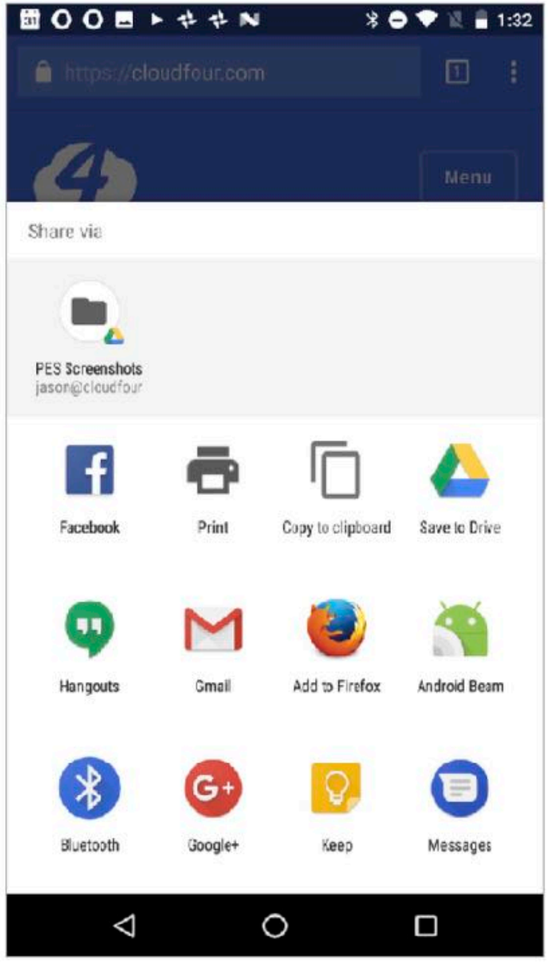


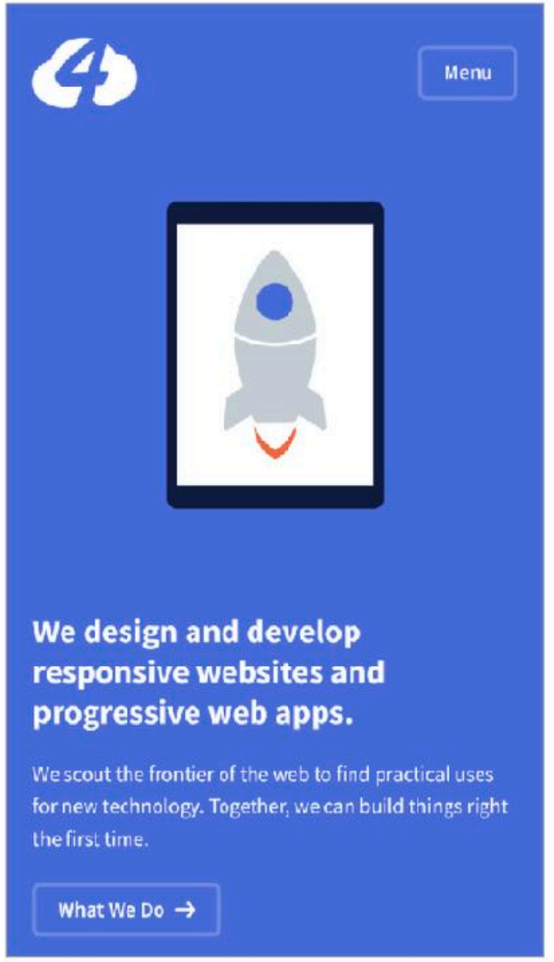
The warm comforts of the browser

sharing →

printing →

email →



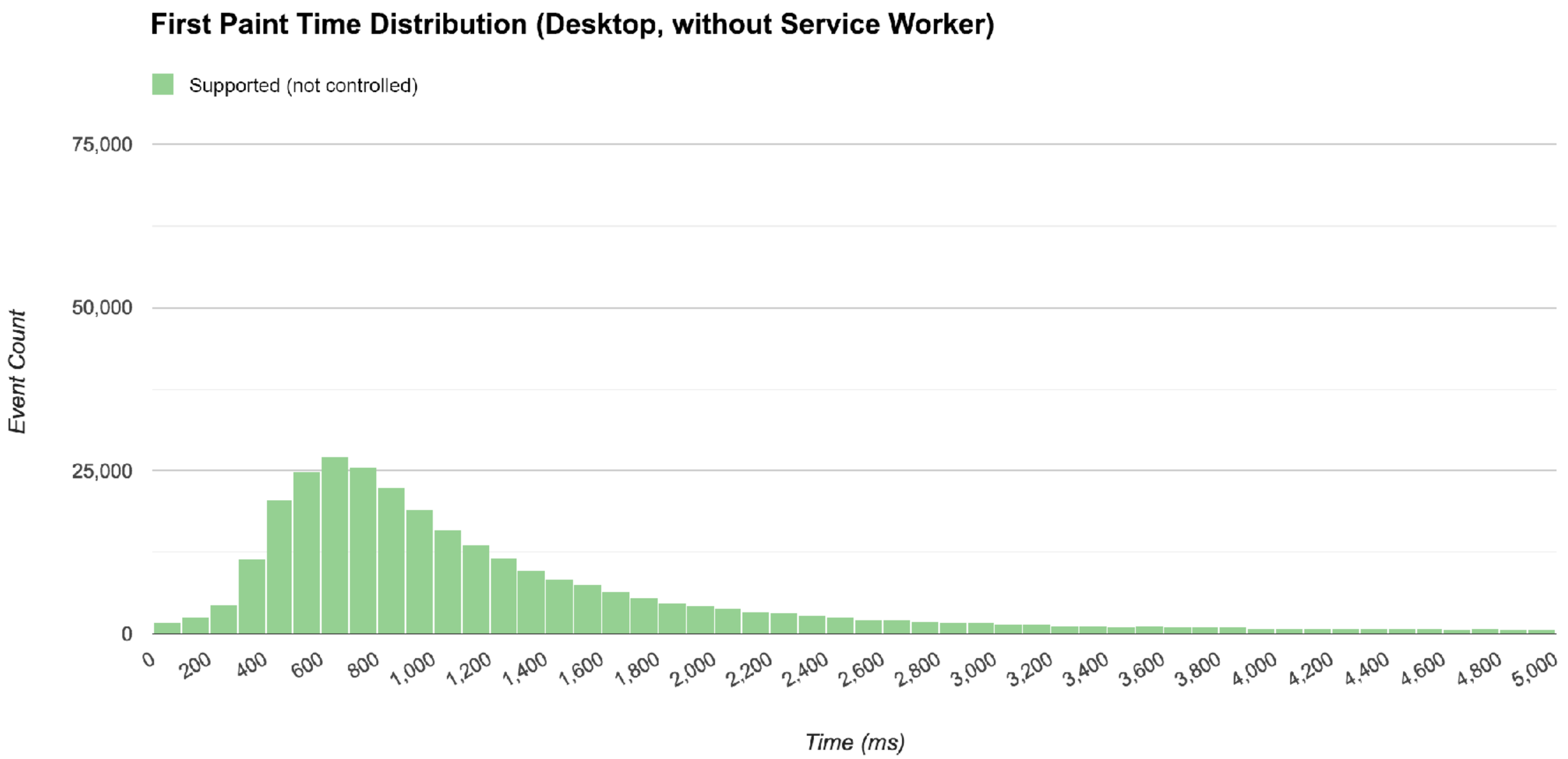


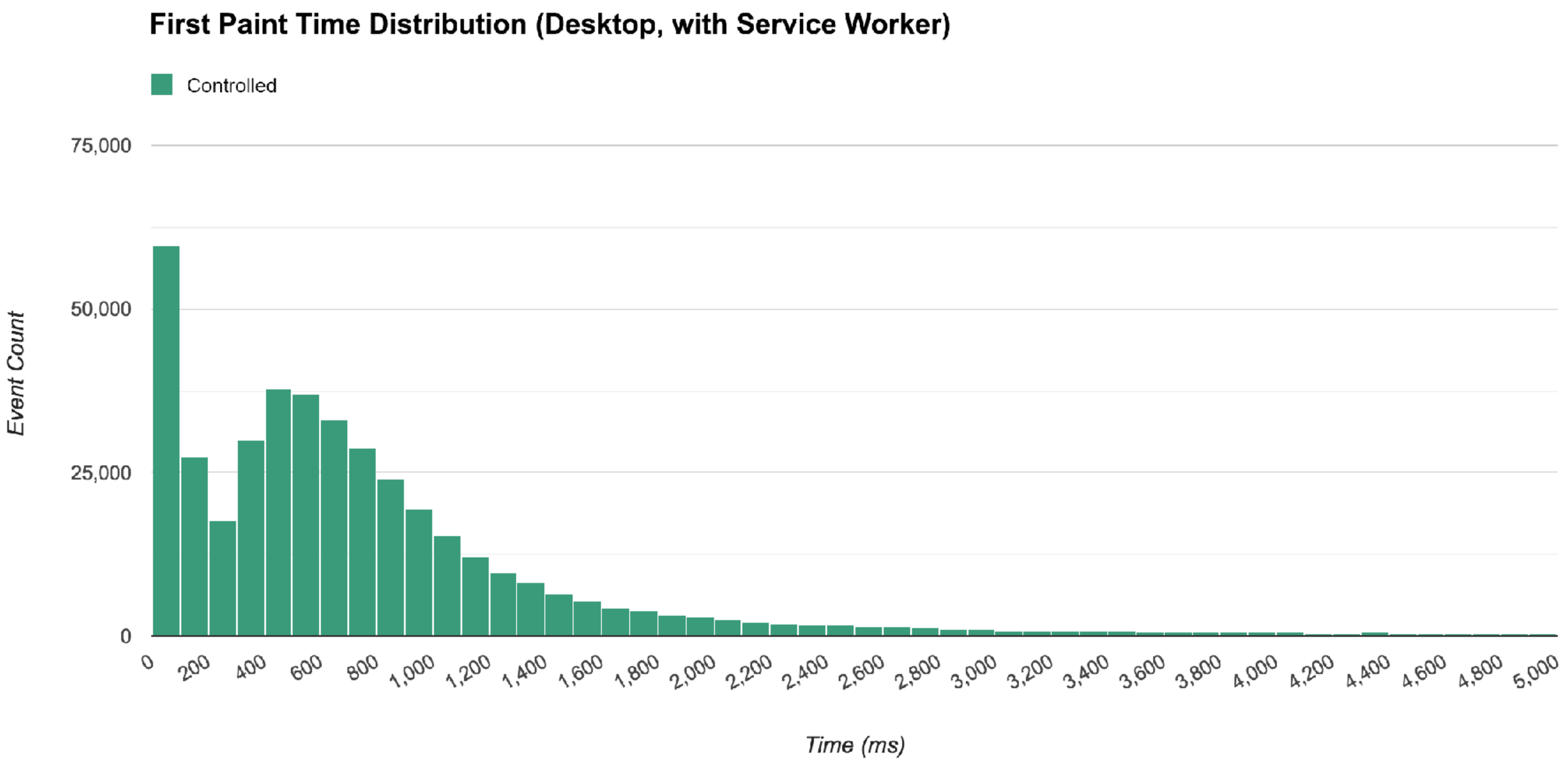
Display mode media query

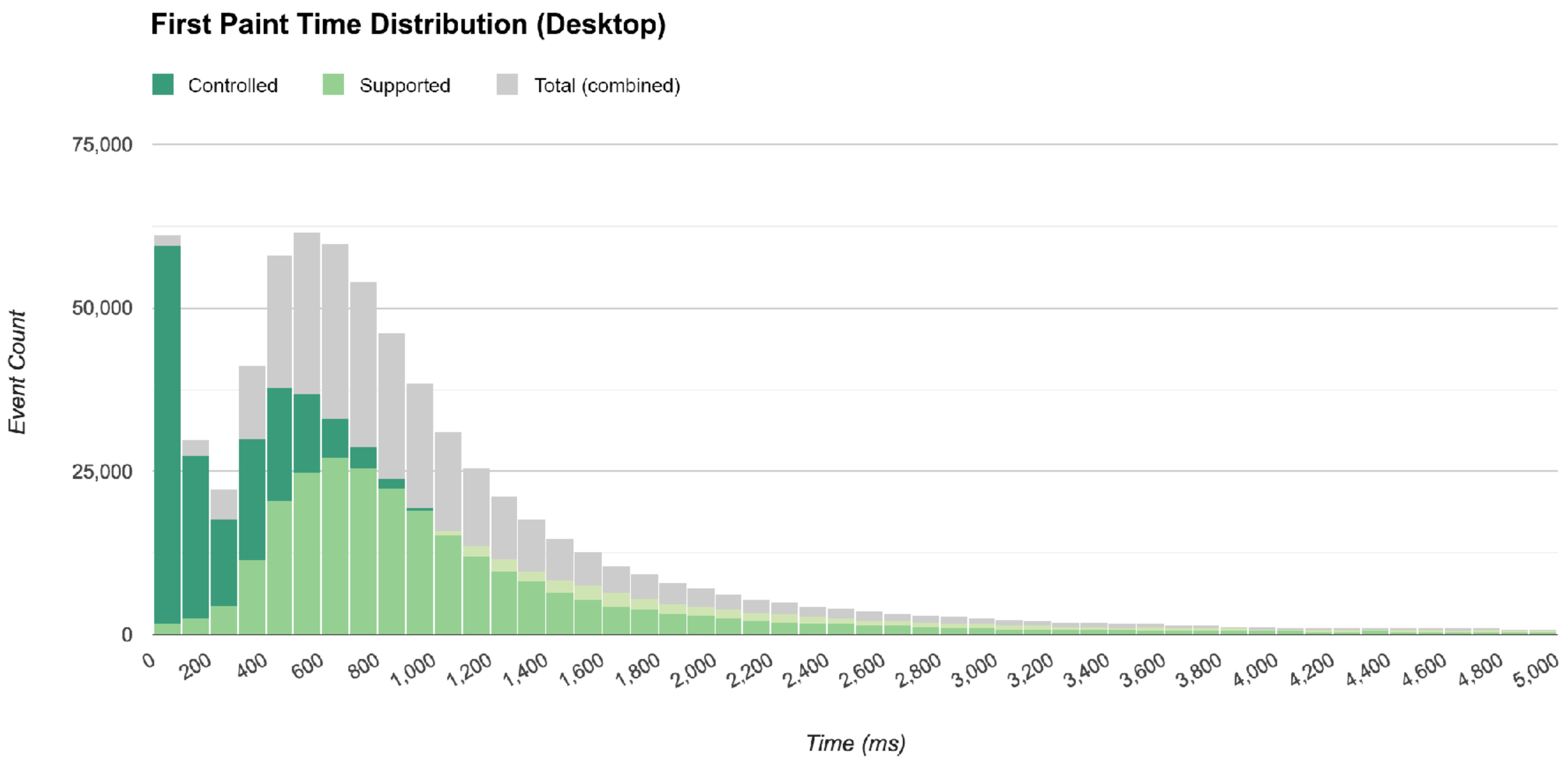
```
.backButton {
  display: none;
}

@media (display-mode: standalone), (display-mode: fullscreen) {
  .backButton {
    display: block;
  }
}
```


8:17
https://developer.chrome.com
Chrome Dev Summit
Keynote - Chrome Dev Summit 2014 (Darin Fisher) YouTube
Chrome
Dev
Summit
Keynote
Chrome Dev Summit 2014
chrome.com
ADD TO HOMESCREEN


First Paint Time Distribution (Desktop, without Service Worker)
Supported (not controlled)
75,000
50,000
25,000
0
Event Count
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Time (ms)


First Paint Time Distribution (Desktop, with Service Worker)
Controlled
75,000
50,000
25,000
0
Event Count
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Time (ms)


First Paint Time Distribution (Desktop)
Controlled
Supported
Total (combined)
75,000
50,000
25,000
0
Event Count
0
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
2,600
2,800
3,000
3,200
3,400
3,600
3,800
4,000
4,200
4,400
4,600
4,800
5,000
Time (ms)

Service Workers: Foundation

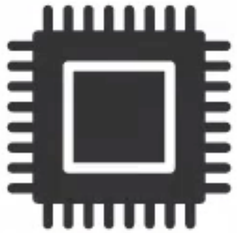
- *Service worker* is a background process running JS. It behaves like a proxy server on a user's device.
  - Websites *register a service worker;* it then intercepts all network traffic between the site and the outside world.
  - Once installed, browsers *dispatch events* to the service worker first, for each network request.
- *Goal:* a reliable "native" proxy that would deliver content when users are both online and *offline.*

Offline Strategy

- Depending on *complexity*, we might use offline caching, background processes, push notifications...
- A common offline strategy is quite *simple:*
  - — *Explicitely cache* resources like CSS, JS, fonts, images;
  - — *Cache the homepage* to display it when network fails;
  - — For other pages, have a *“fallback” offline page*.
- In general, the strategy is all about what we choose to *cache* — e.g. assets, templates, entire pages, helpers.



Page



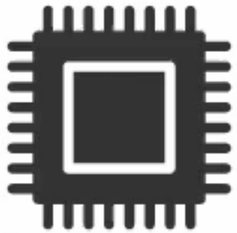
ServiceWorker



Cache



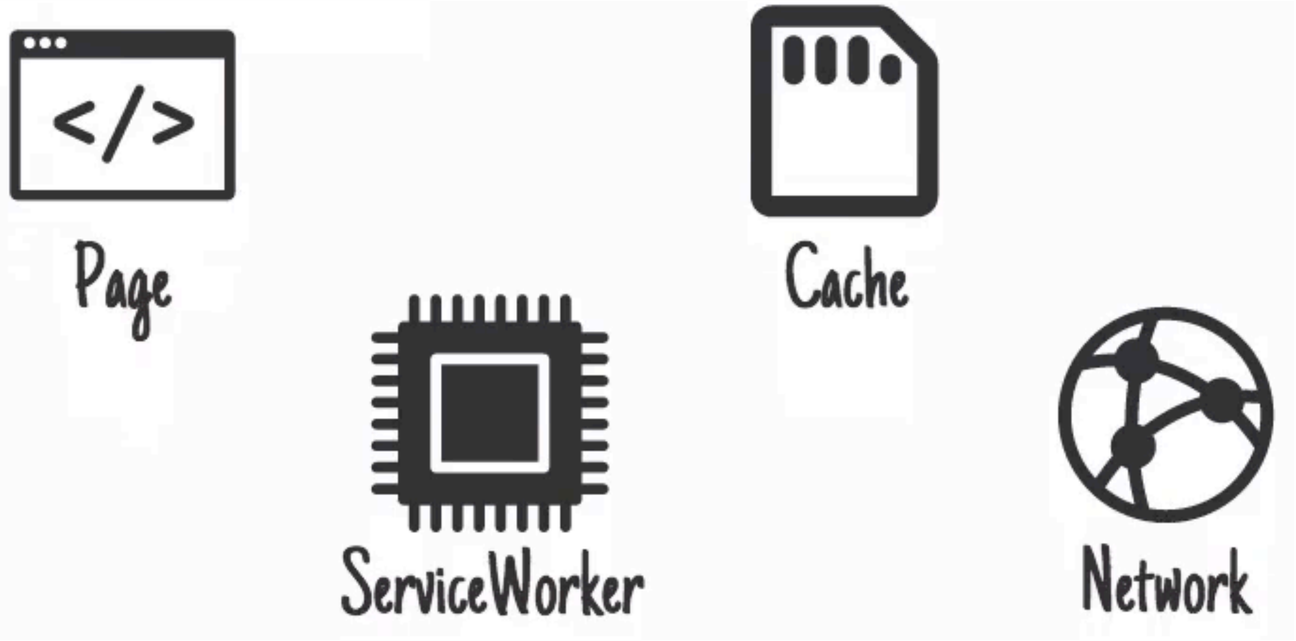
Page



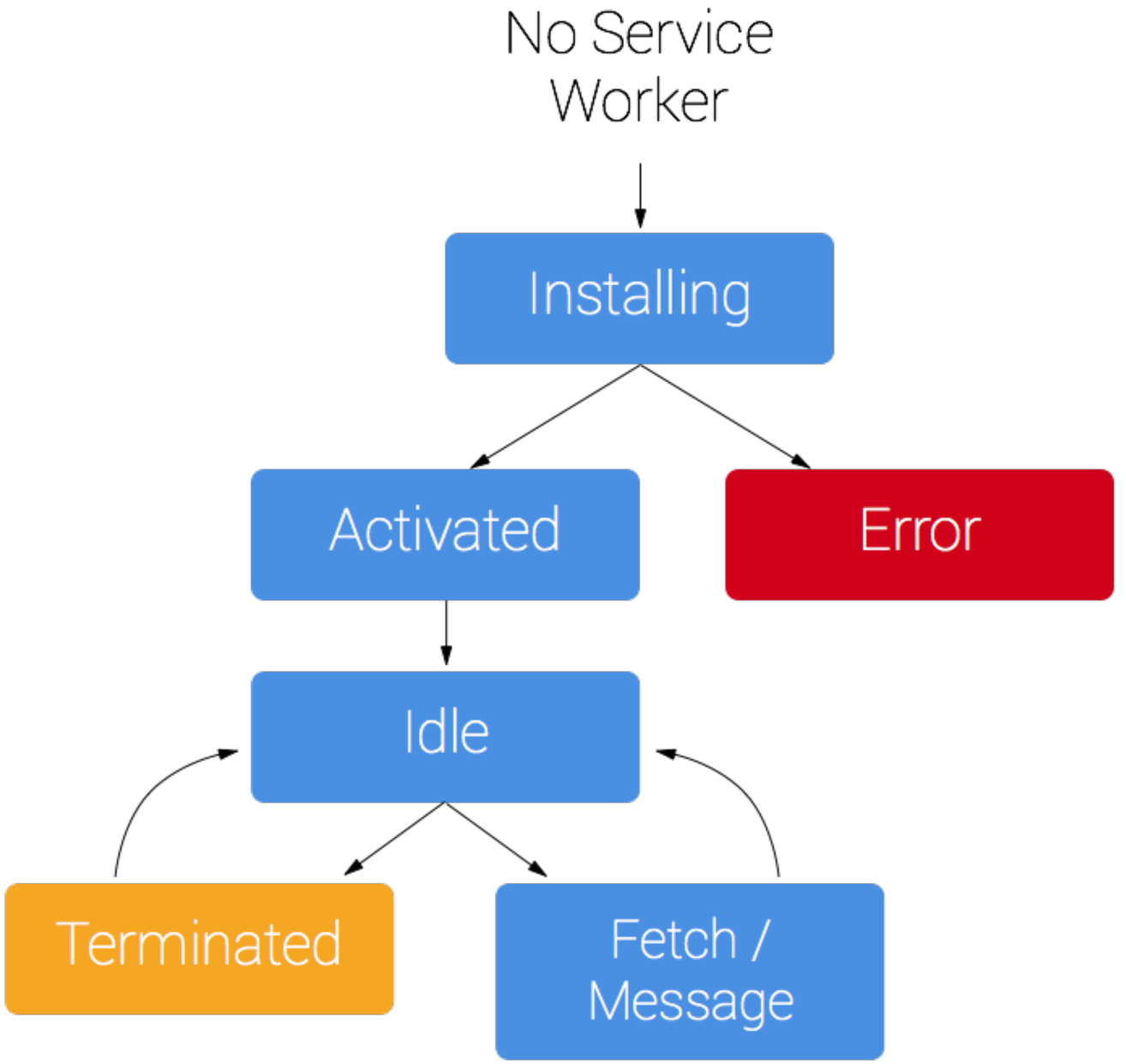
ServiceWorker



Network


Page
Cache
ServiceWorker
Network


Page
ServiceWorker
Cache
Network


No Service Worker
Installing
Activated
Error
Idle
Terminated
Fetch / Message

Offline Strategy

- Depending on *complexity*, we might use offline caching, background processes, push notifications...
- A common offline strategy is quite *simple:*
  - — *Explicitely cache* resources like CSS, JS, fonts, images;
  - — *Cache the homepage* to display it when network fails;
  - — For other pages, have a *"fallback" offline page*.
- We need to *register a Service worker* first.

Offline Strategy

- We need to *register a Service worker* first.
  - JavaScript:

```
if (navigator.serviceWorker) {
    navigator.serviceWorker.register(
        '/sw.js', {
            scope: '/'
    });
}
```

- *sw.js* sits in the root to act on *any* request; otherwise it acts on requests to a directory in which it resides.

Offline Strategy

- JavaScript:

```
if (navigator.serviceWorker) {
    navigator.serviceWorker.register(
        '/sw.js', {
            scope: '/'
    });
}
```

- *sw.js* sits in the root to act on *any* request; otherwise it acts on requests to a directory in which it resides.
- Caching of *sw.js* is capped for 24h via *Cache-Control*. Browsers will review the file when accessing the site.

Offline Strategy

- *sw.js* sits in the root to act on *any* request; otherwise it acts on requests to a directory in which it resides.
- Next, we need to *install* the *registered service worker.*

```
self.addEventListener('install', function (event) {
    event.waitUntil(updateStaticCache());
});

// Update 'version' if you need to refresh the cache
var staticCacheName='static';
var version='v1::';
```

Offline Strategy

- Next, we need to *install* the *registered service worker.*

```
self.addEventListener('install', function (event) {
    event.waitUntil(updateStaticCache());
});

// Update 'version' if you need to refresh the cache
var staticCacheName='static';
var version='v1::';
```

- By adding a *version number* (`version`), we can easily update the cache later just by updating the version number.

Offline Strategy

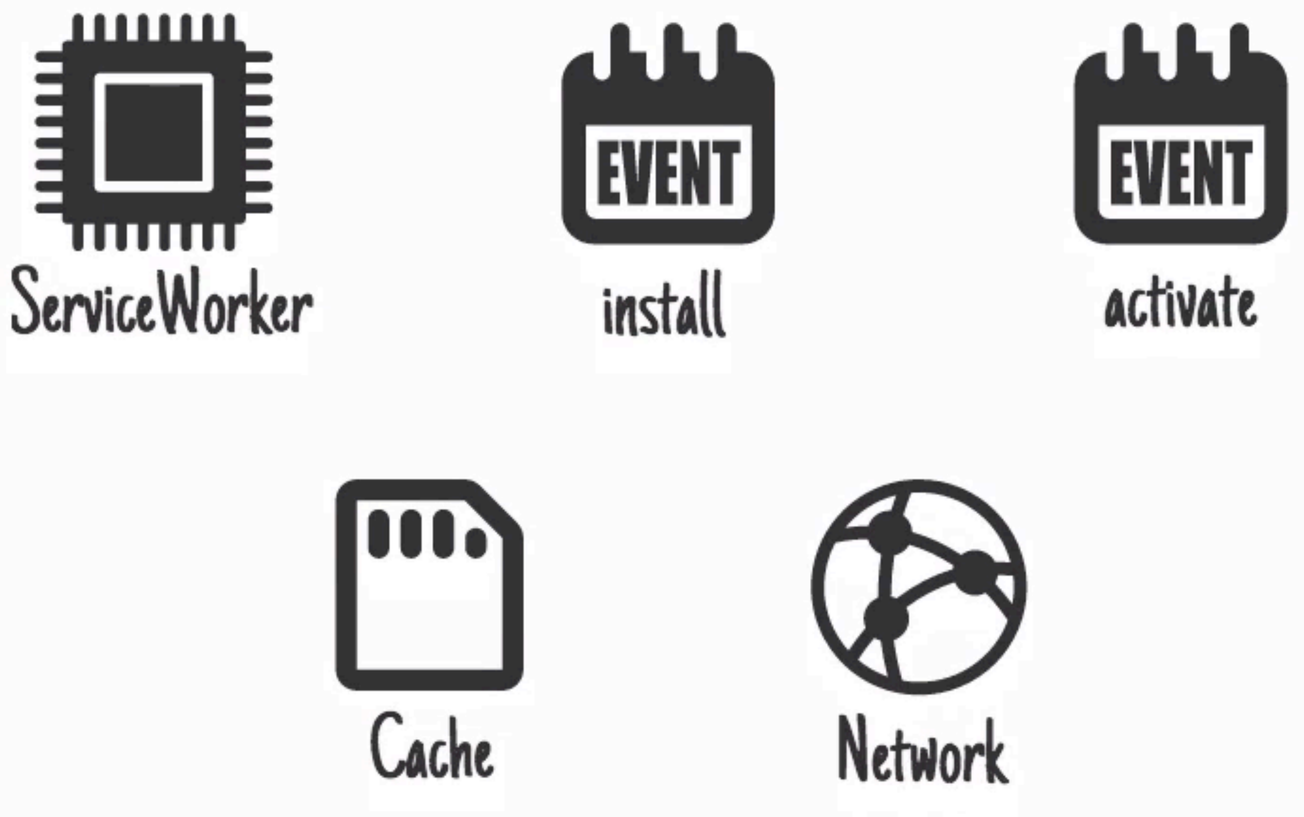
- We'll populate *cache* with *updateStaticCache()*.

```
// Store core files in a cache (incl. 'offline' page)
function updateStaticCache() {
    return caches.open(version + staticCacheName)
        .then(function (cache) {
            return cache.addAll([
              'js/scripts.js',
              'css/styles.css',
              'images/logo.svg',
              'fonts/webfont.woff',
              '/',
              '/offline']);
        });
};
```

Offline Strategy

- Now we can *activate* the service worker. We'll clean up any outdated caches (checking the version number).

```
self.addEventListener('activate', function (event) {
    event.waitUntil(
        caches.keys()
            .then(function (keys) {
                // Remove caches whose name is no longer valid
                return Promise.all(keys
                    .filter(function (key) {
                        return key.indexOf(version) !== 0; })
                    .map(function (key) {
                        return caches.delete(key); })
                );
            })
    );
});
```


ServiceWorker
EVENT
install
EVENT
activate
Cache
Network

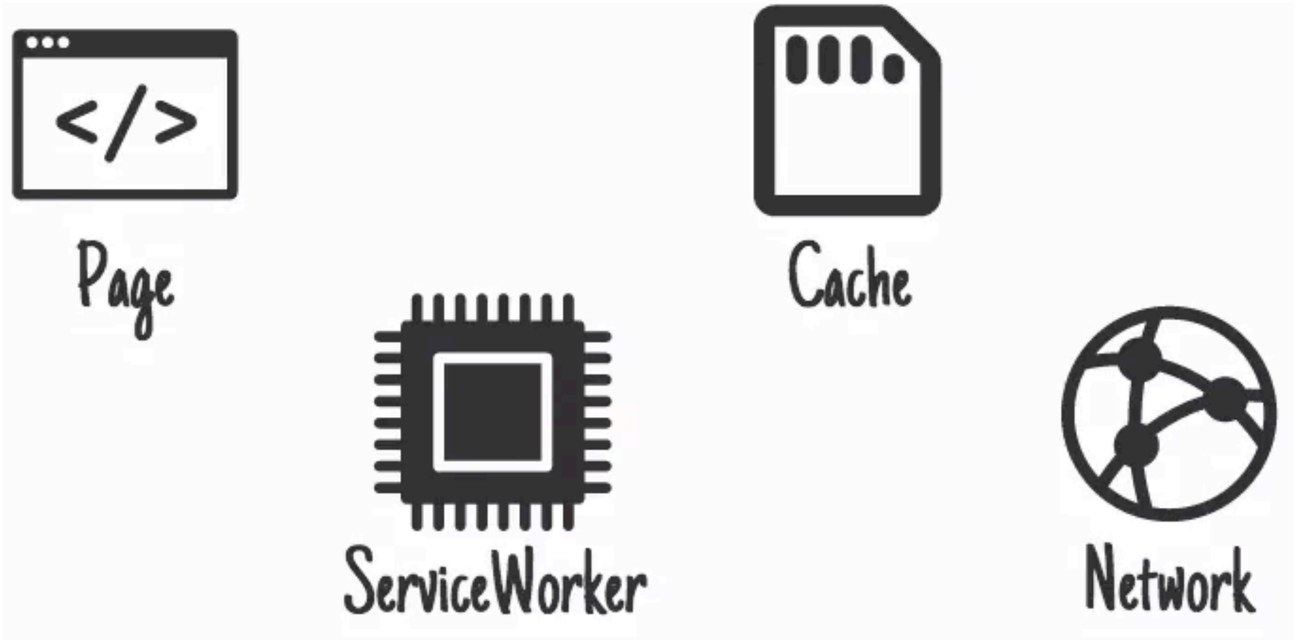
Offline Strategy

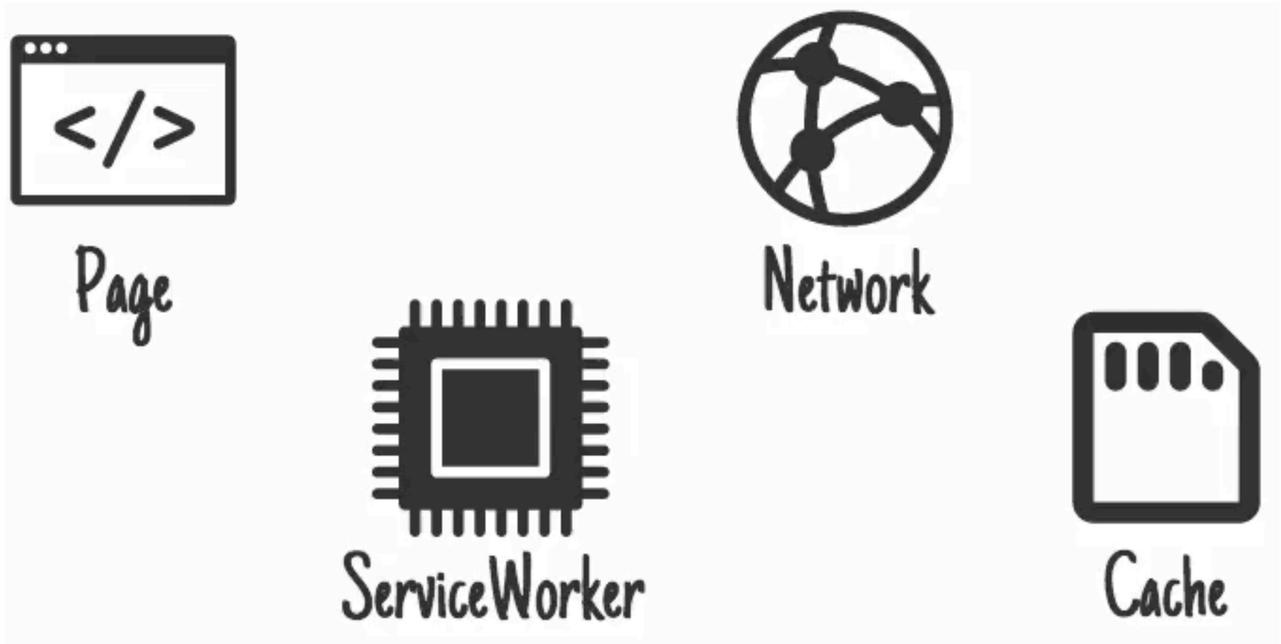
- *Register* a service worker ✓
- *Install* a service worker ✓
- *Versioning* setup for a service worker ✓
- *Cache population* setup for a service worker ✓
- *Activate* a service worker ✓
- *Managing cache* for a service worker ✓
- *Intercepting requests* with a service worker.

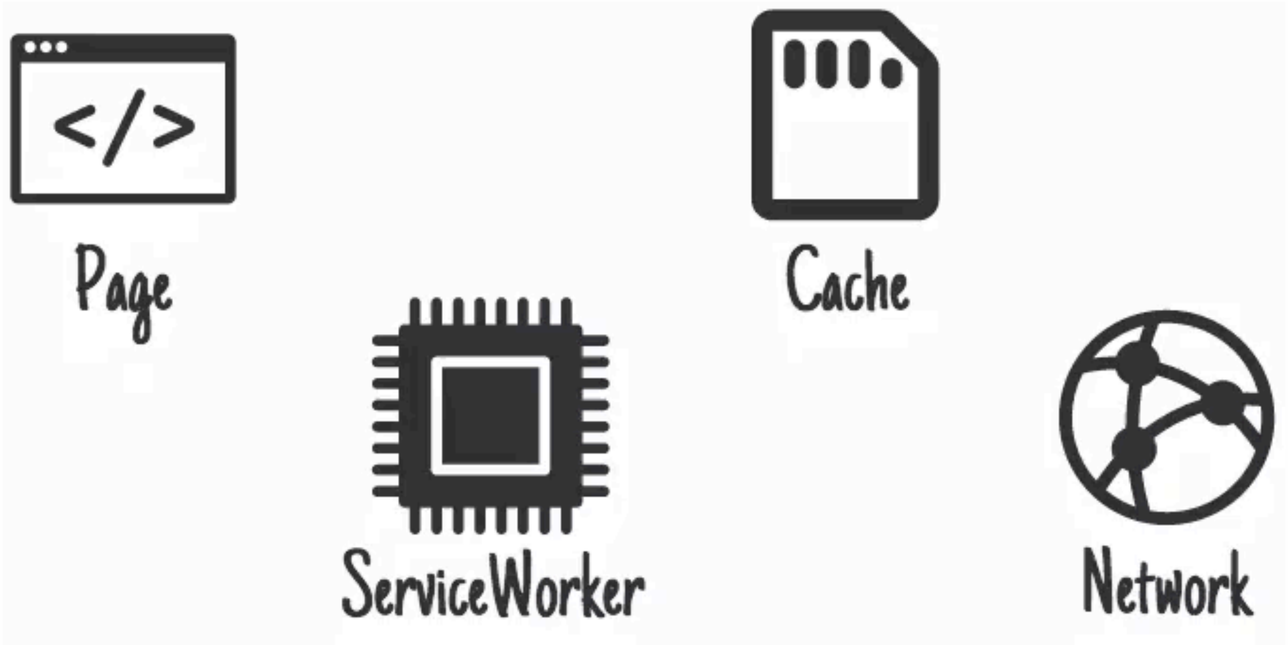
Offline Strategy

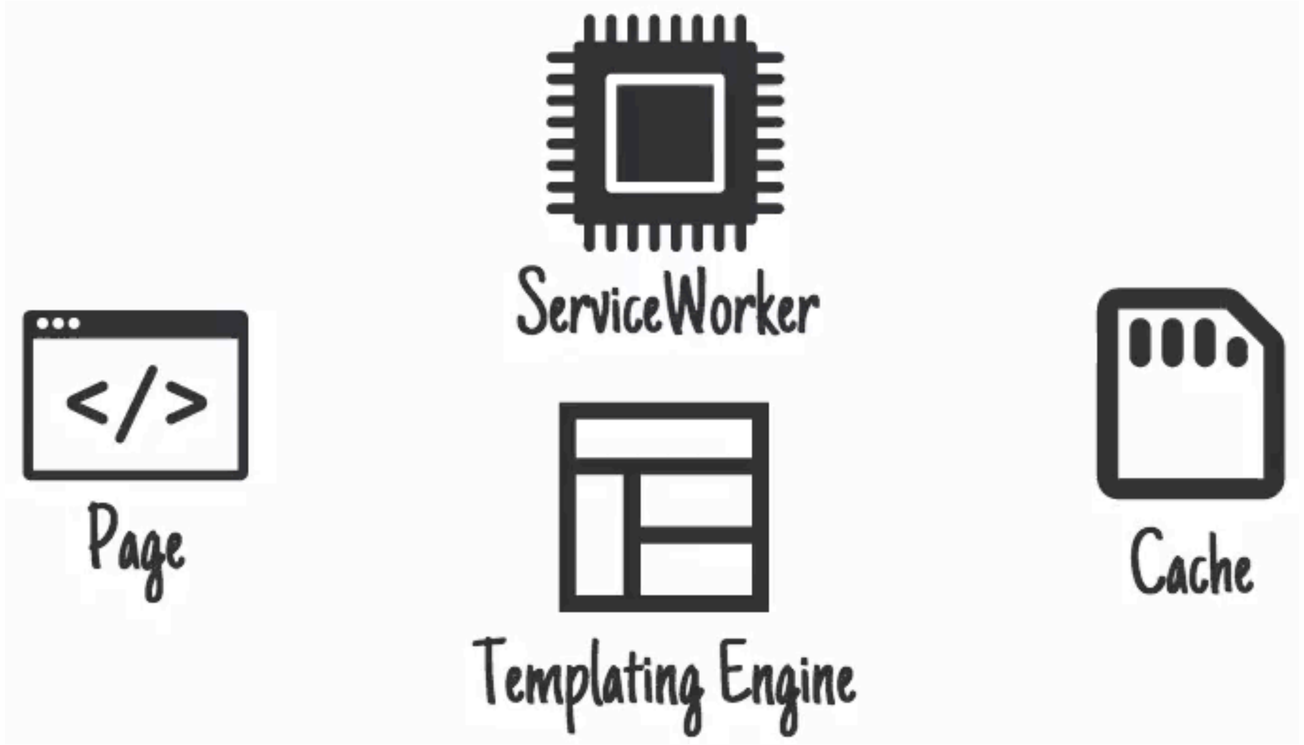
- The *fetch* event is fired every time the browser is going to *request* a file. We can intercept that request:

```
self.addEventListener('fetch', function (event) {
    var request = event.request;
    // Always fetch non-GET requests from network
    if (request.method !== 'GET') {
        event.respondWith(
            fetch(request)
            .catch(function () {
                return caches.match('offline.html');
             });
        );
    return;
}
```


Page
Cache
ServiceWorker
Network


Page
Network
ServiceWorker
Cache


Page
Cache
ServiceWorker
Network


ServiceWorker
Page
Templating Engine
Cache

Offline Strategy

- For *HTML requests*, try the *network* first. If it fails, try to fetch *cache.* If all fails, show the *offline* page.
- For *file requests*, try to fetch files from *cache* first. If it fails, make a *network* request. If it fails, use *fallback.*

```
if (request.headers.get('Accept').indexOf('text/html') !== -1) {
    event.respondWith(
        fetch(request)
            .then(function (response) {
                // Put a copy of this page in the cache
                var copy = response.clone();
                caches.open(version + staticCacheName)
                    .then(function (cache) {
                        cache.put(request, copy);
                    });
                return response;
            })
            .catch(function () {
                return caches.match(request)
                    .then(function (response) {
                        return response || caches.match('/offline.html');
                    })
            })
    );
    return;
}
```

```
if (request.headers.get('Accept').indexOf('text/html') !== -1) {
    event.respondWith(
        fetch(request)
            .then(function (response) {
                // Put a copy of this page in the cache
                var copy = response.clone();
                caches.open(version + staticCacheName)
                    .then(function (cache) {
                        cache.put(request, copy);
                    });
                return response;
            })
            .catch(function () {
                return caches.match(request)
                    .then(function (response) {
                        return response || caches.match('/offline.html');
                    })
            })
    );
    return;
}
```

Offline Strategy

- For *HTML requests*, try the *network* first. If it fails, try to fetch *cache.* If all fails, show the *offline* page.
- For *file requests*, try to fetch files from *cache* first. If it fails, make a *network* request. If it fails, use *fallback.*

```
// For non-HTML, try cache first, then fall back to the network
event.respondWith(
    caches.match(request)
        .then(function (response) {
            return response || fetch(request)
                .catch(function () {
                    // If request is img, show offline placeholder
                    if (request.headers.get('Accept').
                        indexOf('image') !== -1) {
                            return new Response(
                            '<svg.. />', { headers: { 'Content-
                            Type': 'image/svg+xml' }}
                            );
                        }
                });
        })
);
```

Offline Strategy

- *Register* a service worker ✓
- *Install* a service worker ✓
- *Versioning* setup for a service worker ✓
- *Cache population* setup for a service worker ✓
- *Activate* a service worker ✓
- *Managing cache* for a service worker ✓
- *Intercepting requests* with a service worker ✓

Service Workers Gotchas

- Service workers *require* a secure connection (HTTPS) and are based on Promises.
- *Cache API* is completely separate from HTTP cache. *Response* is a stream; to cache it, you need to copy it first.
- A service worker can have *multiple caches* and can be *registered* many times; the browser will figure it out.

Service Workers - WD

Method that enables applications to take advantage of persistent background processing, including hooks to enable bootstrapping of web applications while offline.

Usage	% of all users	
Global	79.31% + 0.19% =	79.49%
Lithuania	83.34% + 0.09% =	83.42%

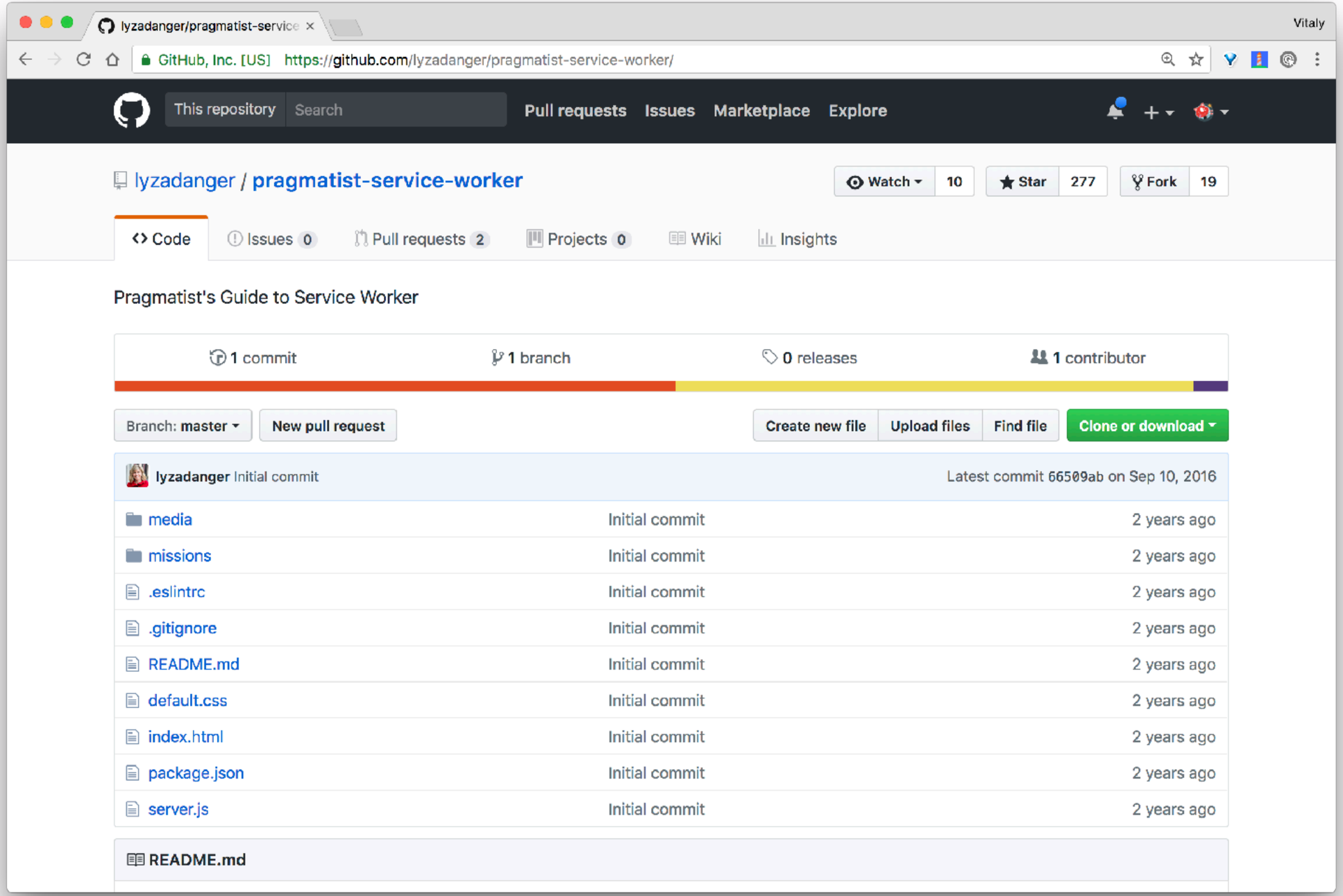
Current aligned | Usage relative | Date relative | Show all

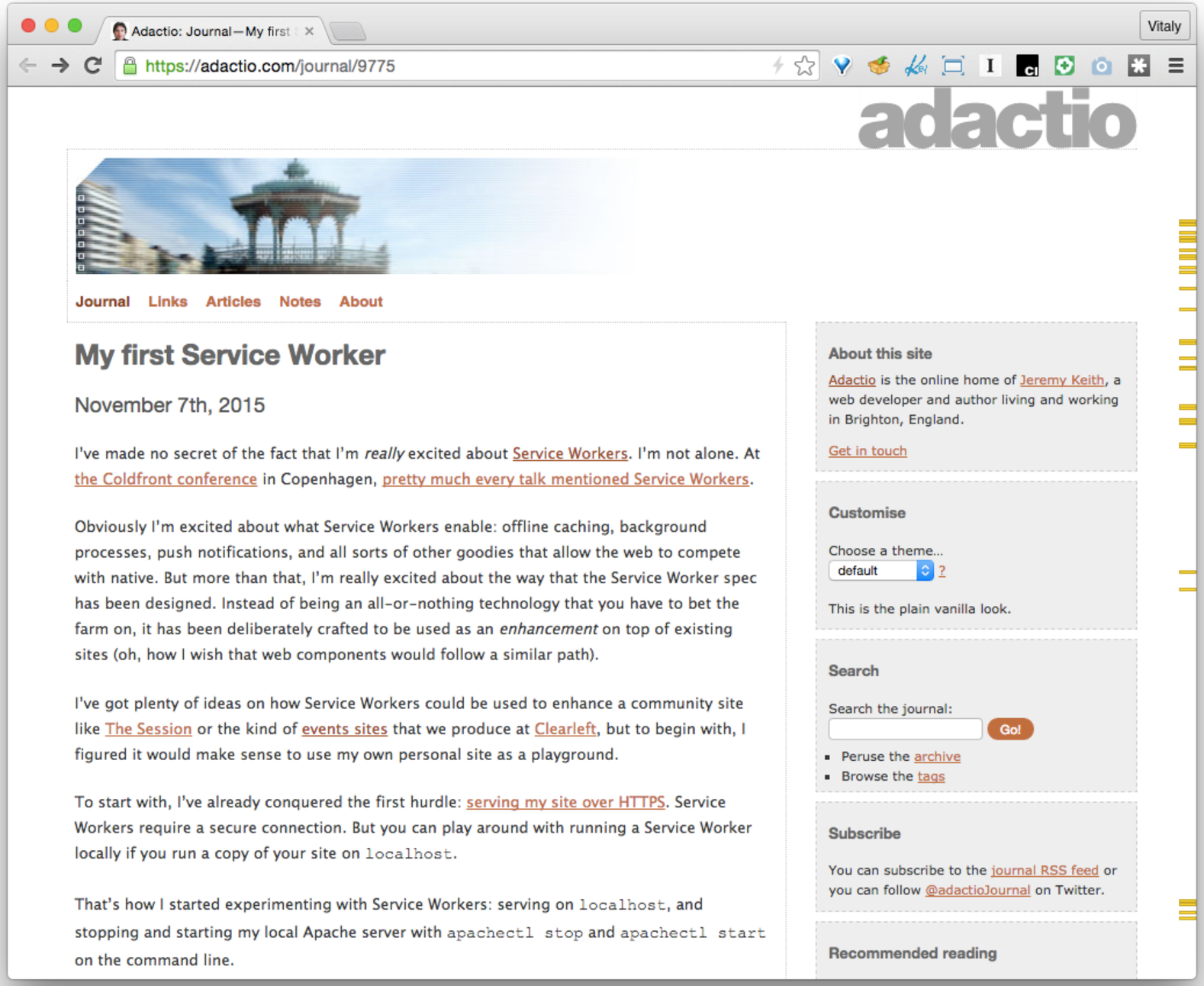
IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			49						
			64		10.3				
	[2] 16	59	65	11	11.2				4
11	17	60	66	11.1	11.3	all	66	11.8	6.2
	18	61	67	TP					
		62	68						
			69						

Notes | Known issues (0) | Resources (8) | Feedback

Details on partial support can be found on is ServiceWorker Ready?

[2] Available behind the "Enable service workers" flag


lyzadanger/pragmatist-service
Vitaly
GitHub, Inc. [US] https://github.com/lyzadanger/pragmatist-service-worker/
This repository
Search
Pull requests
Issues
Marketplace
Explore
lyzadanger / pragmatist-service-worker
Watch 10
Star 277
Fork 19
Code
Issues 0
Pull requests 2
Projects 0
Wiki
Insights
Pragmatist's Guide to Service Worker
1 commit
1 branch
0 releases
1 contributor
Branch: master
New pull request
Create new file
Upload files
Find file
Clone or download
lyzadanger Initial commit
Latest commit 66509ab on Sep 10, 2016
media Initial commit 2 years ago
missions Initial commit 2 years ago
.eslintrc Initial commit 2 years ago
.gitignore Initial commit 2 years ago
README.md Initial commit 2 years ago
default.css Initial commit 2 years ago
index.html Initial commit 2 years ago
package.json Initial commit 2 years ago
server.js Initial commit 2 years ago
README.md


Adactio: Journal—My first
Vitaly
https://adactio.com/journal/9775
adactio
Journal Links Articles Notes About
My first Service Worker
November 7th, 2015
I've made no secret of the fact that I'm *really* excited about Service Workers. I'm not alone. At the Coldfront conference in Copenhagen, pretty much every talk mentioned Service Workers.
Obviously I'm excited about what Service Workers enable: offline caching, background processes, push notifications, and all sorts of other goodies that allow the web to compete with native. But more than that, I'm really excited about the way that the Service Worker spec has been designed. Instead of being an all-or-nothing technology that you have to bet the farm on, it has been deliberately crafted to be used as an *enhancement* on top of existing sites (oh, how I wish that web components would follow a similar path).
I've got plenty of ideas on how Service Workers could be used to enhance a community site like The Session or the kind of events sites that we produce at Clearleft, but to begin with, I figured it would make sense to use my own personal site as a playground.
To start with, I've already conquered the first hurdle: serving my site over HTTPS. Service Workers require a secure connection. But you can play around with running a Service Worker locally if you run a copy of your site on localhost.
That's how I started experimenting with Service Workers: serving on localhost, and stopping and starting my local Apache server with apachectl stop and apachectl start on the command line.
About this site
Adactio is the online home of Jeremy Keith, a web developer and author living and working in Brighton, England.
Get in touch
Customise
Choose a theme...
default
?
This is the plain vanilla look.
Search
Search the journal:
Go!
Peruse the archive
Browse the tags
Subscribe
You can subscribe to the journal RSS feed or you can follow @adactioJournal on Twitter.
Recommended reading

Introduction to Service Wo

Vitaly

www.html5rocks.com/en/tutorials/service-worker/introduction/

HOME TUTORIALS UPDATES

Introduction to Service Worker

How to use Service Worker

Table of Contents

- What is a Service Worker?
- Service Worker Lifecycle
- Before We Start
- How to Update a Service Worker
- Rough Edges & Gotchas
- Learn More
- Get Help

Localizations

- 日本語
- 한국어



By Matt Gaunt

Published: December 1st, 2014
Updated: December 1st, 2014
Comments: 29

Rich offline experiences, periodic background syncs, push notifications—functionality that would normally require a native application—are coming to the web. Service workers provide the technical foundation that all these features will rely on.

What is a Service Worker?

A service worker is a script that is run by your browser in the background, separate from a web page, opening the door to features which don't need a web

Is ServiceWorker ready?

Vitaly

https://jakearchibald.github.io/isserviceworkerready/

is SERVICEWORKER ready?

Status * Spec * Intro * Resources * GitHub

ServiceWorker enthusiasm

The first thing any implementation needs.



Safari: No public commitment

Edge: Under consideration, but positive signals.

Promises

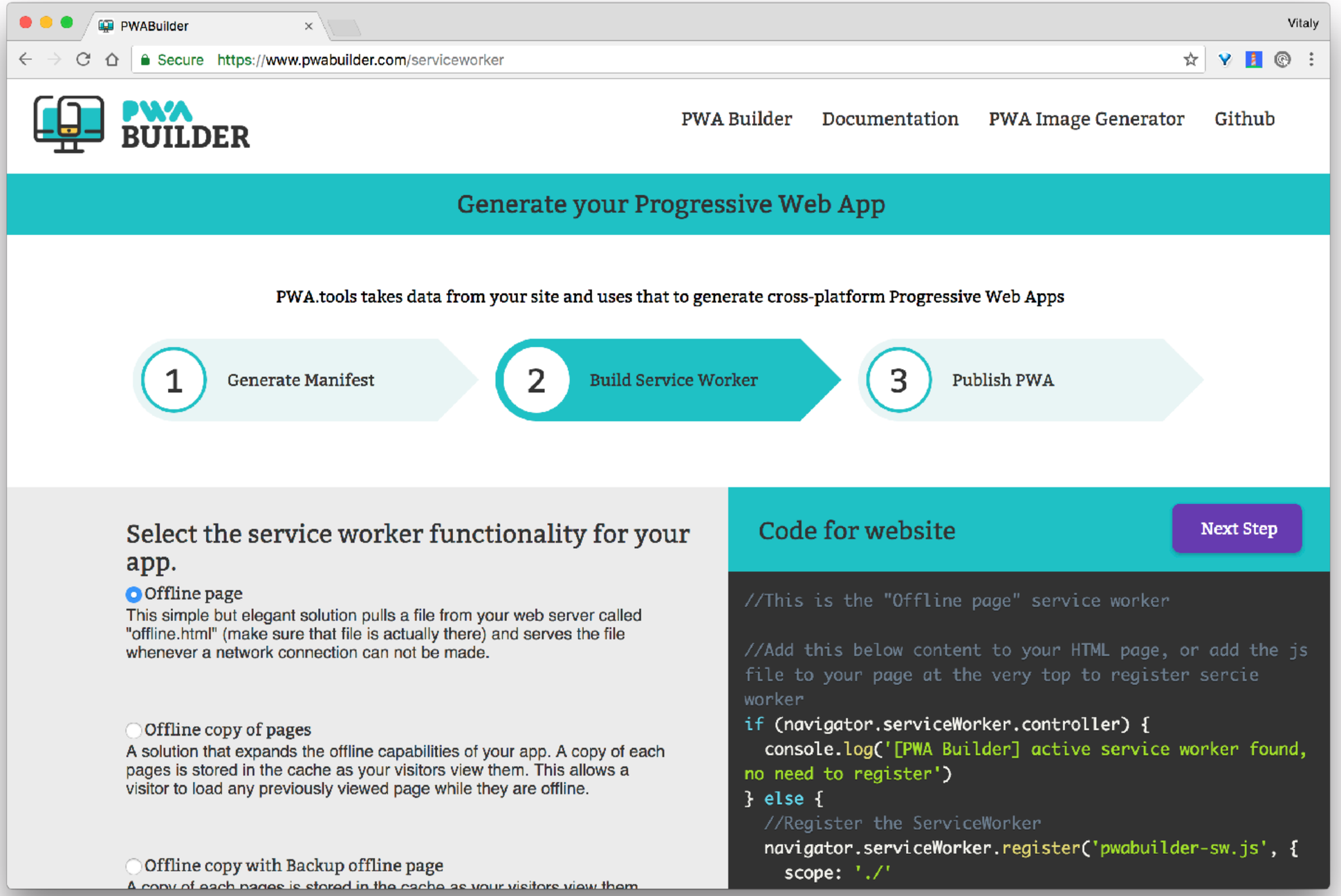
Not ServiceWorker-specific, but required by ServiceWorker. Spec.

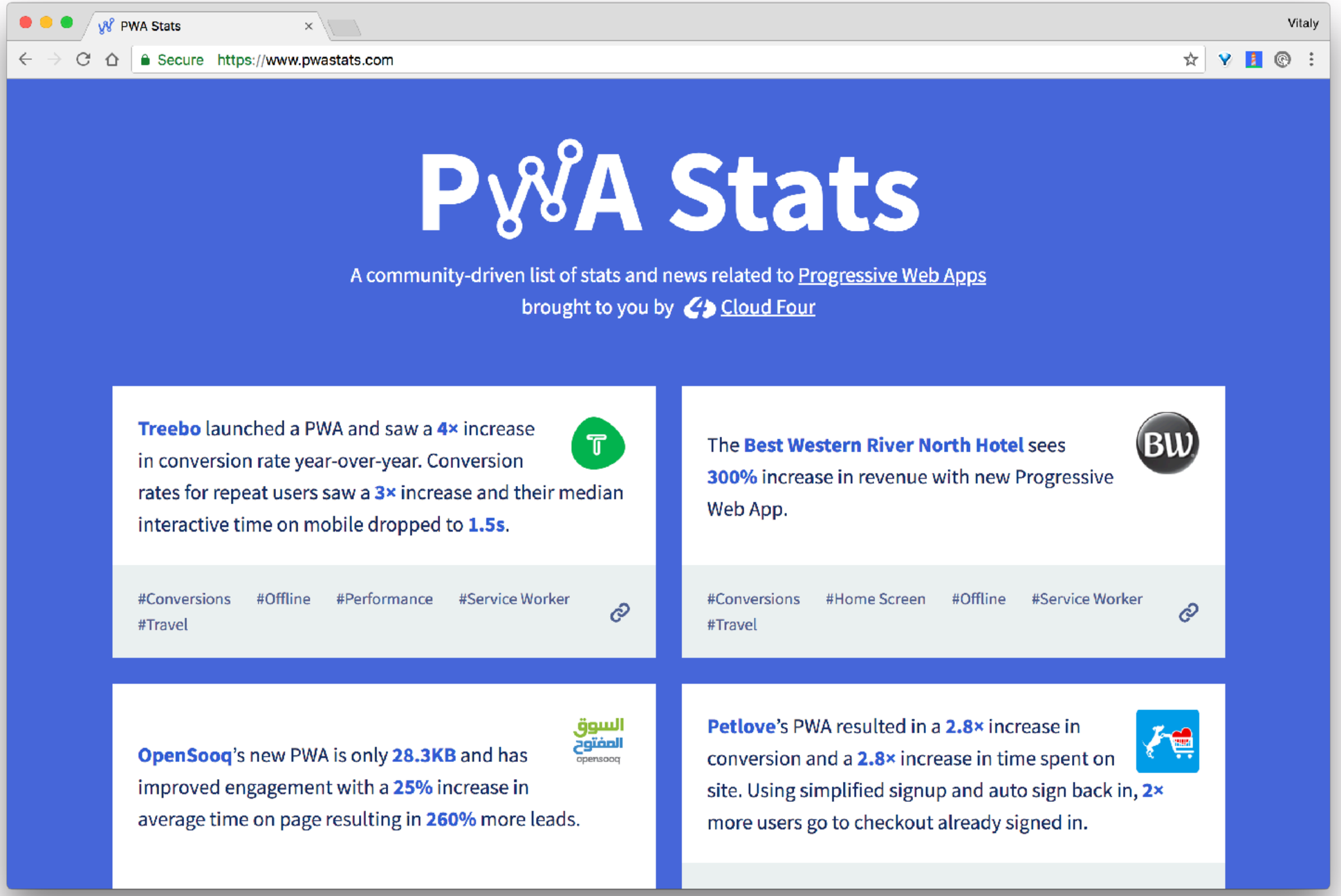


Safari: `Promise.resolve(promise)` creates a new `Promise` instance (fixed in the nightlies)

Edge: Preview build.

https://jakearchibald.github.io/isserviceworkerready/index.html


PWABuilder
Vitaly
Secure https://www.pwabuilder.com/serviceworker
PWA BUILDER
PWA Builder
Documentation
PWA Image Generator
Github
Generate your Progressive Web App
PWA.tools takes data from your site and uses that to generate cross-platform Progressive Web Apps
1
Generate Manifest
2
Build Service Worker
3
Publish PWA
Select the service worker functionality for your app.
Offline page
This simple but elegant solution pulls a file from your web server called "offline.html" (make sure that file is actually there) and serves the file whenever a network connection can not be made.
Offline copy of pages
A solution that expands the offline capabilities of your app. A copy of each pages is stored in the cache as your visitors view them. This allows a visitor to load any previously viewed page while they are offline.
Offline copy with Backup offline page
Code for website
Next Step
//This is the "Offline page" service worker
//Add this below content to your HTML page, or add the js file to your page at the very top to register sercie worker
if (navigator.serviceWorker.controller) {
console.log('[PWA Builder] active service worker found, no need to register')
} else {
//Register the ServiceWorker
navigator.serviceWorker.register('pwabuilder-sw.js', {
scope: './'


PWA Stats
Vitaly
Secure https://www.pwastats.com
PWA Stats
A community-driven list of stats and news related to Progressive Web Apps
brought to you by Cloud Four
Treebo launched a PWA and saw a 4× increase in conversion rate year-over-year. Conversion rates for repeat users saw a 3× increase and their median interactive time on mobile dropped to 1.5s.
#Conversions #Offline #Performance #Service Worker #Travel
The Best Western River North Hotel sees 300% increase in revenue with new Progressive Web App.
#Conversions #Home Screen #Offline #Service Worker #Travel
OpenSooq's new PWA is only 28.3KB and has improved engagement with a 25% increase in average time on page resulting in 260% more leads.
Petlove's PWA resulted in a 2.8× increase in conversion and a 2.8× increase in time spent on site. Using simplified signup and auto sign back in, 2× more users go to checkout already signed in.

Front-End Performance Check ×

Secure | https://www.smashingmagazine.com/2018/01/front-end-performance-checklist-2018-pdf-pages/



Performance matters — we all know it. However, do we actually always know what our performance bottlenecks exactly are? Is it expensive JavaScript, slow web font delivery, heavy images, or sluggish rendering? Is it worth exploring tree-shaking, scope hoisting, code-splitting, and all the fancy loading patterns with intersection observer, clients hints, CSS containment, HTTP/2 and service workers? And, most importantly, **where do we even start improving performance** and how do we establish a performance culture long-term?

Back in the day, performance was often a mere *afterthought*. Often deferred till the very end of the project, it would boil down to minification, concatenation, asset optimization and potentially a few fine adjustments on the server's `config` file. Looking back now, things seem to have changed quite significantly.

JANUARY 3, 2018 • 12 COMMENTS

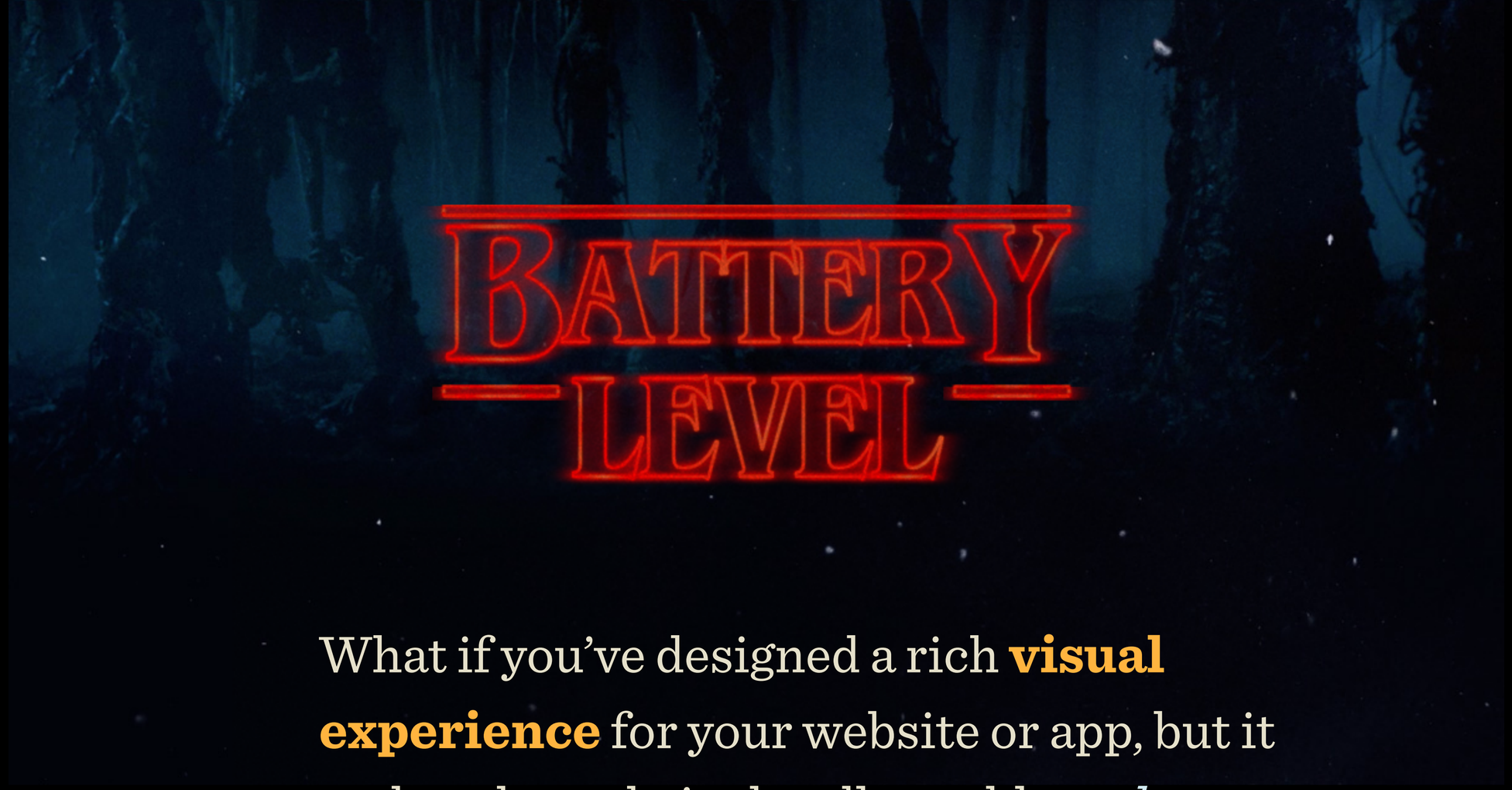
Front-End Performance Checklist 2018 [PDF, Apple Pages]

Performance 63 # Service Workers 5 # Checklists 7

TABLE OF CONTENTS

01 Getting Ready: Planning And Metrics
02 Setting Realistic Goals
03 Defining The Environment
04 Build Optimizations
05 Assets Optimizations
06 Delivery Optimizations


BONUS
LEVEL
SCORE EXTRA POINTS!



What if you've designed a rich **visual experience** for your website or app, but it makes the website hardly usable on *low battery?* How do you make sure that your websiter remains "responsive" then?



Working With The JavaScript

BATTERY API

The *Battery Status API* talks to the device's hardware and provides accurate data about the device's *charging* state. Accessible via `navigator.getBattery()`.

- JavaScript:

```
if (navigator.getBattery) {
    // Battery API available.
}
else {
    // No Battery API support.
    // Handle error accordingly.
}
```

- JavaScript:

```
navigator.getBattery()
    .then(function(batteryManager) {
        // Get current charge in percentages.
        var level = batteryManager.level * 100;
    })

    .catch(function(e) {
        console.error(e);
    });
```

`getBattery()` returns a promise and resolves with a `batteryManager` object containing information about the current status of the hardware.

- `batteryManager.level` returns the current charge, a float between 0 and 1.

- `batteryManager.charging` returns if the device is on power supply (`true`/`false`).

- `batteryManager.chargingTime` returns remaining time in sec till fully charged.

- `batteryManager.dischargingTime` returns remaining time until battery is dead.

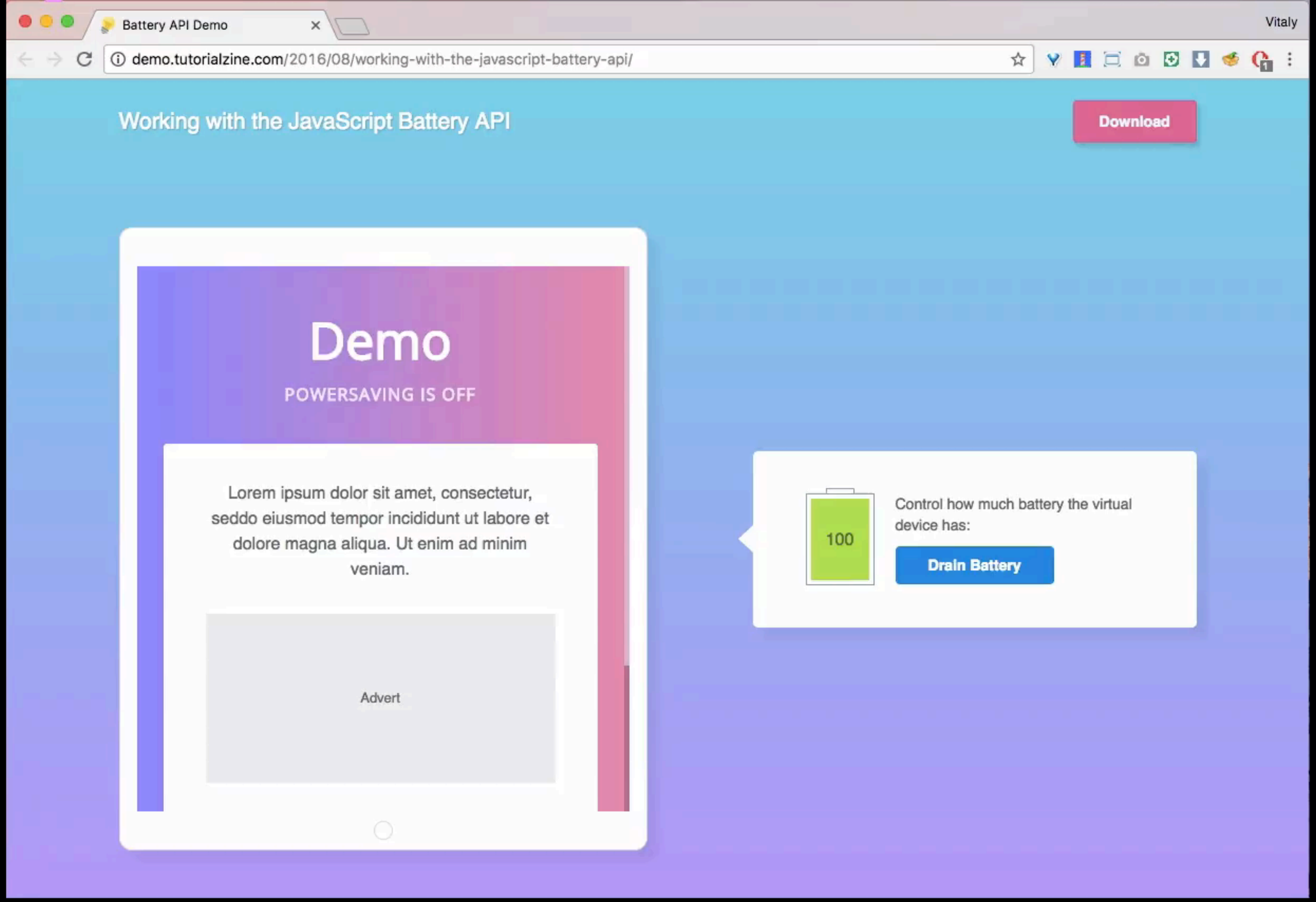
The *Battery Status API* also provides events that can be used to *monitor changes* in above properties.

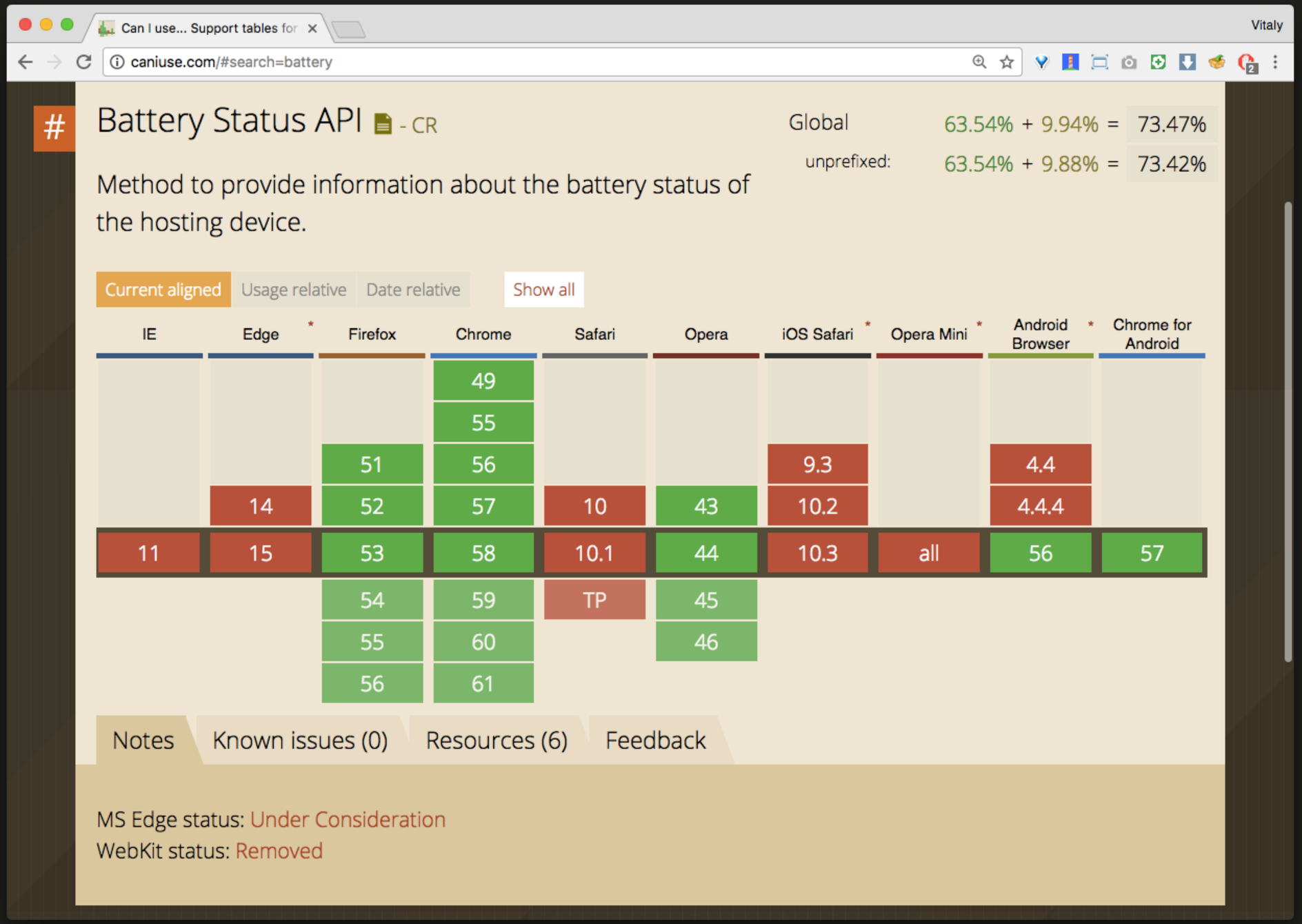
- `batteryManager.onlevelchange`
- `batteryManager.onchargingchange`
- `batteryManager.onchargingtimechange`
- `batteryManager.ondischargingtimechange`

`getBattery()` returns a promise and resolves with a `batteryManager` object containing information about the current status of the hardware.

- JavaScript:

```
navigator.getBattery()
    .then(function(battery) {
        // Switch to Power Save for non-charging, low battery.
        battery.onlevelchange = function() {
            if (battery.level < 0.3 && !battery.charging) {
                powerSavingMode = true;
            // Remove parallax, web fonts, map embeds, video, JS
            // Save user's data, inform them about low battery
            }
        }
    }
    .catch(function(e) {
        console.error(e);
    });
```


Battery API Demo
Vitaly
demo.tutorialzine.com/2016/08/working-with-the-javascript-battery-api/
Working with the JavaScript Battery API
Download
Demo
POWERSAVING IS OFF
Lorem ipsum dolor sit amet, consectetur, seddo eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam.
Advert
100
Control how much battery the virtual device has:
Drain Battery


Can I use... Support tables for
Vitaly
caniuse.com/#search=battery
#
Battery Status API - CR
Method to provide information about the battery status of the hosting device.
Global 63.54% + 9.94% = 73.47%
unprefixed: 63.54% + 9.88% = 73.42%
Current aligned
Usage relative
Date relative
Show all
IE
Edge *
Firefox
Chrome
Safari
Opera
iOS Safari *
Opera Mini *
Android Browser *
Chrome for Android
49
55
51
56
9.3
4.4
14
52
57
10
43
10.2
4.4.4
11
15
53
58
10.1
44
10.3
all
56
57
54
59
TP
45
55
60
46
56
61
Notes
Known issues (0)
Resources (6)
Feedback
MS Edge status: Under Consideration
WebKit status: Removed

Adapt based on user's effective network connection

```
navigator.connection.effectiveType
```



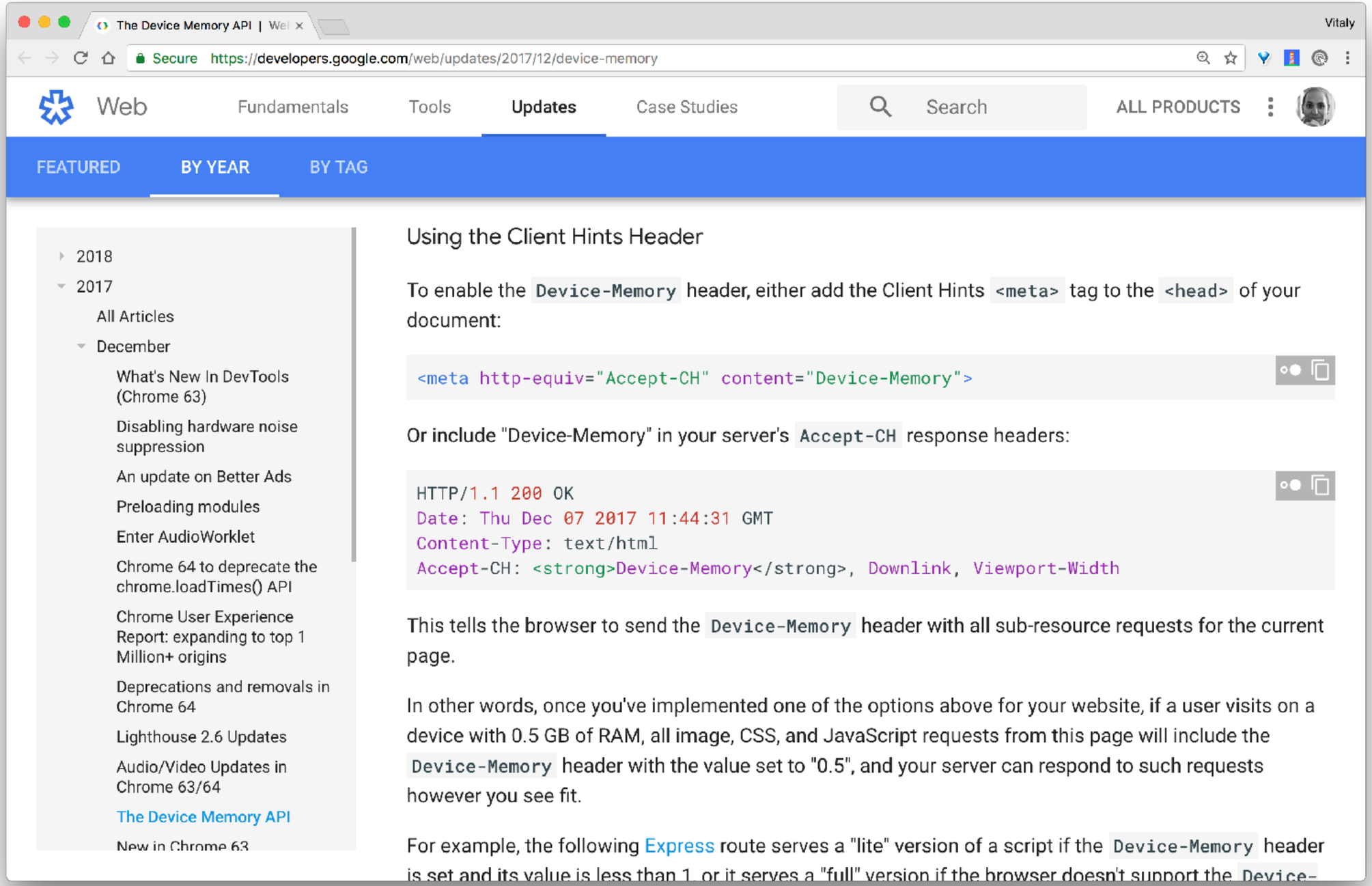
4G+ get <video>

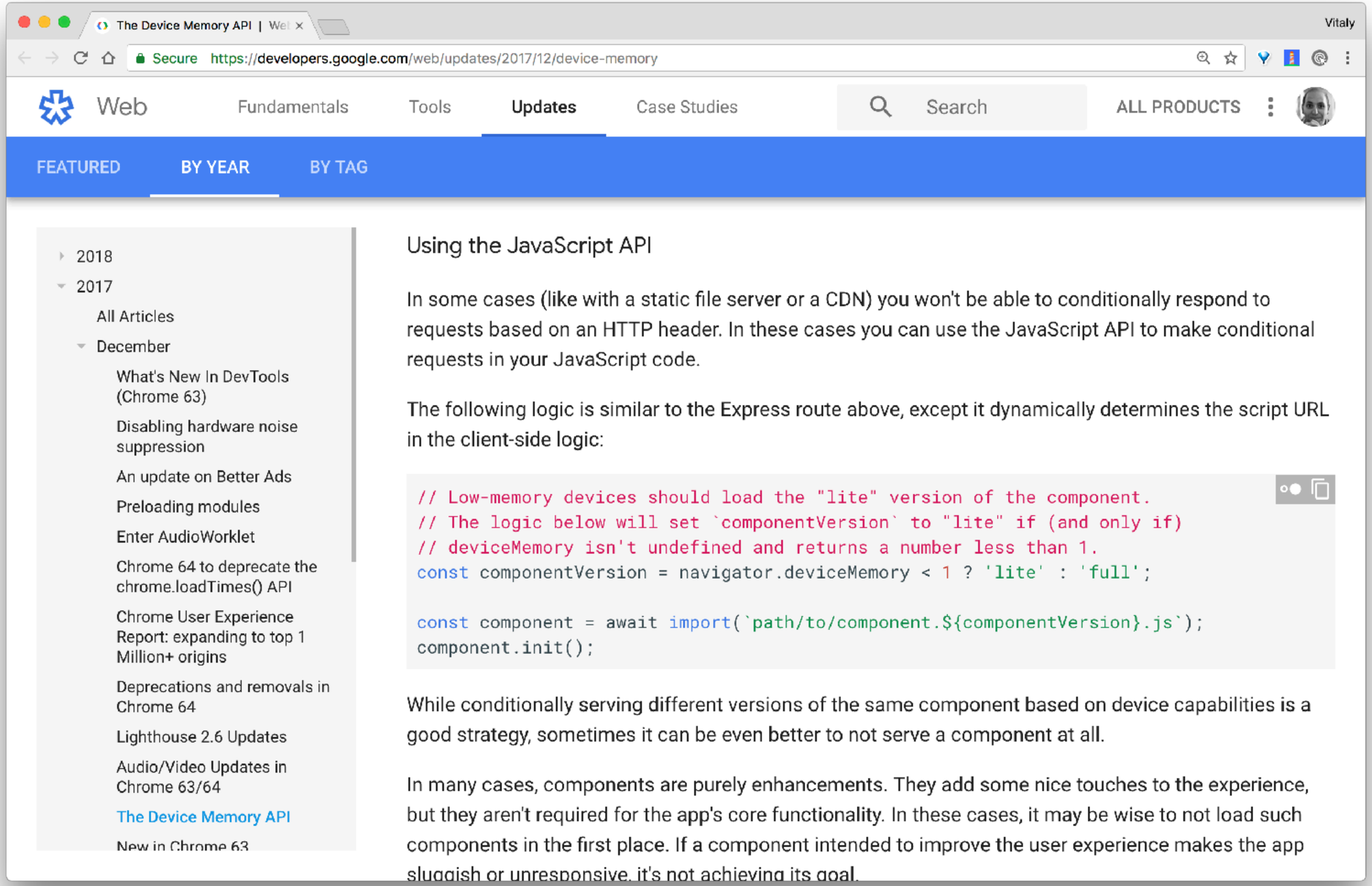
~1MB



2G-3G get static <img>

~30KB


The Device Memory API | Wel
Vitaly
Secure https://developers.google.com/web/updates/2017/12/device-memory
Web
Fundamentals
Tools
Updates
Case Studies
Search
ALL PRODUCTS
FEATURED
BY YEAR
BY TAG
2018
2017
All Articles
December
What's New In DevTools (Chrome 63)
Disabling hardware noise suppression
An update on Better Ads
Preloading modules
Enter AudioWorklet
Chrome 64 to deprecate the chrome.loadTimes() API
Chrome User Experience Report: expanding to top 1 Million+ origins
Deprecations and removals in Chrome 64
Lighthouse 2.6 Updates
Audio/Video Updates in Chrome 63/64
The Device Memory API
New in Chrome 63
Using the Client Hints Header
To enable the Device-Memory header, either add the Client Hints <meta> tag to the <head> of your document:
<meta http-equiv="Accept-CH" content="Device-Memory">
Or include "Device-Memory" in your server's Accept-CH response headers:
HTTP/1.1 200 OK
Date: Thu Dec 07 2017 11:44:31 GMT
Content-Type: text/html
Accept-CH: Device-Memory, Downlink, Viewport-Width
This tells the browser to send the Device-Memory header with all sub-resource requests for the current page.
In other words, once you've implemented one of the options above for your website, if a user visits on a device with 0.5 GB of RAM, all image, CSS, and JavaScript requests from this page will include the Device-Memory header with the value set to "0.5", and your server can respond to such requests however you see fit.
For example, the following Express route serves a "lite" version of a script if the Device-Memory header is set and its value is less than 1, or it serves a "full" version if the browser doesn't support the Device-


The Device Memory API | Wel
Vitaly
Secure https://developers.google.com/web/updates/2017/12/device-memory
Web
Fundamentals
Tools
Updates
Case Studies
Search
ALL PRODUCTS
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BY TAG
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2017
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What's New In DevTools (Chrome 63)
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Deprecations and removals in Chrome 64
Lighthouse 2.6 Updates
Audio/Video Updates in Chrome 63/64
The Device Memory API
New in Chrome 63
Using the JavaScript API
In some cases (like with a static file server or a CDN) you won't be able to conditionally respond to requests based on an HTTP header. In these cases you can use the JavaScript API to make conditional requests in your JavaScript code.
The following logic is similar to the Express route above, except it dynamically determines the script URL in the client-side logic:
// Low-memory devices should load the "lite" version of the component.
// The logic below will set `componentVersion` to "lite" if (and only if)
// deviceMemory isn't undefined and returns a number less than 1.
const componentVersion = navigator.deviceMemory < 1 ? 'lite' : 'full';
const component = await import(`path/to/component.${componentVersion}.js`);
component.init();
While conditionally serving different versions of the same component based on device capabilities is a good strategy, sometimes it can be even better to not serve a component at all.
In many cases, components are purely enhancements. They add some nice touches to the experience, but they aren't required for the app's core functionality. In these cases, it may be wise to not load such components in the first place. If a component intended to improve the user experience makes the app sluggish or unresponsive, it's not achieving its goal.

LEVEL 2 3RD PARTY

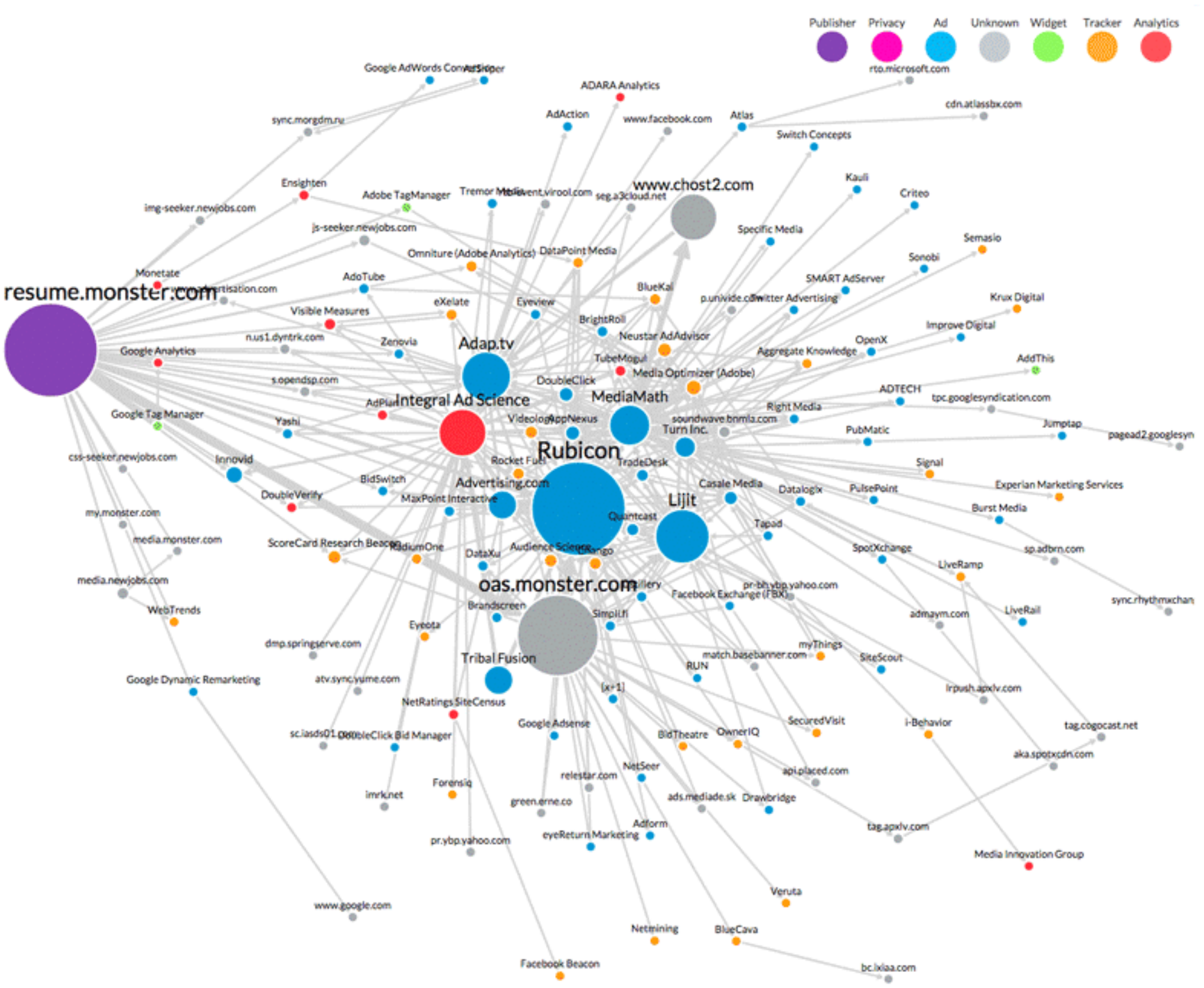
DEALING WITH ADS, TRACKING SCRIPTS AND THEIR DRUNK FRIENDS

GET READY _

3rd-party scripts often ruin a dedicated performance effort. Their *metrics* isn't influenced by end user experience, and usually we can't control them much.

They often download *unknown, dynamic resources* which change between page loads. So neither *hosts* nor *resources* are usually known.

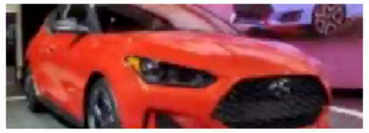
Understand the *impact* of scripts first.
Generate a *request map* that exposes
fourth-party calls and detect when
the scripts change/call other scripts.


Publisher
Privacy
Ad
Unknown
Widget
Tracker
Analytics
resume.monster.com
www.chost2.com
Adap.tv
Integral Ad Science
MediaMath
Rubicon
Advertising.com
Lijit
oas.monster.com
Tribal Fusion
Google AdWords Conversion
AdSniper
ADARA Analytics
AdAction
www.facebook.com
Atlas
rtb.microsoft.com
cdn.atlassbx.com
Switch Concepts
sync.morgdm.ru
Ensighten
Adobe TagManager
Tremor Media
seg.a3cloud.net
Kauli
Criteo
img-seeker.newjobs.com
js-seeker.newjobs.com
Specific Media
Semasio
Sonobi
Omniture (Adobe Analytics)
DataPoint Media
Monetate
AdoTube
BlueKai
SMART AdServer
Twitter Advertising
Krux Digital
Improve Digital
Visible Measures
eXelate
Eyeview
BrightRoll
Neustar AdAdvisor
OpenX
Aggregate Knowledge
AddThis
n.us1.dyntrk.com
Zenovia
Google Analytics
TubeMogul
Media Optimizer (Adobe)
s.opendsp.com
DoubleClick
ADTECH
tpc.googlesyndication.com
Google Tag Manager
Yashi
AdPlus
VideologyAppNexus
soundwave.bnmla.com
Right Media
Jumptap
PubMatic
pagead2.googlesyn
Turn Inc.
css-seeker.newjobs.com
Innovid
Rocket Fuel
TradeDesk
Signal
BidSwitch
DoubleVerify
MaxPoint Interactive
Casale Media
Datalogix
PulsePoint
Experian Marketing Services
Burst Media
my.monster.com
Quantcast
Tapad
media.monster.com
ScoreCard Research Beacon
PadiumOne
DataXu
Audience Science
SpotXchange
LiveRamp
sp.adbrn.com
media.newjobs.com
pr-bh.ybp.yahoo.com
Facebook Exchange (FBX)
sync.rhythmxchan
WebTrends
Brandscreen
admaym.com
LiveRail
Eyeota
Simplifi
dmp.springserve.com
myThings
match.basebanner.com
SiteScout
RUN
Google Dynamic Remarketing
atv.sync.yume.com
[x+1]
Irpush.apxlv.com
NetRatings SiteCensus
SecuredVisit
i-Behavior
tag.cogocast.net
Google Adsense
BidTheatre
OwnerIQ
aka.spotxcdn.com
sc.iasds01.com
DoubleClick Bid Manager
NetSeer
relestar.com
api.placed.com
Forensiq
imrk.net
ads.mediade.sk
Drawbridge
green.erne.co
Adform
tag.apxlv.com
pr.ybp.yahoo.com
eyeReturn Marketing
Media Innovation Group
Veruta
www.google.com
Netmining
BlueCava
Facebook Beacon
bc.lxiaa.com

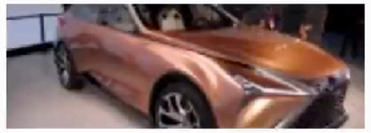
Car Reviews: New Car Prices a × Request Map for http://www.au × Vitaly

www.autoguide.com


New Kia Forte


New Veloster Debuts


New Jetta is Here


New Lexus Concept



Auto Insurance

AutoGuide.com



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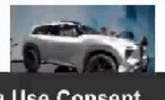
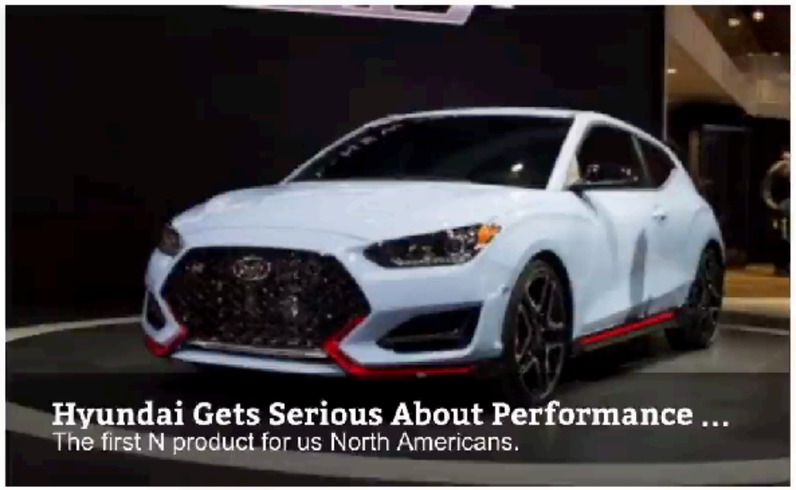
Hyundai Gets Serious About Performance With


Overhauled 2019 Acura RDX Crossover Debuts


Refreshed 2019 Jeep Cherokee is No Longer


Could the Nissan Xmotion Concept Preview a New





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Hyundai Gets Serious About Performance With



Overhauled 2019 Acura RDX Crossover Debuts



Refreshed 2019 Jeep Cherokee is No Longer



Could the Nissan Xmotion Concept Preview a New



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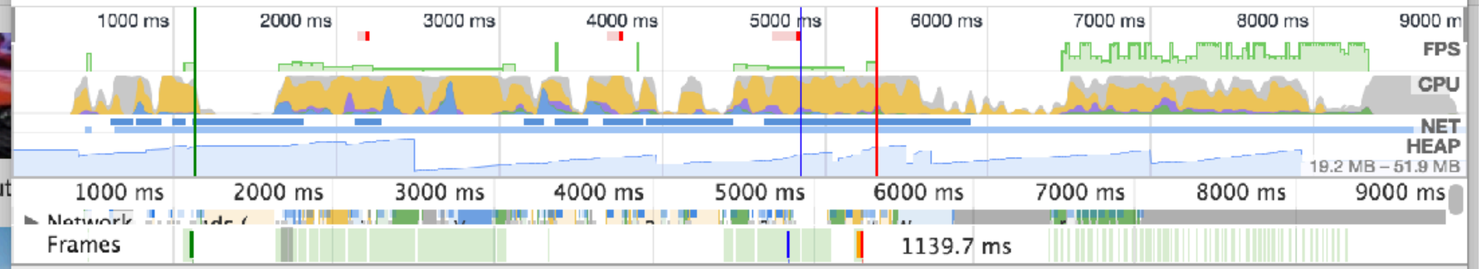
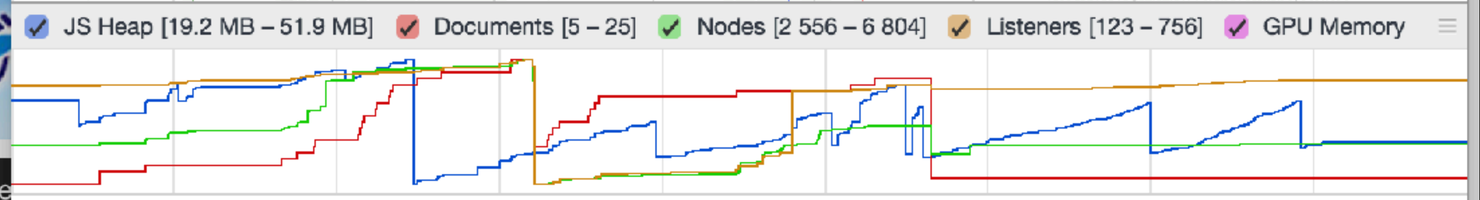
Developer Tools - http://www.autoguide.com/

Elements | Sources | Network | Console | Performance | Application | Security | 3 | 51

Screenshots | Memory





Summary | Bottom-Up | Call Tree | Event Log

Filter | Group by Product

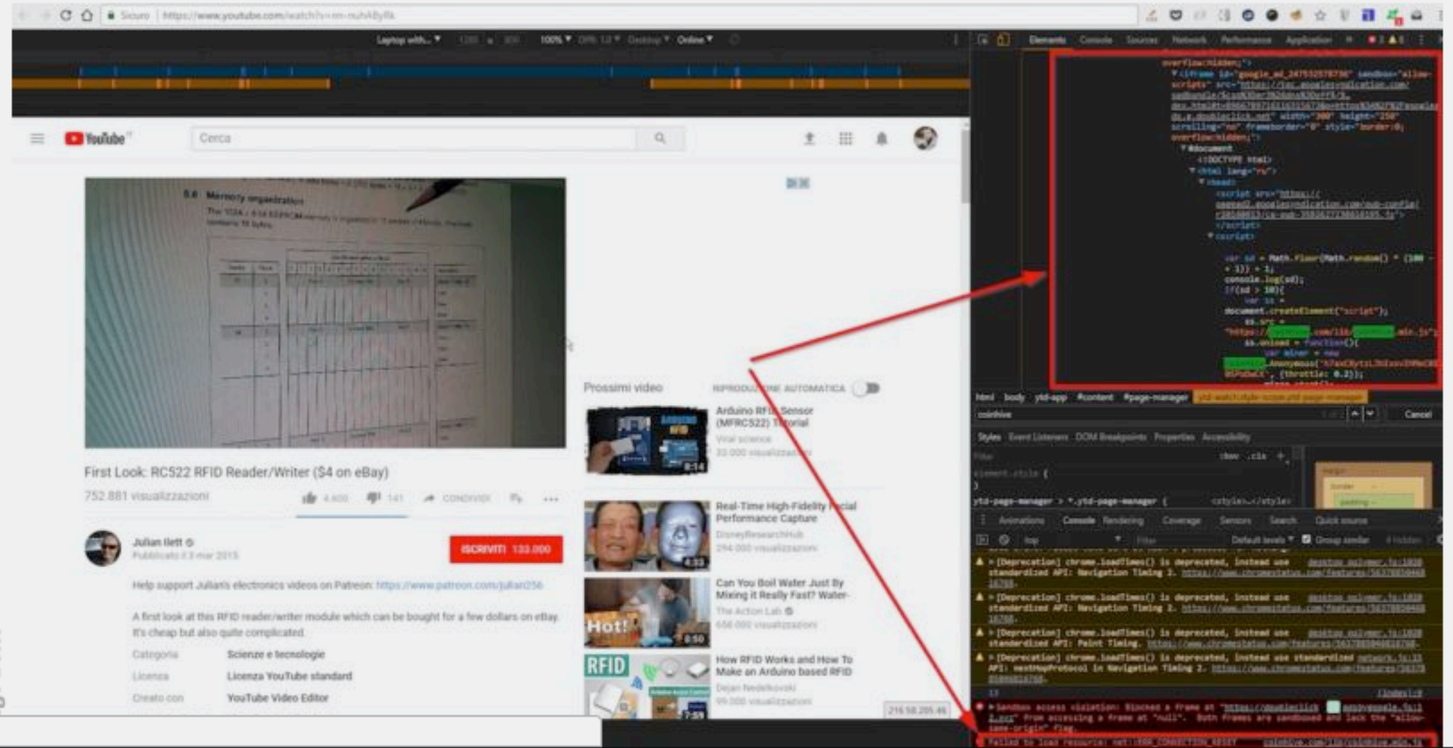
Self Time	Total Time	Activity
1009.9 ms 23.7 %	1009.9 ms 23.7 %	[unattributed]
989.7 ms 23.2 %	989.7 ms 23.2 %	DC DoubleClick Campaign Manager
701.9 ms 16.5 %	701.9 ms 16.5 %	MI Moat Inc.
464.8 ms 10.9 %	464.8 ms 10.9 %	autoguide.com
380.3 ms 8.9 %	380.3 ms 8.9 %	googleapis.com
220.0 ms 5.2 %	220.0 ms 5.2 %	viglink.com
125.2 ms 2.9 %	125.2 ms 2.9 %	facebook.net
59.3 ms 1.4 %	59.3 ms 1.4 %	[V8 Runtime]
46.7 ms 1.1 %	46.7 ms 1.1 %	[Chrome extensions overhead]
43.9 ms 1.0 %	43.9 ms 1.0 %	cloudflare.com
36.4 ms 0.9 %	36.4 ms 0.9 %	sharethrough.com
34.0 ms 0.8 %	34.0 ms 0.8 %	CI Chartbeat Inc
30.6 ms 0.7 %	30.6 ms 0.7 %	GA Google Analytics
28.9 ms 0.7 %	28.9 ms 0.7 %	googletagmanager.com
21.8 ms 0.5 %	21.8 ms 0.5 %	VK Music Download - Save Vkontakte audio
14.1 ms 0.3 %	14.1 ms 0.3 %	rubiconproject.com

COVERT MONERO MINING —

Now even YouTube serves ads with CPU-draining cryptocurrency miners

Ad campaign lets attackers profit while unwitting users watch videos.

DAN GOODIN - 1/26/2018, 7:27 PM



Resolving host...



Chrome's native ad-blocker blocks ads deemed *"unacceptable"* by the *Coalition of Better Ads*, an industry group that counts Google and Facebook among its members. Starting from Feb 15, 2018 — by default.

GDPR



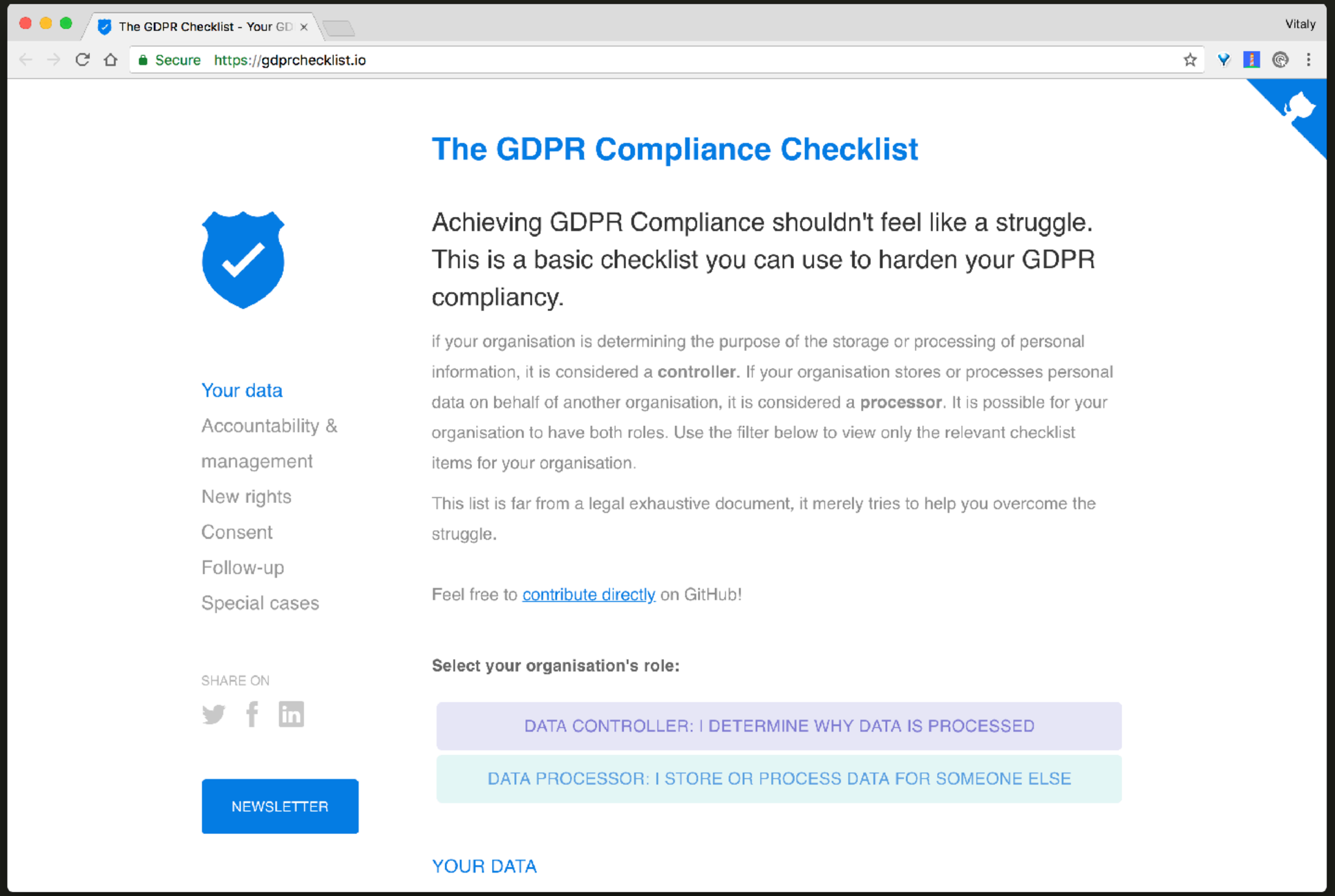
Data Protection Officer (DPO)

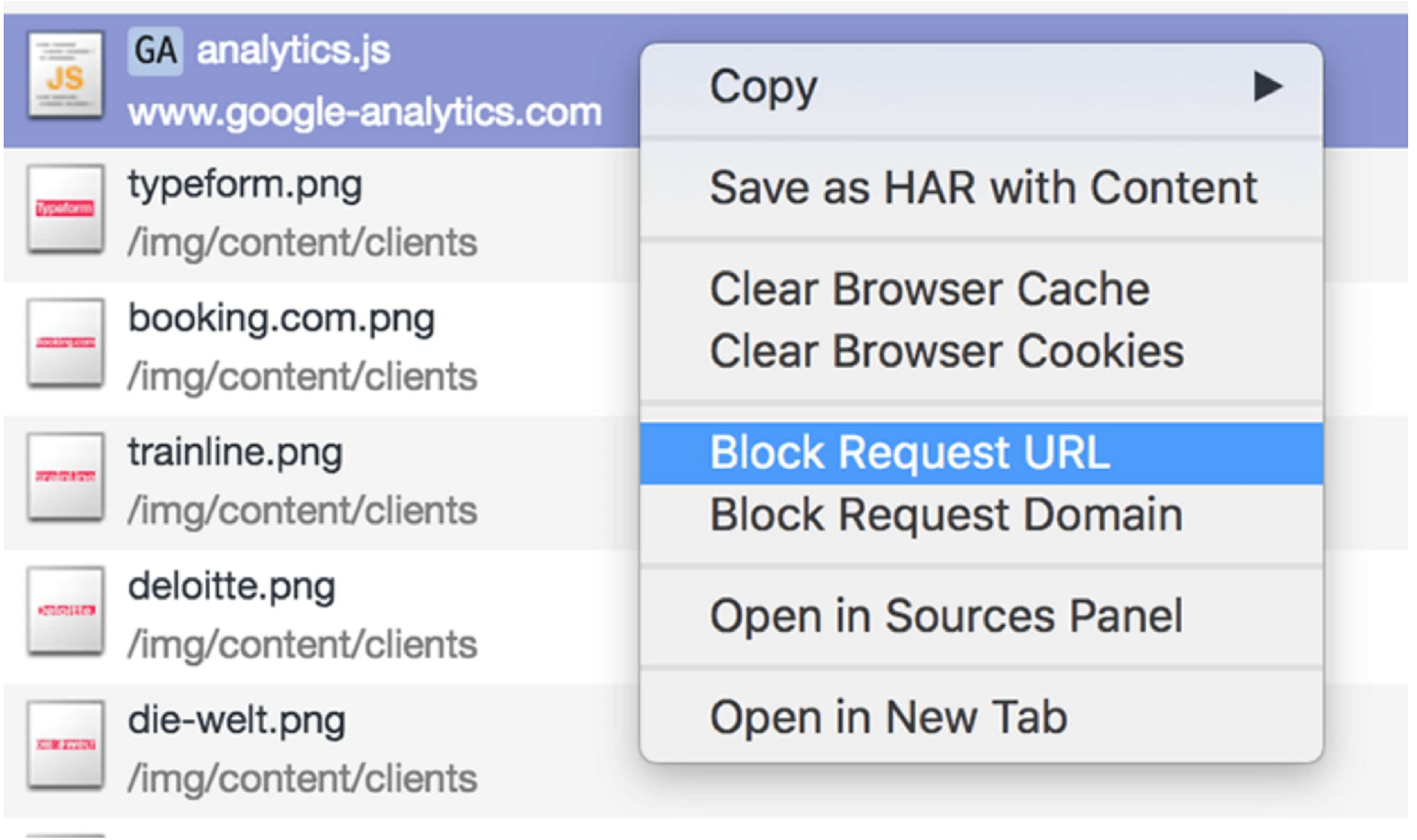
Compliance

25 May 2018

Data Breaches

Personal Data


The GDPR Checklist - Your GD
Vitaly
Secure https://gdprchecklist.io
The GDPR Compliance Checklist
Achieving GDPR Compliance shouldn't feel like a struggle. This is a basic checklist you can use to harden your GDPR compliancy.
if your organisation is determining the purpose of the storage or processing of personal information, it is considered a controller. If your organisation stores or processes personal data on behalf of another organisation, it is considered a processor. It is possible for your organisation to have both roles. Use the filter below to view only the relevant checklist items for your organisation.
This list is far from a legal exhaustive document, it merely tries to help you overcome the struggle.
Feel free to contribute directly on GitHub!
Select your organisation's role:
DATA CONTROLLER: I DETERMINE WHY DATA IS PROCESSED
DATA PROCESSOR: I STORE OR PROCESS DATA FOR SOMEONE ELSE
Your data
Accountability & management
New rights
Consent
Follow-up
Special cases
SHARE ON
NEWSLETTER
YOUR DATA


GA analytics.js
www.google-analytics.com
typeform.png
/img/content/clients
booking.com.png
/img/content/clients
trainline.png
/img/content/clients
deloitte.png
/img/content/clients
die-welt.png
/img/content/clients
Copy
Save as HAR with Content
Clear Browser Cache
Clear Browser Cookies
Block Request URL
Block Request Domain
Open in Sources Panel
Open in New Tab

requestmap.webperf.tools

Need help improving?

Web Page Performance Test for

https://edition.cnn.com/

From: Ireland - EC2 - **Chrome** - **Cable**
04/05/2018, 15:08:02

A	A	A	B	F	✓
First Byte Time	Keep-alive Enabled	Compress Transfer	Compress Images	Cache static content	Effective use of CDN

Summary | Details | Performance Review | Content Breakdown | Domains | Processing Breakdown | Screen Shot | Image Analysis | Request Map

Tester: i-0bf2f31fd92acbc38
First View only
Test runs: **5**
Re-run the test

Raw page data - Raw object data
Export HTTP Archive (.har)
View Test Log

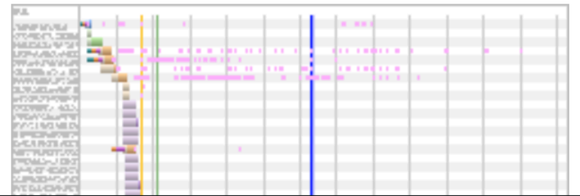
Performance Results (Median Run)

							Document Complete			Fully Loaded			
	Load Time	First Byte	Start Render	User Time	Speed Index	First Interactive (beta)	Time	Requests	Bytes In	Time	Requests	Bytes In	Cost
First View (Run 4)	9.608s	0.190s	2.100s	2.347s	2947	> 9.904s	9.608s	253	3,185 KB	10.823s	296	3,362 KB	$$$$$

Plot Full Results

Test Results

Run 1:

	Waterfall	Screen Shot
		

Privacy - Terms

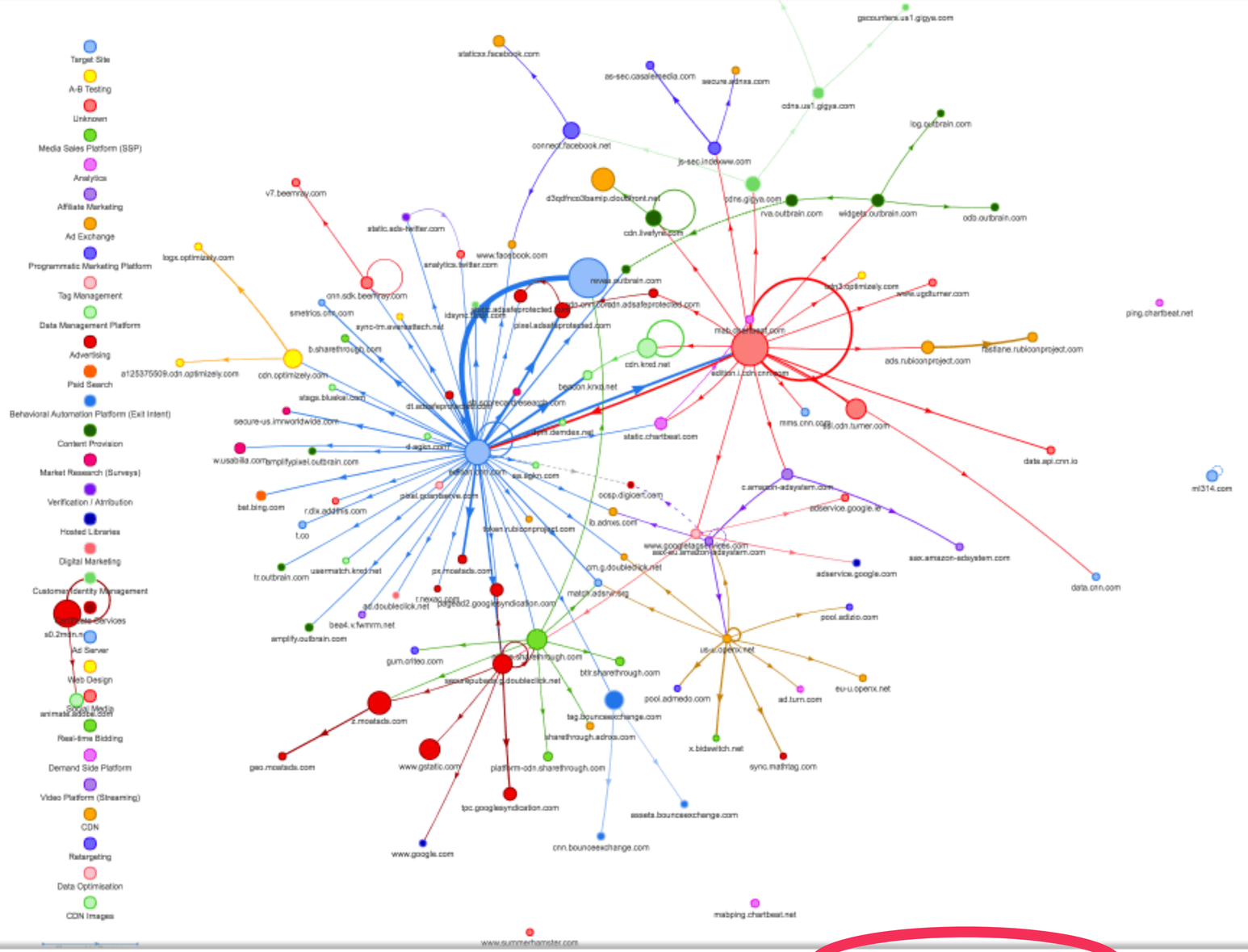
requestmap.webperf.tools
/render/[ID]

Request Map for https://editior

Performance

requestmap.webperf.tools/render/180504_7P_d8486adb9c868302af1eeb69de3699b3

Request Map for *https://edition.cnn.com/* on Friday the 4th of May at 2pm



Built by Simon | Download Image | View on webpagetest.org | Download CSV Data

```
host,                          company,            category,                                  total_bytes,av
edition.cnn.com,               Target Site,        Target Site,                               223777,     11
cdn.optimizely.com,            Optimizely,         A-B Testing,                               92322,      19
edition.i.cdn.cnn.com,         Unknown,            Unknown,                                   566219,     28
cdn.cnn.com,                   Target Site,        Target Site,                               564499,     17
native.sharethrough.com,       Sharethrough,       Media Sales Platform (SSP),                115965,     2,
static.chartbeat.com,          Chartbeat,          Analytics,                                 22263,      14
cnn.sdk.beemray.com,           Unknown,            Unknown,                                   18426,      33
c.amazon-adsystem.com,         Amazon,             Affiliate Marketing,                       13260,      23
ssl.cdn.turner.com,            Unknown,            Unknown,                                   118560,     32
ads.rubiconproject.com,        The Rubicon Project, Ad Exchange,                              25050,      13
www.googletagservices.com,     Google,             Tag Management,                            6275,       47
cdn.adsafeprotected.com,       Integral Ad Science, Advertising,                              3500,       2,
js-sec.indexww.com,            WPP,                Programmatic Marketing Platform,           24043,      12
cdn.krxd.net,                  Krux Digital,       Data Management Platform,                  102452,     17
a125375509.cdn.optimizely.com, Optimizely,         A-B Testing,                               1304,       11
www.ugdturner.com,             Unknown,            Unknown,                                   642,        99
bat.bing.com,                  Microsoft,          Paid Search,                               5003,       7,
tag.bounceexchange.com,        Bounce Exchange,    Behavioral Automation Platform (Exit Intent),104133,   0,
aax.amazon-adsystem.com,       Amazon,             Affiliate Marketing,                       768,        11
amplify.outbrain.com,          Outbrain,           Content Provision,                         1756,       13
cdn.livefyre.com,              Livefyre,           Content Provision,                         56075,      14
adservice.google.ie,           Unknown,            Unknown,                                   662,        2,
static.ads-twitter.com,        Twitter,            Verification / Atrribution,                2286,       18
securepubads.g.doubleclick.net,Google,             Advertising,                               83836,      29
adservice.google.com,          Google,             Hosted Libraries,                          662,        4,
data.cnn.com,                  Target Site,        Target Site,                               241,        4,
widgets.outbrain.com,          Outbrain,           Content Provision,                         24304,      15
ad.doubleclick.net,            Google,             Digital Marketing,                         577,        1,
```

NORMAL +0 ~0 -0 <Wizardry/Talks/It's My Third Party/assets/cnn.csv utf-8[BOM][unix] 0% ≡ 1/106 ln : 1

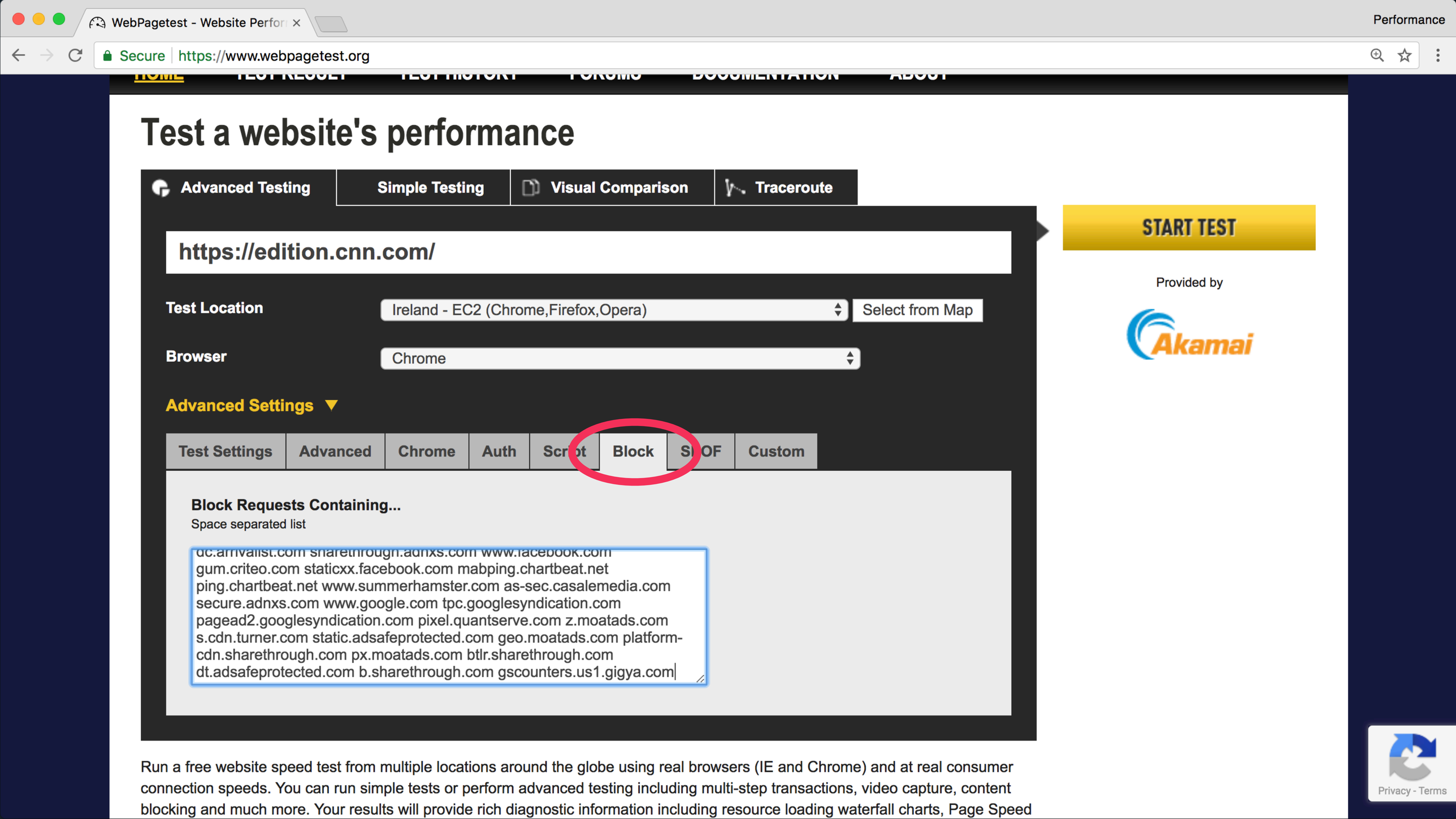
"cnn.csv" 106L, 14407C written

FIELD SEPARATOR IS A COMMA

PRINT THE FIRST ENTRY (DOMAIN)

```
$ awk -F',' '$2 != "Target Site" { print $1 }' cnn.csv
```

IF THE SECOND ENTRY IS NOT 'TARGET SITE'


WebPagetest - Website Perfor
Performance
Secure https://www.webpagetest.org
Test a website's performance
Advanced Testing
Simple Testing
Visual Comparison
Traceroute
https://edition.cnn.com/
START TEST
Provided by
Akamai
Test Location
Ireland - EC2 (Chrome,Firefox,Opera)
Select from Map
Browser
Chrome
Advanced Settings
Test Settings
Advanced
Chrome
Auth
Block
Custom
Block Requests Containing...
Space separated list
gum.criteo.com staticxx.facebook.com mabping.chartbeat.net
ping.chartbeat.net www.summerhamster.com as-sec.casalemedia.com
secure.adnxs.com www.google.com tpc.googlesyndication.com
pagead2.googlesyndication.com pixel.quantserve.com z.moatads.com
s.cdn.turner.com static.adsafeprotected.com geo.moatads.com platform-
cdn.sharethrough.com px.moatads.com btlr.sharethrough.com
dt.adsafeprotected.com b.sharethrough.com gscounters.us1.gigya.com
Run a free website speed test from multiple locations around the globe using real browsers (IE and Chrome) and at real consumer connection speeds. You can run simple tests or perform advanced testing including multi-step transactions, video capture, content blocking and much more. Your results will provide rich diagnostic information including resource loading waterfall charts, Page Speed
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WebPagetest Test Result - Ire

Performance

Secure https://www.webpagetest.org/result/180504_86_00814d5016e6a43941787599abd[illegible]9040/

amplifypixel.outbrain.com secure-us.imrworldwide.com logx.optimizely.com
ocsp.digicert.com v7.beemray.com aax-eu.amazon-adsystem.com odb.outbrain.com
sb.scorecardresearch.com cdns.us1.gigya.com assets.bounceexchange.com
rva.outbrain.com us-u.openx.net accounts.us1.gigya.com ib.adnxs.com match.adsrvr.org
stags.bluekai.com analytics.twitter.com token.rubiconproject.com sync-
tm.everesttech.net beacon.krxd.net dpm.demdex.net aa.agkn.com idsync.rlcdn.com
revee.outbrain.com d.agkn.com usermatch.krxd.net cm.g.doubleclick.net x.bidswitch.net
ad.turn.com sync.mathtag.com pix.impdesk.com d3qdfnco3bamip.cloudfront.net eu-
u.openx.net r.nexac.com connect.facebook.net log.outbrain.com bea4.v.fwmrm.net
r.dlx.addthis.com dc.arrivalist.com sharethrough.adnxs.com www.facebook.com
gum.criteo.com staticxx.facebook.com mabping.chartbeat.net ping.chartbeat.net
www.summerhamster.com as-sec.casalemedia.com secure.adnxs.com www.google.com
tpc.googlesyndication.com pagead2.googlesyndication.com pixel.quantserve.com
z.moatads.com s.cdn.turner.com static.adsafeprotected.com geo.moatads.com platform-
cdn.sharethrough.com px.moatads.com btlr.sharethrough.com dt.adsafeprotected.com
b.sharethrough.com gscounters.us1.gigya.com

Summary | Details | Performance Review | Content Breakdown | Domains | Processing Breakdown | Screen Shot | Image Analysis | Request Map

Tester: i-0da5a6965d28e8752
First View only
Test runs: **5**
Re-run the test

Raw page data - Raw object data
Export HTTP Archive (.har)
View Test Log

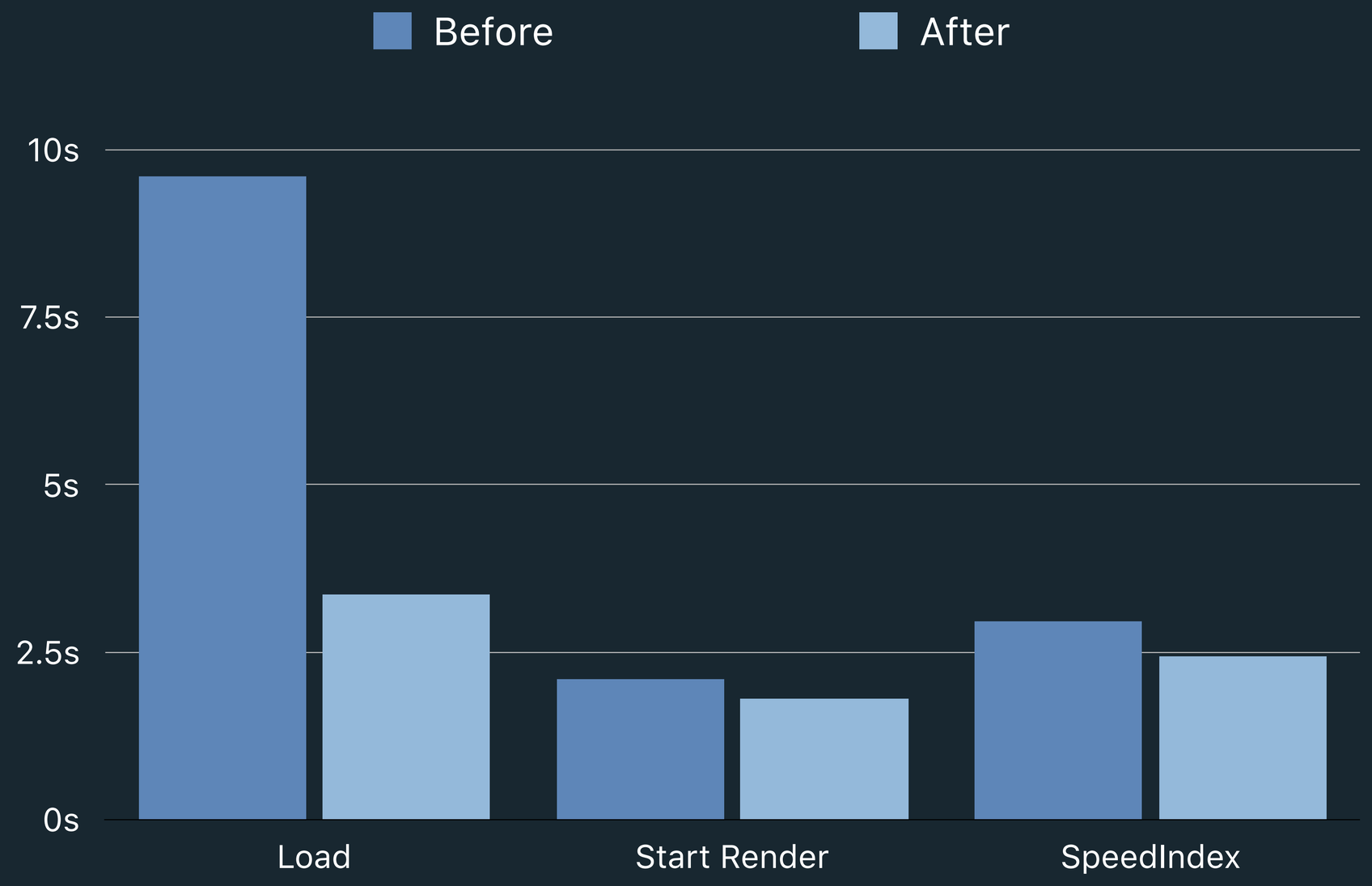
Performance Results (Median Run)

	Load Time	First Byte	Start Render	User Time	Speed Index	First Interactive (beta)	Document Complete			Fully Loaded			
							Time	Requests	Bytes In	Time	Requests	Bytes In	Cost
First View (Run 1)	3.352s	0.192s	1.800s	2.017s	2442	> 2.427s	3.352s	70	1,253 KB	3.736s	73	1,257 KB	$$$- -

Plot Full Results

Test Results

Privacy - Terms


Before
After
10s
7.5s
5s
2.5s
0s
Load
Start Render
SpeedIndex

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Secure https://docs.google.com/spreadsheets/d/1tKK_dSTiKH_5dV1vbYygDBHApfU7qwbNB7aPilpN_Zg/edit#gid=0

CNN

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fx cdn.speedcurve.com

	A	B	C	D	E	F	G	H	I	J	K	L
1	**Domain**	**Provider**	**Category**	**Total Bytes**	**Mean TTFB (ms)**	**Mean Load (ms)**	**Number of Requests**	**Notes**				
2	cdn.speedcurve.com	SpeedCurve	Performance Analytics	8,950	73	289	1					
3	platform.twitter.com	Twitter	Social Media	115,819	284	695	5					
4	cdn.carbonads.com	Unknown	Unknown	6,340	73	282	1					
5	www.google-analytics.com	Google	Web Analytics	29,559	126	380	2					
6	srv.carbonads.net	Unknown	Unknown	2,174	53	242	1					
7	assets.servedby-buysellads.com	BuySellAds	Ad Network	131,048	145	403	1					
8	stats.g.doubleclick.net	Google	Advertising	433	63	225	1					
9	syndication.twitter.com	Twitter	Social Media	458	345	707	2					
10	cdn.syndication.twimg.com	Twitter	Social Media	1,768	199	579	1					
11	spdcrv.global.ssl.fastly.net	Fastly	CDN	778	527	743	1					
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												

Sheet1

Sum: 303,776

Explore

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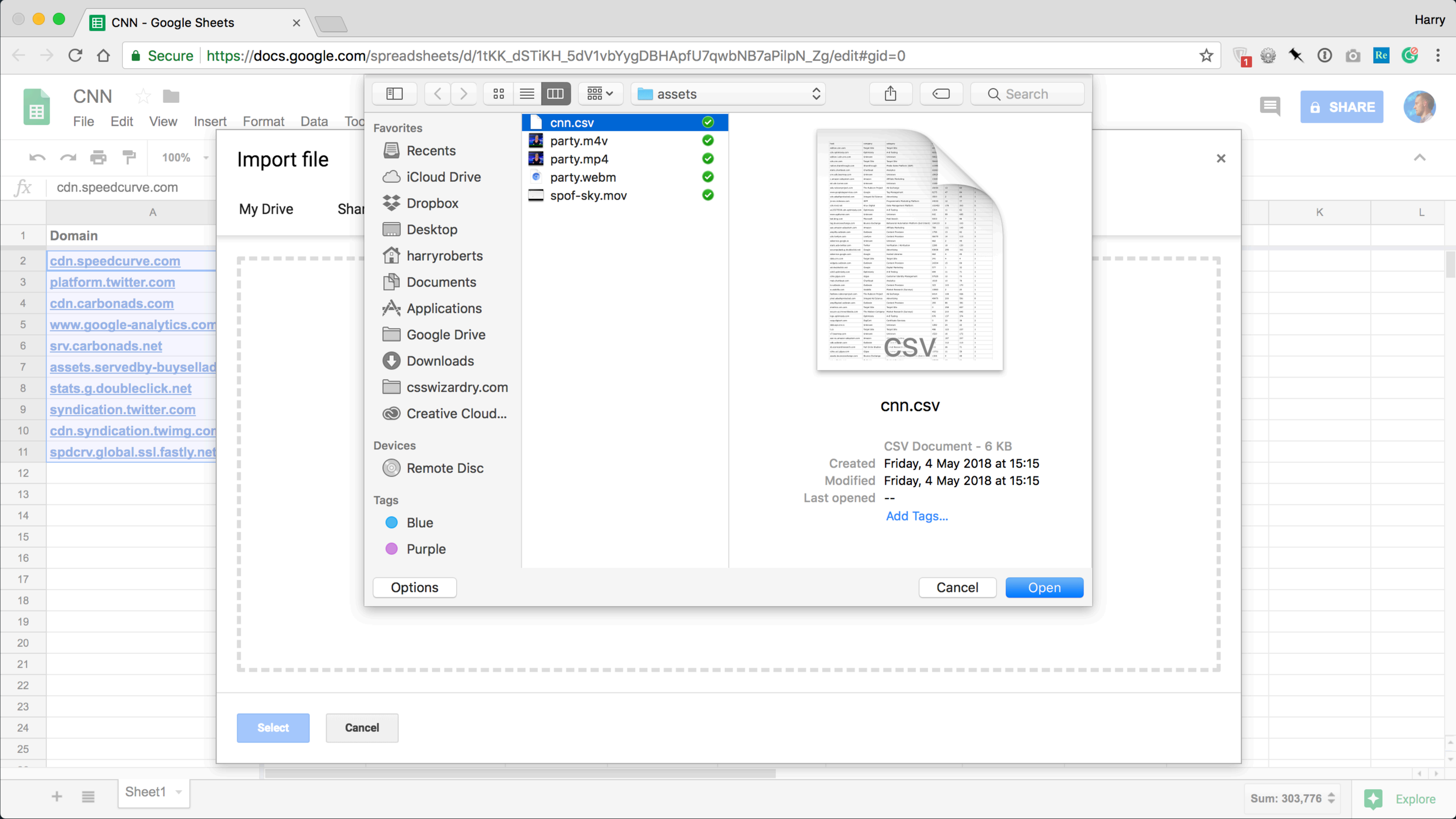
Email as attachment...
Version history
Rename...
Move to...
Move to trash
Publish to the web...
Email collaborators...
Document details...
Spreadsheet settings...
Print ⌘P

	Provider	Category	Total Bytes	Mean TTFB (ms)	Mean Load (ms)	Number of Requests	Notes
2	SpeedCurve	Performance Analytics	8,950	73	289	1	
3	Twitter	Social Media	115,819	284	695	5	
4	Unknown	Unknown	6,340	73	282	1	
5	Google	Web Analytics	29,559	126	380	2	
6	Unknown	Unknown	2,174	53	242	1	
7	BuySellAds	Ad Network	131,048	145	403	1	
8	Google	Advertising	433	63	225	1	
9	Twitter	Social Media	458	345	707	2	
10	Twitter	Social Media	1,768	199	579	1	
11	Fastly	CDN	778	527	743	1	

Sheet1

Sum: 303,776

Explore


CNN - Google Sheets
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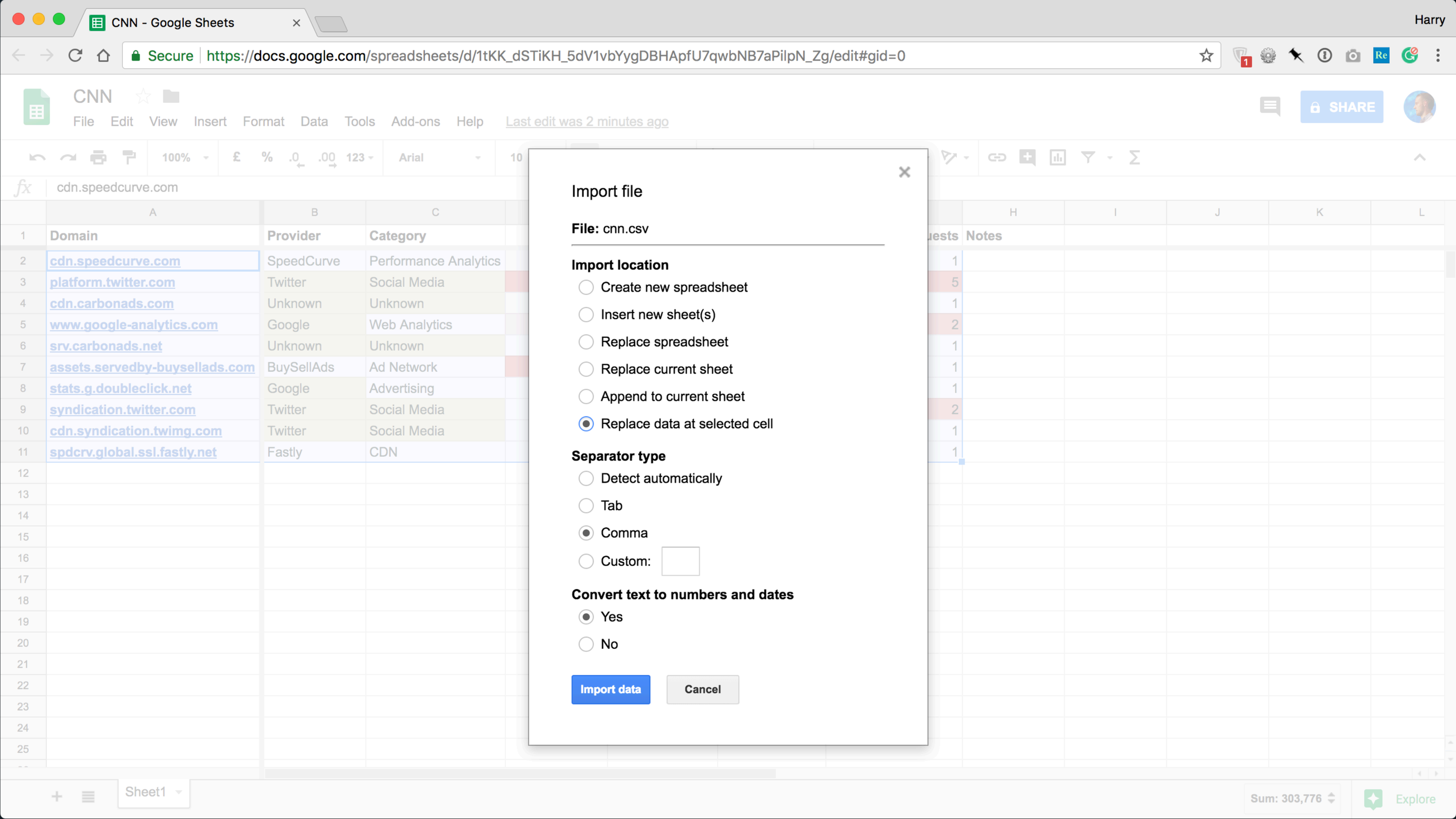
Secure https://docs.google.com/spreadsheets/d/1tKK_dSTiKH_5dV1vbYygDBHApfU7qwbNB7aPilpN_Zg/edit#gid=0
CNN
File Edit View Insert Format Data
SHARE
100%
cdn.speedcurve.com
Import file
My Drive
Domain
cdn.speedcurve.com
platform.twitter.com
cdn.carbonads.com
www.google-analytics.com
srv.carbonads.net
assets.servedby-buysellad
stats.g.doubleclick.net
syndication.twitter.com
cdn.syndication.twimg.com
spdcrv.global.ssl.fastly.net
Select
Cancel
Sheet1
Sum: 303,776
Explore
assets
Search
Favorites
Recents
iCloud Drive
Dropbox
Desktop
harryroberts
Documents
Applications
Google Drive
Downloads
csswizardry.com
Creative Cloud...
Devices
Remote Disc
Tags
Blue
Purple
cnn.csv
party.m4v
party.mp4
party.webm
spof-sky.mov
CSV
cnn.csv
CSV Document - 6 KB
Created Friday, 4 May 2018 at 15:15
Modified Friday, 4 May 2018 at 15:15
Last opened --
Add Tags...
Options
Cancel
Open



	A	B	C	H	I	J	K	L
1	Domain	Provider	Category	uests	Notes			
2	cdn.speedcurve.com	SpeedCurve	Performance Analytics	1				
3	platform.twitter.com	Twitter	Social Media	5				
4	cdn.carbonads.com	Unknown	Unknown	1				
5	www.google-analytics.com	Google	Web Analytics	2				
6	srv.carbonads.net	Unknown	Unknown	1				
7	assets.servedby-buysellads.com	BuySellAds	Ad Network	1				
8	stats.g.doubleclick.net	Google	Advertising	1				
9	syndication.twitter.com	Twitter	Social Media	2				
10	cdn.syndication.twimg.com	Twitter	Social Media	1				
11	spdcrv.global.ssl.fastly.net	Fastly	CDN	1				

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Secure https://docs.google.com/spreadsheets/d/1tKK_dSTiKH_5dV1vbYygDBHApfU7qwbNB7aPilpN_Zg/edit#gid=0

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fx widgets.outbrain.com

	A	B	C	D	E	F	G	H	I	J
1	Domain	Provider	Category	Total Bytes	Mean TTFB (ms)	Mean Load (ms)	Number of Requests	Notes		
2	cdn.optimizely.com	Optimizely	A-B Testing	92322	19	106	1			
3	native.sharethrough.com	Sharethrough	Media Sales Platform (SSP)	115965	2	49	2			
4	static.chartbeat.com	Chartbeat	Analytics	22263	14	47	2			
5	cnn.sdk.beemray.com	Unknown	Unknown	18426	33	97	2			
6	c.amazon-adsystem.com	Amazon	Affiliate Marketing	13260	23	55	1			
7	ssl.cdn.turner.com	Unknown	Unknown	118560	32	120	3			
8	ads.rubiconproject.com	The Rubicon Project	Ad Exchange	25050	13	60	1			
9	www.googletagservices.com	Google	Tag Management	6275	47	84	1			
10	cdn.adsafeprotected.com	Integral Ad Science	Advertising	3500	2	45	1			
11	js-sec.indexww.com	WPP	Programmatic Marketing Platform	24043	12	77	1			
12	cdn.krxd.net	Krux Digital	Data Management Platform	102452	178	303	5			
13	a125375509.cdn.optimizely.com	Optimizely	A-B Testing	1304	11	62	1			
14	www.ugdturner.com	Unknown	Unknown	642	99	495	1			
15	bat.bing.com	Microsoft	Paid Search	5003	7	86	2			
16	tag.bounceexchange.com	Bounce Exchange	Behavioral Automation Platform (Exit Intent)	104133	0	103	1			
17	aax.amazon-adsystem.com	Amazon	Affiliate Marketing	768	111	149	2			
18	amplify.outbrain.com	Outbrain	Content Provision	1756	13	82	1			
19	cdn.livefyre.com	Livefyre	Content Provision	56075	14	113	3			
20	adservice.google.ie	Unknown	Unknown	662	2	49	1			
21	static.ads-twitter.com	Twitter	Verification / Atrribution	2286	18	130	1			
22	securepubads.g.doubleclick.net	Google	Advertising	83836	295	341	7			
23	adservice.google.com	Google	Hosted Libraries	662	4	45	1			
24	widgets.outbrain.com	Outbrain	Content Provision	24304	15	69	1			
25	ad.doubleclick.net	Google	Digital Marketing	577	1	32	1			

Sheet1

Sum: 24389



72.66.115.13

WebPageTest's blackhole endpoint to test if any of 3rd-party-scripts cause a front-end SPOF.
An endpoint that makes requests disappear.

/etc/hosts

I took a different approach outlined by Pat: I added the following lines to my `/etc/hosts` file (your location may vary) mapping these third party hostnames to point to the blackhole server:

```
72.66.115.13 apis.google.com
72.66.115.13 www.google-analytics.com
72.66.115.13 connect.facebook.net
72.66.115.13 platform.twitter.com
72.66.115.13 s7.addthis.com
72.66.115.13 l.addthiscdn.com
72.66.115.13 cf.addthis.com
72.66.115.13 api-public.addthis.com
72.66.115.13 widget.quantcast.com
72.66.115.13 ak.quantcast.com
72.66.115.13 assets.omniture.com
72.66.115.13 www.omniture.com
72.66.115.13 scripts.omniture.com
72.66.115.13 b.voicefive.com
72.66.115.13 ar.voicefive.com
72.66.115.13 c.statcounter.com
72.66.115.13 www.statcounter.com
72.66.115.13 www-beta.statcounter.com
72.66.115.13 js.revsci.net
```

<iframe>

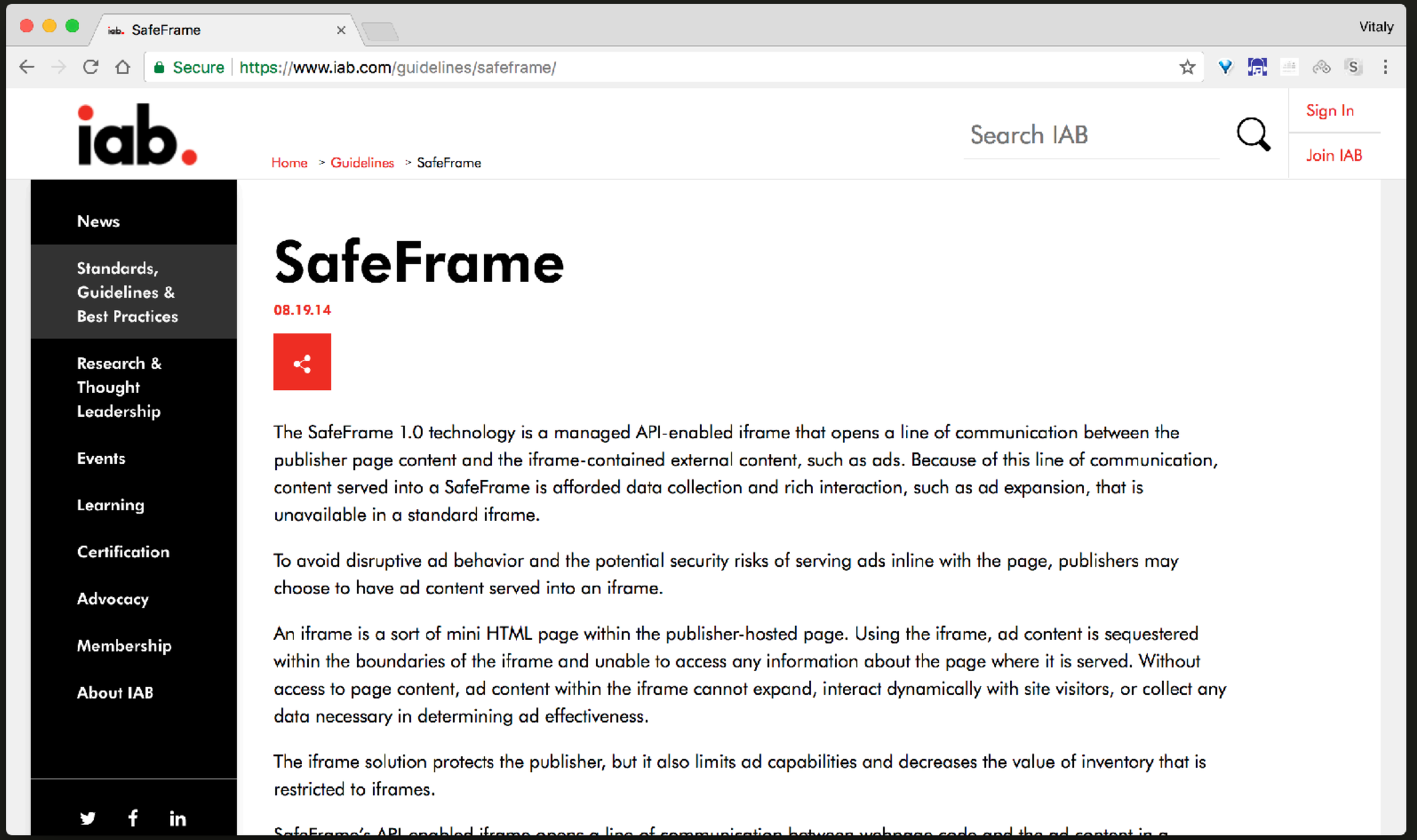
Best option as scripts run in the context of the *iframe* and don't have access to the DOM.

To *mitigate* performance penalties of these scripts, we can apply a few *strategies* to constrain their impact:

— **Race resource downloads with a timeout.** Use a Service Worker to return an empty response if the resource hasn't responded within a certain *timeout*.

— **Race resource downloads with a timeout.**
Use a Service Worker to return an empty response if the resource hasn't responded within a certain *timeout*.

— `<iframe sandbox="allow-scripts">`
E.g. prevent scripts from running, alerts, form submission, plugins, access to top navigation etc. Constrain to *bare minimum*.



SafeFrame
Vitaly
Secure | https://www.iab.com/guidelines/safeframe/
iab.
Home > Guidelines > SafeFrame
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SafeFrame

08.19.14

The SafeFrame 1.0 technology is a managed API-enabled iframe that opens a line of communication between the publisher page content and the iframe-contained external content, such as ads. Because of this line of communication, content served into a SafeFrame is afforded data collection and rich interaction, such as ad expansion, that is unavailable in a standard iframe.

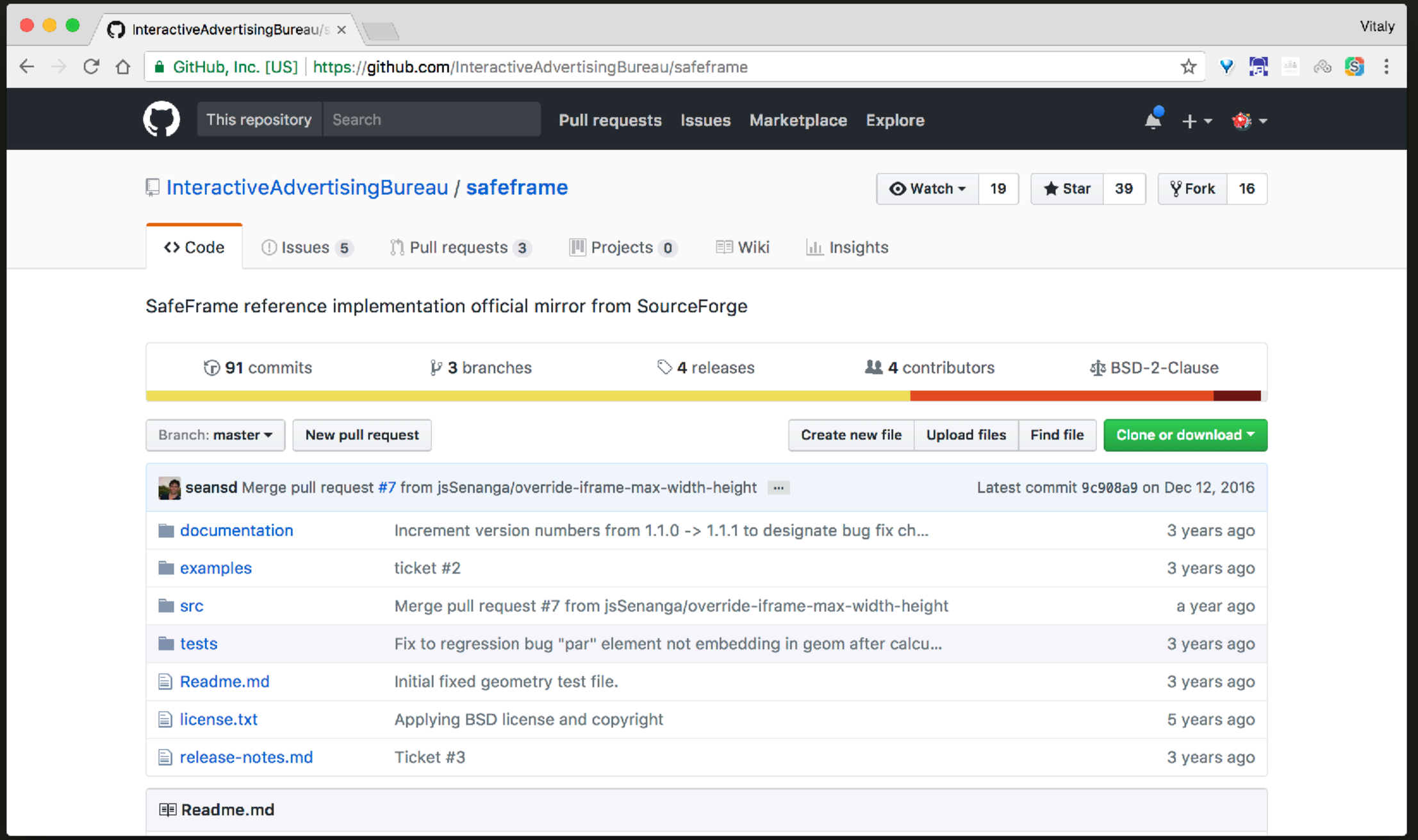
To avoid disruptive ad behavior and the potential security risks of serving ads inline with the page, publishers may choose to have ad content served into an iframe.

An iframe is a sort of mini HTML page within the publisher-hosted page. Using the iframe, ad content is sequestered within the boundaries of the iframe and unable to access any information about the page where it is served. Without access to page content, ad content within the iframe cannot expand, interact dynamically with site visitors, or collect any data necessary in determining ad effectiveness.

The iframe solution protects the publisher, but it also limits ad capabilities and decreases the value of inventory that is restricted to iframes.

SafeFrame's API-enabled iframe opens a line of communication between webpage code and the ad content in a

> The primary use for SafeFrames is to *encapsulate* external HTML content with `<script>` tags while protecting the host page from content that could otherwise inadvertently or purposefully affect the host site in *unexpected* ways.


InteractiveAdvertisingBureau/s
Vitaly
GitHub, Inc. [US] | https://github.com/InteractiveAdvertisingBureau/safeframe
This repository
Search
Pull requests
Issues
Marketplace
Explore
InteractiveAdvertisingBureau / safeframe
Watch 19
Star 39
Fork 16
Code
Issues 5
Pull requests 3
Projects 0
Wiki
Insights
SafeFrame reference implementation official mirror from SourceForge
91 commits
3 branches
4 releases
4 contributors
BSD-2-Clause
Branch: master
New pull request
Create new file
Upload files
Find file
Clone or download
seansd Merge pull request #7 from jsSenanga/override-iframe-max-width-height
Latest commit 9c908a9 on Dec 12, 2016
documentation Increment version numbers from 1.1.0 -> 1.1.1 to designate bug fix ch... 3 years ago
examples ticket #2 3 years ago
src Merge pull request #7 from jsSenanga/override-iframe-max-width-height a year ago
tests Fix to regression bug "par" element not embedding in geom after calcu... 3 years ago
Readme.md Initial fixed geometry test file. 3 years ago
license.txt Applying BSD license and copyright 5 years ago
release-notes.md Ticket #3 3 years ago
Readme.md

> [...] It specifies an API that provides communication protocols between the *host site* and *external content*. Using SafeFrame, the host can provide information to externals, and the external content can request services from the host (i.e. *expansion*).

— **Race resource downloads with a timeout.**
Use a Service Worker to return an empty response if the resource hasn't responded within a certain *timeout*.

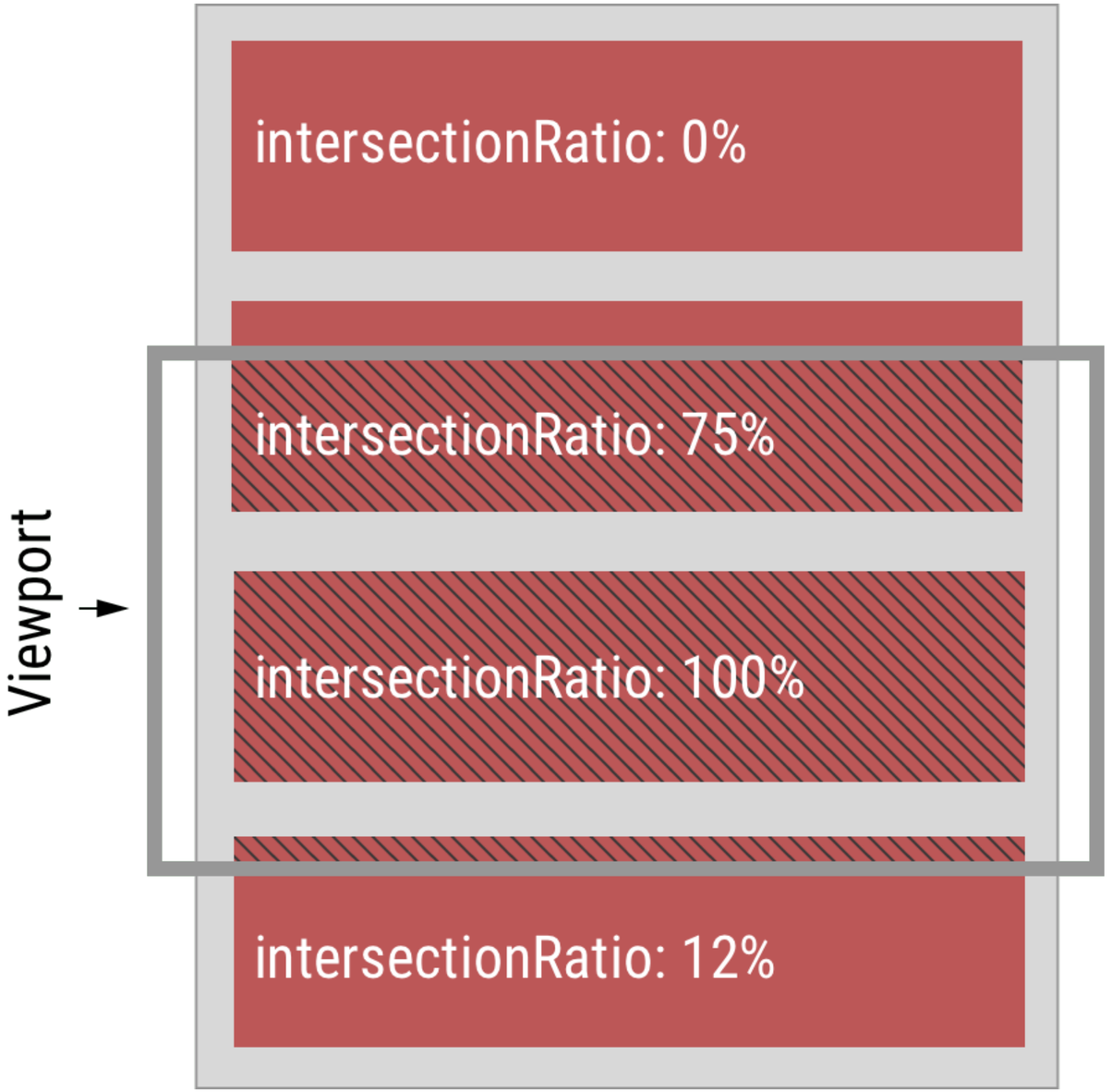
— `<iframe sandbox="allow-scripts">`
E.g. prevent scripts from running, alerts, form submission, plugins, access to top navigation etc. Constrain to *bare minimum*.

- `<iframe sandbox="allow-scripts">`

  E.g. prevent scripts from running, alerts, form submission, plugins, access to top navigation etc. Constrain to *bare minimum*.

- **Use SafeFrame and Intersection Observer**

  Enable ads to be iframed while dispatching events or getting the information needed from the DOM (e.g. *ad visibility*).

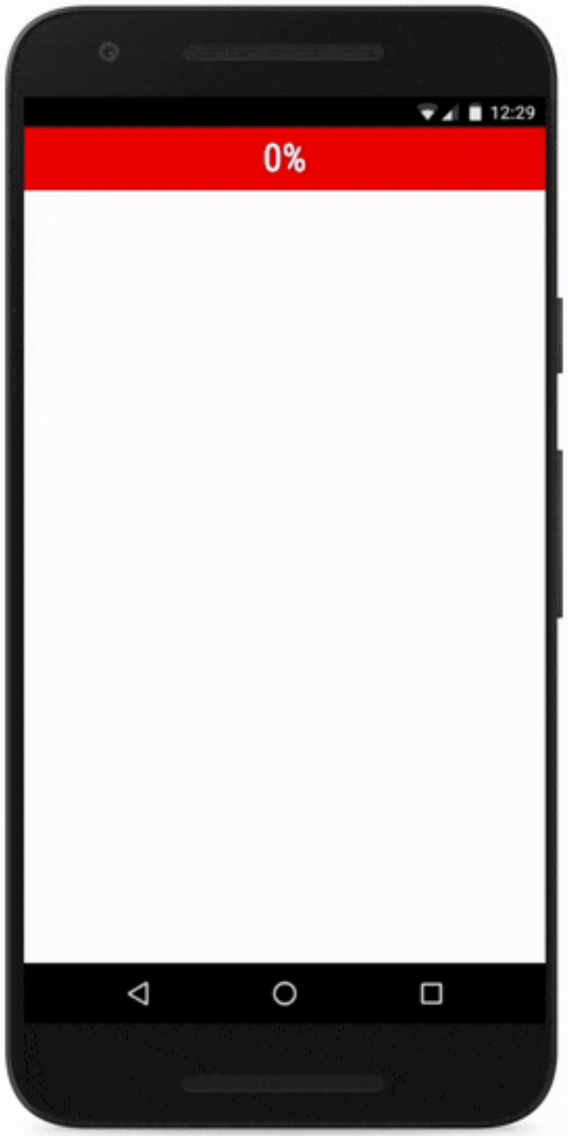

intersectionRatio: 0%
intersectionRatio: 75%
intersectionRatio: 100%
intersectionRatio: 12%
Viewport

Observers help us observe and react to changes to the DOM. It's applied in various async APIs: *MutationObserver, FetchObserver, PerformanceObserver, ResizeObserver, IntersectionObserver.*

Observer is a replacement for slow, sync, rendering-intense scroll event listeners. They are *async*, use *callback functions* and give us access to pre-computed properties.

Intersection Observer was designed specifically with ads and social widgets in mind, which often use *iframes* and can benefit from knowing whether they are *in view*.

The Intersection Observer API provides a way to async observe changes in the intersection of a *target* element with an *ancestor* element or with a top-level document's viewport.


12:29
0%

Intersection Observer

```
// Creating an observer
var options = {
    root: document.querySelector('#iframe'),
    rootMargin: '0px',
    threshold: 1.0
}

var observer = new IntersectionObserver(callback, options);

// Targeting an element to be observed
var target = document.querySelector('#cta-button');
observer.observe(target);
```

— *root* defines the element that is used as the viewport for checking visibility of the *target*. Defaults to the browser viewport.

— *rootMargin* is CSS-alike property for setting margin around the root, so you can start taking action before element is visible.

— *threshold* indicates at what *percentage* of the target's visibility the observer's callback should be executed. E.g. *0.5, [0, 0.5, 1]*.

Intersection Observer

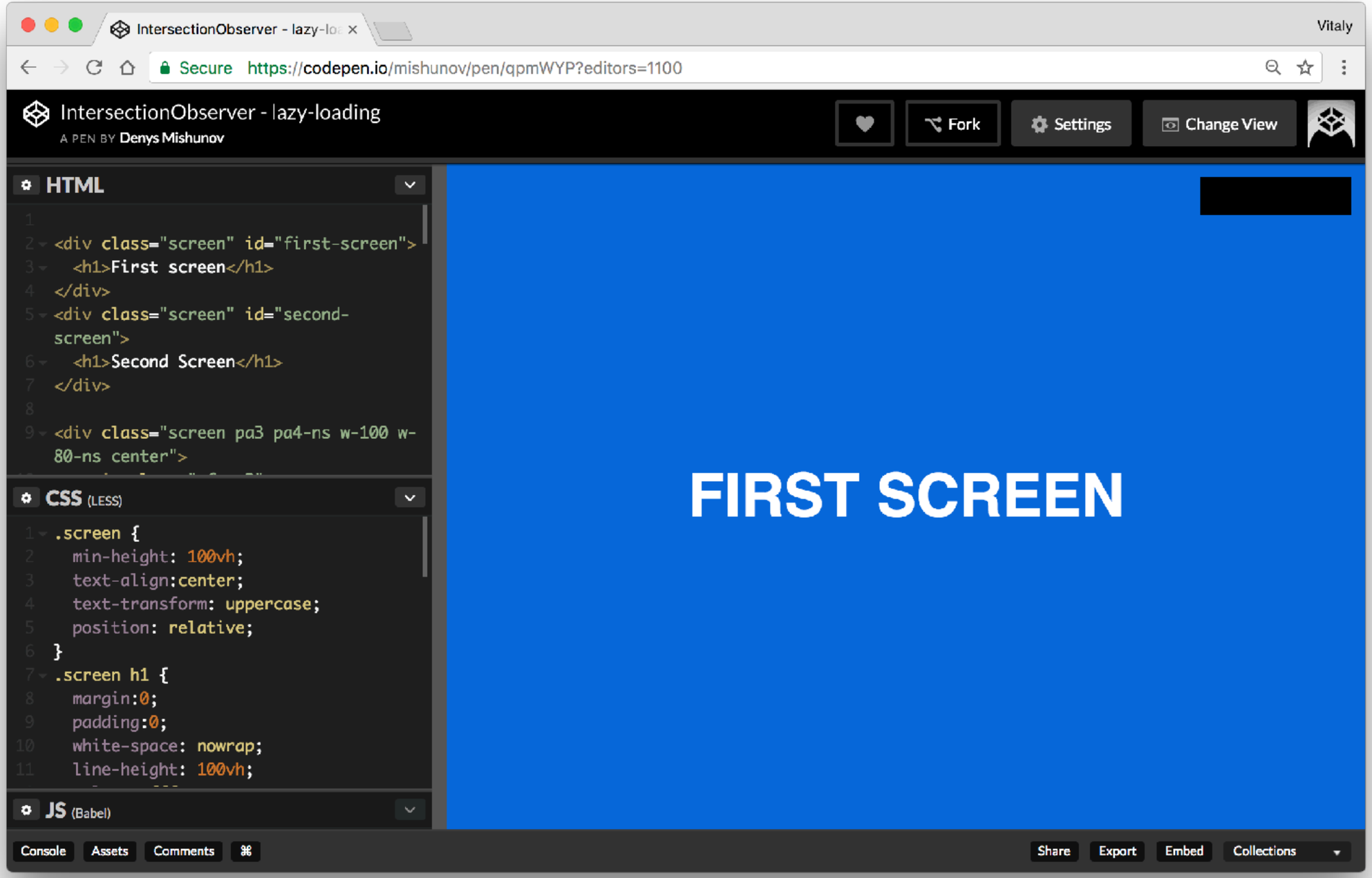
```
// Creating an observer
var options = {
    root: document.querySelector('#iframe'),
    rootMargin: '0px',
    threshold: 1.0
}

var observer = new IntersectionObserver(callback, options);

// Targeting an element to be observed
var target = document.querySelector('#cta-button');
observer.observe(target);
```

> If an iframe observes one of its elements, *both* scrolling the *iframe* as well as scrolling the *window* containing the iframe will trigger the callback at the appropriate times. For the latter case, however, *rootBounds* will be set to null to avoid leaking data across origins.

Intersection Observer Use Cases

- The API is useful primary when dealing with third-party assets, but it can also be used in other scenarios:

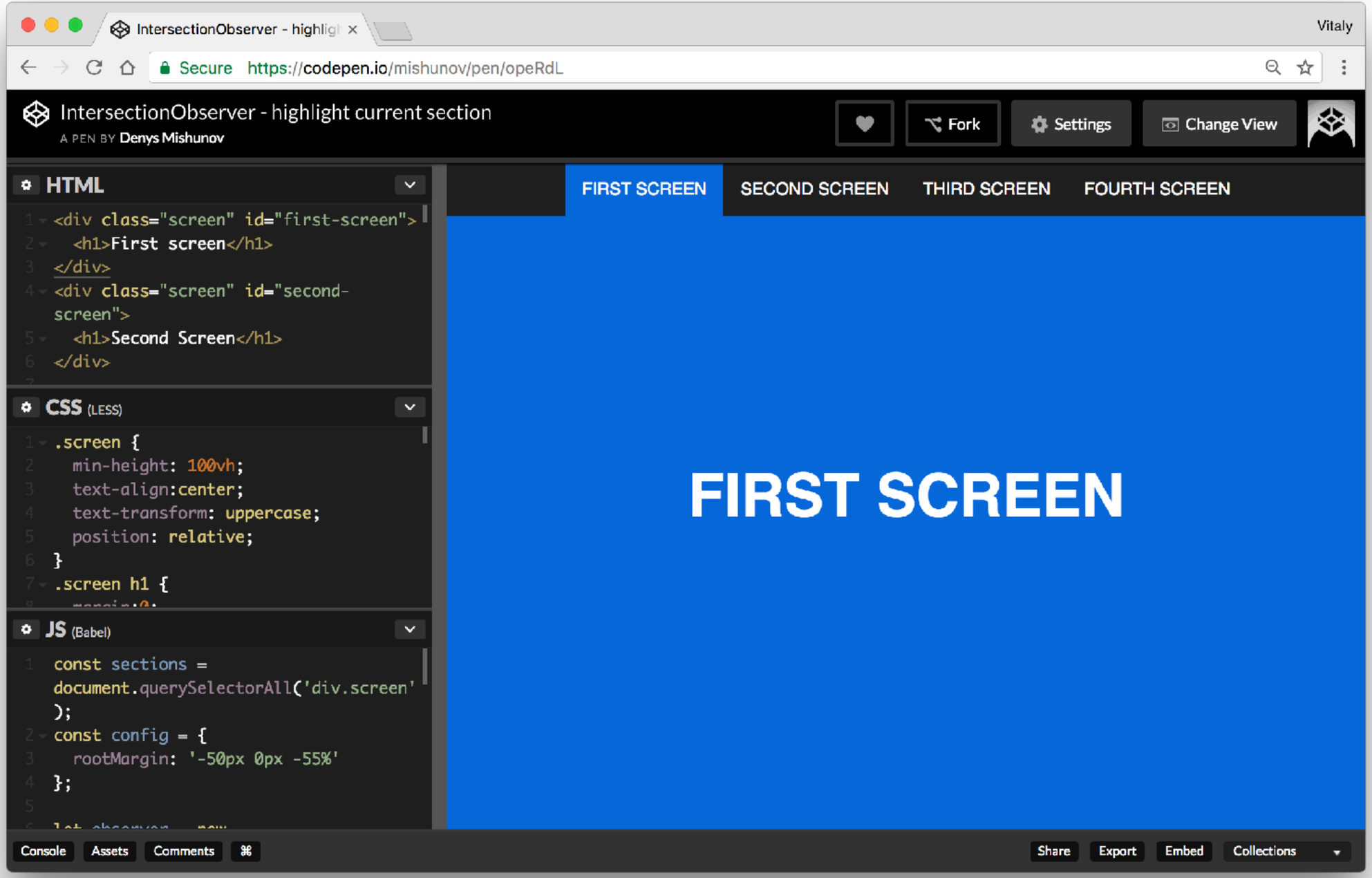
  — *Native lazy-loading* of content as a page is scrolled,
  — *Infinite scroll* can be implemented easier,
  — *Reporting of visibility of ads/iframes* across viewports,
  — *Conditional loading* for extensive JS calculations,
  — *Trigger animations* and transitions on demand,
  — *Start/Stop autoplaying* videos and carousels when out of view,
  — *Stop observing the item* with `observer.unobserve(target)`,
  — *Polyfill* replicates the functionality for legacy browsers.


IntersectionObserver - lazy-loa
Vitaly
Secure https://codepen.io/mishunov/pen/qpmWYP?editors=1100
IntersectionObserver - lazy-loading
A PEN BY Denys Mishunov
Fork
Settings
Change View
HTML

<h1>First screen</h1>

<h1>Second Screen</h1>

CSS (LESS)
.screen {
min-height: 100vh;
text-align:center;
text-transform: uppercase;
position: relative;
}
.screen h1 {
margin:0;
padding:0;
white-space: nowrap;
line-height: 100vh;
JS (Babel)
FIRST SCREEN
Console
Assets
Comments
Share
Export
Embed
Collections


IntersectionObserver - highlig
Vitaly
Secure https://codepen.io/mishunov/pen/opeRdL
IntersectionObserver - highlight current section
A PEN BY Denys Mishunov
Fork
Settings
Change View
HTML

<h1>First screen</h1>

<h1>Second Screen</h1>

CSS (LESS)
.screen {
min-height: 100vh;
text-align:center;
text-transform: uppercase;
position: relative;
}
.screen h1 {
JS (Babel)
const sections = document.querySelectorAll('div.screen');
const config = {
rootMargin: '-50px 0px -55%'
};
FIRST SCREEN
SECOND SCREEN
THIRD SCREEN
FOURTH SCREEN
FIRST SCREEN
Console
Assets
Comments
Share
Export
Embed
Collections

IntersectionObserver - WD

API that can be used to understand the visibility and position of DOM elements relative to a containing element or to the top-level viewport. The position is delivered asynchronously and is useful for understanding the visibility of elements and implementing pre-loading and deferred loading of DOM content.

Usage	% of all users	
Global	62.96% + 10.8% =	73.76%
Lithuania	75.44% + 2.5% =	77.94%

Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			49						
			64		10.3				
	16	59	4 65	11	11.2				4
11	17	60	4 66	11.1	11.3	all	66	3 11.8	3 6.2
	18	61	4 67	TP					
		62	4 68						
			4 69						

Notes | Known issues (1) | Resources (8) | Feedback

Now You See Me: How To Defe ×

Vitaly

Secure https://www.smashingmagazine.com/2018/01/deferring-lazy-loading-intersection-observer-api/



ABOUT THE AUTHOR

Denys is a front-end developer and public speaker living and working in Norway. Denys is passionate about psychology, physics, history, drawing. In his … More about Denys…



Once upon a time, there lived a web developer who successfully convinced his customers that sites should not look the same in all browsers, cared about accessibility, and was an early adopter of CSS grids. But deep down in his heart it was performance that was his true passion: He constantly optimized, minified,

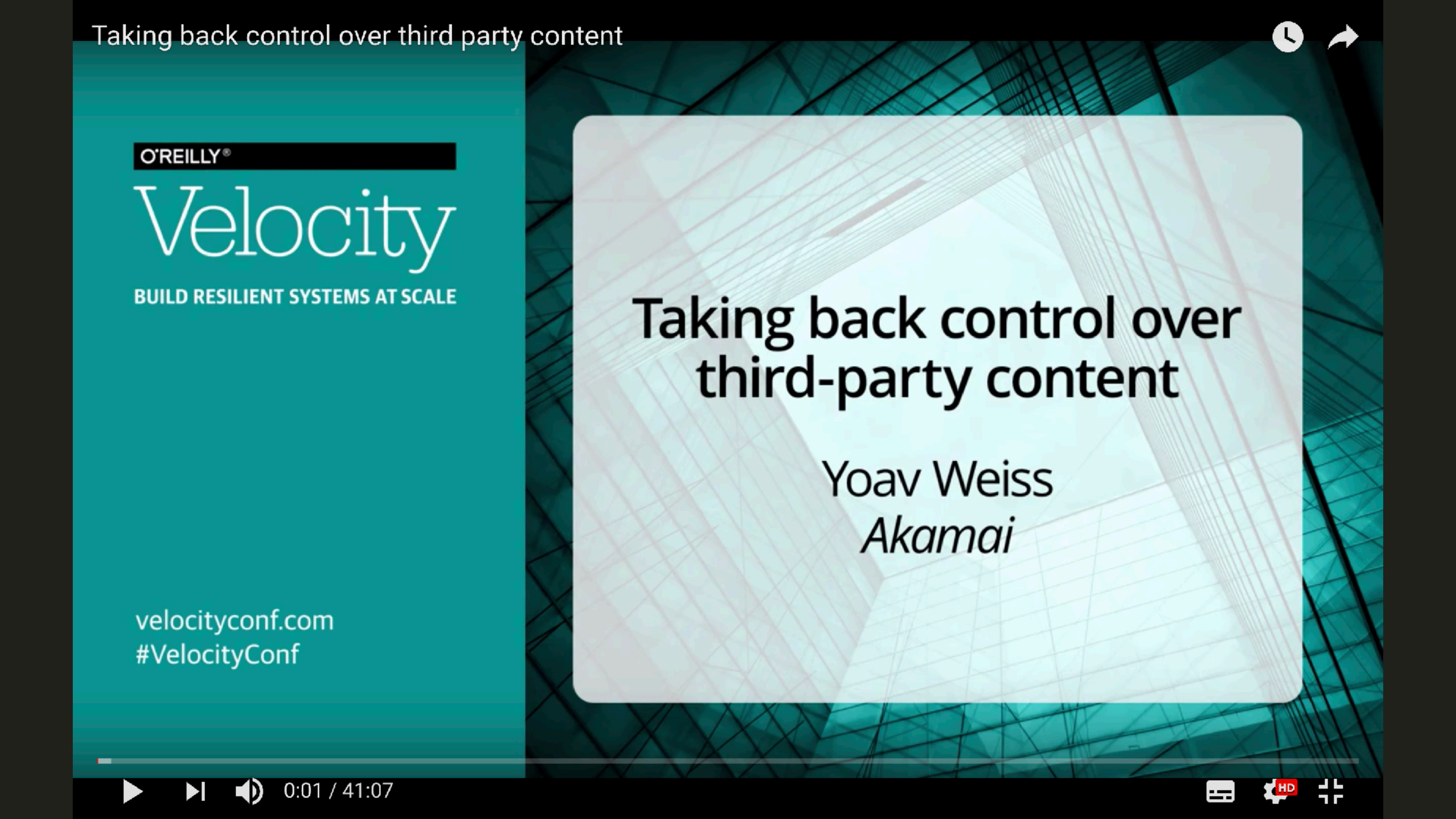
JANUARY 22, 2018 • 21 COMMENTS

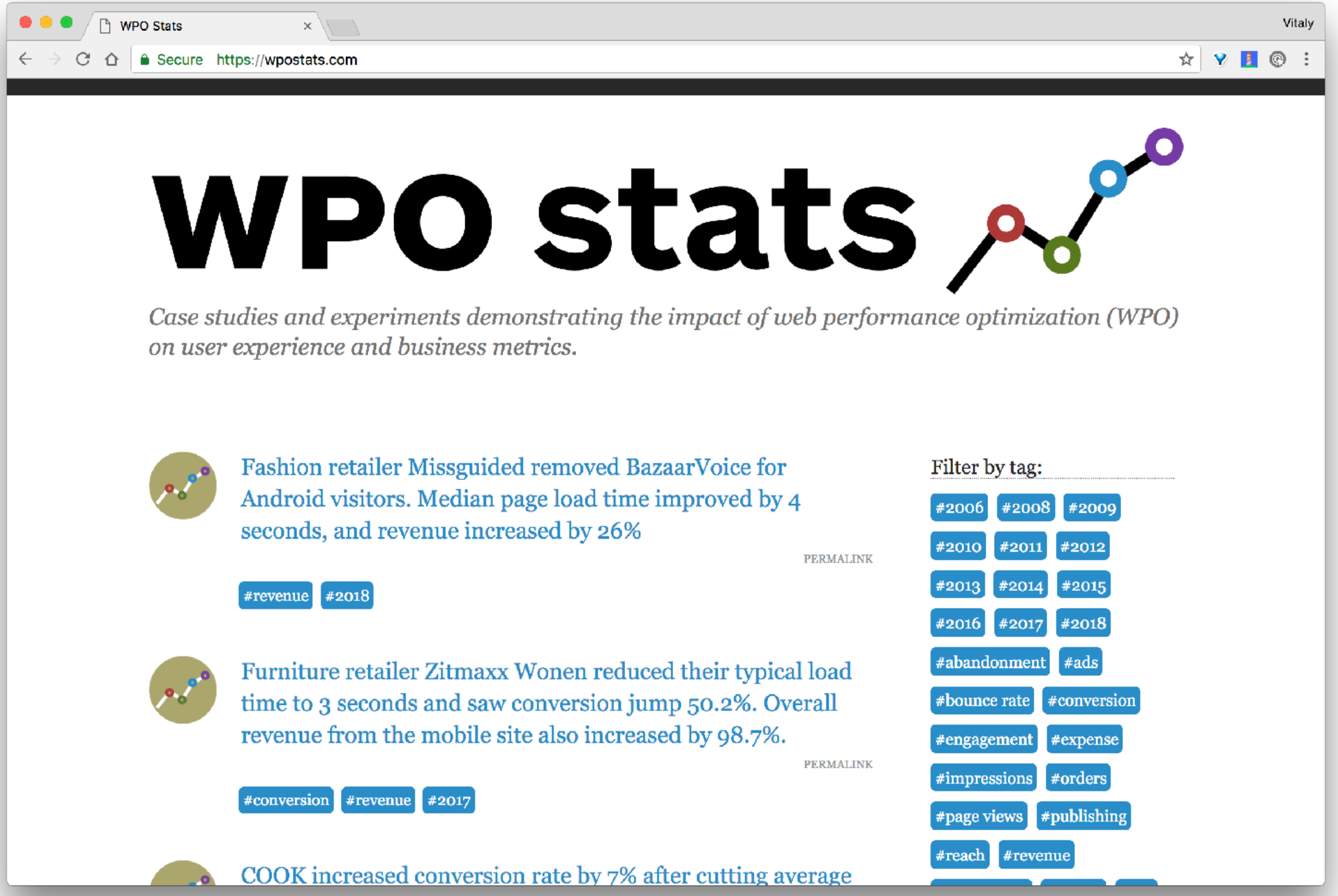
Now You See Me: How To Defer, Lazy-Load And Act With IntersectionObserver

API 26 # JavaScript 178 # Performance 66

It's My (Third) Party, and I'll Cry if I Want To

Harry Roberts • @csswizardry


Taking back control over third party content
O'REILLY®
Velocity
BUILD RESILIENT SYSTEMS AT SCALE
velocityconf.com
#VelocityConf
Taking back control over third-party content
Yoav Weiss
Akamai
0:01 / 41:07


WPO Stats
Vitaly
Secure https://wpostats.com
WPO stats
Case studies and experiments demonstrating the impact of web performance optimization (WPO) on user experience and business metrics.
Fashion retailer Missguided removed BazaarVoice for Android visitors. Median page load time improved by 4 seconds, and revenue increased by 26%
PERMALINK
#revenue
#2018
Furniture retailer Zitmaxx Wonen reduced their typical load time to 3 seconds and saw conversion jump 50.2%. Overall revenue from the mobile site also increased by 98.7%.
PERMALINK
#conversion
#revenue
#2017
COOK increased conversion rate by 7% after cutting average
Filter by tag:
#2006
#2008
#2009
#2010
#2011
#2012
#2013
#2014
#2015
#2016
#2017
#2018
#abandonment
#ads
#bounce rate
#conversion
#engagement
#expense
#impressions
#orders
#page views
#publishing
#reach
#revenue

LEVEL 3
LOGICFOLD

SEPARATING LOGIC FROM DESIGN WITH CSS CUSTOM PROPERTIES

GET READY

> With *CSS Custom Properties*, we now can separate logic from design, effectively separating variable declarations from property declarations. Because logic lives above design then, I like to call this separation *logic fold*.

— *Mike Riethmueller*

https://vimeo.com/235428198

> All *variable expressions* and calc statements that use CSS custom properties will be recalculated when the variable is redefined. Unlike preprocessors, they have knowledge of the DOM and can be *scoped* to DOM elements.

— *Jonathan Harrell*

https://jonathan-harrell.com/unlocking-benefits-css-variables/

```css
:root {
    --grid-gutter: 1rem;
}

@media (min-width: 600px) {
    :root {
        --grid-gutter: 1.25rem;
    }
}

.grid {
    display: grid;
    grid-gap: var(--grid-gutter);
    margin-left: calc(-1 * var(--grid-gutter));
    margin-right: calc(-1 * var(--grid-gutter));
}
```

```css
:root {
    --card-padding: 1rem;
}

@media (min-width: 600px) {
    :root {
        --card-padding: 1.25rem;
    }
}

@media (min-width: 1000px) {
    :root {
        --card-padding: 1.5rem;
    }
}

.card {
    padding: var(--card-padding);
}
```

Devone Neon animation

Vitaly

Secure https://codepen.io/ddprrt/pen/rYORWg?editors=0100

Devone Neon animation

A PEN BY Stefan Baumgartner

Fork | Settings | Change View

HTML

CSS

```
@keyframes neon {
  from {
    filter: drop-shadow(0 0 0 var(--neon-color));
  }
  to {
    filter: drop-shadow(0 0 20px var(--neon-color));
  }
}

svg {
  animation: neon 3s alternate infinite ease-in-out;
}

.font {
  --neon-color: #00e09e;
}

.border {
  --neon-color: #ff4d79;
}
```

JS



Console | Assets | Comments | ⌘

Share | Export | Embed | Collections

Cascade.

```css
:root {
    --body-background-color: white;
    --body-text-color: black;
}

body {
    background-color: var(--body-background-color);
    color: var(--body-text-color);
}

.dark {
    --body-background-color: black;
    --body-text-color: black;
}
```

```
/* single fallback */
.button {
    background-color: var(--button-background-color, gray);
}

/* multiple fallbacks */
.button-primary {
    background-color: var(--primary-button-background-color,
var(--button-background-color, gray));
}
```

CSS Custom Properties are dynamic CSS properties. They are *scoped* by a selector, and used inside a declaration block. It can be the *:root* selector, or any other valid selector.

```
:root { --smashing-red: #d33a2c; }

@media screen and (min-width: 800px) {
  .smashing-text, .cats {
    --margin-left:  1em;
  }
}
```

We can *retrieve* the value of a custom property *anywhere* we would otherwise use a value in a property declaration. *Fallback* is provided as second argument.

```
.smashing-text, .cats {
  color: var(--smashing-red, #cc0000);
  margin: 0 var(--margin-horizontal);
  padding: calc(var(--margin-horizontal) / 2)
}
```

They *can't* be used in media queries, or selectors including *:nth-child*. Variables in preprocessors are static whereas custom properties are dynamic.

We don’t have to change *where* the custom property is used — we change the *value* of the custom property with CSS. We can have *different values* in different places or context on the same page.

```css
a {
  --link-color: black;
}
a:hover,
a:focus {
  --link-color: tomato;
}
@media screen and (min-width: 600px) {
  a {
    --link-color: blue;
  }
}

a {
  color: var(--link-color);
}
```

Custom Properties are subject to *inheritance* and cascade. By default they are like *local* variables, scoped to and inherited by the specific selectors we apply them to.

Global variables (colors, type etc.) tend to be *static,* better suited for preprocessors. *Local variables* tend to be *dynamic,* better suited with Custom Properties.

Always *change the value* not the variable. It's easy to do because this is exactly how we do things with preprocessors, but it makes little sense with *custom properties*.

In this example, we have two custom properties that are used on an example component. I switch from using the value of `--font-size-small` to `--font-size-large` depending on the screen size.

```
:root {
  --font-size-small: 1.2em;
  --font-size-large: 2em;
}
.example {
  font-size: var(--font-size-small);
}
@media screen and (min-width: 800px) {
  .example {
    font-size: var(--font-size-large);
  }
}
```

A better way to do this would be to define a single custom property scoped to the component. Then using a media query, or any other selector, change its value.

```
.example {
  --example-font-size: 1.2em;
}
@media screen and (min-width: 800px) {
  .example {
    --example-font-size: 2em;
  }
}
```

Finally, in a single place, I use the value of this custom property:

```
.example {
  font-size: var(--example-font-size);
}
```

Media queries have only been used to *change the value* of custom properties. Notice that there is only one place where the *var()* statement is used.

Custom Properties can help us organize “responsive” logic and make working with media queries easier:

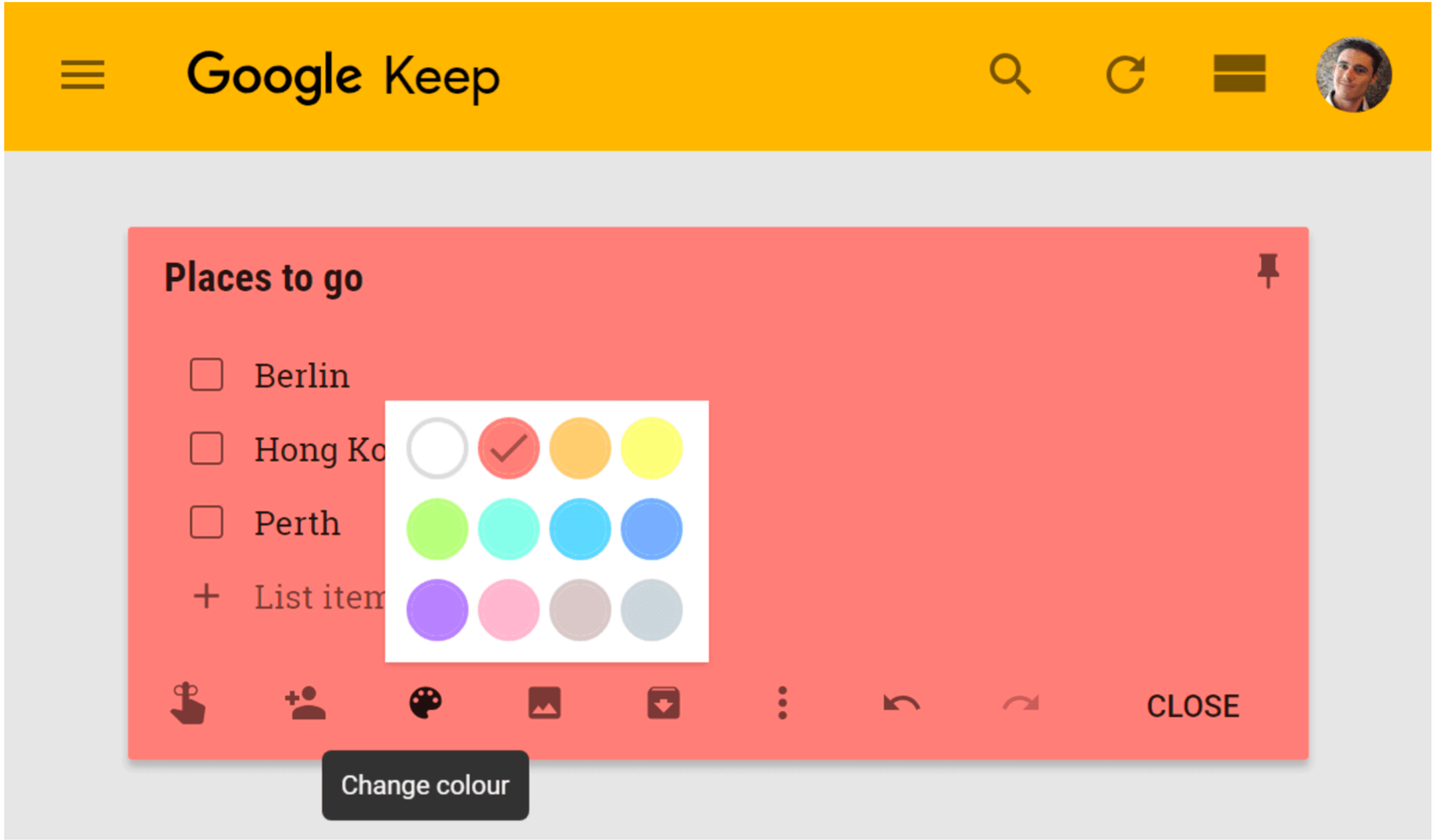
— **If it changes, it’s a variable.**
Properties changed via MQs are inherently dynamic. When *changing* CSS properties, place this value in a custom property.

— **If it changes, it's a variable.**
Properties changed via MQs are inherently dynamic. When *changing* CSS properties, place this value in a custom property.

— **Separate logic from design.**
MQs could only be used to change the value of custom properties. Logic lives on the top, *implementation details* at the bottom.

— **Separate logic from design.**
MQs could only be used to change the value of custom properties. Logic lives on the top, *implementation details* at the bottom.

— **The logic fold.**
Above the fold contains all preprocessor variables and custom properties. Everything living *below the fold* is highly declarative.


Google Keep
Places to go
Berlin
Hong Ko
Perth
List item
CLOSE
Change colour

```css
:root {
  --THEME-COLOR: var(--user-theme-color, #d33a2c);
}
body {
  --user-theme-color: green;
  background: var(--THEME-COLOR);
}
```

```
:root {
  --THEME-COLOR: var(--user-theme-color, #d33a2c);
}
body {
  --user-theme-color: green;
  background: var(--THEME-COLOR);
}
```

You might expect in the example above that the `background` will be set to green. However, the value of `--user-theme-color` has not been set on the root element, so the value of `--THEME-COLOR` has not changed.

Indirectly setting global dynamic properties like this protects them from being overwritten locally and ensures user settings are always inherited from the root element. This is a useful convention to safeguard your theme values and avoid unintended inheritance.

If we do want to expose specific properties to inheritance, we can replace the `:root` selector with a `*` selector:

```
* {
  --THEME-COLOR: var(--user-theme-color, #d33a2c);
}
body {
  --user-theme-color: green;
  background: var(--THEME-COLOR);
}
```

```
* {
  --THEME-COLOR: var(--user-theme-color, #d33a2c);
}
body {
  --user-theme-color: green;
  background: var(--THEME-COLOR);
}
```

Now the value of `--THEME-COLOR` is recalculated for every element and therefore the local value of `--user-theme-color` can be used. In other words, the background color in this example will be green.

If you want to set custom properties using JavaScript there is a fairly simple API and it looks like this:

```
const elm = document.documentElement;
elm.style.setProperty('--USER-THEME-COLOR', 'tomato');
```

Here I'm setting the value of `--USER-THEME-COLOR` on the document element, or in other words, the `:root` element where it will be inherited by all elements.

This means it's easy to apply local customizations:

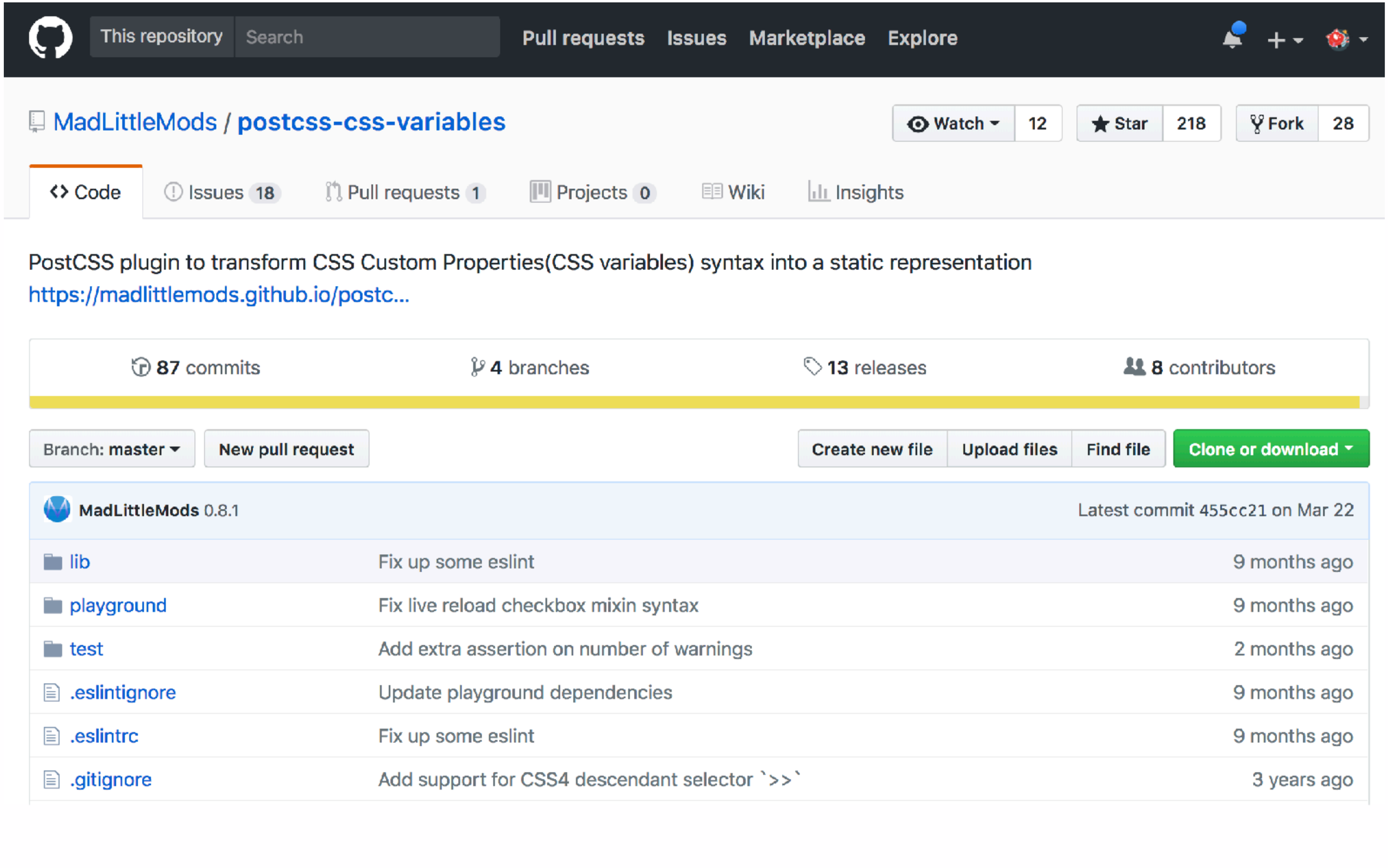
```
.note {
  --note-color: #eaeaea;
}
.note {
  background: var(--note-color);
}
```

Here I set a default value for `--note-color` and scope this to the `.note` component. I keep the variable declaration separate from the property declaration, even in this simple example.

```
const elm = document.querySelector('#note-uid');
elm.style.setProperty('--note-color', 'yellow');
```

```
import gulp from "gulp";
import sass from "gulp-sass";
import postcss from "gulp-postcss";
import rename from "gulp-rename";
import cssvariables from "postcss-css-variables";
import autoprefixer from "autoprefixer";
import cssnano from "cssnano";

gulp.task("css-no-vars", () =>
  gulp
    .src("./src/css/*.scss")
    .pipe(sass().on("error", sass.logError))
    .pipe(postcss([cssvariables(), cssnano()]))
    .pipe(rename({ extname: ".no-vars.css" }))
    .pipe(gulp.dest("./dist/css"))
);
```

```
gulp.task("css-no-vars", () =>
  gulp
    .src("./src/css/*.scss")
    .pipe(sass().on("error", sass.logError))
    .pipe(postcss([cssvariables(), cssnano()]))
    .pipe(rename({ extname: ".no-vars.css" }))
    .pipe(gulp.dest("./dist/css"))
);

gulp.task("css", () =>
  gulp
    .src("./src/css/*.scss")
    .pipe(sass().on("error", sass.logError))
    .pipe(postcss([cssnano()]))
    .pipe(rename({ extname: ".css" }))
    .pipe(gulp.dest("./dist/css"))
);
```


This repository
Search
Pull requests
Issues
Marketplace
Explore
MadLittleMods / postcss-css-variables
Watch 12
Star 218
Fork 28
Code
Issues 18
Pull requests 1
Projects 0
Wiki
Insights
PostCSS plugin to transform CSS Custom Properties(CSS variables) syntax into a static representation
https://madlittlemods.github.io/postc...
87 commits
4 branches
13 releases
8 contributors
Branch: master
New pull request
Create new file
Upload files
Find file
Clone or download
MadLittleMods 0.8.1
Latest commit 455cc21 on Mar 22
lib Fix up some eslint 9 months ago
playground Fix live reload checkbox mixin syntax 9 months ago
test Add extra assertion on number of warnings 2 months ago
.eslintignore Update playground dependencies 9 months ago
.eslintrc Fix up some eslint 9 months ago
.gitignore Add support for CSS4 descendant selector `>>` 3 years ago

```
<head>
  <style> /* inlined critical CSS */ </style>
  <script> loadCSS('non-critical.css'); </script>
</head>
```

We can extend this to load either `styles.css` or `styles.no-vars.css` depending on whether the browser supports custom properties. We can detect support like this:

```
if ( window.CSS && CSS.supports('color', 'var(--
test)') ) {
  loadCSS('styles.css');
} else {
  loadCSS('styles.no-vars.css');
}
```



ABOUT THE AUTHOR

Mike is an independent web developer from Australia who has worked on some of Australia's largest websites as well as some of the smallest community … More about Michael…



MAY 14, 2018 • 4 COMMENTS

A Strategy Guide To CSS Custom Properties

CSS 248 # Guides 8

CSS Custom Properties (sometimes known as 'CSS variables') are now supported in all modern browsers, and people are starting to use them in production. This is great, but they're different from variables in preprocessors, and I've already seen many examples of

Theming.

Coming Up Next in Membership



With the Membership, there is a goldfish to catch every month.

WED, NOV 1, 2:00PM CET SMASHING

Super-Early-Bird Tickets Release

TUE, NOV 7

Smashing TV Live @ BTConf, Berlin

3h live stream with interviews behind the scenes, incl. Paula Scher, Dave Rupert, Elliot Jay Stocks. Start: 10:00 CET. Check the schedule.

WED, NOV 15 SUPPORTER

Webinar: Debugging in DevTools

MON, NOV 20 MEMBER

New eBook: Design Systems

FRI, NOV 24 MEMBER

TUE, NOV 28 SMASHING

```
<ul class="promo-boxes promo-boxes__coming-up">

   <li class="for-members">
    <a href="design-systems.html">
       <time>…</time>
       <h4>…</h4>
       <p>…</p>
    </a>
   </li>

   <li class="for-supporters">
    <a href="new-webinars.html">
       <time>…</time>
       <h4>…</h4>
       <p>…</p>
    </a>
   </li>
   ...

</ul>
```

Defining The Fold

```
.promo-boxes {
    --box-color: $dark-grey;
    --box-bg: #fff;

    .high-contrast & {
        --box-color: $black;
    }
}

.promo-boxes__box.for-members:not(.for-supporters) {
    --box-bg: lighten($green, 49%);
}

.promo-boxes__box.for-supporters:not(.for-free) {
    --box-bg: lighten($blue, 49%);
}
```

```scss
.promo-boxes {
    --box-color: $dark-grey;
    --box-bg: #fff;

    .high-contrast & {
        --box-color: $black;
    }
}

.promo-boxes__box.for-members:not(.for-supporters) {
    --box-bg: lighten($green, 49%);
}

.promo-boxes__box.for-supporters:not(.for-free) {
    --box-bg: lighten($blue, 49%);
}

.promo-boxes__box > .label {
    background-color: var(--box-bg, #fff);
    color: var(--box-color, $dark-grey);
}
```

```
    .high-contrast & {
        --box-color: $black;
    }
}

.promo-boxes__box.for-members:not(.for-supporters) {
    --box-bg: lighten($green, 49%);
}

.promo-boxes__box.for-supporters:not(.for-free) {
    --box-bg: lighten($blue, 49%);
}

.promo-boxes__box > .label {
    background-color: var(--box-bg, #fff);
    color: var(--box-color, $dark-grey);
}

.promo-boxes__box {
   background-color: var(--box-bg, #fff);
   color: currentColor;
}
```

```
    .high-contrast & {
        --box-color: $black;
    }
}

.promo-boxes__box.for-members:not(.for-supporters) {
    --box-bg: lighten($green, 49%);
}

.promo-boxes__box.for-supporters:not(.for-free) {
    --box-bg: lighten($blue, 49%);
}

.promo-boxes__box > .label {
    background-color: var(--box-bg, #fff);
    color: var(--box-color, $dark-grey);
}

.promo-boxes__box {
   background-color: #fff;
   background-color: var(--box-bg, #fff);
   color: currentColor;
}
```

Coming Up Next in Membership



With the Membership, there is a goldfish to catch every month.

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TUE, NOV 7

Smashing TV Live @ BTConf, Berlin

3h live stream with interviews behind the scenes, incl. Paula Scher, Dave Rupert, Elliot Jay Stocks. Start: 10:00 CET. Check the schedule.

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Webinar: Debugging in DevTools

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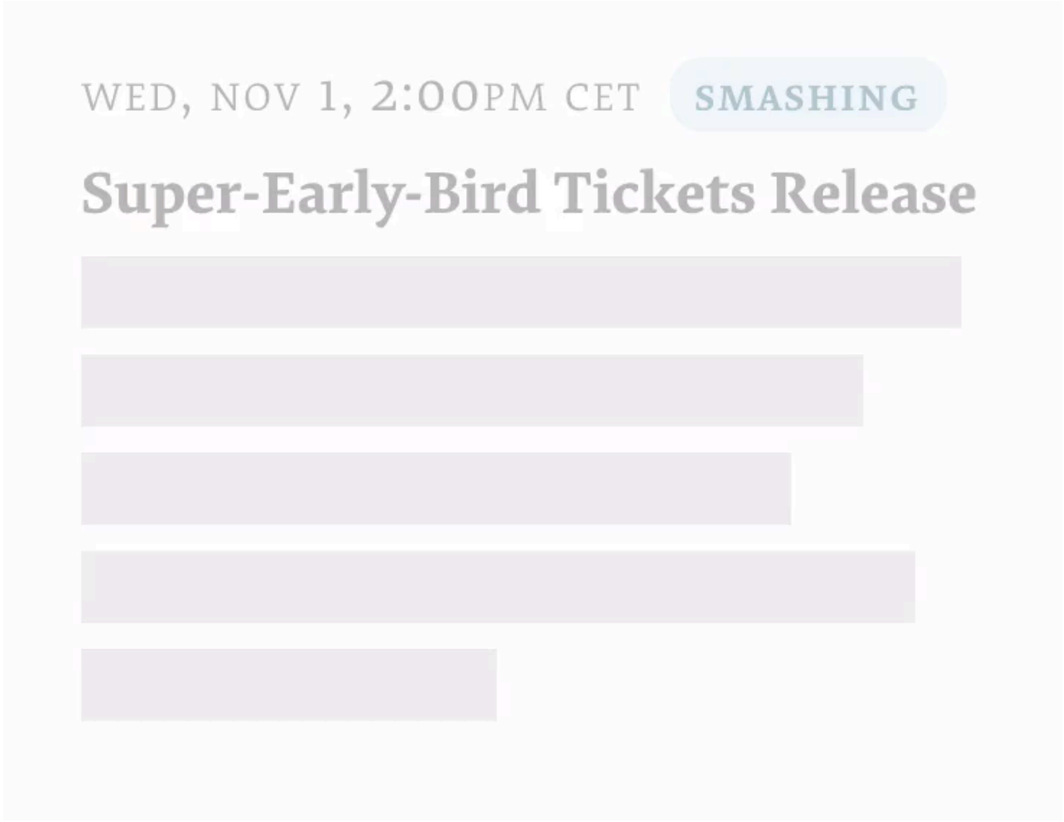
FRI, NOV 24 MEMBER

TUE, NOV 28 SMASHING

WED, NOV 1, 2:00PM CET SMASHING

Super-Early-Bird Tickets Release




```
.promo-boxes__box {
    background-image: linear-gradient(to right,
                      #ccc 50%, var(--box-bg) 50%);
    background-position: 0;
    background-size: 200%;
    opacity: 0;
    transition: all .3s ease-in-out;
}
```

```
.promo-boxes__box:hover {
    background-position: -100%;
    opacity: 1;
}
```

CSS Variables (Custom Properties) - CR

Global 76.6% + 1.52% = 78.11%

Permits the declaration and usage of cascading variables in stylesheets.

Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			49			10.2			
		55	60	10.1	47	10.3		4.4	
11	2 15	56	61	11	48	11	all	56	61
	16	57	62	TP	49				
		58	63		50				
		59	64						

Notes | Known issues (3) | Resources (8) | Feedback

- In Edge 15, nested calculations with css variables are not computed and are ignored see bug
- In Edge 15 animations with css variables may cause the webpage to crash see bug
- In Edge 15 is not possible to use css variables in pseudo elements see bug

ES6
FOR EVERYONE
I just launched a new course on ES6! Use the code *WESBOS* for $10 off.
Strengthen your core JavaScript skills and master all that ES6 has to offer.
Start Now →

CSS Highlight on Hover Animation

JAN 20 2016

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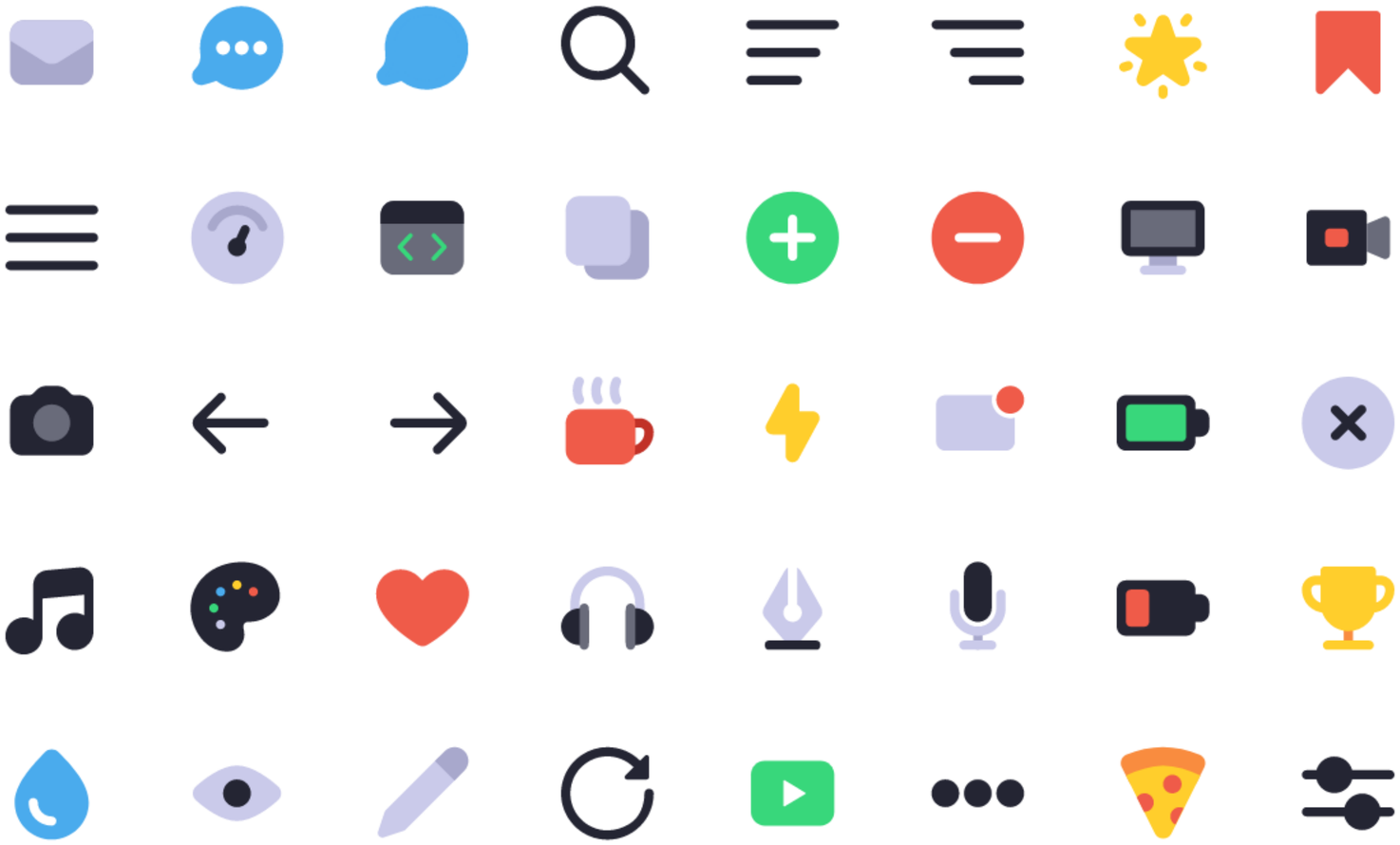

> For a long time, we could achieve *multi-colored SVG symbol icons* only with in-file style declarations. Because CSS custom properties are inherited, we can use them to apply *different colors* to different parts of SVGs.

— *Sarah Dayan*

https://frontstuff.io/multi-colored-svg-symbol-icons-with-css-variables







```
<svg xmlns="http://www.w3.org/2000/svg" style="display: none">
    <symbol id="my-first-icon" viewBox="0 0 20 20">
      <title>my-first-icon</title>
      <path d="..." />
    </symbol>
  </svg>

<svg>
    <use xlink:href="#my-first-icon" />
</svg>
```

```
<svg class="icon icon-red">
  <use xlink:href="#my-first-icon" />
</svg>

<svg class="icon icon-blue">
  <use xlink:href="#my-first-icon" />
</svg>


<style>
  .icon {
      width: 100px;
      height: 100px;
  }
  .icon-red {
      fill: red;
  }
  .icon-blue {
      fill: blue;
  }
</style>
```

> We want to have a *different* color for each part of the icon. We want to fill each path with a different color, without altering other instances, and we want to be able to override it if necessary.

```svg
<svg xmlns="http://www.w3.org/2000/svg" style="display: none">
  <symbol id="my-first-icon" viewBox="0 0 20 20">
    <title>my-first-icon</title>
    <path class="path1" d="..." />
    <path class="path2" d="..." />
    <path class="path3" d="..." />
  </symbol>
</svg>

<svg class="icon icon-colors">
  <use xlink:href="#my-first-icon" />
</svg>

<style>
  .icon-colors .path1 {
    fill: red;
  }
  .icon-colors .path2 {
    fill: green;
  }
  .icon-colors .path3 {
    fill: blue;
  }
</style>
```

> We're trying to style `.path1`, `.path2` and `.path3` as if they were nested in `.icon-colors`, but they aren't. The *<use>* element isn't a placeholder that gets replaced by your SVG definition. It's a reference which clones the content it's pointing to into the shadow DOM.

```
<svg xmlns="http://www.w3.org/2000/svg" style="display: none">
  <symbol id="my-first-icon" viewBox="0 0 20 20">
    <title>my-first-icon</title>
    <path fill="var(--color-1)" d="..." />
    <path fill="var(--color-2)" d="..." />
    <path fill="var(--color-3)" d="..." />
  </symbol>
</svg>

<svg class="icon icon-colors">
  <use xlink:href="#my-first-icon" />
</svg>


<style>
    .icon-colors {
    --color-1: #c13127;
    --color-2: #ef5b49;
    --color-3: #cacaea;
    }
</style>
```

```
<svg class="icon icon-colors-alt">
  <use xlink:href="#my-first-icon" />
</svg>

<style>
.icon-colors-alt {
  --color-1: brown;
  --color-2: yellow;
  --color-3: pink;
}
</style>
```



Intrinsic Ratio For Videos

- To ensure the intrinsic 4:3 or 16:9 ratios for videos, we create a box with the proper ratio, then stretch the video inside to fit the dimensions of the box.

- HTML:

```
<div class="wrapper-with-intrinsic-ratio">
    <div class="element-to-stretch"></div>
</div>
```

Intrinsic Ratio For Videos

- CSS:

```
.wrapper-with-intrinsic-ratio {
    position: relative;
    padding-top: 25px;      /* player chrome */
    padding-bottom: 56.25%; /* 9:16 = 0.5625 */
    height: 0; }

.element-to-stretch {
    position: absolute;
    top: 0;
    left: 0;
    width: 100%;
    height: 100%;
    background: teal; }
```

MAY 26, 2009

Creating Intrinsic Ratios for Video

by **THIERRY KOBLENTZ**

Published in: CSS, HTML and XHTML, Scripting

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Did you ever want to resize a video *on the fly*, scaling it as you would an image? Using intrinsic ratios for video, you can. This technique allows browsers to determine video dimensions based on the width of their containing block. With intrinsic dimensions, a new width triggers a new height calculation, allowing videos to resize and giving them the ability to scale the same way images do. See example one.

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Snapshot

Have you ever wanted to resize a video on the fly, scaling it as you would an image? Using intrinsic ratios for video and some padding property magic, you can. Thierry Koblentz shows us how.

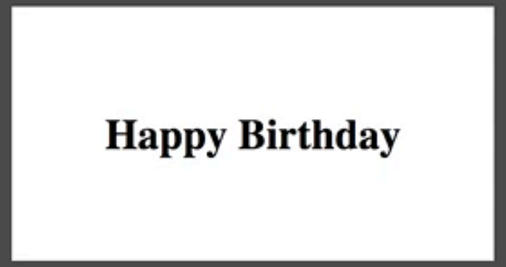
Ad via The Deck

JOB BOARD
Oyster is looking for a Lead iOS Engineer at Oyster.

HTML

CSS (SCSS)

```scss
.aspect-ratio-box {
  height: 0;
  padding-top:
    591.44px / 1127.34px * 100%;
  background: white;
  position: relative;
}
.aspect-ratio-box-inside {
  position: absolute;
  top: 0;
  left: 0;
  width: 100%;
  height: 100%;
}
.flexbox-centering {
  height: 100%;
  display: flex;
  justify-content: center;
  align-items: center;
}
.viewport-sizing {
  font-size: 5vw;
}
```



Lorem ipsum dolor sit amet, consectetur adipisicing elit. Eum omnis quos, placeat veniam itaque assumenda dicta maxime repellendus nobis optio sequi ut excepturi commodi officia consectetur dolores, quod, rerum ex!

RatioBuddy - Aspect ratio calc

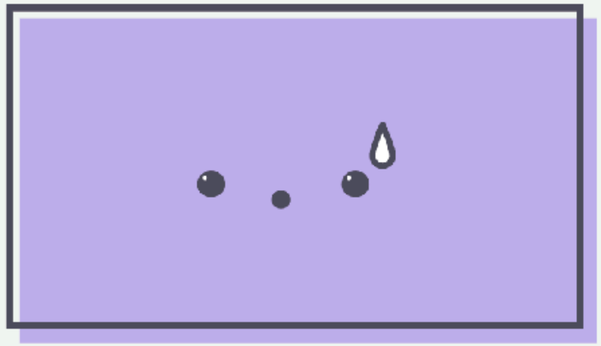
Vitaly

Not Secure | ratiobuddy.com

RATIO: BUDDY

16 × 9

16 : 9



```scss
.outer {
  position: relative;
  &:before {
    display: block;
    content: "";
    width: 100%;
    padding-top: (9 / 16) * 100%;
  }
  > .inner {
    position: absolute;
    top: 0;
    right: 0;
    bottom: 0;
    left: 0;
  }
}
```

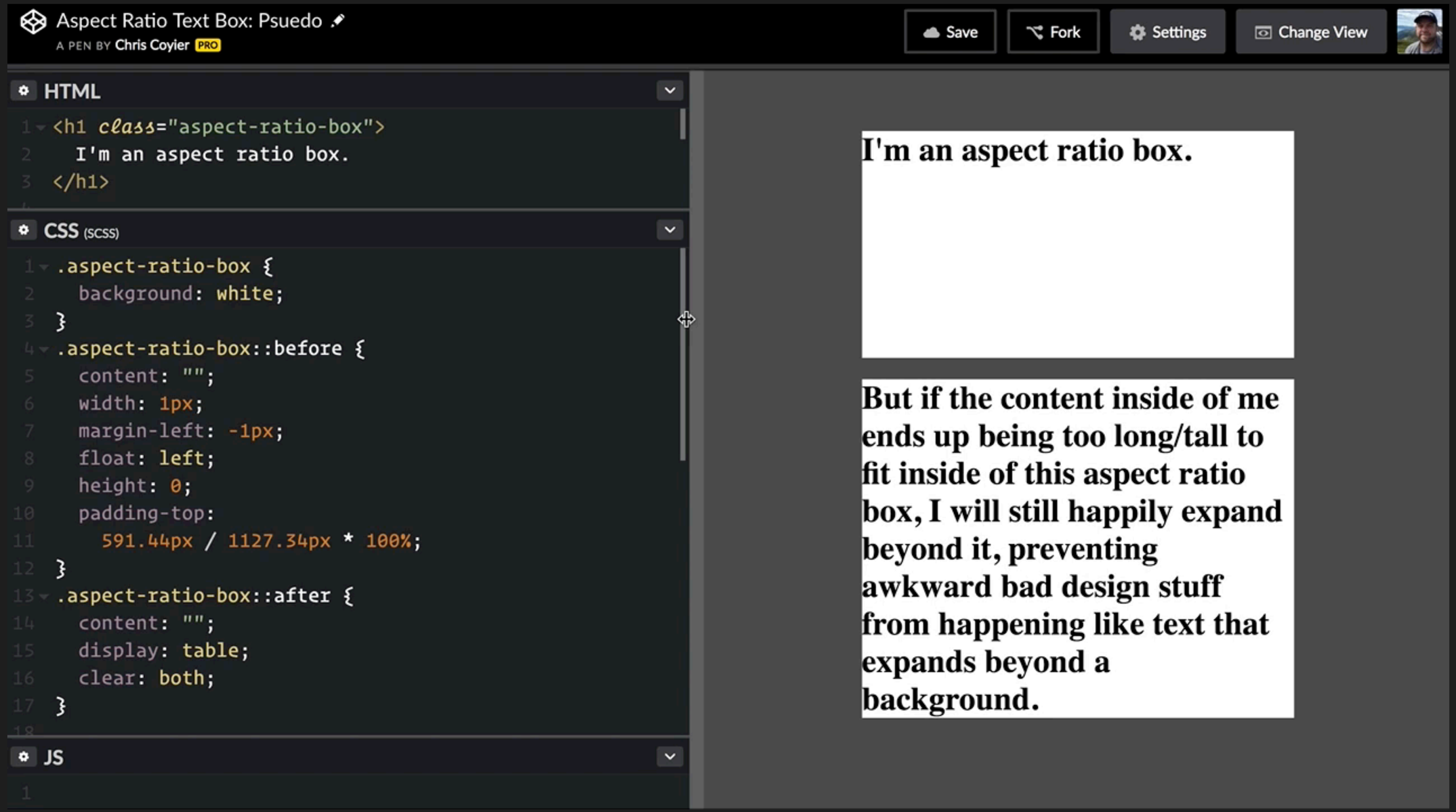
Copy SCSS

Damn Fine

The Psuedo Element Tactic

- Apply the % padding to a *pseudo element* instead of the box itself. Float the pseudo-element, so content inside flows into the box.

```css
.aspect-ratio-box {
    background: white;
}
.aspect-ratio-box::before {
    content: "";
    width: 1px;
    margin-left: -1px;
    float: left;
    height: 0;
    padding-top: calc((9 / 16) * 100%);
}
.aspect-ratio-box::after { /* to clear float */
    content: "";
    display: table;
    clear: both;
}
```


Aspect Ratio Text Box: Psuedo
A PEN BY Chris Coyier PRO
Save
Fork
Settings
Change View
HTML
<h1 class="aspect-ratio-box">
I'm an aspect ratio box.
</h1>
CSS (SCSS)
.aspect-ratio-box {
background: white;
}
.aspect-ratio-box::before {
content: "";
width: 1px;
margin-left: -1px;
float: left;
height: 0;
padding-top:
591.44px / 1127.34px * 100%;
}
.aspect-ratio-box::after {
content: "";
display: table;
clear: both;
}
JS
I'm an aspect ratio box.
But if the content inside of me ends up being too long/tall to fit inside of this aspect ratio box, I will still happily expand beyond it, preventing awkward bad design stuff from happening like text that expands beyond a background.

Intrinsic Ratio With CSS Custom Properties

- We can add flexibility by using *CSS Custom Properties* scoped to the element we need it on.

```
<div class="grid">
    <div style="--aspect-ratio: 815/419;"> </div>
    <div style="--aspect-ratio: 16/9;"> </div>
    <div style="--aspect-ratio: 1.4;"> </div>
</div>
```

```html
<div class="grid">
    <div style="--aspect-ratio: 815/419;"> </div>
    <div style="--aspect-ratio: 16/9;"> </div>
    <div style="--aspect-ratio: 1.4;"> </div>
</div>
```

```css
[style*="--aspect-ratio"] > :first-child {
    width: 100%;
  }

[style*="--aspect-ratio"] > img {
    height: auto;
}
```

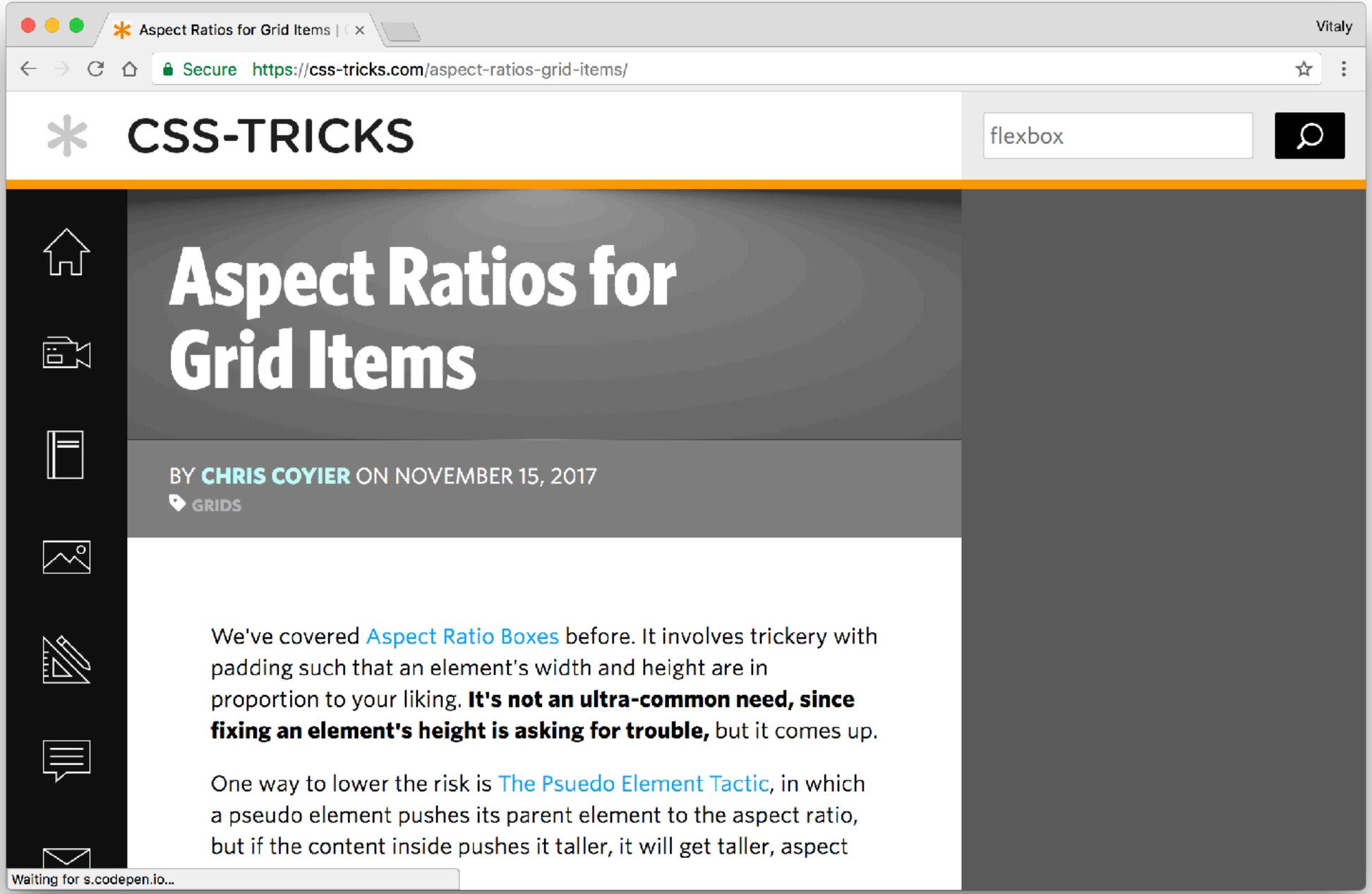
- We use `[style*="--aspect-ratio"]` as a hook to target the appropriate boxes.
- Make sure the height comes from intrinsic ratio.

```css
@supports (--custom:property) {

  [style*="--aspect-ratio"] {
    position: relative;
  }

  [style*="--aspect-ratio"]::before {
    content: "";
    display: block;
    padding-bottom: calc(100% / (var(--aspect-ratio)));
  }

  [style*="--aspect-ratio"] > :first-child {
    position: absolute;
    top: 0;
    left: 0;
    height: 100%;
  }

}
```

```css
@supports (--custom:property) {

  [style*="--aspect-ratio"] {
    position: relative;
  }

  [style*="--aspect-ratio"]::before {
    content: "";
    display: block;
    padding-bottom: calc(100% / (var(--aspect-ratio)));
  }

  [style*="--aspect-ratio"] > :first-child {
    position: absolute;
    top: 0;
    left: 0;
    height: 100%;
  }

}
```

- We set `position: relative` on the container,
- Create a pseudo-element for “padding hack”,
- Use `calc()` and `var()` to calculate padding,
- Style box to match dimensions of its container.

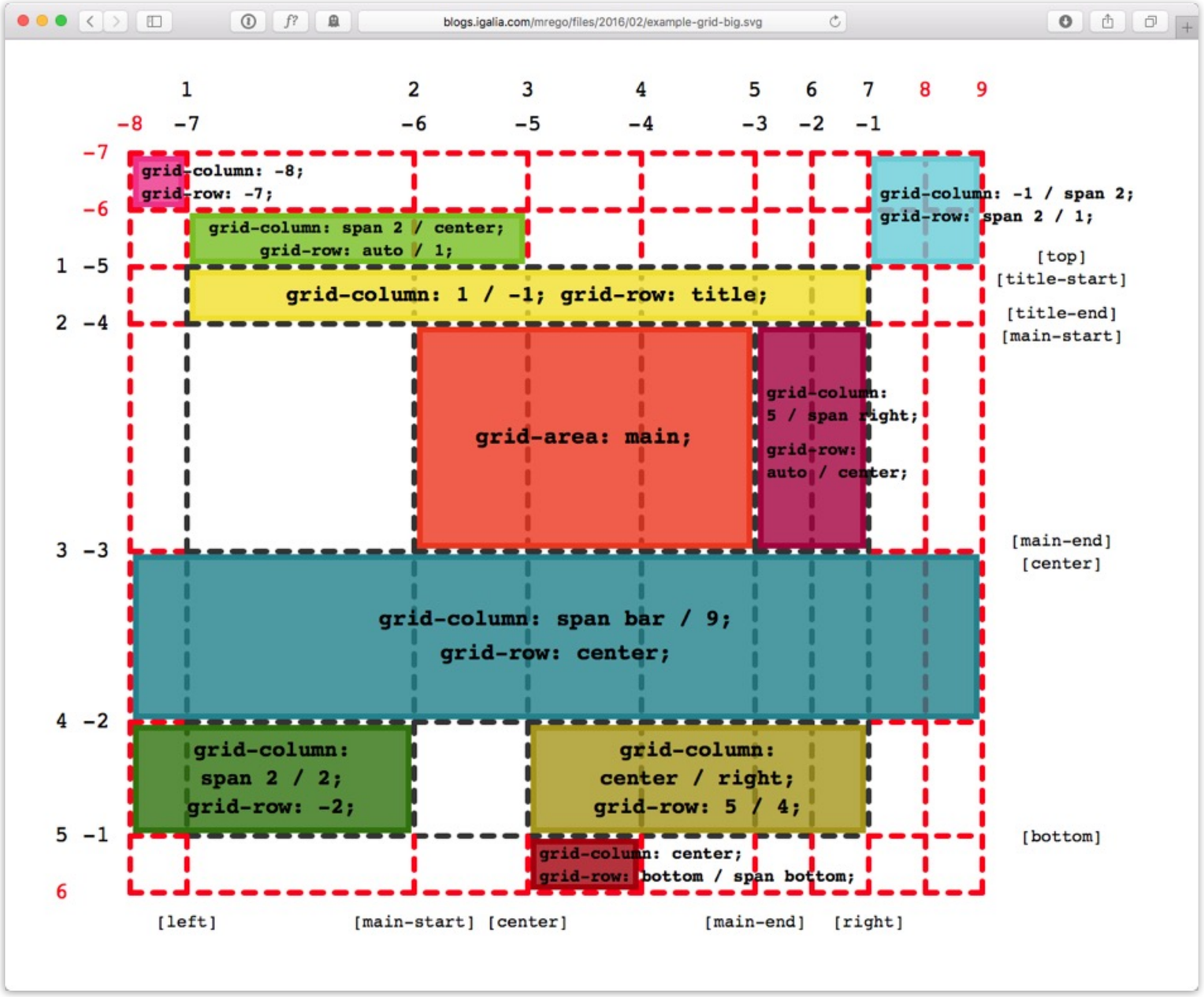
```css
@supports (--custom:property) {

  [style*="--aspect-ratio"] {
    position: relative;
  }

  [style*="--aspect-ratio"]::before {
    content: "";
    display: block;
    padding-bottom: calc(100% / (var(--aspect-ratio)));
  }

  [style*="--aspect-ratio"] > :first-child {
    position: absolute;
    top: 0;
    left: 0;
    height: 100%;
  }

}
```


Aspect Ratios for Grid Items |
Vitaly
Secure https://css-tricks.com/aspect-ratios-grid-items/
CSS-TRICKS
flexbox
Aspect Ratios for Grid Items
BY CHRIS COYIER ON NOVEMBER 15, 2017
GRIDS
We've covered Aspect Ratio Boxes before. It involves trickery with padding such that an element's width and height are in proportion to your liking. It's not an ultra-common need, since fixing an element's height is asking for trouble, but it comes up.
One way to lower the risk is The Psuedo Element Tactic, in which a pseudo element pushes its parent element to the aspect ratio, but if the content inside pushes it taller, it will get taller, aspect
Waiting for s.codepen.io...


LEVEL 4
THE GRID
WITH FANCY CSS GRID LAYOUT AND ASCII-ALIKE SYNTAX
GET READY



Many layout issues can be easily resolved with a **combination** of Flexbox and CSS Grid. What's the best strategy of using them today while *not ignoring* legacy browsers altogether?

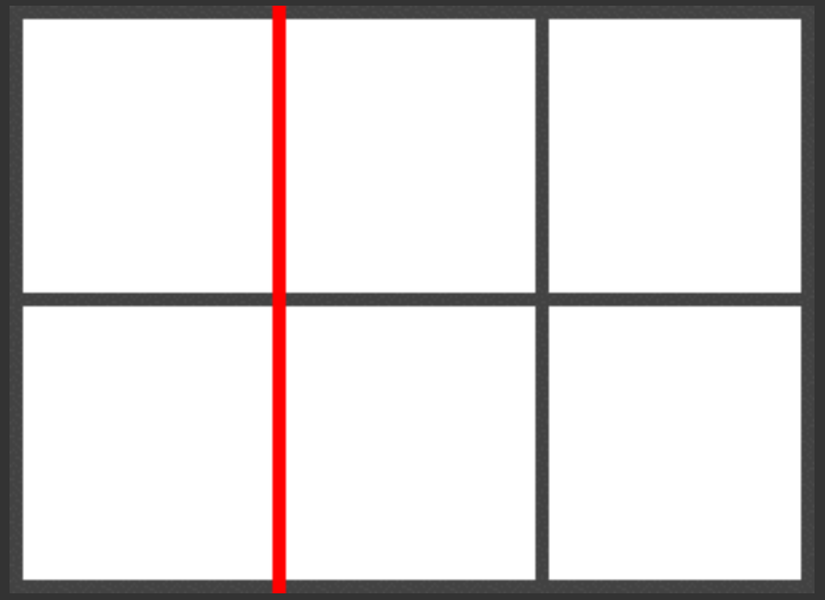


by Manuel Rego Casasnovas
http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/

Grid Lines

Lines can be horizontal or vertical. They are referred to by number and can be named.

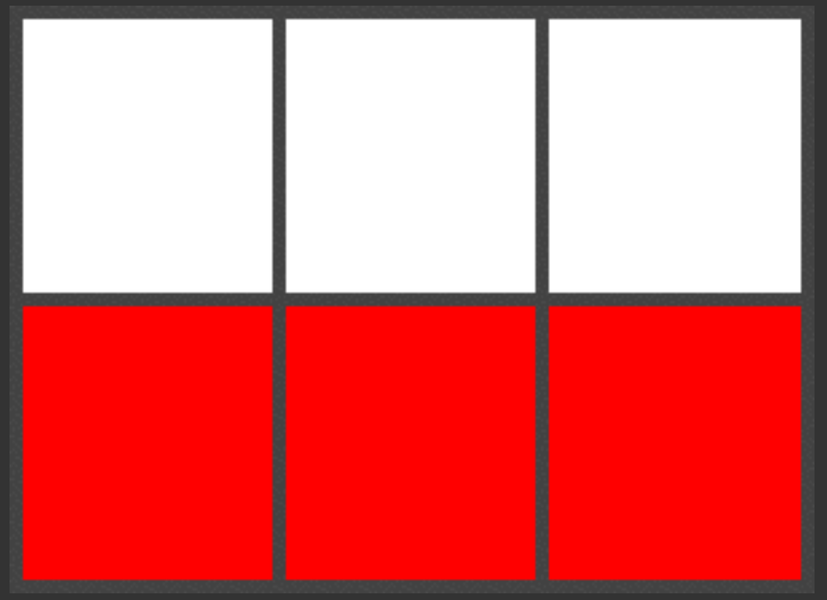
Highlighted is Column Line 2.



Grid Track

A Grid Track is the space between two Grid Lines. Tracks can be horizontal or vertical (rows or columns).

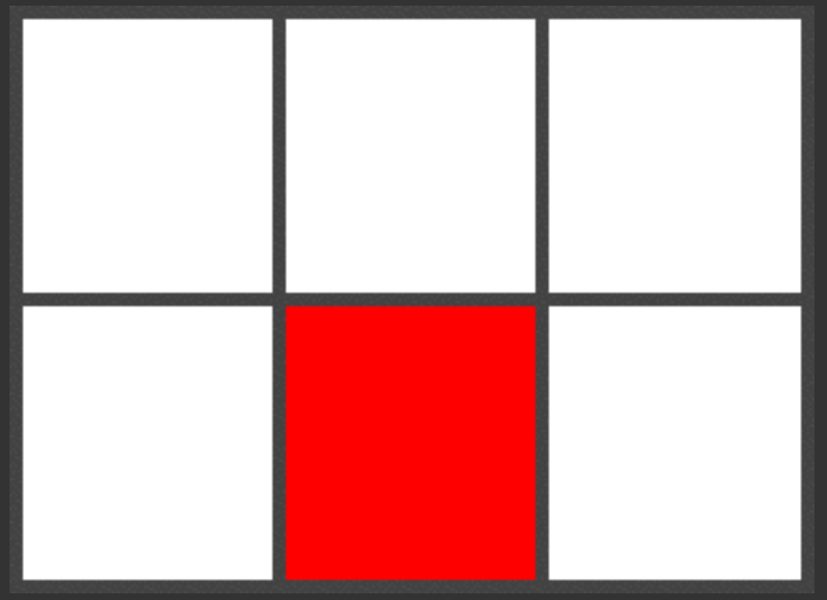
The highlighted Grid Track is between Row Lines 2 and 3.



Grid Cell

The smallest unit on our grid, a Grid Cell is the space between four Grid Lines. It’s just like a table cell.

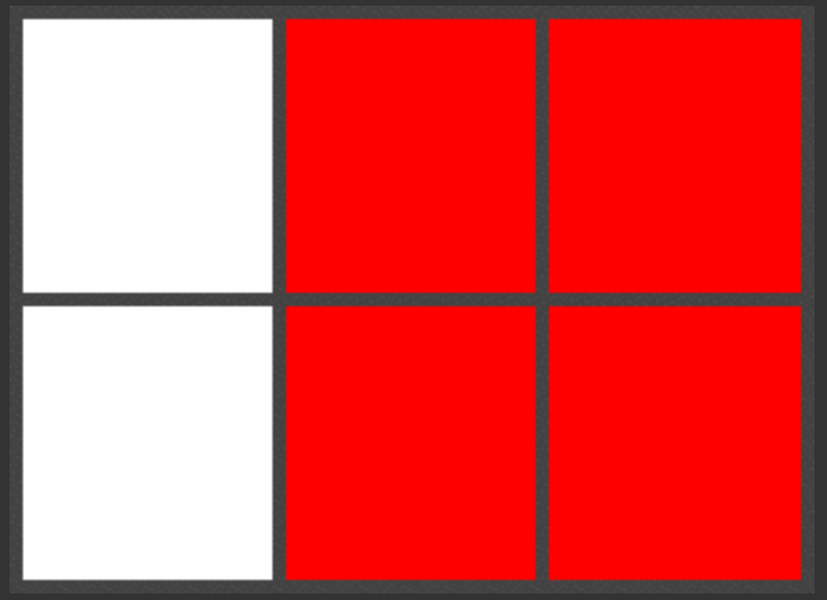
The highlighted Grid Cell is between row lines 2 and 3 and column lines 2 and 3.

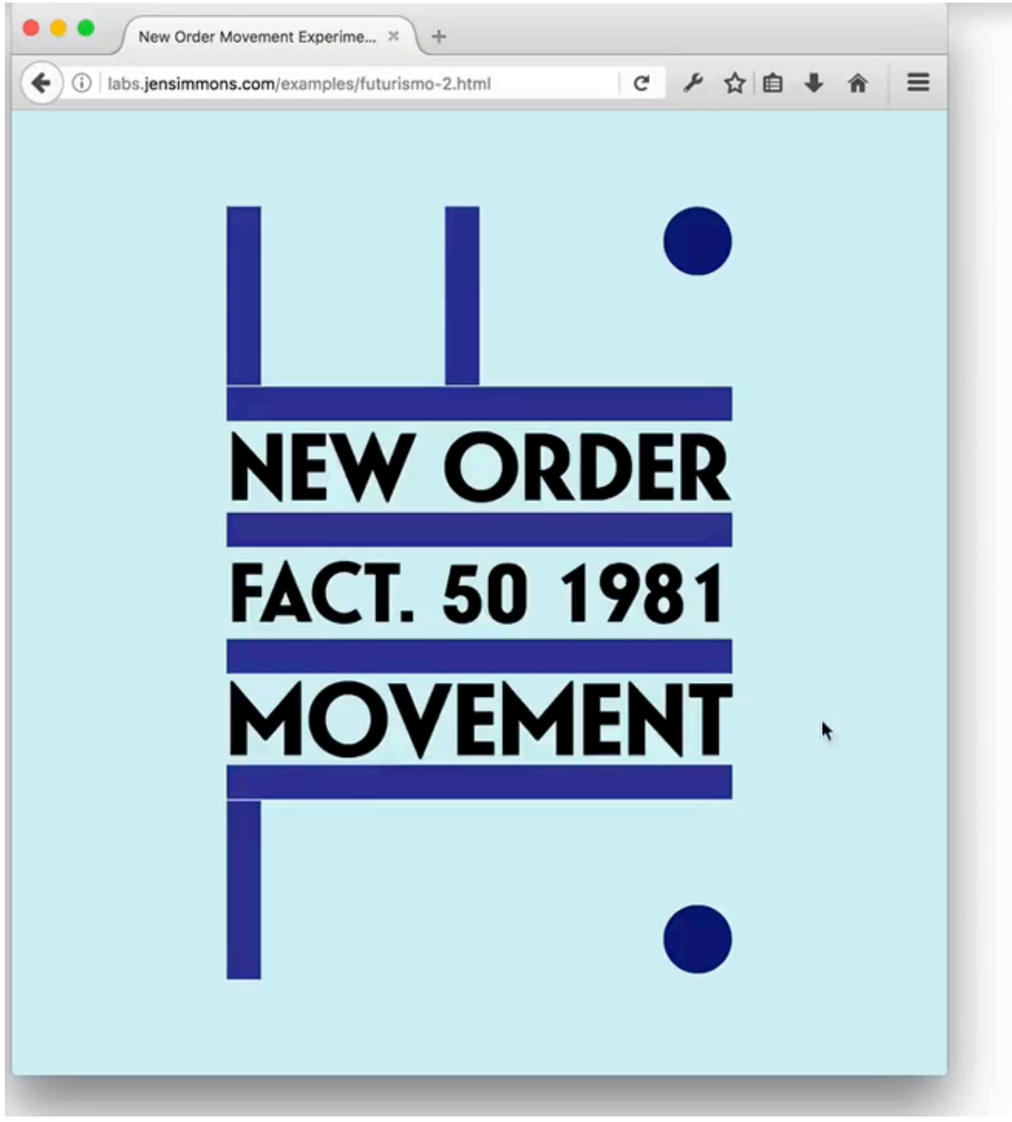


Grid Area

Any area of the Grid bound by 4 Grid Lines. It can contain many Grid Cells.

The highlighted Grid Area is between row lines 1 and 3, column lines 2 and 4.

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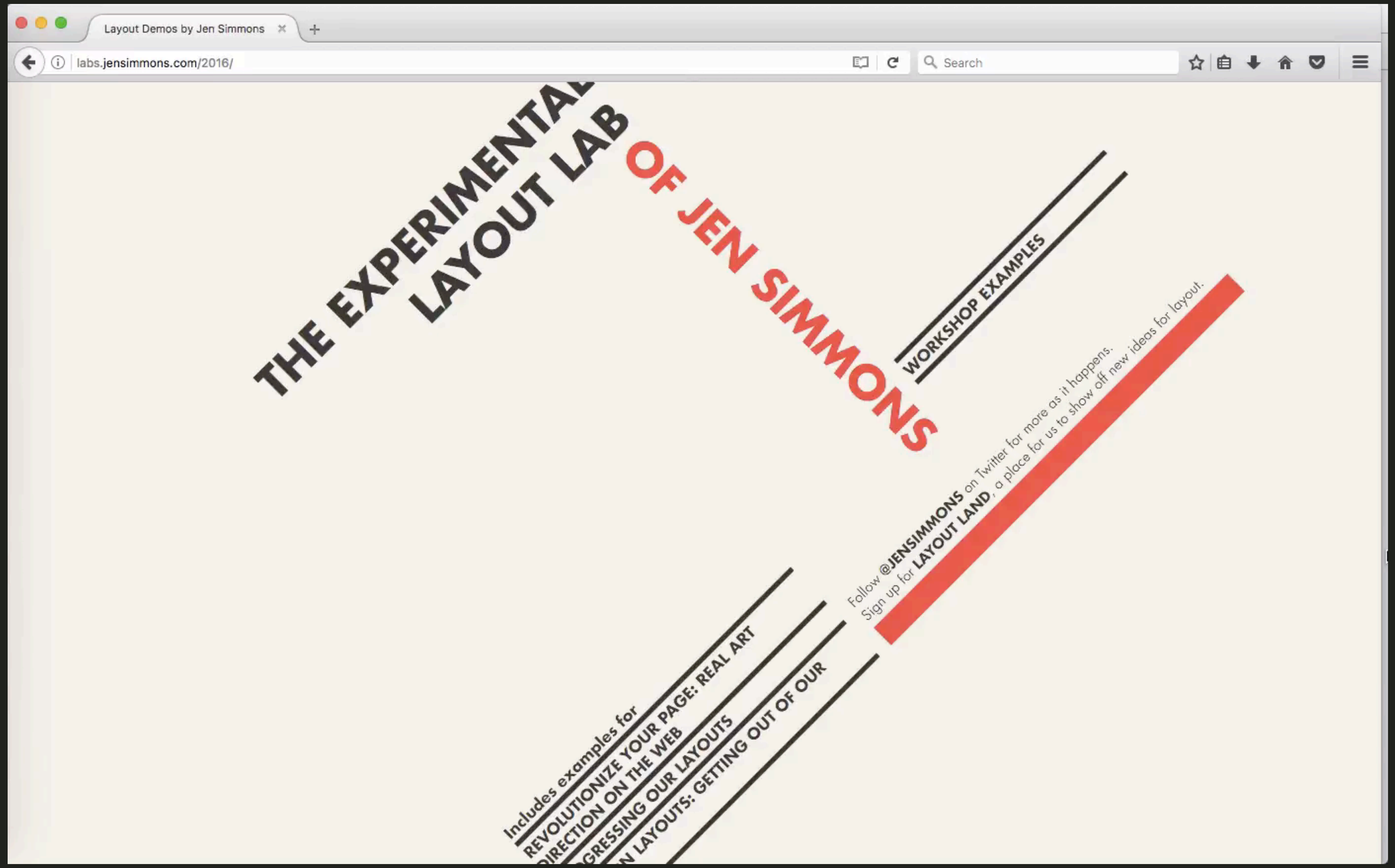
NEW ORDER
FACT. 50 1981
MOVEMENT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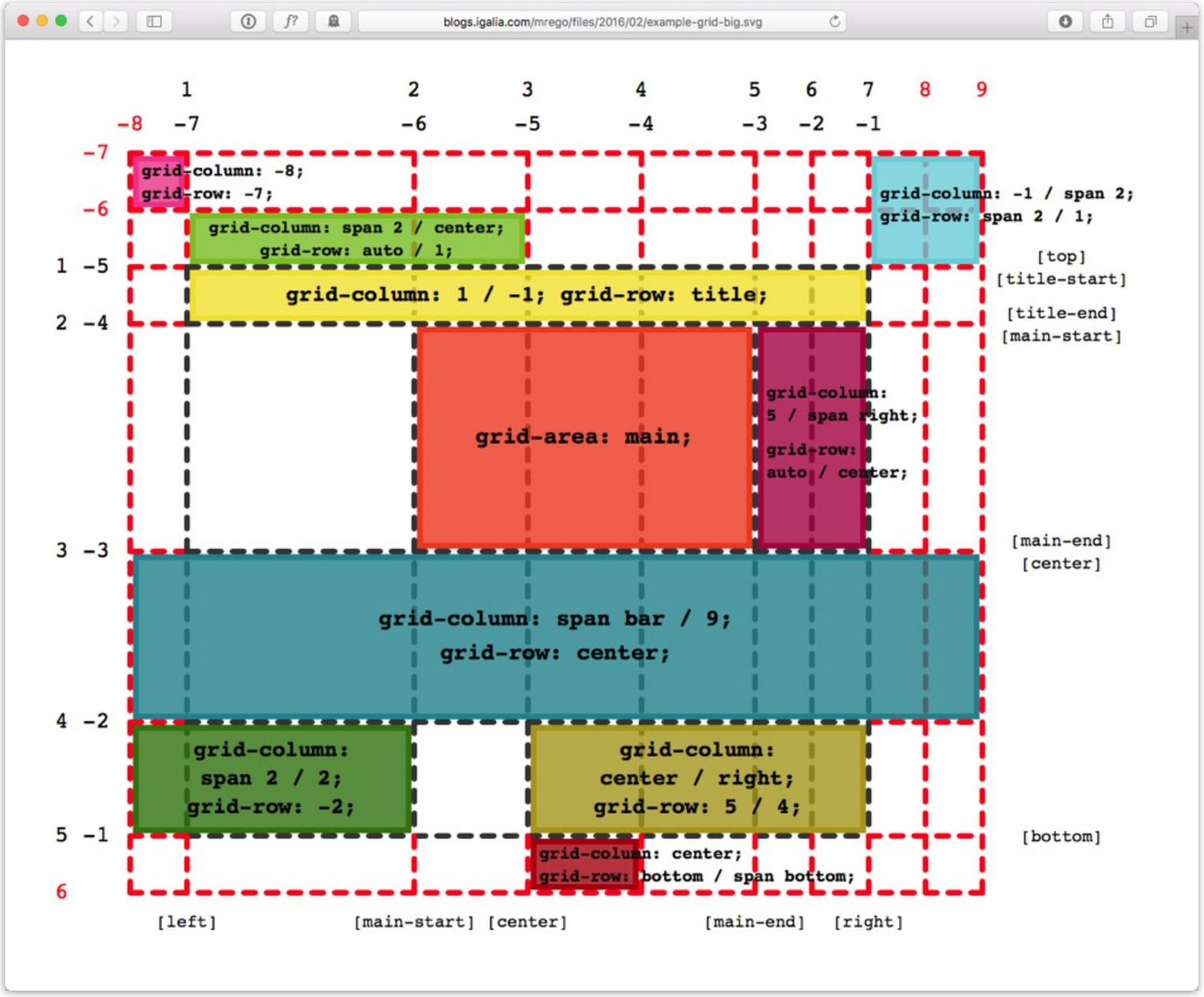


by Manuel Rego Casasnovas
http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/

— *grid-template-columns* declares the number of columns and the size of each column.

```
grid-template-columns: 250px 250px 250px 250px;
```

— *repeat* keyword allows to avoid repetition.

```
grid-template-columns: repeat(4, 250px);
grid-template-columns: repeat(5, 1fr 2fr);
grid-template-columns: 20px repeat(6, 1fr) 20px;
```

— *grid-auto-rows* and *grid-auto-columns* define set size of tracks within implicit grid.

```
grid-auto-rows: minmax(100px, auto);
```

— *auto-fill* and *auto-fit* deal differently with the overflow of space on a line.

— *auto-fill* tries to put the largest number of items into a column but leaves space open.

```
grid-template-columns:
    repeat(auto-fill, minmax(250px, 1fr));
```



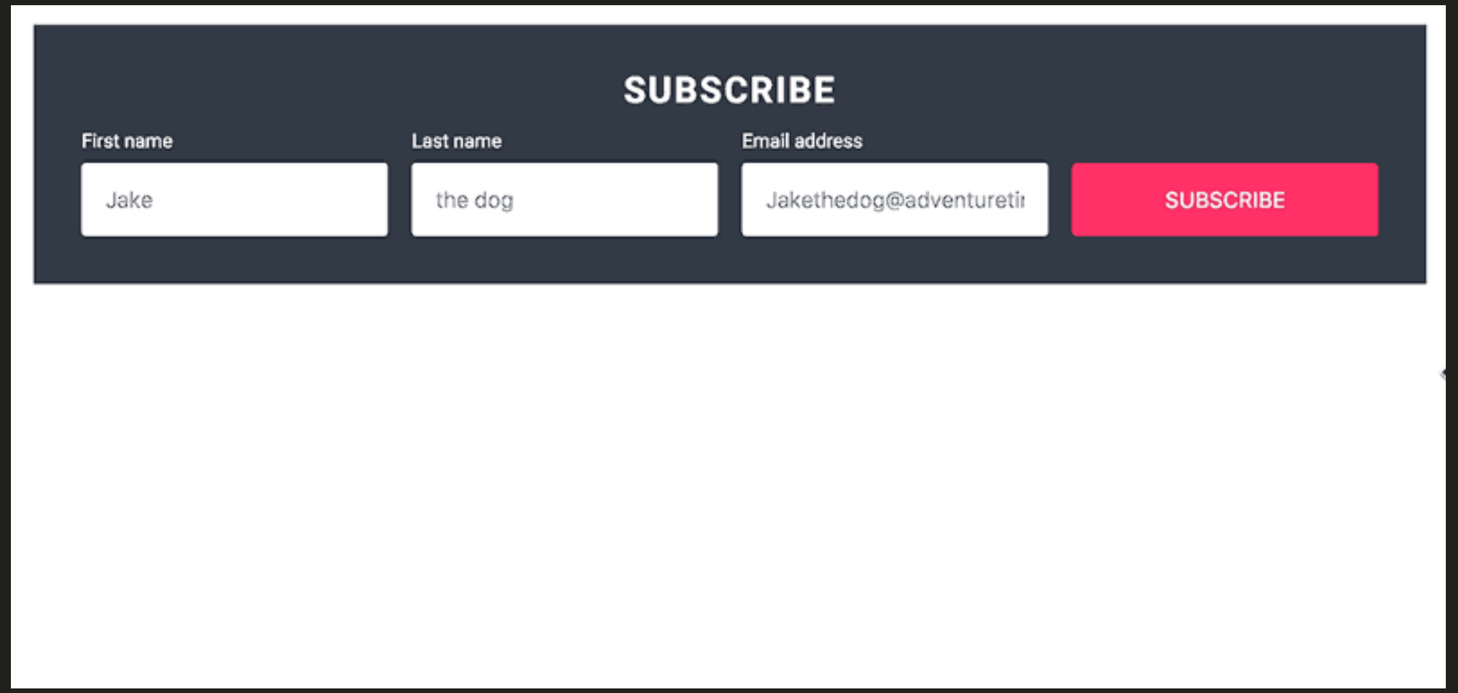
— *auto-fit* provides a Flexbox-like experience, collapsing empty space and stretching items.

```
grid-template-columns:
    repeat(auto-fit, minmax(250px, 1fr));
```



— *auto-fit* provides a Flexbox-like experience, collapsing empty space and stretching items.

```
grid-template-columns:
    repeat(auto-fit, minmax(250px, 1fr));
```



— *auto-fit* and *auto-fill* deal differently with the overflow of space on a line.

```
grid-template-columns:
    repeat(auto-fit, minmax(250px, 1fr));
```

— *auto-fit* tries to put the largest number of items into a column but leaves space open.

— *auto-fill* provides a Flexbox-like experience, collapsing empty space and stretching items.

— *1fr,* a *fraction unit*, takes up a share of available space, accounting for *grid-gap*.

```
grid-template-columns: repeat(4, 250px 1fr);
```

— *minmax* specifies a range of the largest and smallest values a row or column could be:

```
grid-template-columns: repeat(4, minmax(250px, 1fr);
```

— *alignment* is achieved as in Flexbox. *stretch* pulls an element from start to end of a track.

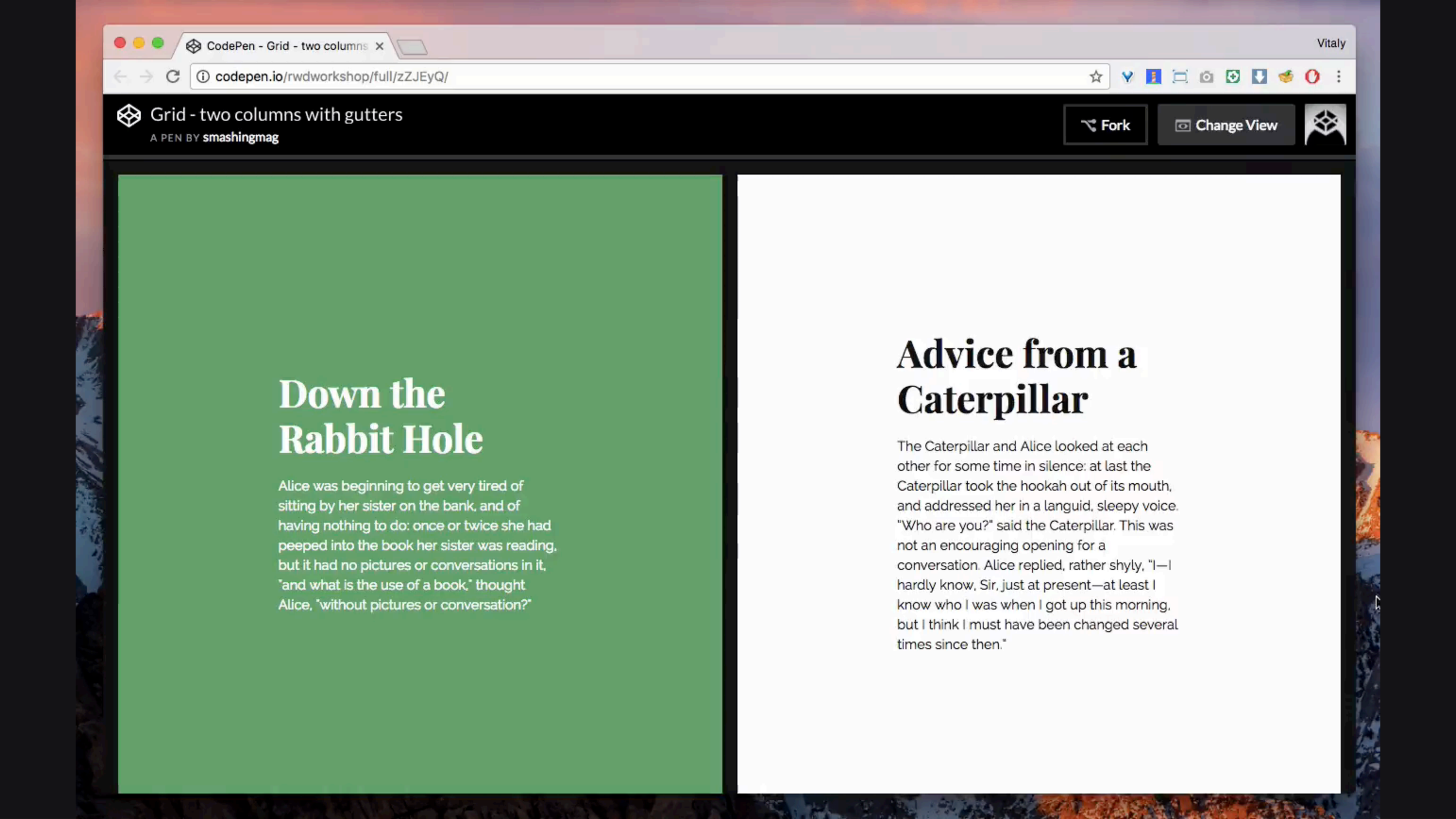
```
align-items: center; justify-content: center;
```

Down the Rabbit Hole

Alice was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, "and what is the use of a book," thought Alice, "without pictures or conversation?"

Advice from a Caterpillar

The Caterpillar and Alice looked at each other for some time in silence: at last the Caterpillar took the hookah out of its mouth, and addressed her in a languid, sleepy voice. "Who are you?" said the Caterpillar. This was not an encouraging opening for a conversation. Alice replied, rather shyly, "I—I hardly know, Sir, just at present—at least I know who I was when I got up this morning, but I think I must have been changed several times since then."


CodePen - Grid - two columns
Vitaly
codepen.io/rwdworkshop/full/zZJEyQ/
Grid - two columns with gutters
A PEN BY smashingmag
Fork
Change View
Down the Rabbit Hole
Alice was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, "and what is the use of a book," thought Alice, "without pictures or conversation?"
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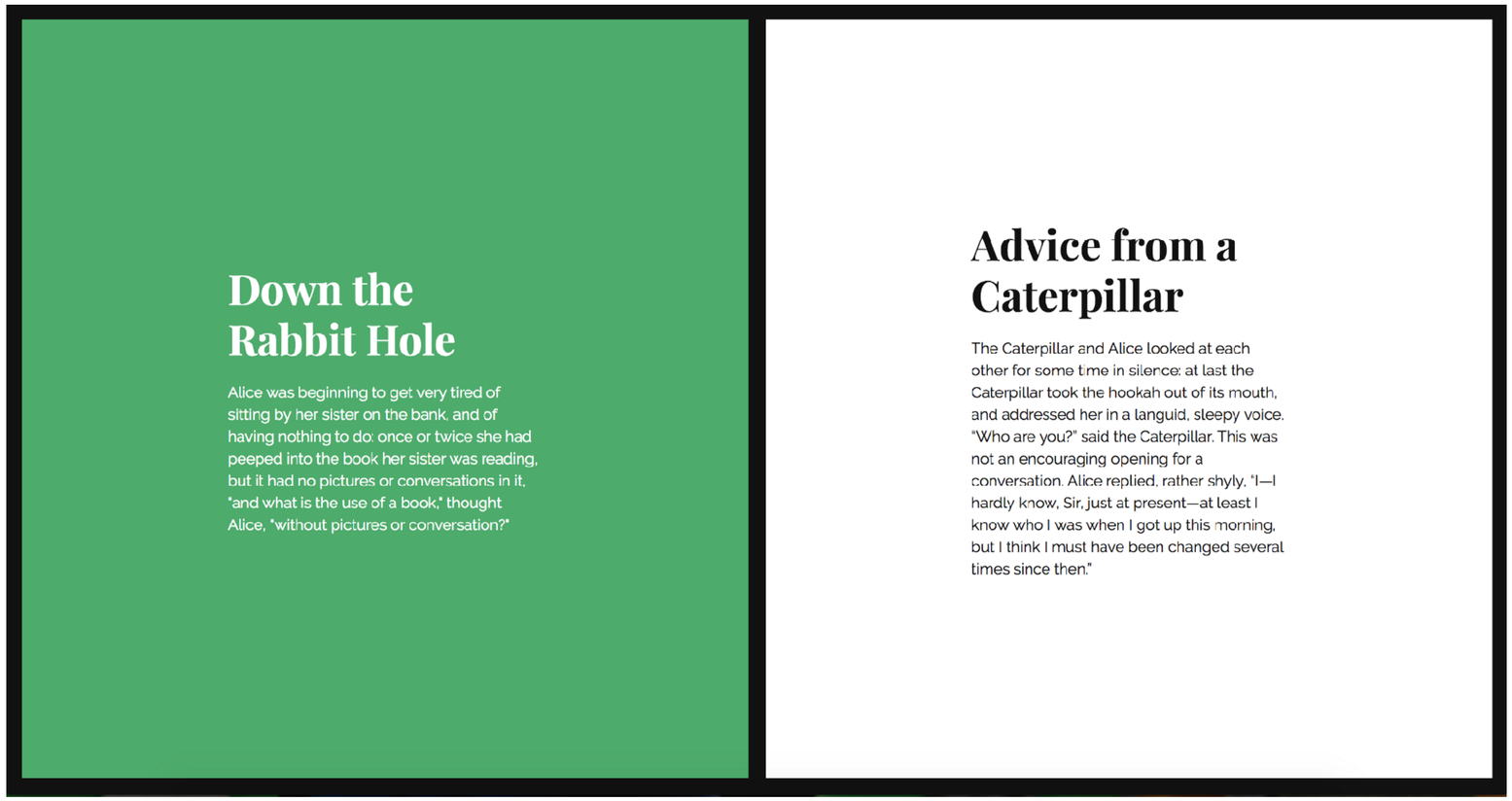
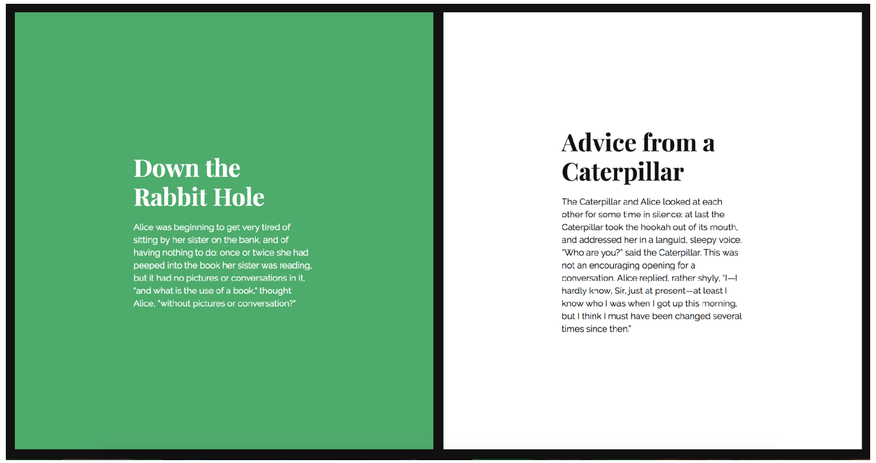


- CSS:

```
@supports (display: flex) {
    .container { display: flex; }
}
```

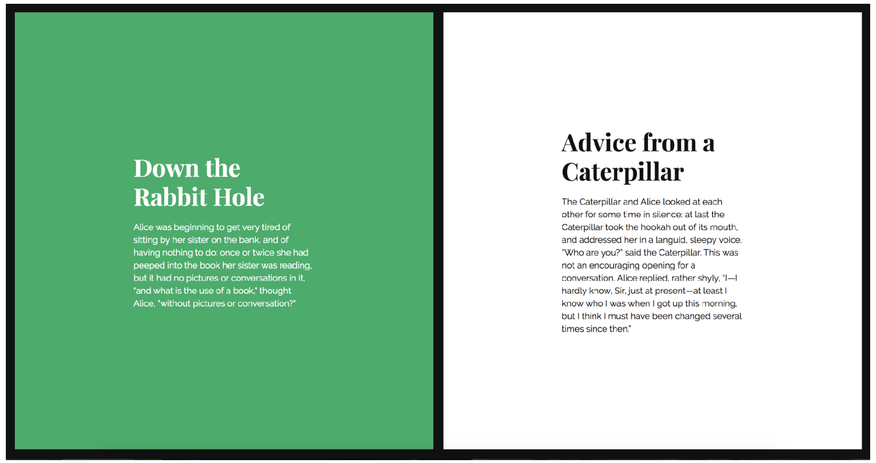


- CSS:

```
@supports (display: flex) {
    .l-grid {
        display: flex;
        min-height: 100vh;
    }

    .l-grid--half-half > .l-grid__item {
        flex: 1 1 auto;
    }
}
```

```
@supports (display: flex) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
}
.l-content {
    max-width: 300px;
}
```



- CSS:

```
@supports (display: grid) {
    .l-grid--half-half {
        display: grid;
        grid-template-columns: 50vw 50vw;
        grid-gap: 1rem;
        min-height: 100vh;
    }
}
```

```
@supports (display: grid) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
}
.l-content {
    max-width: 300px;
}
```



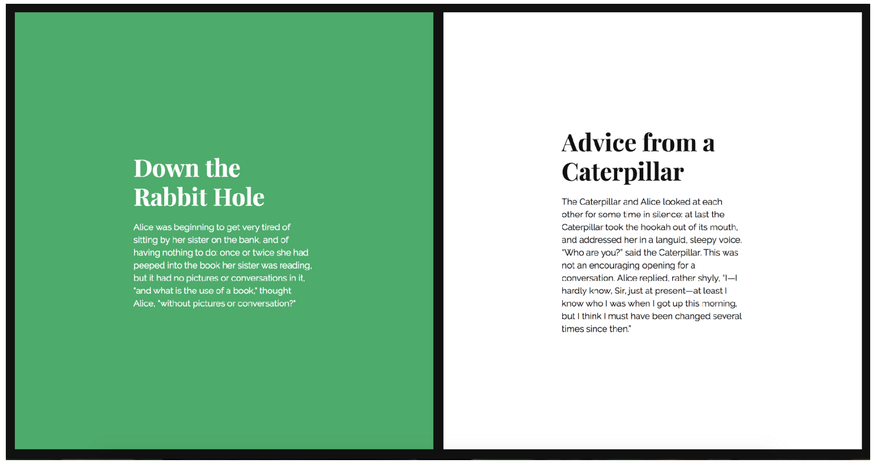
- CSS:

```
@supports (display: grid) {
    .l-grid--half-half {
        display: grid;
        grid-template-columns: 50vw 50vw;
        grid-gap: 1rem;
        min-height: 100vh;
    }
}
```

- CSS:

```
.l-center-center {
    align-items: center;
    justify-content: center;
}

.l-content {
    max-width: 300px;
}
```



- CSS:

```
@supports (display: grid) {
    .l-grid--half-half {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-gap: 1rem;
        min-height: 100vh;
    }
}
```

- CSS:

```
.l-center-center {
    align-items: center;
    justify-content: center;
}

.l-content {
    max-width: 300px;
}
```

The Horror In Clay

Of such great powers or beings there may be conceivably a survival… a survival of a hugely remote period when… consciousness was manifested, perhaps, in shapes and forms long since withdrawn before the tide of advancing humanity… forms of which poetry and legend alone have caught a flying memory and called them gods, monsters, mythical beings of all sorts and kinds…

The most merciful thing in the world

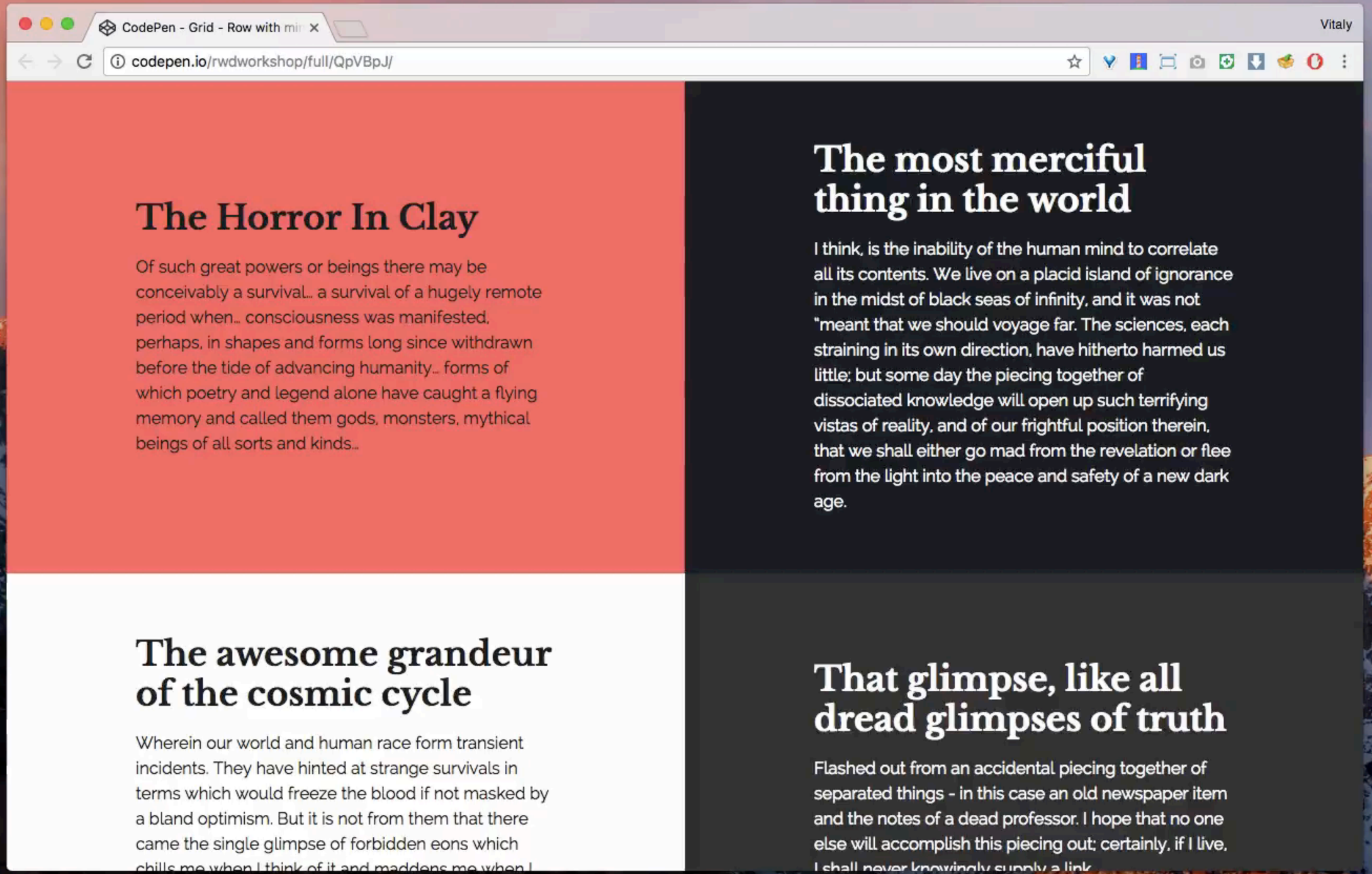
I think, is the inability of the human mind to correlate all its contents. We live on a placid island of ignorance in the midst of black seas of infinity, and it was not "meant that we should voyage far. The sciences, each straining in its own direction, have hitherto harmed us little; but some day the piecing together of dissociated knowledge will open up such terrifying vistas of reality, and of our frightful position therein, that we shall either go mad from the revelation or flee from the light into the peace and safety of a new dark age.

The awesome grandeur of the cosmic cycle

Wherein our world and human race form transient incidents. They have hinted at strange survivals in terms which would freeze the blood if not masked by a bland optimism. But it is not from them that there came the single glimpse of forbidden eons which chills me when I think of it and maddens me when I dream of it.

That glimpse, like all dread glimpses of truth

Flashed out from an accidental piecing together of separated things - in this case an old newspaper item and the notes of a dead professor. I hope that no one else will accomplish this piecing out; certainly, if I live, I shall never knowingly supply a link


CodePen - Grid - Row with mir
Vitaly
codepen.io/rwdworkshop/full/QpVBpJ/
The Horror In Clay
Of such great powers or beings there may be conceivably a survival... a survival of a hugely remote period when... consciousness was manifested, perhaps, in shapes and forms long since withdrawn before the tide of advancing humanity... forms of which poetry and legend alone have caught a flying memory and called them gods, monsters, mythical beings of all sorts and kinds...
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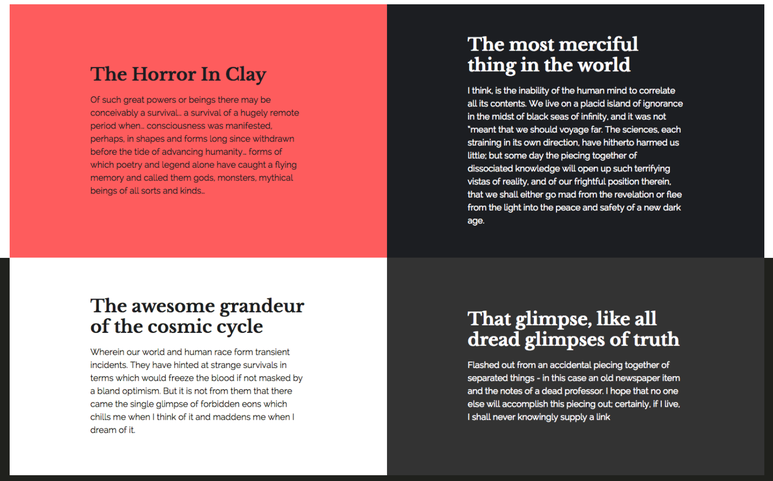


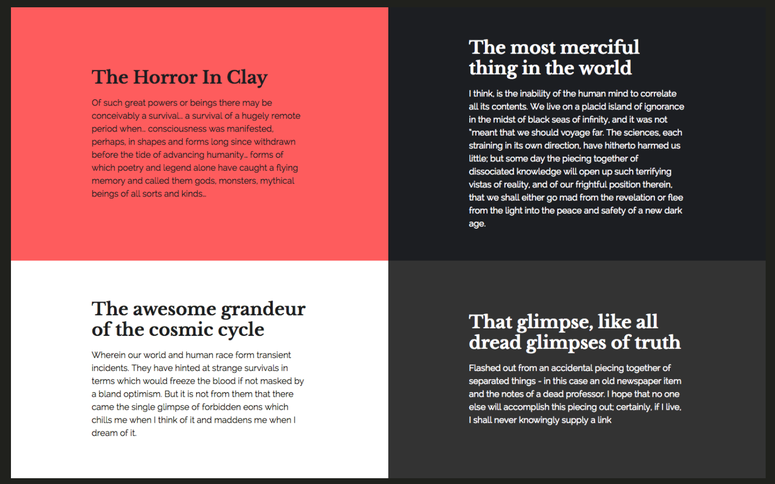
- CSS:

```
@supports (display: flex) {
    .l-grid {
        display: flex;
        flex-wrap: wrap;
    }

    .l-grid--4x4 > .l-grid__item {
        flex: 1 1 auto;
    }
}
```

- CSS:

```
@supports (display: flex) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
}
```



- CSS:

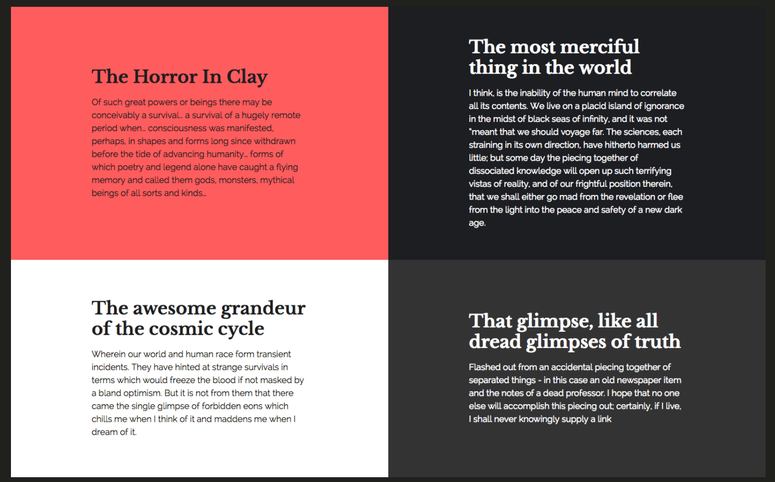
```
@supports (display: flex) {
    .l-grid {
        display: flex;
    }

    .l-grid--4x4 > .l-grid__item {
        flex: 1 1 auto;
    }
}
```

- CSS:

```
@supports (display: flex) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }

    @media screen and (min-width: 600px) {
        .l-grid {
            flex-wrap: wrap;
        }
    }
}
```



- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-template-rows: 250px 250px;
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
```

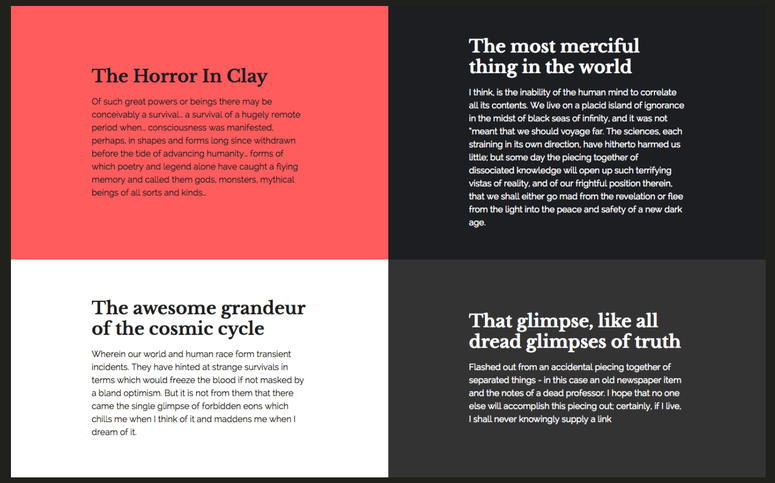


- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-template-rows: 250px 250px;
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
```



- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-template-rows:
            repeat(auto-fit, minmax(50vh, auto)
                             minmax(50vh, auto));
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
```

— *grid-gap* specifies the row and the column's gutter sizes:

```
grid-column-gap: 1rem; grid-row-gap: 1rem;
grid-gap: 1rem;
```

— *grid-column-start* defines where the content should start displaying.

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

.child { grid-column-start: 2; }
```

The Valley of Fear

When McMurdo awoke next morning he had good reason to remember his initiation into the lodge. His head ached with the effect of the drink, and his arm, where he had been branded, was hot and swollen. Having his own peculiar source of income, he was irregular in his attendance at his work; so he had a late breakfast, and remained at home for the morning writing a long letter to a friend.

It was a short account of the facts with which he was himself more familiar than the writer could have been. It ended with the statement: "The matter is now in the hands of the police; but it can hardly be hoped that their exertions will be attended by any better results than in the past. Some of the men were recognized, and there is hope that a conviction may be obtained. The source of the outrage was, it need hardly be said, that infamous society which has held this community in bondage for so long a period, and against which the Herald has taken so uncompromising a stand.

Below it stated that a guard of police, armed with Winchester rifles, had been requisitioned for the defense of the office. McMurdo had laid down the paper, and was lighting his pipe with a hand which was shaky from the excesses of the previous

McMurdo read the note twice with the utmost surprise; for he could not imagine what it meant or who was the author of it. Had it been in a feminine hand, he might have imagined that it was the beginning of one of those adventures which had been

- CSS:

```
@supports (display: flex) {
    .l-grid {
        display: flex;
        flex-wrap: wrap;
    }

    .l-grid > .l-grid__item {
        flex: 1 1 auto;
        width: 50%;
        margin-bottom: 4em;
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-gap: 2rem;
        grid-template-columns: repeat(4, 1fr);
        grid-template-rows: 1fr;
    }
    .l-column-start-2 {
        grid-column-start: 2;
    }
    .l-column-start-3 {
        grid-column-start: 3;
    }
    .l-column-start-4 {
        grid-column-start: 4;
    }
}
```

The Valley of Fear

When McMurdo awoke next morning he had good reason to remember his initiation into the lodge. His head ached with the effect of the drink, and his arm, where he had been branded, was hot and swollen. Having his own peculiar source of income, he was irregular in his attendance at his work; so he had a late breakfast, and remained at home for the morning writing a long letter to a friend.

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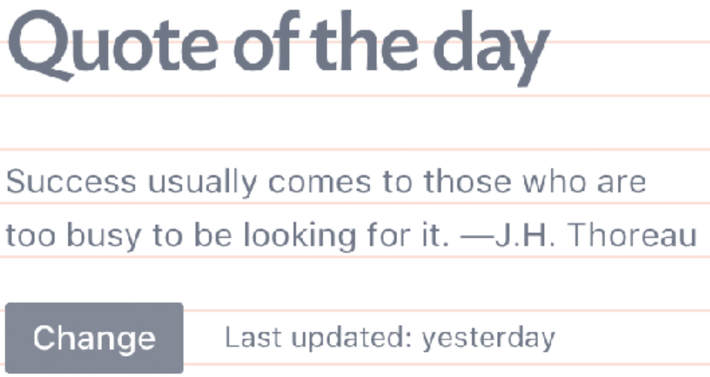
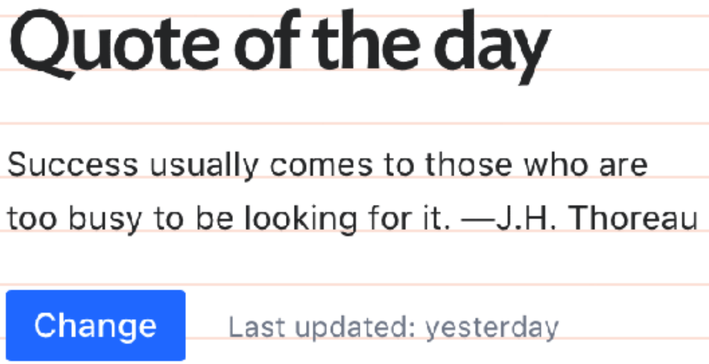
- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-gap: 2rem;
        grid-template-columns: repeat(4, 1fr);
        grid-template-rows: 1fr;
    }
    .l-column-start-2 {
        grid-column-start: 2;
    }
    .l-column-start-3 {
        grid-column-start: 3;
    }
    .l-column-start-4 {
        grid-column-start: 4;
    }
}
```



MISAPPLIED CONCEPT



JUST RIGHT

```
<article>

    <h2>Vertical Rhythm With Holy.js</h2>
    <p>Imagine that you're tasked with building or managing
       a website containing a real-estate agency's portfolio.</p>

    <h3>Example</h3>
    <p>Let's look at a standard admin overview screen for
       custom post types.</p>

    <figure class="break-out">
        <a href="/"><img src="image.svg" alt="Text" /></a>
        <figcaption>Image description</figcaption>
    </figure>

    <p>Let's look at a standard admin overview screen for
       custom post types.</p>

</article>
```

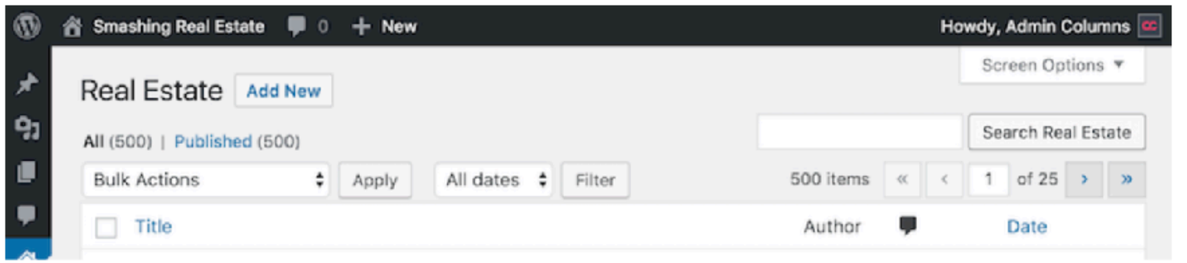
Vertical Rhythm With CSS Grid

Imagine that you're tasked with building or managing a website containing a real-estate agency's portfolio. On the website, you display pictures, house addresses, locations, number of rooms and other attributes. On the admin screen, you manage the portfolio, adding, removing and editing existing real estate.

The columns WordPress shows by default (title, author, publication date, number of comments) are hardly relevant for your real-estate website, and you'd be more interested in seeing the existing pictures and information about the real-estate listings as a whole.

Example

Let's look at a standard admin overview screen for custom post types:



Defining The Fold

```
html {
    font-size: 100%;
}

body {
    font-size: calc(1rem + .75vmin);
    line-height: calc(1.35rem + 1.5vmin);
}

:root {
    --gutter: 1rem + 2vmin;
}
```

```
html {
    font-size: 100%;
}

body {
    font-size: calc(1rem + .75vmin);
    line-height: calc(1.35rem + 1.5vmin);
}

:root {
    --gutter: 1rem + 2vmin;
}

@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }
```

ch (character unit) represents the width of the character `0` in the current font, of particular use in combination with monospace fonts.

Vertical Rhythm With CSS Grid

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Let's look at a standard admin overview screen for custom post types:

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Example

Let's look at a standard admin overview screen for custom post types:

ch (character) unit - CR

Global 90.49% + 3.65% = 94.13%

Unit representing the width of the character "0" in the current font, of particular use in combination with monospace fonts.

Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			49						
			61		10.2				4
	15	56	62	10.1	10.3				5
1 11	16	57	63	11	11.2	all	62	11.4	6.2
	17	58	64	TP					
		59	65						
		60	66						

Notes | Known issues (0) | Resources (3) | Feedback

[1] IE supports the **ch** unit, but unlike other browsers its width is that specifically of the "0" glyph, not its surrounding space. As a result, 3ch for example is shorter than the width of the string "000" in IE.

```
html {
    font-size: 100%;
}

body {
    font-size: calc(1rem + .75vmin);
    line-height: calc(1.35rem + 1.5vmin);
}

:root {
    --gutter: 1rem + 2vmin;
}

@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }
```

```
@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

```
<article>

    <h2>Vertical Rhythm With Holy.js</h2>
    <p>Imagine that you're tasked with building or managing
       a website containing a real-estate agency's portfolio.</p>

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        <figcaption>Image description</figcaption>
    </figure>

    <p>Let's look at a standard admin overview screen for
       custom post types.</p>

</article>
```

```
@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

```
    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}

h2 {
    margin: calc(2 * var(--offset, 1.5em)) 0 0 0;
    font-size: calc(1.5rem + 2.5vmin);
    line-height: calc(2rem + 1vmin);
}


h3 {
    margin: calc(0.5 * var(--offset, 1.5em)) 0 0 0;
    font-size: calc(1rem + 1.5vmin);
}
```

CodePen - Vertical rhythm with
https://codepen.io/rwdworkshop/full/qVzyej/
Suchen
Vertical rhythm with calc, CSS Custom Properties and CSS Grid
A PEN BY smashingmag
Fork
Change View
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Sign Up

Vertical Rhythm With CSS Grid

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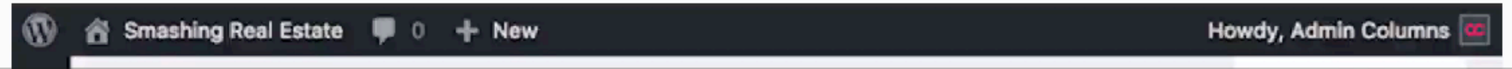
The columns WordPress shows by default (title, author, publication date, number of comments) are hardly relevant for your real-estate website, and you'd be more interested in seeing the existing pictures and information about the real-estate listings as a whole.

Example

Let's look at a standard admin overview screen for custom post types:



Debugging CSS Grid Layouts

Vitaly

Secure https://deploy-preview-2102--smashing-prod.netlify.com/2017/12/grid-inspector/

Articles
Design & development

Books
Physical & digital books

Events
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Jobs
Find work & employees

Membership
Webinars & early-birds

Topics



You may have heard quite a bit of talk about a CSS feature called "Grid" this year. If you are someone who cringes when you hear the words "CSS" and "grid" in the same sentence, then I highly suggest you check out this new CSS module called CSS Grid.



ABOUT THE AUTHOR

Chen Hui Jing is a self-taught designer and developer with an inordinate love for CSS. Reducing lines of code in her web projects makes her extremely happy. She … More about Huijing…

DECEMBER 4, 2017 • 2 COMMENTS

Debugging CSS Grid Layouts With Firefox Grid Inspector

CSS 231 # CSS Grid 9 # Browsers 26 # Testing 39

```
@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

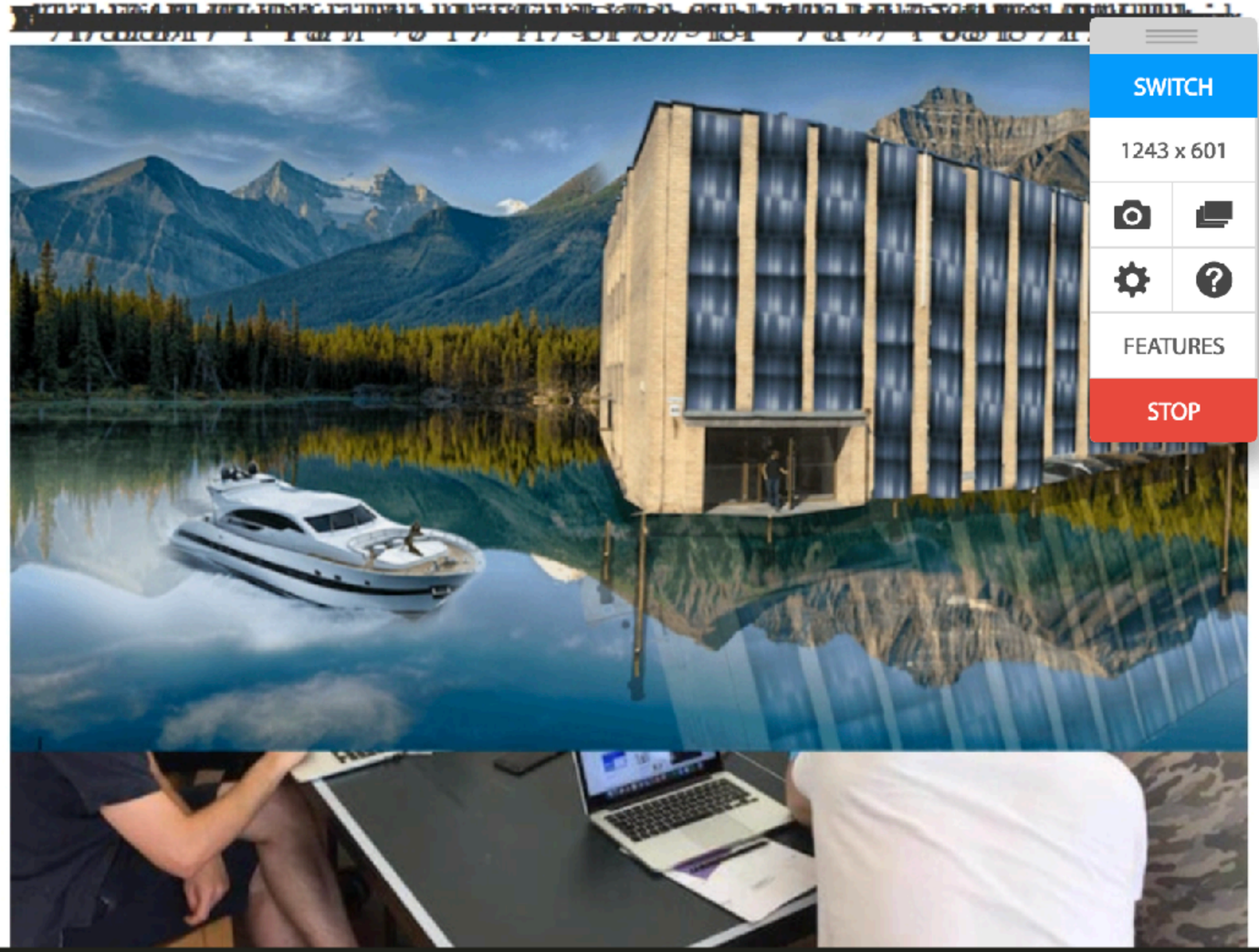
Using Design Workouts

smashingmagazine.com/2017/12/design-workouts-world-class-teams

Continue reading



No need for silly advertising. At this point we just



SWITCH

1243 x 601

FEATURES

STOP

```
@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

```
@supports (grid-gap: 0) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

A Title To Go Here Upto This Column

A subtitle here that can go up to this grid column and maybe two lines

This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle.

- Thing number one
- The second thing goes right here
- The last thing

and a link here

A Title To Go Here Upto This Column

A subtitle here that can go up to this grid column and maybe two lines

This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle.

- Thing number one
- The second thing goes right here
- The last thing

and a link here

Design Systems and CSS Grid

Vitaly

Secure https://24ways.org/2017/design-systems-and-css-grid/

24 WAYS to impress your friends



Design Systems and CSS Grid

Stuart Robson

12 December 2017

Published in Code

2 comments

Recently, my client has been looking at creating a few new marketing pages for their website. They currently have a design system in place but they're looking to push this forward into 2018 with some small and possibly some larger changes.

To start with we are creating a couple of new marketing pages. As well as making use of existing components within the design systems component library there are a

```
.features {
  grid-column: col-start 1 / span 6;
  --features-grid-columns: 5;
}

@supports (display: grid) {
  @media (min-width: 700px) {
    .features {
      display: grid;
    grid-gap: .75em;
      grid-template-columns: repeat(var(--features-grid-columns),
      [col-start] 1fr);
    }
  }
}

@supports (display: grid) {
  @media (min-width: 1100px) {
    .features {
      grid-column-end: 9;
      --features-grid-columns: 7;
    }
  }
}
```

```
.features {
    display: grid;
    grid-template-columns: repeat(var(--features-grid-columns),
    [col-start] 1fr);
    grid-template-areas:
     ". title     title     title     title     title    title"
     ". subtitle  subtitle  subtitle  subtitle  subtitle .    "
     ". content   content   content   content   .        .    "
     ". list      list      list      .         .        .    "
     ". .         .         .         link      link     link ";
  }

.features__title { grid-area: title; }
.features__subtitle { grid-area: subtitle; }
.features__content { grid-area: content; }
.features__list { grid-area: list; }
.features__link { grid-area: link; }
```

CodePen - Grid Experiment No
Vitaly
https://codepen.io/rwdworkshop/full/KRbmKq/



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Visit the website

BREAKFAST

SERVED ALL DAY

House-made Jams & Bread

BISCUITS & GRAVY (8)
house made sausage gravy, sunny side up egg and phoenician potatoes

HOUSE MADE WAFFLE (8)
fresh fruit and local maple syrup

BUCKWHEAT OR BUTTERMILK SILVER DOLLAR PANCAKES (8)
fresh fruit and local maple syrup

FRENCH TOAST (8)
fresh fruit and local maple syrup

HOUSE MADE GRANOLA (8)
fruit and yogurt

BREAKFAST TACOS (8)
3 corn tortillas, eggs, cheddar, chorizo, salsa verde and queso fresco

choose up to 3 items
swiss, cheddar, feta, spinach, tomato, onion, peppers, bacon, sausage, mushrooms, or ham
each additional item (2)

WESTERN OMELET* (9)
ham, peppers and onions

THE BENEDICTS* (9)
served with phoenician potatoes
california (9) canadian bacon (9) florentine (8) locally smoked salmon (10)

SKILLETS

HUEVOS RANCHEROS SKILLET (9)
refried beans, corn tortilla, salsa verde, cheddar cheese and two sunny side up eggs
**served with toast*

Sides

bowl of steel cut oatmeal with fruit (5)

phoenician potatoes (3)

bacon (4)

house made pork or turkey sausage patty (4)

cheddar grits (3)

LUNCH

SERVED FROM 11AM-5PM

We serve Mimosas, Bloody Marys, & Beer

SANDWICHES

served with house fries or mixed greens

CLASSIC BLT (8)

"THE MITCHELL" (8)
pole caught tuna, lettuce and tomato

GRASS FED ROAST BEEF SANDWICH (11)
cheddar, caramelized onions, watercress, house made horseradish mayo on ciabatta

CBLT (12)
fried crab cake, bacon, lettuce & tomato on our brioche roll

CLASSIC TURKEY CLUB (12)
house roasted turkey, bacon, lettuce and tomato

HOUSE MADE REUBEN (12)
free range chicken, avocado, tortilla chips

TODAY'S VEGGIE SOUP* *bowl* (6) *cup* (3.5)

SALAD

HOUSE SALAD (10)
baby kale, pickled onion, fresh pears, pumpkin seed crusted goat cheese, lemon vinaigrette

SMOKED SALMON NIÇOISE SALAD (12)
hookline smoked salmon, hardboiled eggs, tomatoes, olives, anchovies, green beans with lemon vinaigrette

QUINOA SALAD (8)
mixed greens, cucumber, carrot, red onion, avocado and lemon vinaigrette
add seared local chicken breast (4)

```
@supports (grid-row-gap: 0) {
    @media (min-width: 1100px) {
        body {
            grid-template-areas:
            "top--left top--left header header header header header top--right top--right"
            "b--header b--header b--header . . . l--header l--header l--header"
            "breakfast breakfast breakfast breakfast sides lunch lunch lunch lunch"
            "footer footer footer footer footer footer footer footer footer";
        }

        .ad--railroad { grid-area: top--left; }
        .call-out { grid-area: header; }
        .logo { grid-area: header; }
        .ad--trout { grid-area: top-right; }
        .breakfast__header { grid-area: b--header; }
        .lunch__header { grid-area: l--header; }
        .footer { grid-area: footer; display: flex; }
    }
}
```

```
<section class="section section--breakfast">
    <div class="breakfast__header">
        <aside>
            House-made<br />Jams &amp;amp; Bread
        </aside>
        <div>
            <h2>Breakfast</h2>
            <p class="note">Served all day</p>
        </div>
    </div>
    <div class="items">
        <ul>
            <li>
                <h3>Biscuits &amp;amp; Gravy <span class="price">(8)</span></h3>
                <p>House made sausage gravy and potatoes</p>
            </li>
            <li class="highlight">
                <h3>House made waffle <span class="price">(8)</span></h3>
                <p>Fresh fruit and local maple syrup</p>
            </li>
            ...
```

display: contents allows us to flatten our HTML to apply box properties to children of flex items or grid items. *Content* of the box will be drawn, but the surrounding box will be *omitted.*

For a given box, with *display: contents* applied to it, the visual outcome will be the same as if we removed the opening and the closing tag from it.

display: contents only affects the box being visually drawn on the page; it *does not* affect the markup within the document. We can still target the element by its ID, e.g. via JavaScript.

CodePen - Grid Experiment No
Vitaly
https://codepen.io/rwdworkshop/full/KRbmKq/



CATSKILL MTN. RAILROAD
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EMPIRE STATE RAILWAY MUSEUM
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Come for the mountains
PHOENICIADINER.COM



Route 28 PHOENICIA, NY

PHOENICIA DINER

stay for the food!
845.688.9957



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BREAKFAST

SERVED ALL DAY

House-made Jams & Bread

BISCUITS & GRAVY (8)
house made sausage gravy, sunny side up egg and phoenician potatoes

HOUSE MADE WAFFLE (8)
fresh fruit and local maple syrup

BUCKWHEAT OR BUTTERMILK SILVER DOLLAR PANCAKES (8)
fresh fruit and local maple syrup

FRENCH TOAST (8)
fresh fruit and local maple syrup

HOUSE MADE GRANOLA (8)
fruit and yogurt

BREAKFAST TACOS (8)
3 corn tortillas, eggs, cheddar, chorizo, salsa verde and queso fresco

choose up to 3 items
swiss, cheddar, feta, spinach, tomato, onion, peppers, bacon, sausage, mushrooms, or ham
each additional item (2)

WESTERN OMELET* (9)
ham, peppers and onions

THE BENEDICTS* (9)
served with phoenician potatoes
california (9) canadian bacon (9) florentine (8) locally smoked salmon (10)

SKILLETS

HUEVOS RANCHEROS SKILLET (9)
refried beans, corn tortilla, salsa verde, cheddar cheese and two sunny side up eggs
**served with toast*

Sides

bowl of steel cut oatmeal with fruit (5)

phoenician potatoes (3)

bacon (4)

house made pork or turkey sausage patty (4)

cheddar grits (3)

LUNCH

SERVED FROM 11AM-5PM

We serve Mimosas, Bloody Marys, & Beer

SANDWICHES

served with house fries or mixed greens

CLASSIC BLT (8)

"THE MITCHELL" (8)
pole caught tuna, lettuce and tomato

GRASS FED ROAST BEEF SANDWICH (11)
cheddar, caramelized onions, watercress, house made horseradish mayo on ciabatta

CBLT (12)
fried crab cake, bacon, lettuce & tomato on our brioche roll

CLASSIC TURKEY CLUB (12)
house roasted turkey, bacon, lettuce and tomato

HOUSE MADE REUBEN (12)
free range chicken, avocado, tortilla chips

TODAY'S VEGGIE SOUP* *bowl* (6) *cup* (3.5)

SALAD

HOUSE SALAD (10)
baby kale, pickled onion, fresh pears, pumpkin seed crusted goat cheese, lemon vinaigrette

SMOKED SALMON NIÇOISE SALAD (12)
hookline smoked salmon, hardboiled eggs, tomatoes, olives, anchovies, green beans with lemon vinaigrette

QUINOA SALAD (8)
mixed greens, cucumber, carrot, red onion, avocado and lemon vinaigrette
add seared local chicken breast (4)

```
@supports (grid-row-gap: 0) {
    @media (min-width: 1100px) {
        body {
            grid-template-areas:
            "top--left top--left header header header header header top--right top--right"
            "b--header b--header b--header . . . l--header l--header l--header"
            "breakfast breakfast breakfast breakfast sides lunch lunch lunch lunch"
            "footer footer footer footer footer footer footer footer footer";
        }

        .ad--railroad { grid-area: top--left; }
        .call-out { grid-area: header; }
        .logo { grid-area: header; }
        .ad--trout { grid-area: top-right; }
        .breakfast__header { grid-area: b--header; }
        .lunch__header { grid-area: l--header; }
        .footer { grid-area: footer; display: flex; }

        .section--breakfast, .section--lunch, .section--sides { display: contents; }
        .section--breakfast > .items--container { grid-area: breakfast; }
        .section--lunch > .items--container { grid-area: lunch; }
        .section--sides > .items--container { grid-area: sides; }
    }
}
```

CSS display: contents - WD

`display: contents` causes an element's children to appear as if they were direct children of the element's parent, ignoring the element itself. This can be useful when a wrapper element should be ignored when using CSS grid or similar layout techniques.

Usage % of all users

Global 64.66%

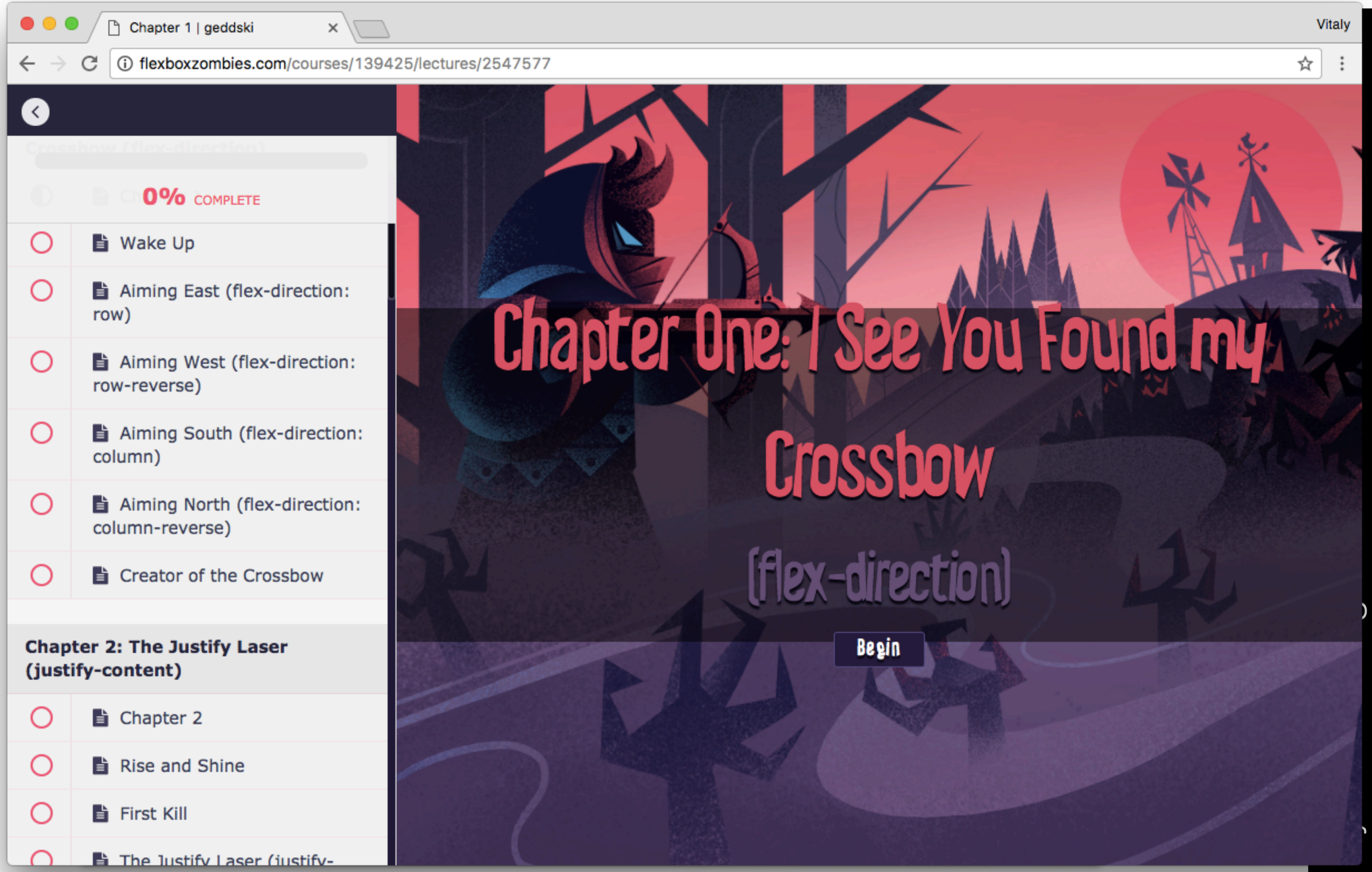
Lithuania 77.46%

Current aligned | Usage relative | Date relative | Show all

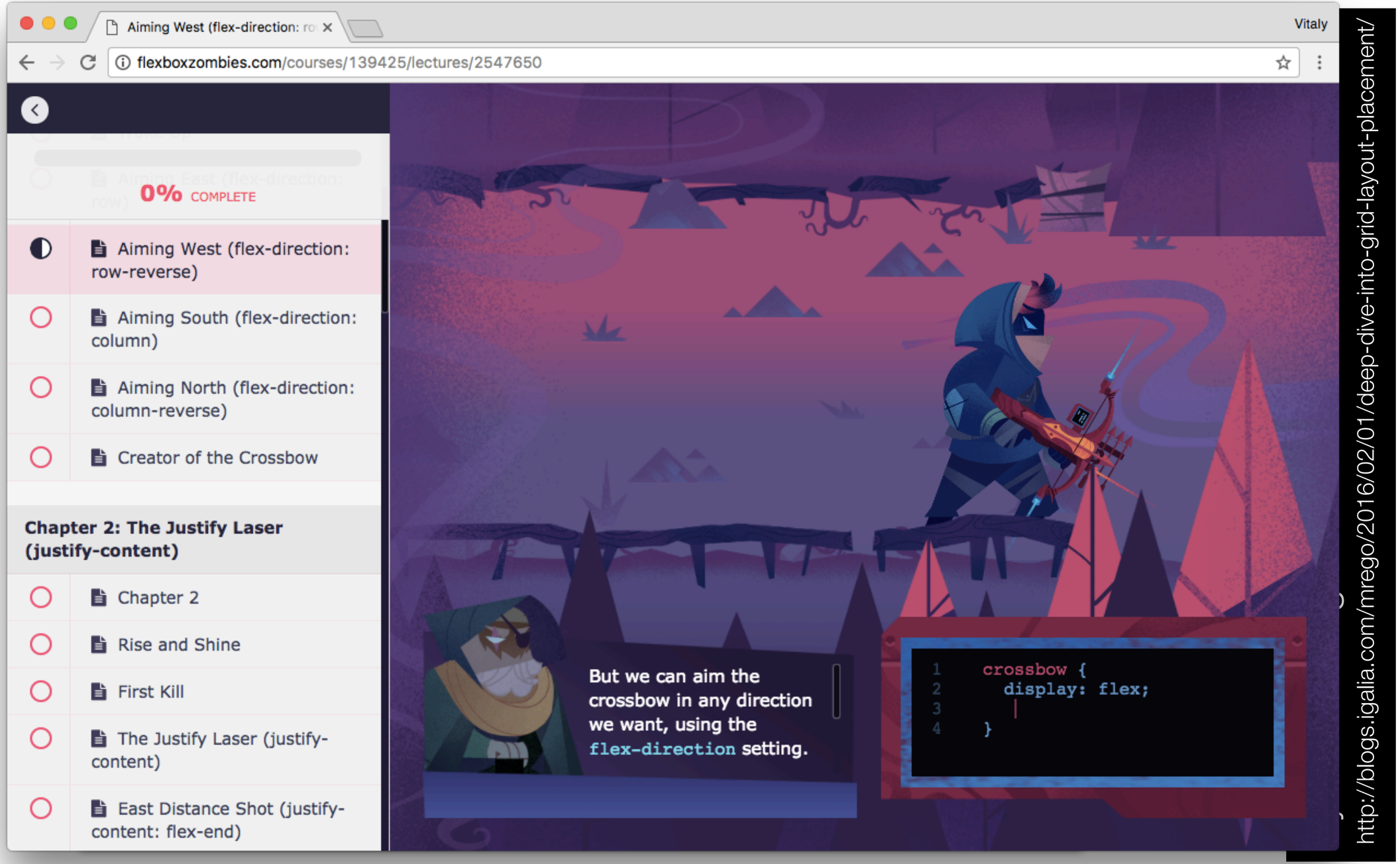
IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			49						
			1 64		10.3				
	16	59	65	11	11.2				4
11	17	60	66	11.1	11.3	all	66	11.8	6.2
	18	61	67	TP					
		62	68						
			69						

Notes | Known issues (1) | Resources (6) | Feedback

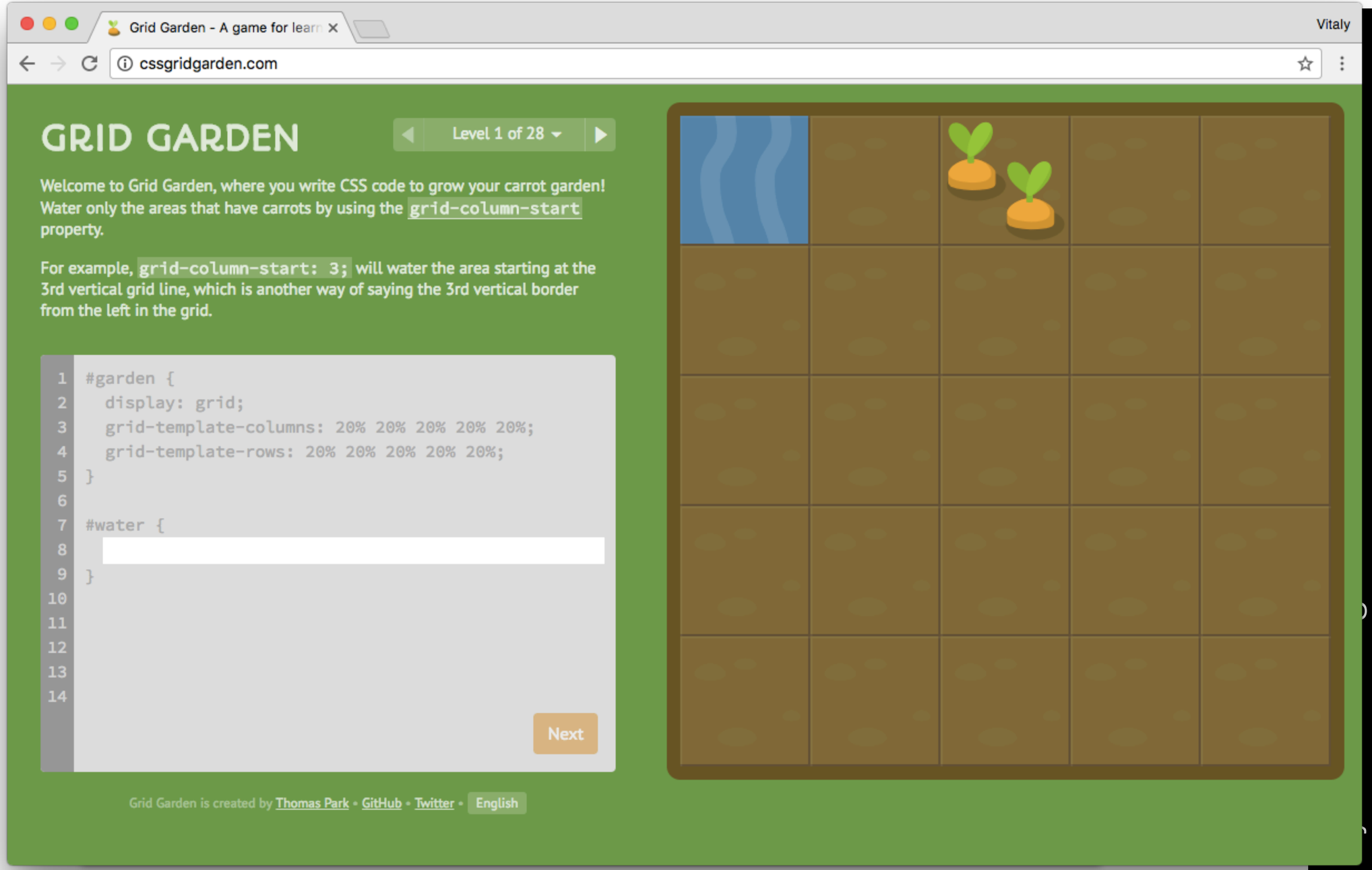
1 Enabled in Chrome through the "experimental Web Platform features" flag in chrome://flags



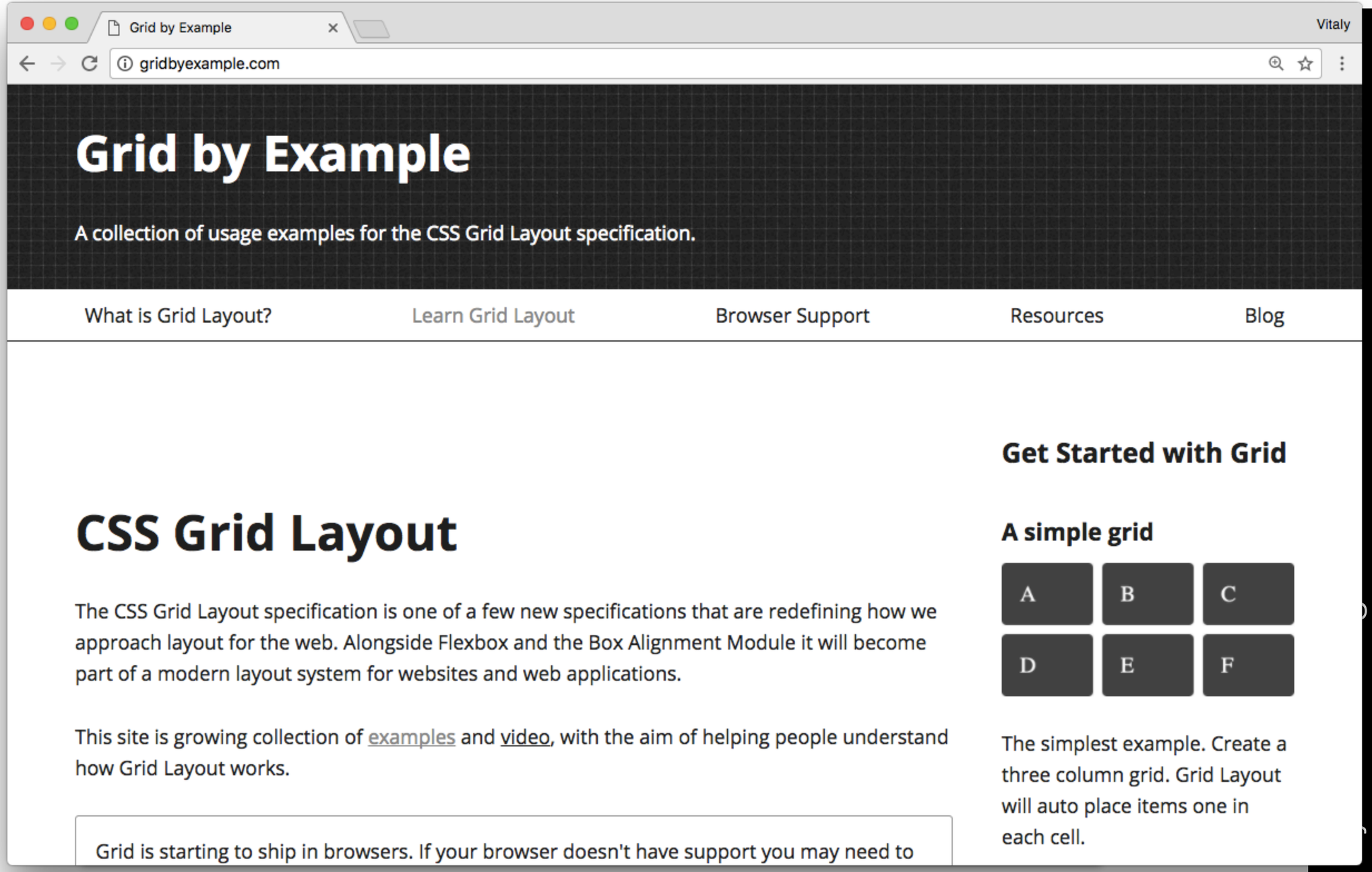
http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/



http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/



http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/



http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/


LEVEL5
VARIABLEFONTS
MULTI-DIMENSIONAL TYPE SYSTEM FOR THE PRICE OF 1 WOFF
GET READY

Sans-serif

Arial

Win: 99.84%
Mac: 98.74%

Arial Black

Win: 98.08%
Mac: 96.22%

Arial Narrow

Win: 88.39%
Mac: 94.77%

Arial Rounded MT Bold

Win: 59.53%
Mac: 95.14%

Avant Garde

Win: 0%
Mac: 1.08%

Calibri

Win: 83.41%
Mac: 38.74%

Candara

Win: 83.08%
Mac: 34.41%

Century Gothic

Win: 87.62%
Mac: 53.15%

Franklin Gothic Medium

Win: 99.18%
Mac: 2.1%

Futura

Win: 1.26%
Mac: 94.41%

Geneva

Win: 2.08%
Mac: 99.64%

Gill Sans

Win: 58.54%
Mac: 95.5%

Helvetica

Win: 7.34%
Mac: 100%

Impact

Win: 0%
Mac: 95.14%

Lucida Grande

Win: 0%
Mac: 100%

Optima

Win: 2.52%
Mac: 93.69%

Segoe UI

Win: 75.36%
Mac: 0%

Tahoma

Win: 99.95%
Mac: 91.71%

Trebuchet MS

Win: 99.67%
Mac: 97.12%

Verdana

Win: 99.84%
Mac: 99.1%

Serif

Big Caslon

Win: 0% Mac: 92.61%

Bodoni MT

Win: 55.81% Mac: 0%

Book Antiqua

Win: 86.09% Mac: 49.01%

Calisto MT

Win: 58.43% Mac: 46.31%

Cambria

Win: 83.35% Mac: 35.32%

Didot

Win: 0% Mac: 93.51%

Garamond

Win: 86.47% Mac: 49.91%

Georgia

Win: 99.4% Mac: 97.48%

Goudy Old Style

Win: 58.11% Mac: 47.57%

Hoefler Text

Win: 0.99% Mac: 92.61%

Lucida Bright

Win: 76.12% Mac: 99.64%

Palatino

Win: 99.29% Mac: 86.13%

Perpetua

Win: 66.54% Mac: 0%

Rockwell

Win: 65.94% Mac: 0%

Rockwell Extra Bold

Win: 66.1% Mac: 0%

Baskerville

Win: 60.35% Mac: 93.33%

Times New Roman

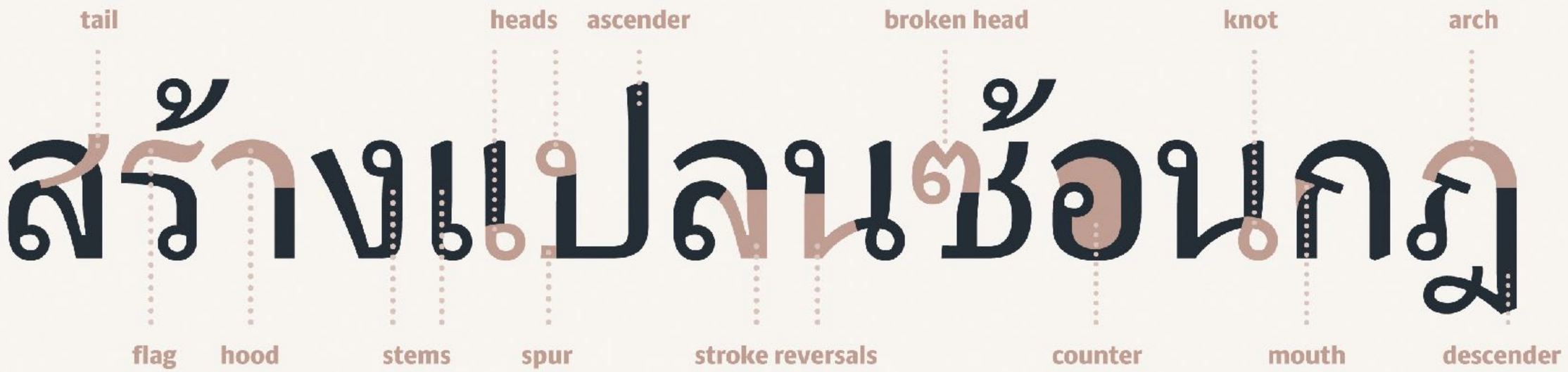
Win: 99.67% Mac: 97.48%


Whoa Whoa Whoa Whoa
Whoa Whoa Whoa Whoa
Whoa Whoa
Whoa Whoa Whoa Whoa
Whoa Whoa Whoa Whoa
Whoa Whoa Whoa Whoa
Sharp
10
Sharp
10
Sharp
10
Sharp
10

> One of the reasons we chose to use three-digit numbers [in the spec for CSS font-weight values] was to support *intermediate values* in the future. And the future is now.
>
> — *Håkon Wium Lie*

Individual weights of a font family are stored in *individual files* that have to be requested, downloaded and applied individually, often in various formats.

Each weight is a *snapshot* of the design space of a family: *Regular, Italic, Bold, Bold Italic*. There is nothing in-between, unless we explicitly load more weights.



http://www.fontpad.co.uk/thai-letter-anatomy/ Thai has 44 consonant letters (Thai: พยัญชนะ, phayanchana), 15 vowel symbols (Thai: สระ, sara)

OpenType

Contextual alternates 上下文替代字 **calt**: A hand-drawn typeface would be annoying without at least two alternative glyphs per character, so that two successive letters will never look exactly the same. Even if it would be too much a Sisyphean task to draw 28,000 CJK ideographs twice, the 100 most frequent characters do offer an alternative glyph, which proves unexpectedly effective.

的一か為 aass

殖民主義？

http://www.roman946.de/laowaisung.php

4E00 CJK Unified Ideographs 一丁丂七丄丅丆万丈三上下丌不

Ligatures 聯筆字 **liga** ffj→ffj, discretionary liga

選擇性複合字元 **dlig** Shanghai→Shanghai, fractions

份數字 **frac** 1/200→1⁄200, tabular figures 等幅大寫數字

tnum 123→123, oldstyle figs 小寫數字 **onum** 456→456,

tabular oldstyle figs 等幅小寫數字 789→789, superscripts 上標 **sups** and subscripts下標 **subs** 102 H2O→

10^2 H_2O, ordinals 序數字 **ordn** 1st 1a → 1st 1a, stylistic alternates 文體替代字 **salt** 10→10 10 10, Latin italics 羅馬斜體字 **ital** The Quick Brown Fox in Shanghaï

1²⁄₃₀ & 2014→*The Quick Brown Fox Shanghaï 1²⁄₃₀ & 2014.*

Bocca Tigris!

Give on up Chusan Island.

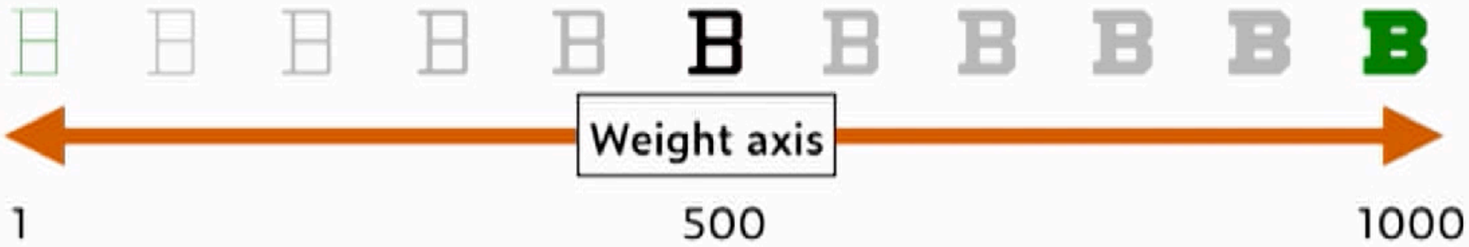
Women in the Factories?

Trouble in the Concessions.

With *variable fonts,* we can use a much *wider* design space while reducing the file size. Define *masters* (key points), use 100s of weights without extra payload.

B

Winner-VF by Christoph Koeberlin


Weight axis
1
500
1000



Light
'wght' 360



Regular (default)
'wght' 500

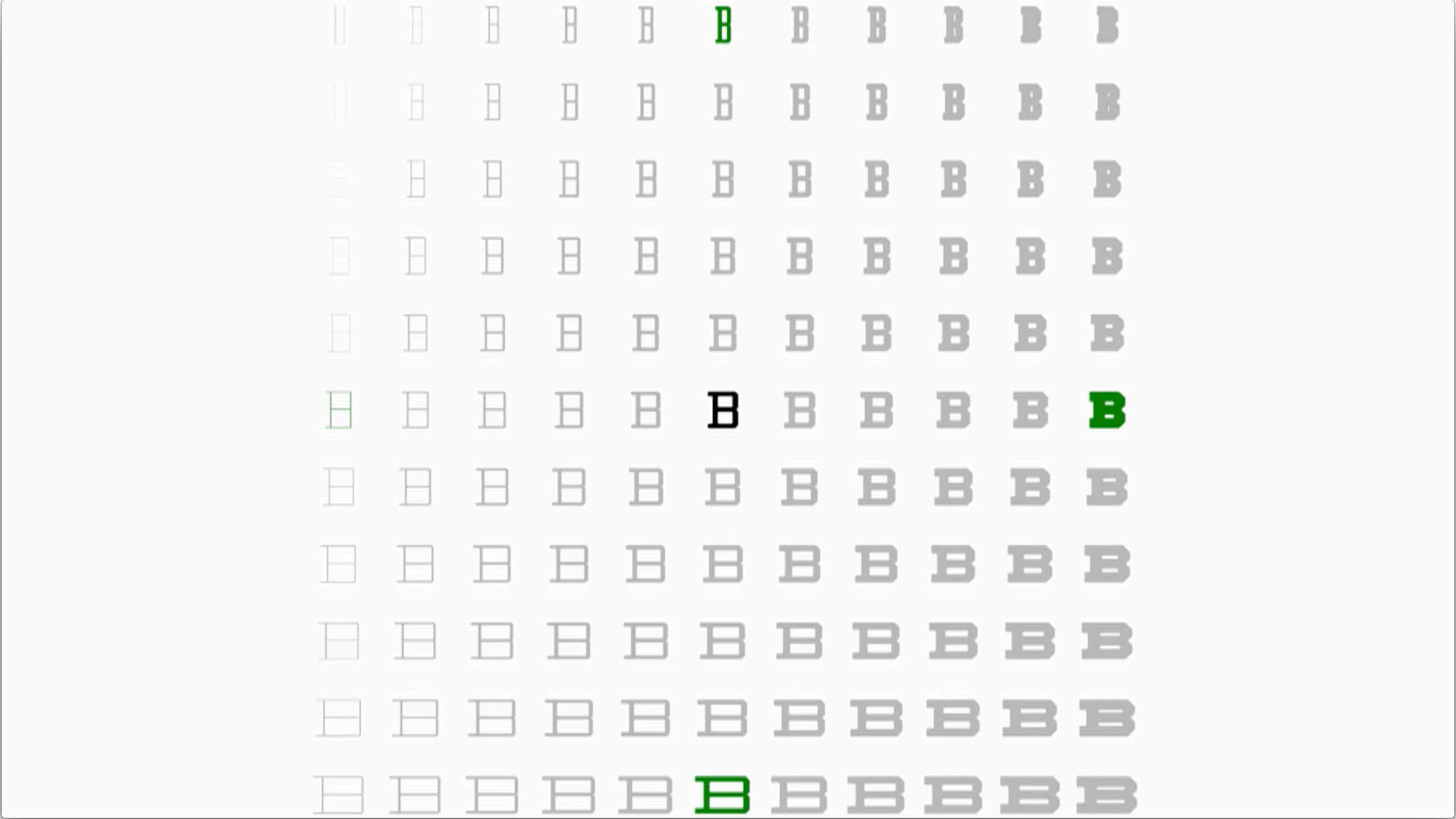


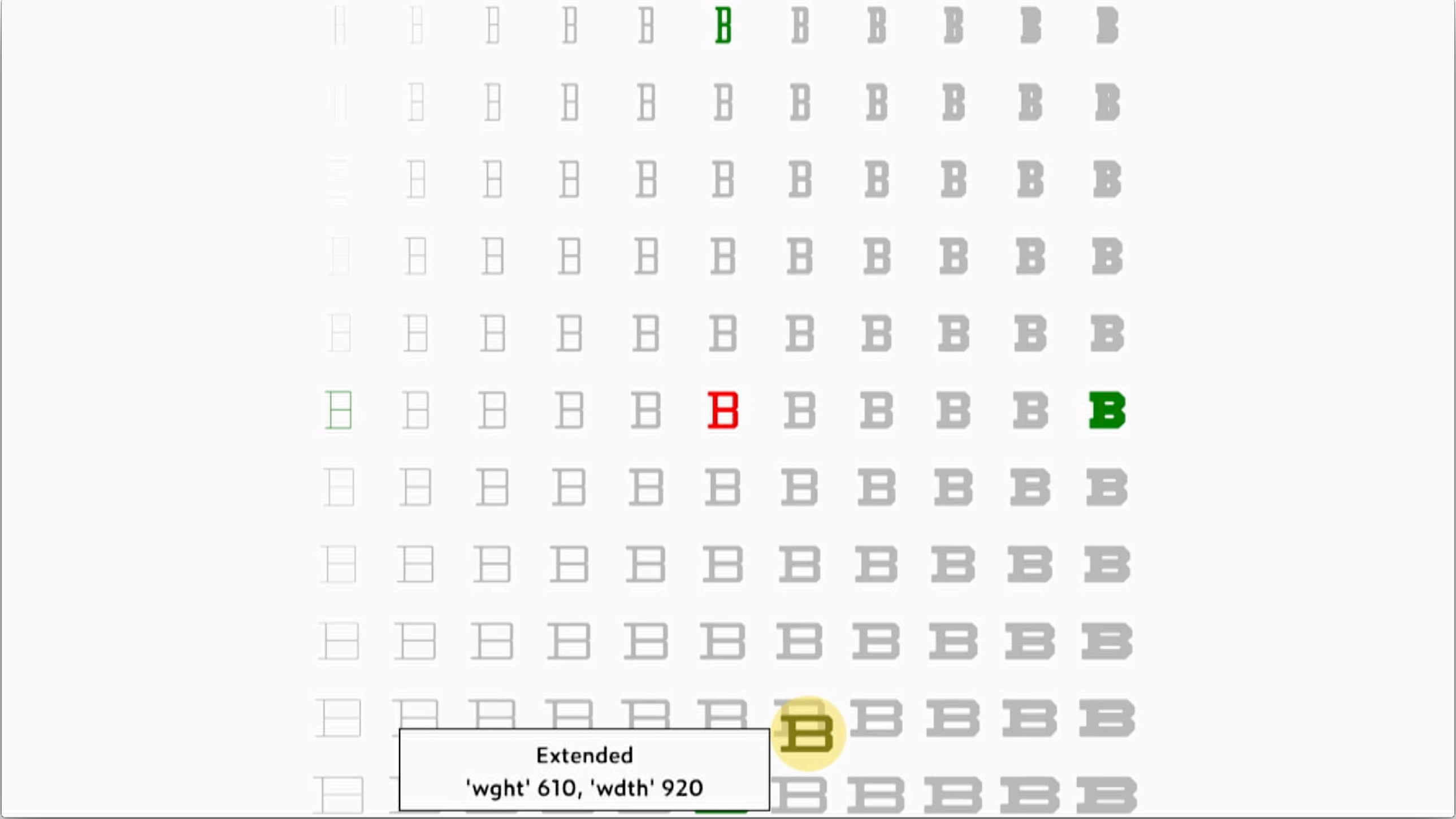
Bold
'wght' 750



Black
'wght' 930

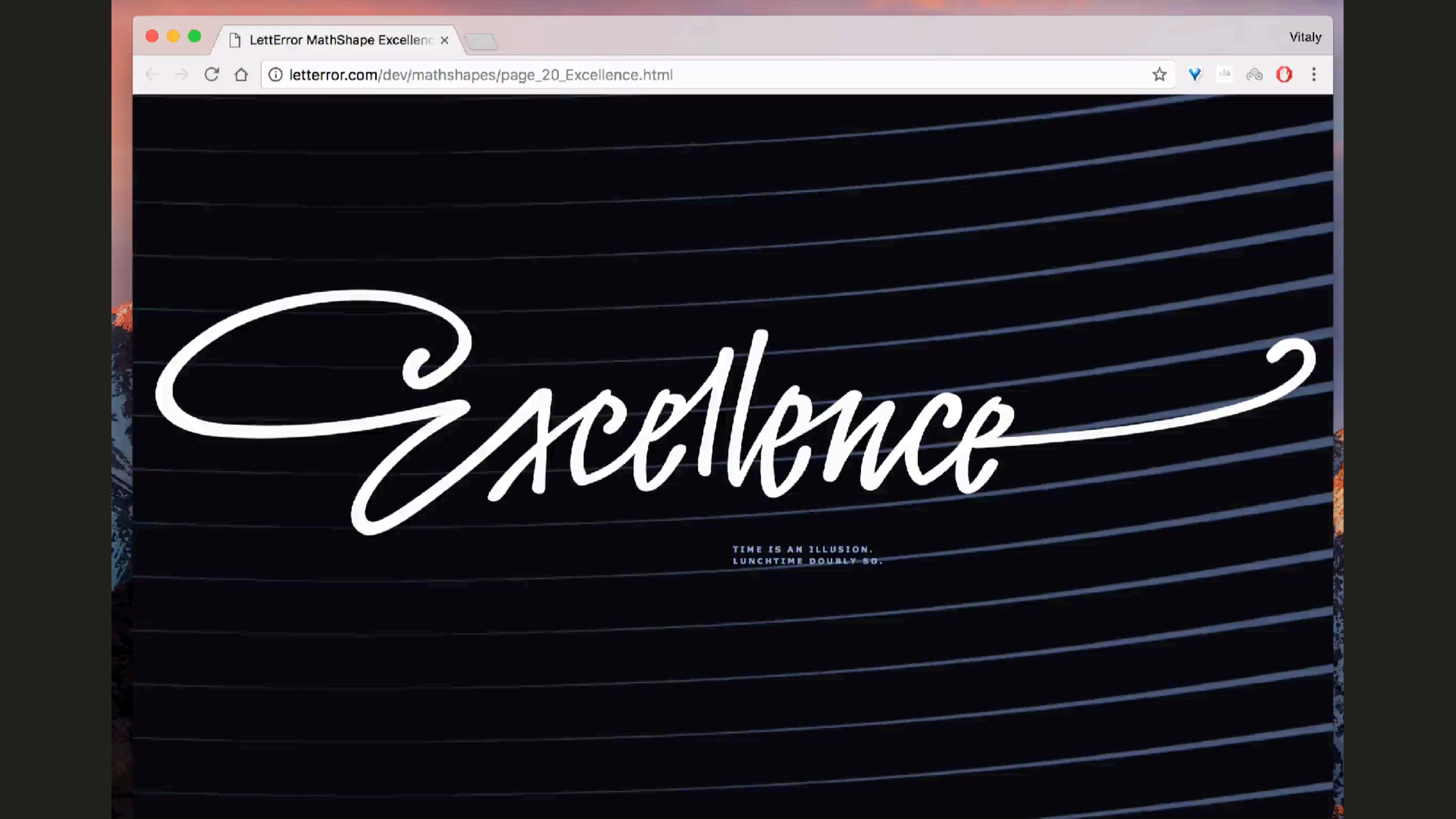
0
500
1000
Width axis




Extended
'wght' 610, 'wdth' 920

We can *interpolate* in many *dimensions:* weight, width, x-height, grade, optical size, grunginess, contrast, descender length — and even include *conditionals.*

The newest version of Superpolator even allows designers to define complex conditional rules for activating alternate glyph forms based on interpolation numbers. For


LettError MathShape Excellenc
Vitaly
letterror.com/dev/mathshapes/page_20_Excellence.html
Excellence
TIME IS AN ILLUSION.
LUNCHTIME DOUBLY SO.

Variable font *implementation* in CSS is designed to use existing properties for *registered variation axes.* They are predictable and exposed to developers.

- *Registered variation axes* are accessed via the low-level *font-variation-settings* property. It maps to high-level properties such as *font-weight*, *font-stretch* etc.

```
blockquote {
    font-variation-settings: 'wdth' 600, 'wght' 200, 'opsz' 48;
    // Render text with a variation that is very wide,
    // has a light weight and is optically sized for 48pt.
}
```

- `'wdth'` defines the width (*font-stretch*, 1…999),
- `'wght'` defines the weight (*font-weight*, 1…999),
- `'ital'` defines if it's italicized (*font-style*, 0 or 1),
- `'opsz'` defines the optical size (*font-optical-sizing*),
- `'slnt'` varies between upright and slanted text (-90…+90).

- *Registered variation axes* are accessed via the low-level *font-variation-settings* property. It maps to high-level properties such as *font-weight*, *font-stretch* etc.

```
document.getElementById("quote").style.fontVariationSettings =
    "'wdth' 600, 'wght' 200, 'opsz' 48";
    // Render text with a variation that is very wide,
    // has a light weight and is optically sized for 48pt.
```

- `'wdth'` defines the width (*font-stretch*, 1…999),
- `'wght'` defines the weight (*font-weight*, 1…999),
- `'ital'` defines if it's italicized (*font-style*, 0 or 1),
- `'opsz'` defines the optical size (*font-optical-sizing*),
- `'slnt'` varies between upright and slanted text (-90…+90).

Designers can *define custom axes*
with their own four-character tags.
Everything else is *automatically*
generated by linear interpolation.

```
div {
   font-family: ''Buffalo Gals Regular'';
   font-size: 192px;
   font-variation-settings:
        'CK ' -1, 'FR ' -0.929784,
        'HV ' -1, 'CN ' -0.902336,
        ‘BR ' 0.549087, 'TC ' 0;
}
```

When *implementing* variable fonts, we need to consider *format*, *fallbacks* and *responsive behavior* — and carefully set appropriate values across screens.

Variable fonts - WD

OpenType font settings that allows a single font file to behave like multiple fonts: it can contain all the allowed variations in width, weight, slant, optical size, or any other exposed axes of variation as defined by the font designer. Variations can be applied via the `font-variation-settings` property.

Usage	% of all users	
Global	42.65% + 23.31% =	65.96%
Lithuania	42.62% + 30.97% =	73.58%

Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			49						
			5 64		10.3				
	16	2 4 5 59	5 65	3 11	11.2				4
11	17	2 4 5 60	66	3 11.1	11.3	all	66	11.8	6.2
	18	2 4 5 61	67	3 TP					
		2 4 5 62	68						
			69						

```
.hero {
    font-weight: 900;
    font-variation-settings: "wght" 900;
}
```

With variable fonts, we don’t need a regular WOFF because all browsers which support variable fonts *also* support the superior WOFF2.

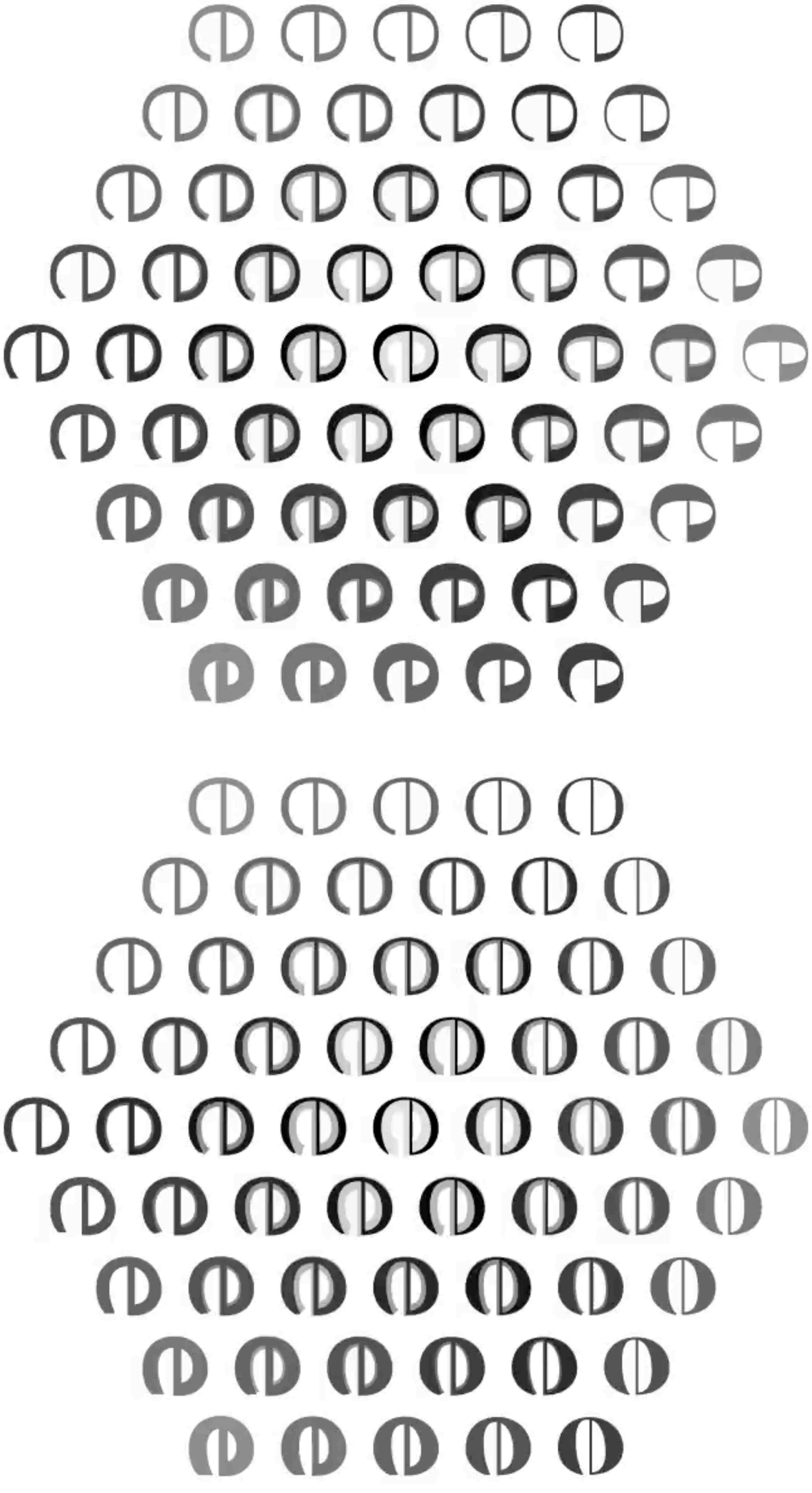
```
@font-face {
    font-family: 'SourceSans';
    src: url('source-sans-variable.woff2') format('woff2-variations'),
         url('source-sans-variable.woff2') format('woff2');
    /* ...but we need a non-variable fallback for incapable browsers... */
  }
```

Variable fonts *do render* in browsers which don’t support font variations, but you have *no control* over which weight (or axis instance) will be displayed.

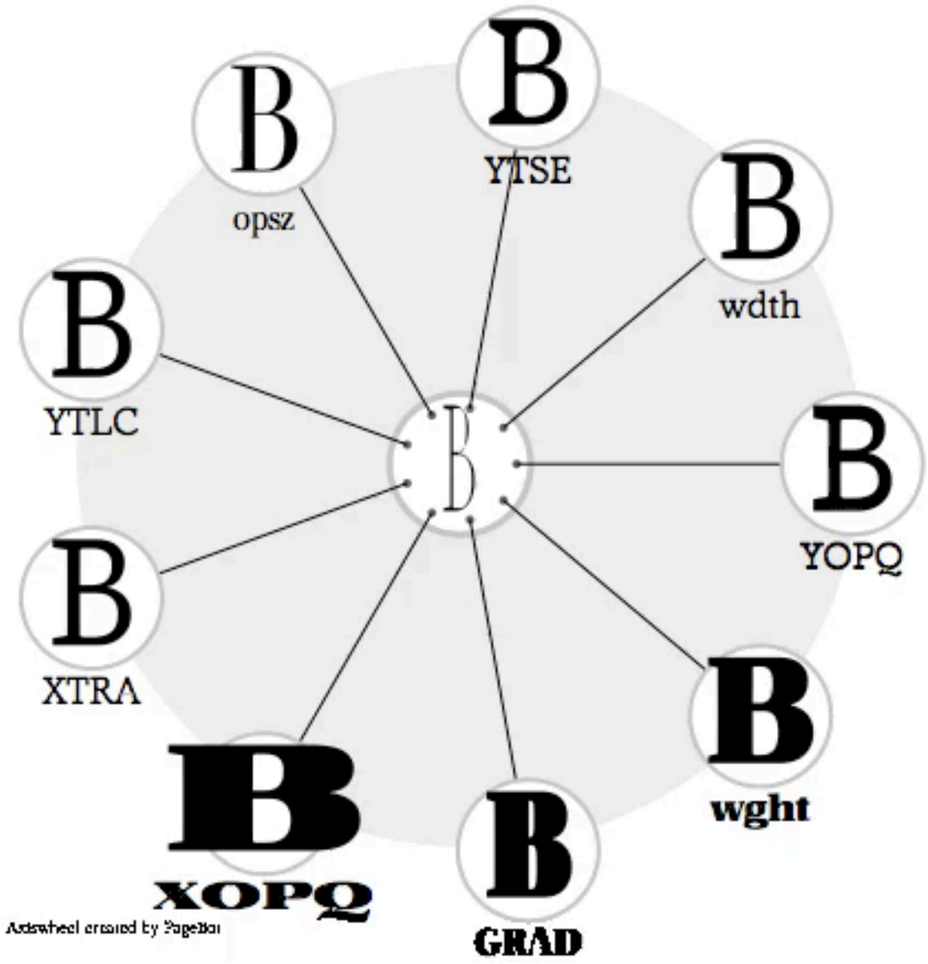
```
@font-face {
  font-family: 'SourceSansVariable';
  src: url('source-sans-variable.woff2') format('woff2-variations'),
       url('source-sans-variable.woff2') format('woff2');
}

@font-face {
  font-family: 'SourceSans';
  src: url('source-sans-black.woff2') format('woff2'),
       url('source-sans-black.woff') format('woff');
  font-weight: 900;
}

@font-face {
  font-family: 'SourceSans';
  src: url('source-sans-semibold.woff2') format('woff2'),
       url('source-sans-semibold.woff') format('woff');
  font-weight: 600;
}
```

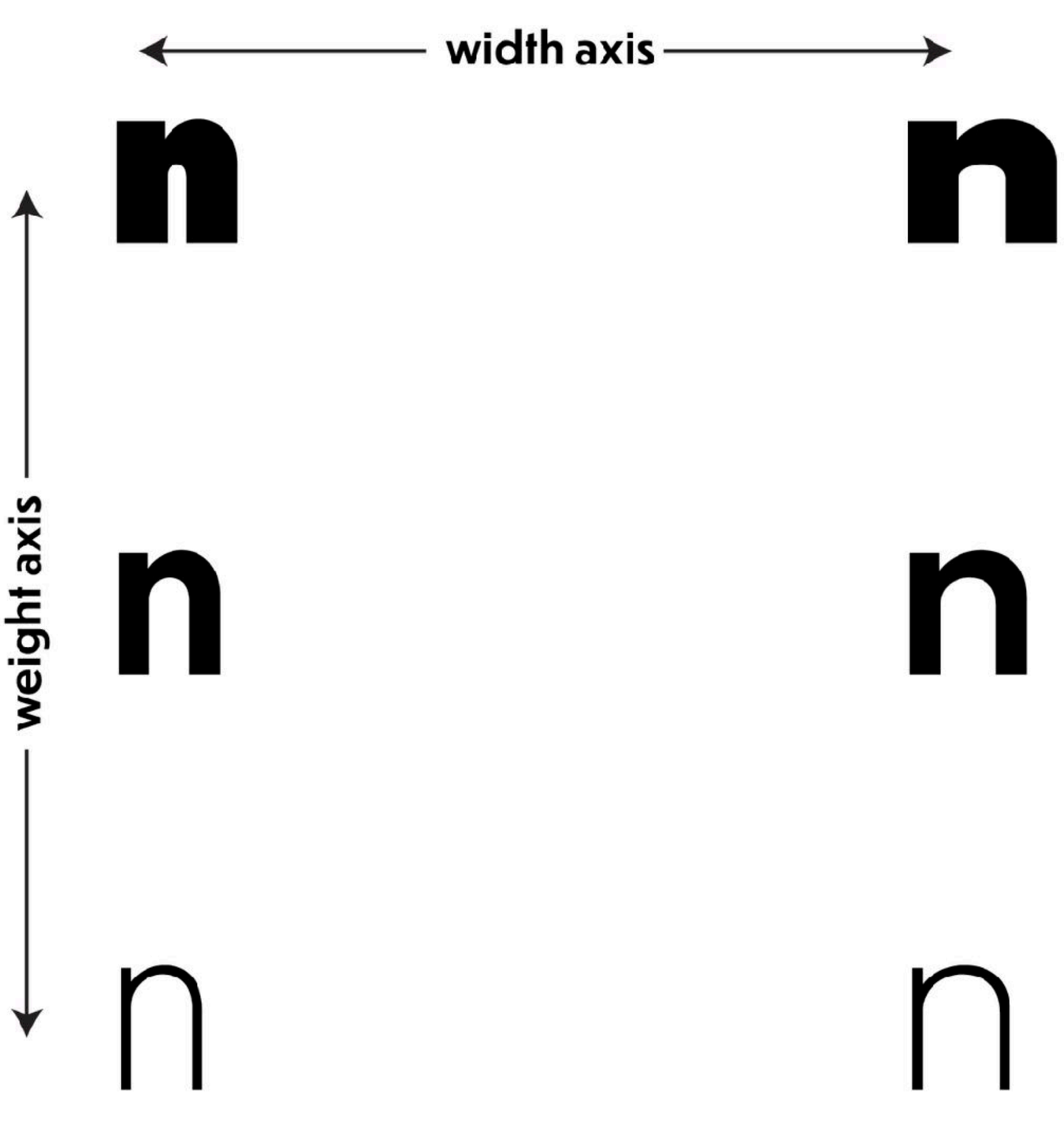
```
html {
    font-family: 'SourceSans' sans-serif;
  }

@supports (font-variation-settings: "wght" 400) {
    html {
      font-family: 'SourceSansVariable', sans-serif;
    }
}
```

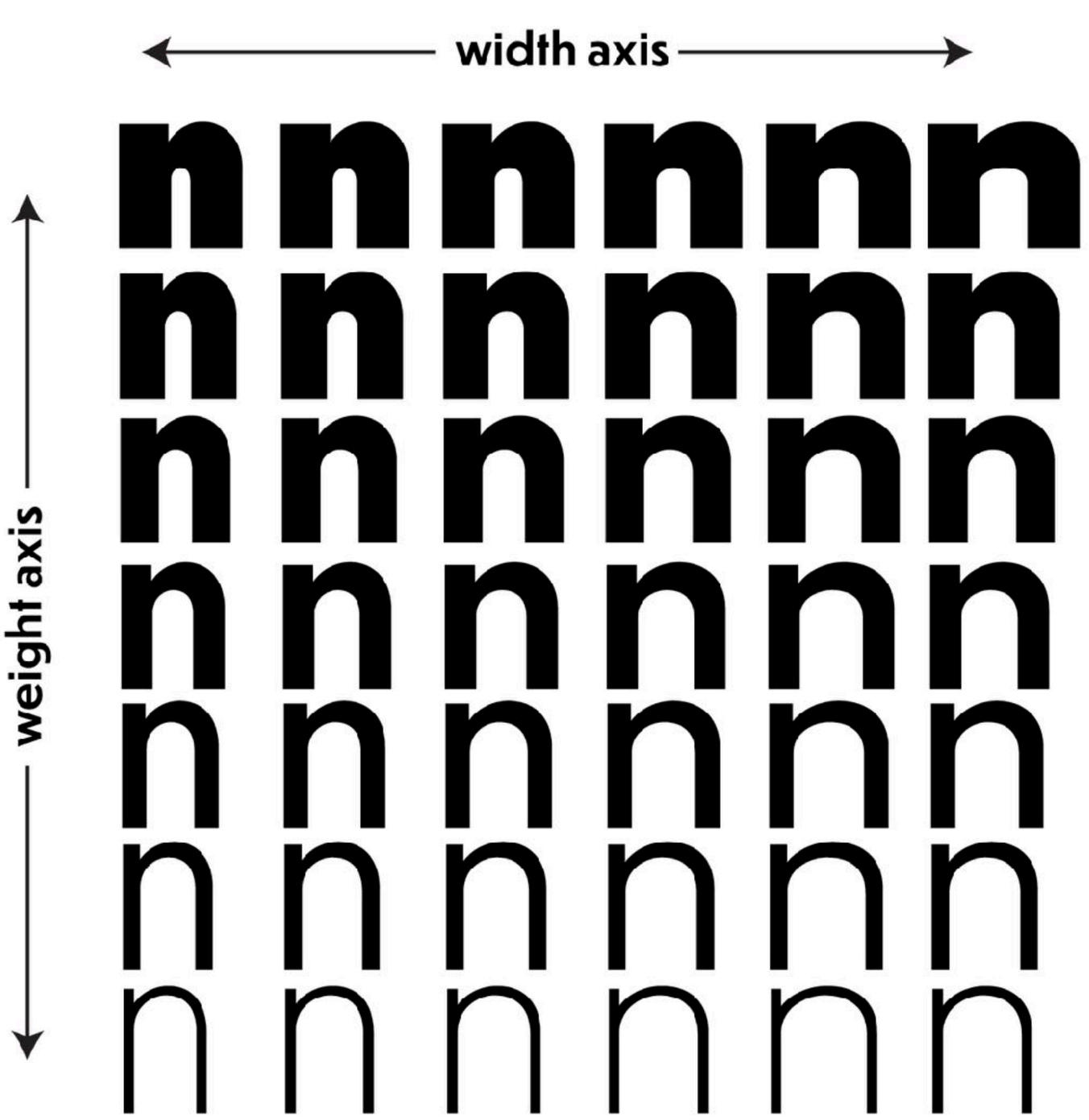
It’s impossible to trigger responsive adjustments of *font-variation-settings* with CSS automatically. The only options are *media queries* or JavaScript.

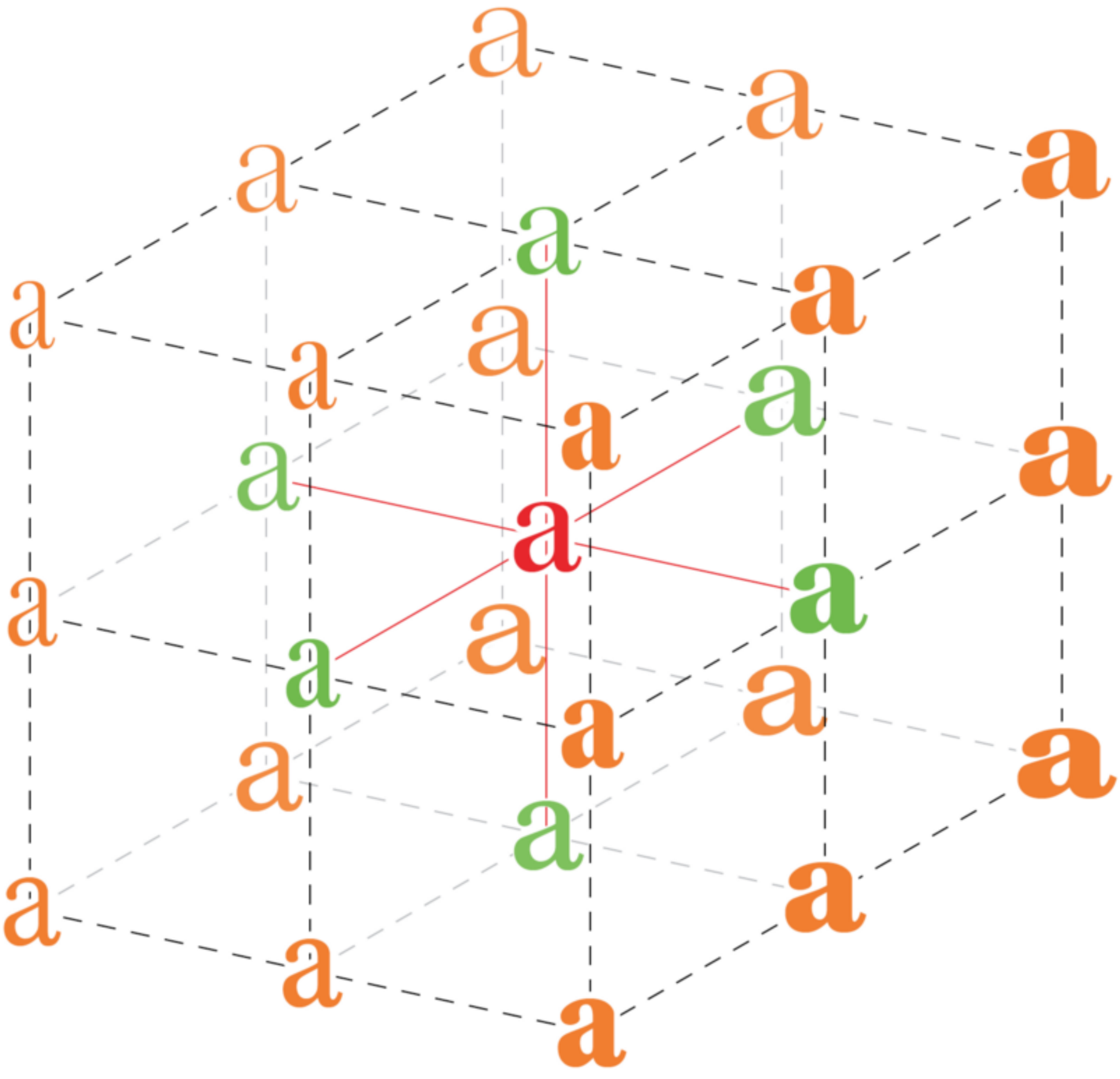


AmstelvarAlpha Default Regular

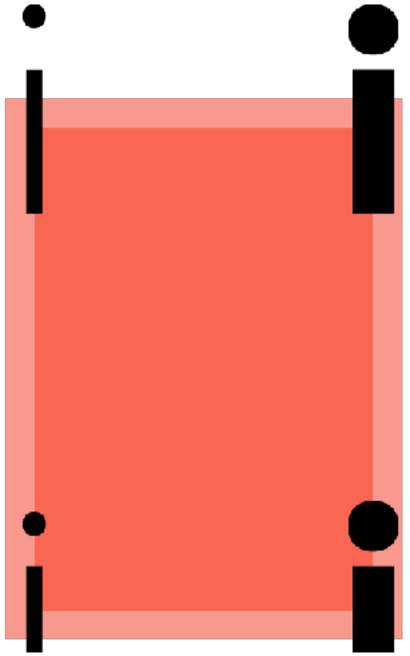



width axis
weight axis
n
n
n
n
n
n


width axis
weight axis

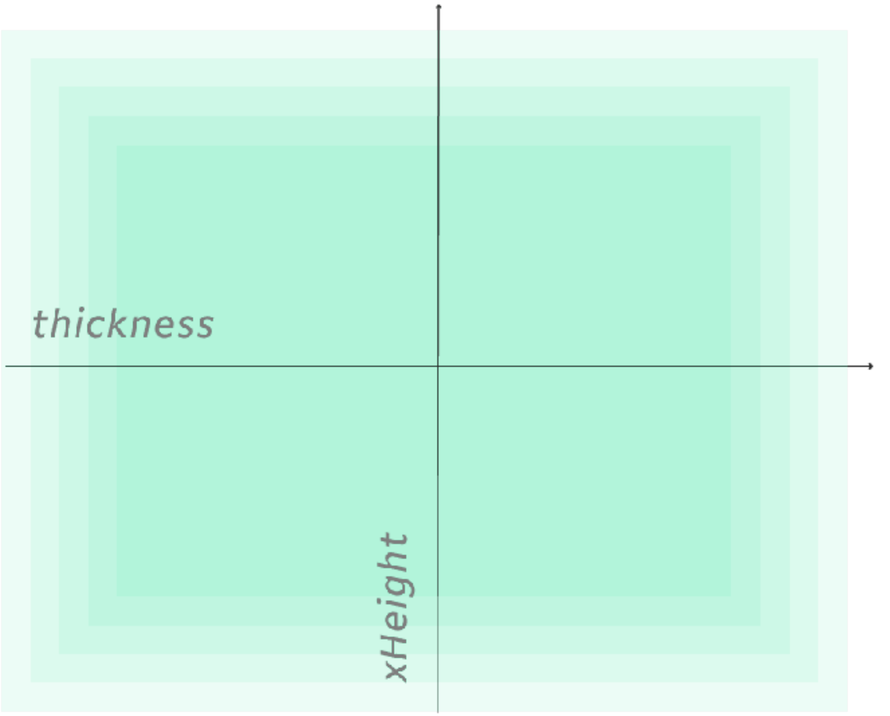

a
a
a

Variable fonts.



Design space

Parametric fonts.



Infinite design space

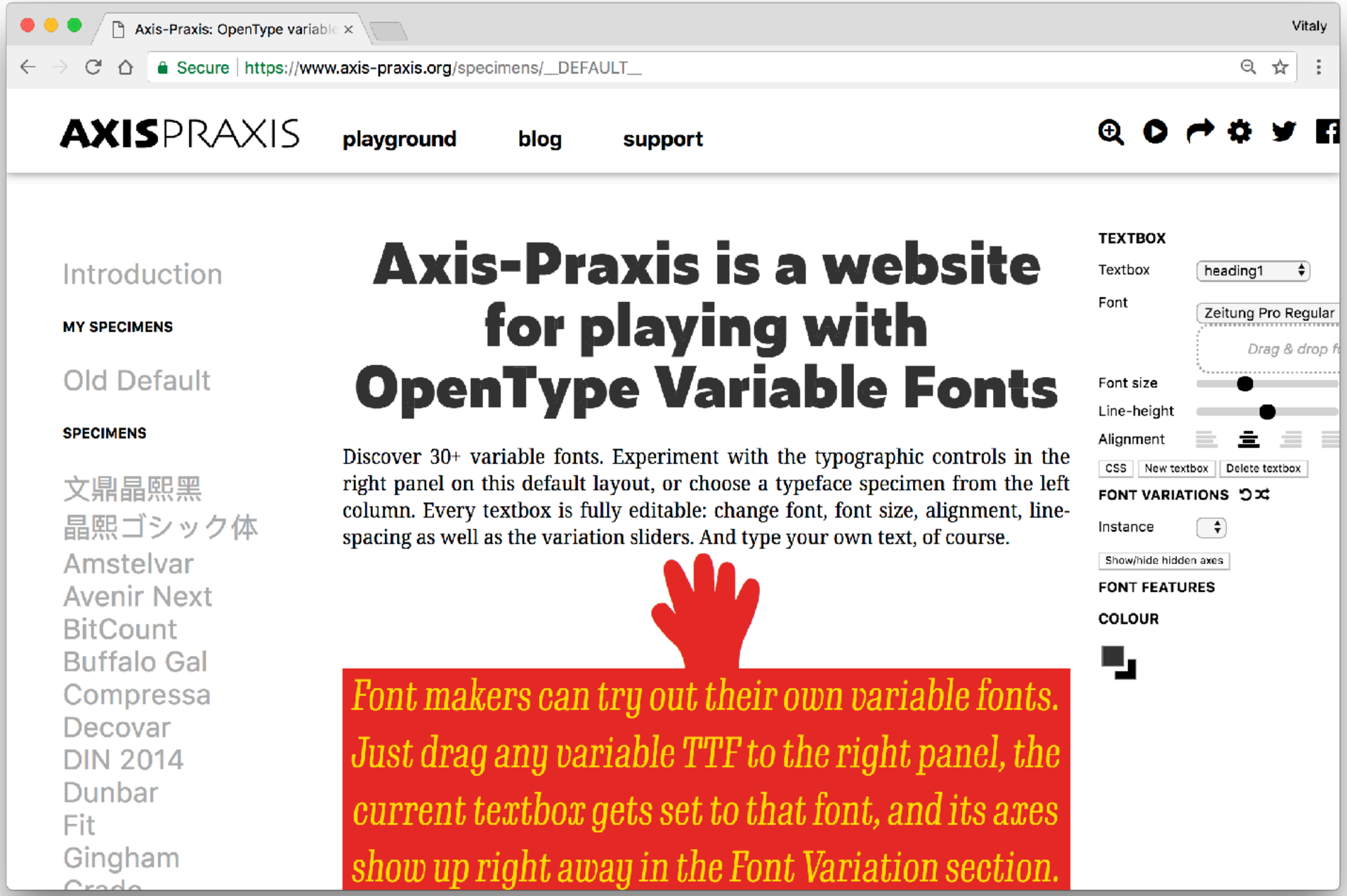
Variable fonts are *interpolated*, meaning that they are confined in a design space. *Parametric fonts* are *extrapolated*, i.e. they emerge from a single definition.

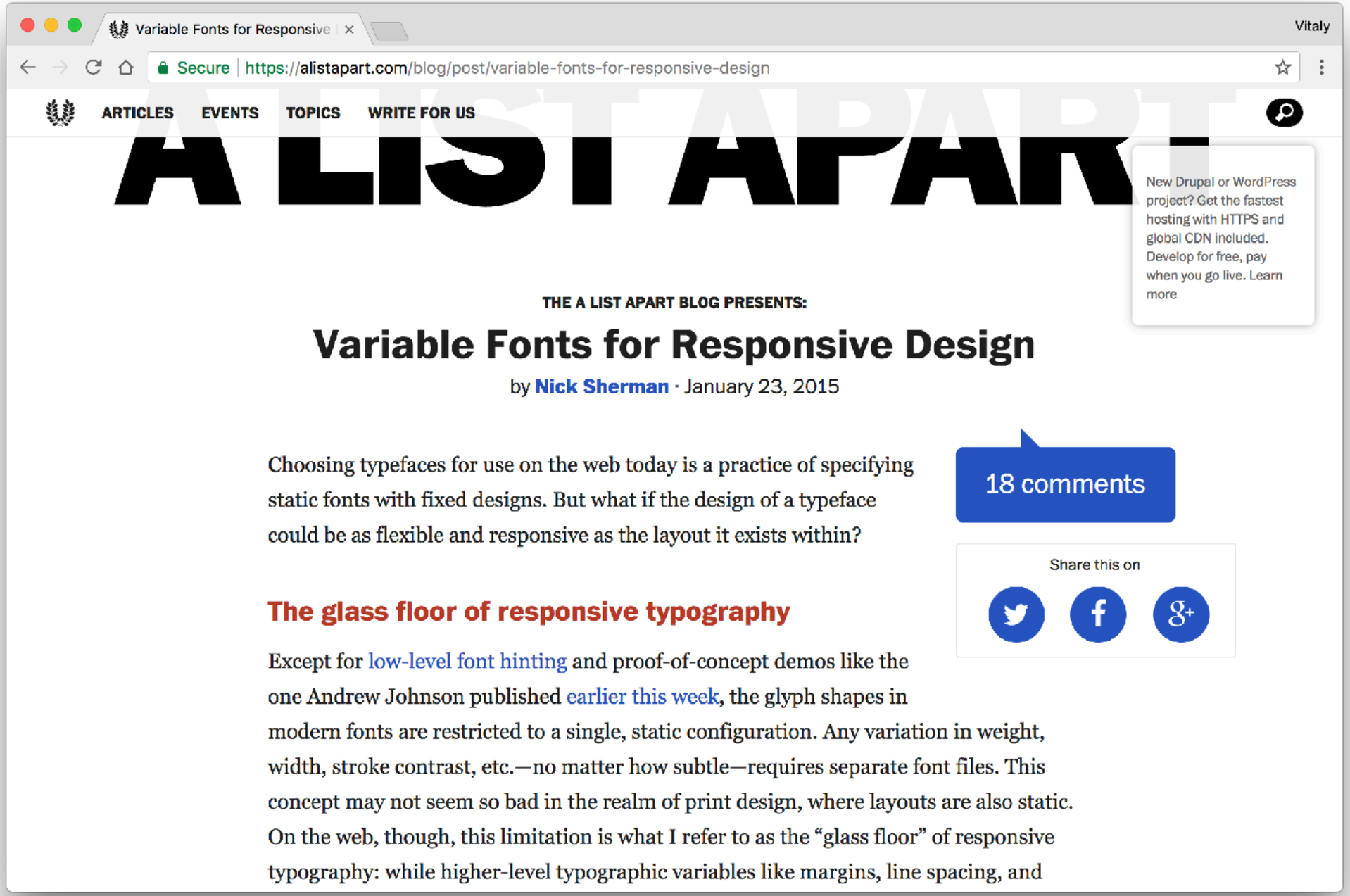
Use Cases For Variable Fonts

- Any time we solve an issue by *changing fonts*, we can build these changes around a fluid and dynamic logic.

  — *Condensing* the width of a typeface for narrow columns,
  — *Tweaking* the weight for light type on a dark background,
  — *Showing* finer details at large sizes,
  — *Increasing* the x-height at small sizes,
  — *Adjusting* the stroke contrast for low resolutions,
  — *Adjusting* the weight to maintain the stem thickness across sizes.

"Variable Fonts for Responsive Design", Nick Sherman, https://alistapart.com/blog/post/variable-fonts-for-responsive-design


Axis-Praxis: OpenType variable
Vitaly
Secure | https://www.axis-praxis.org/specimens/__DEFAULT__
AXISPRAXIS
playground
blog
support
Introduction
MY SPECIMENS
Old Default
SPECIMENS
文鼎晶熙黑
晶熙ゴシック体
Amstelvar
Avenir Next
BitCount
Buffalo Gal
Compressa
Decovar
DIN 2014
Dunbar
Fit
Gingham
Axis-Praxis is a website for playing with OpenType Variable Fonts
Discover 30+ variable fonts. Experiment with the typographic controls in the right panel on this default layout, or choose a typeface specimen from the left column. Every textbox is fully editable: change font, font size, alignment, line-spacing as well as the variation sliders. And type your own text, of course.
Font makers can try out their own variable fonts. Just drag any variable TTF to the right panel, the current textbox gets set to that font, and its axes show up right away in the Font Variation section.
TEXTBOX
Textbox
heading1
Font
Zeitung Pro Regular
Drag & drop f
Font size
Line-height
Alignment
CSS
New textbox
Delete textbox
FONT VARIATIONS
Instance
Show/hide hidden axes
FONT FEATURES
COLOUR


Variable Fonts for Responsive
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Secure | https://alistapart.com/blog/post/variable-fonts-for-responsive-design
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THE A LIST APART BLOG PRESENTS:
Variable Fonts for Responsive Design
by Nick Sherman · January 23, 2015
Choosing typefaces for use on the web today is a practice of specifying static fonts with fixed designs. But what if the design of a typeface could be as flexible and responsive as the layout it exists within?
18 comments
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The glass floor of responsive typography
Except for low-level font hinting and proof-of-concept demos like the one Andrew Johnson published earlier this week, the glyph shapes in modern fonts are restricted to a single, static configuration. Any variation in weight, width, stroke contrast, etc.—no matter how subtle—requires separate font files. This concept may not seem so bad in the realm of print design, where layouts are also static. On the web, though, this limitation is what I refer to as the "glass floor" of responsive typography: while higher-level typographic variables like margins, line spacing, and

How to use variable fonts in th ×

Vitaly

A Medium Corporation [US] https://medium.com/clear-left-thinking/how-to-use-variable-fonts-in-the-real-world-e6d73065a604



Richard Rutter
Cofounder of @clearleft, author of the @WebTypography book, designer of digital things. Please patronise responsibly.
Jan 25 · 7 min read

How to use variable fonts in the real world

Using variable fonts in the real world turns out to be tricky. This post explains how we achieved it for the new Ampersand website and what we learned along the way.



Variable fonts: a million times t ×

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Secure | https://www.dotconferences.com/2017/11/laurence-penney-variable-fonts

dot Conferences

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Variable fonts: a million times the possibilities, in less bandwidth than before

Laurence Penney at dotCSS 2017



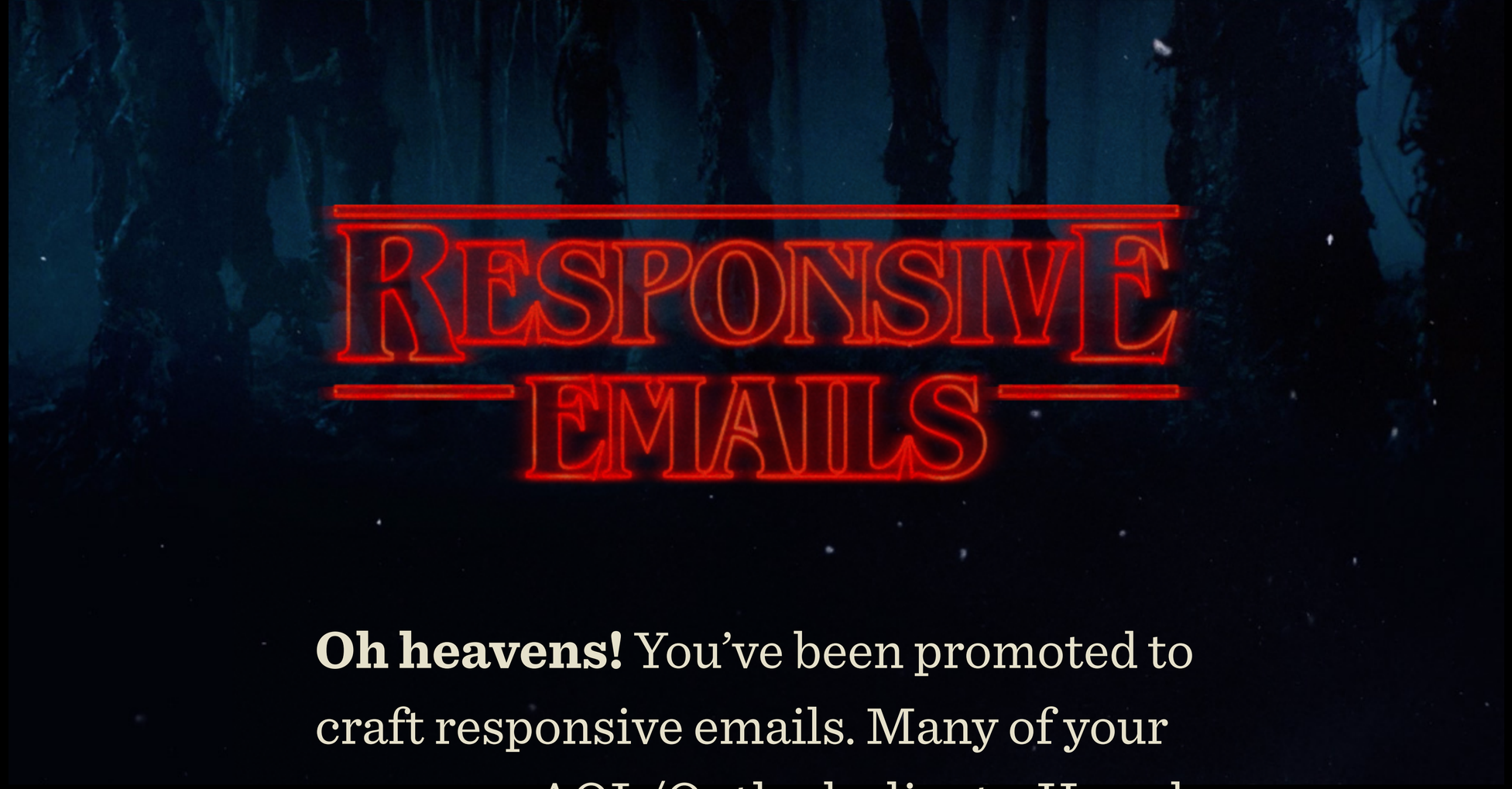
In September 2016 the font world was super-excited by the announcement (by Google, Microsoft, Adobe and Apple) of the OpenType 1.8 Variable Font format. Development versions of Safari soon supported Variable Fonts via the 'font-variation-settings' CSS property. Chrome since added support on all platforms. Yet the technology's success depends on being embraced by

The speaker



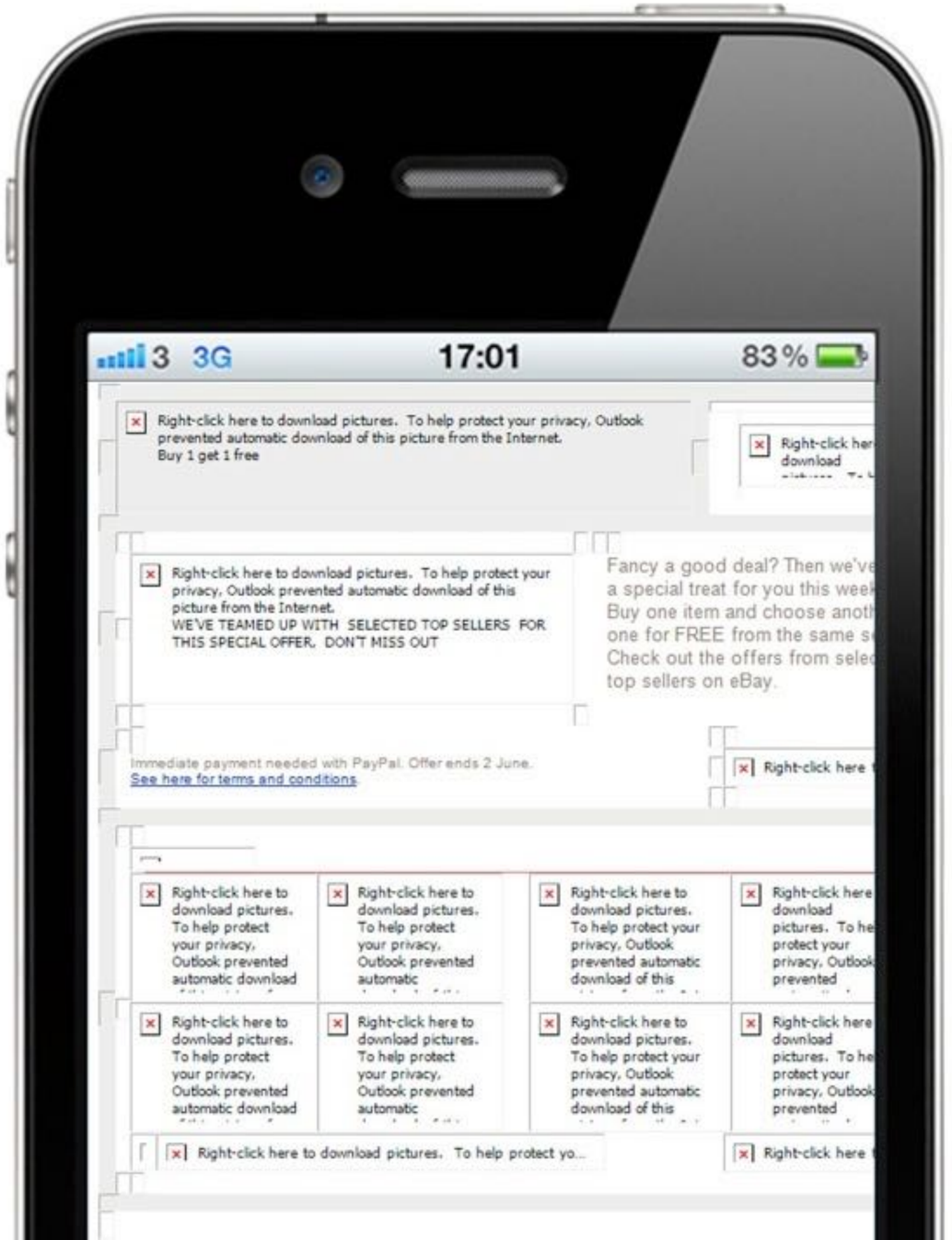
Laurence Penney
Author of Axis-Praxis


LEVEL 6
EMAIL
RESPONSIVE INTERACTIVE EMAILS WITHOUT JAVASCRIPT
GET READY _



Oh heavens! You've been promoted to craft responsive emails. Many of your users use AOL/Outlook clients. How do you make **emails** bulletproof?

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Right-click here to download pictures. To help protect yo...

From: salesforce.com Events <salesforce@notify.salesforce.com>
Subject: Blow out your Salesforce ROI
Date: July 26, 2012 7:49:11 AM EDT
To: [redacted]
Reply-To: salesforce.com Events <salesforce.events@salesforce.com>

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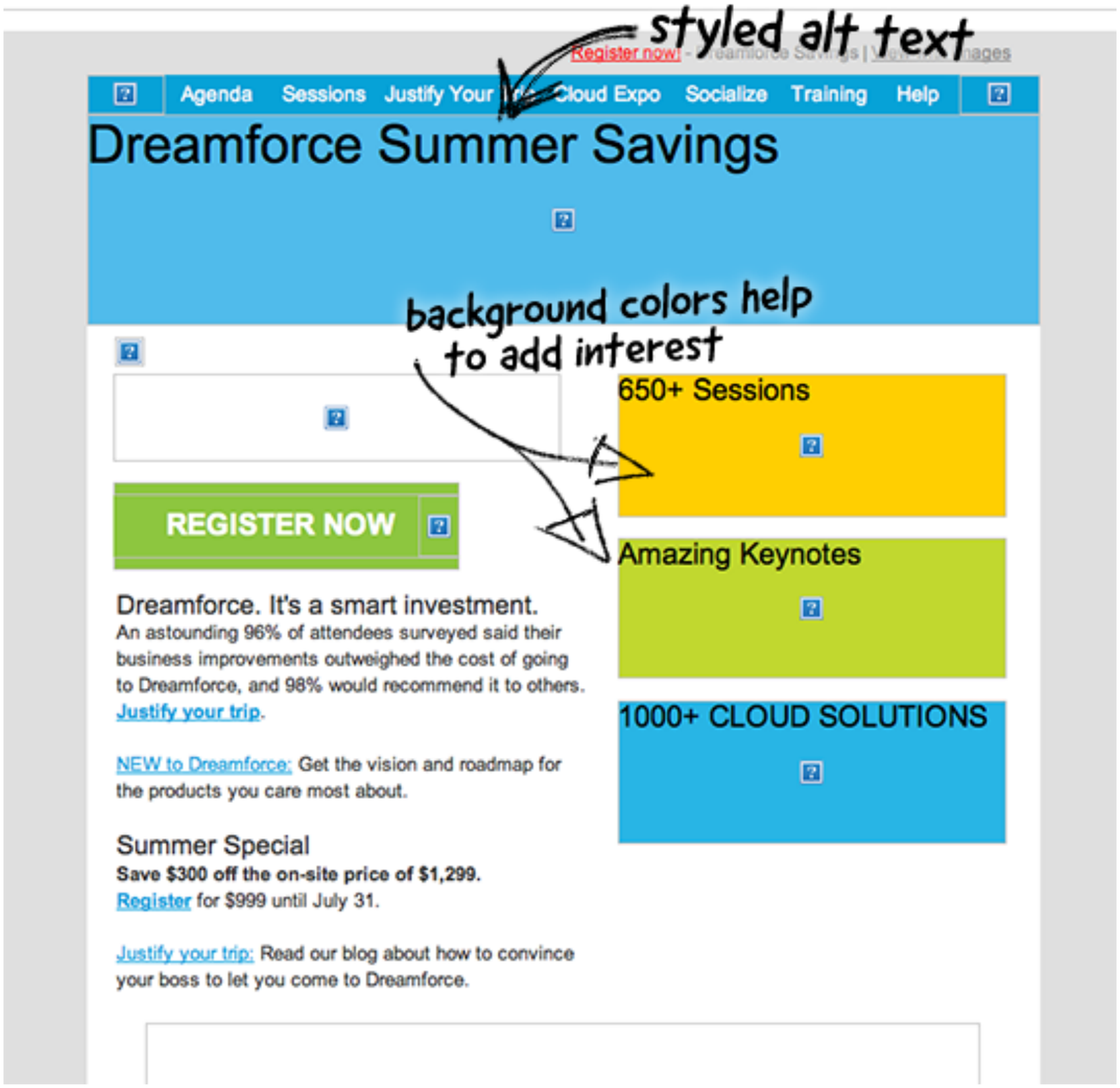
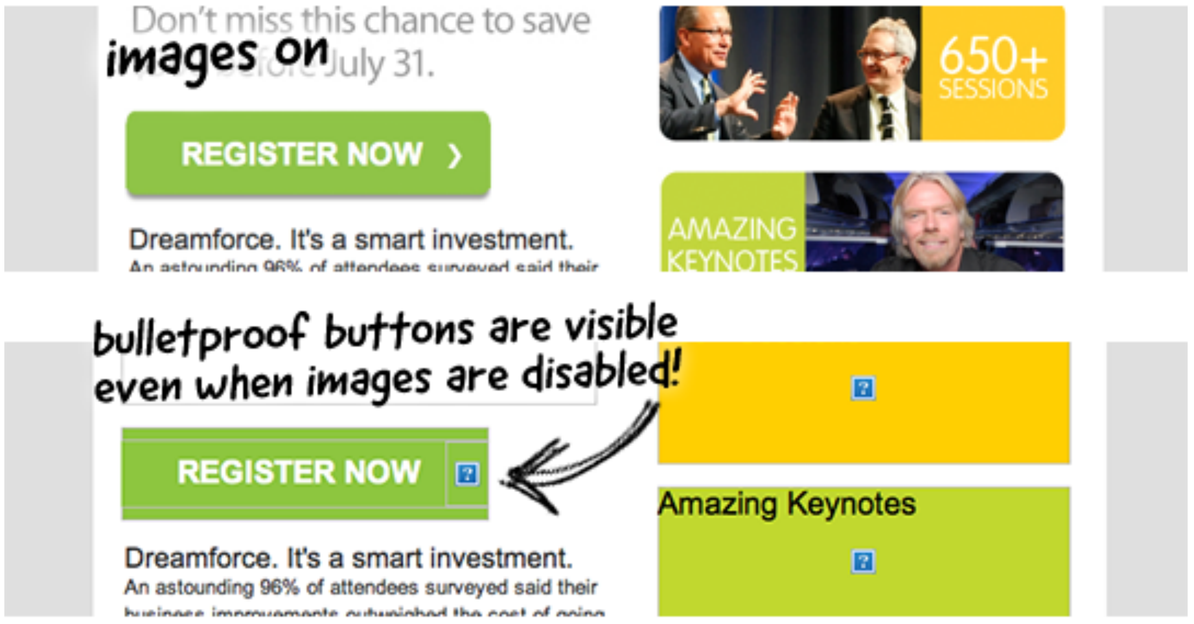
2 Duplicates

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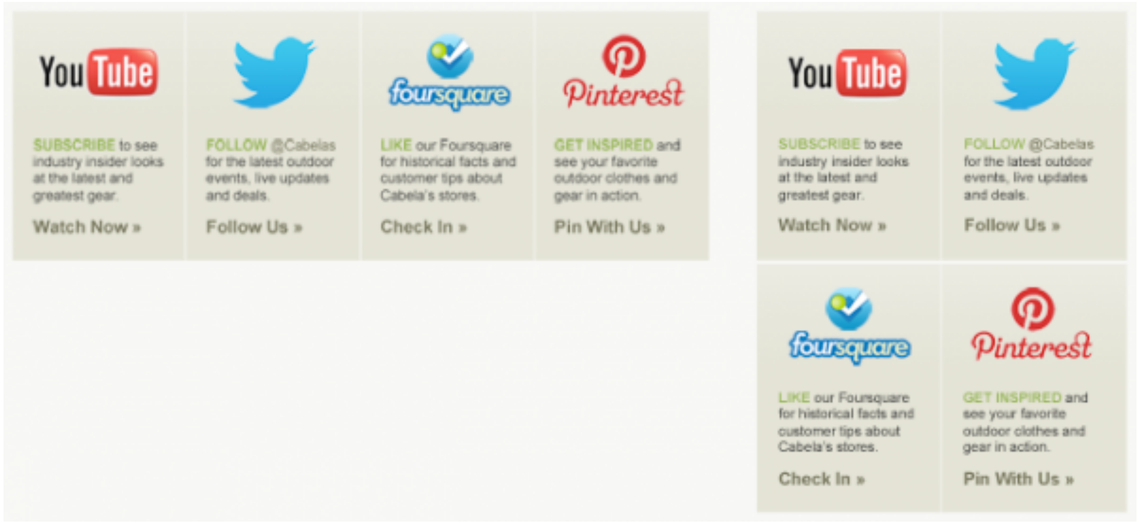
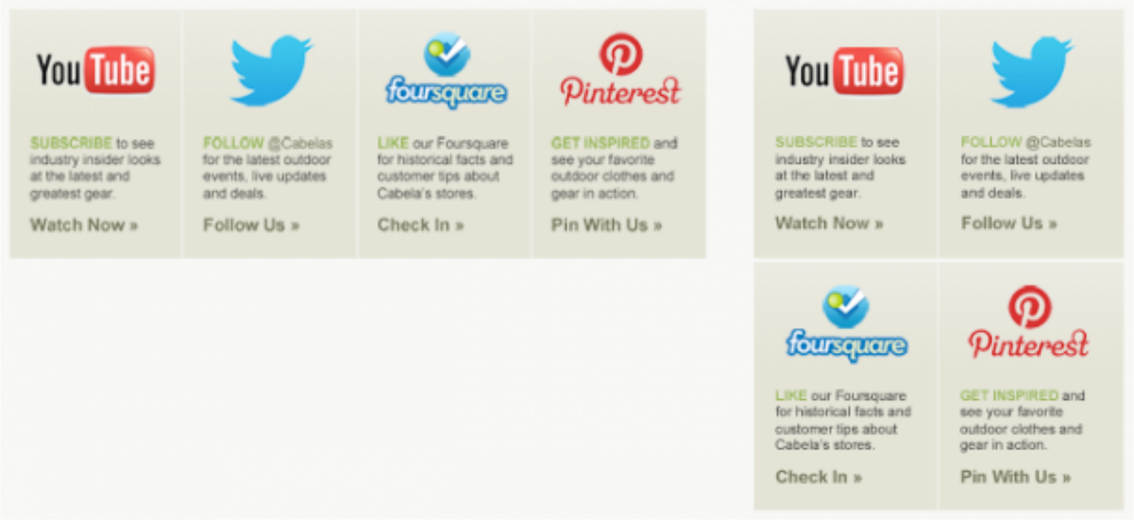


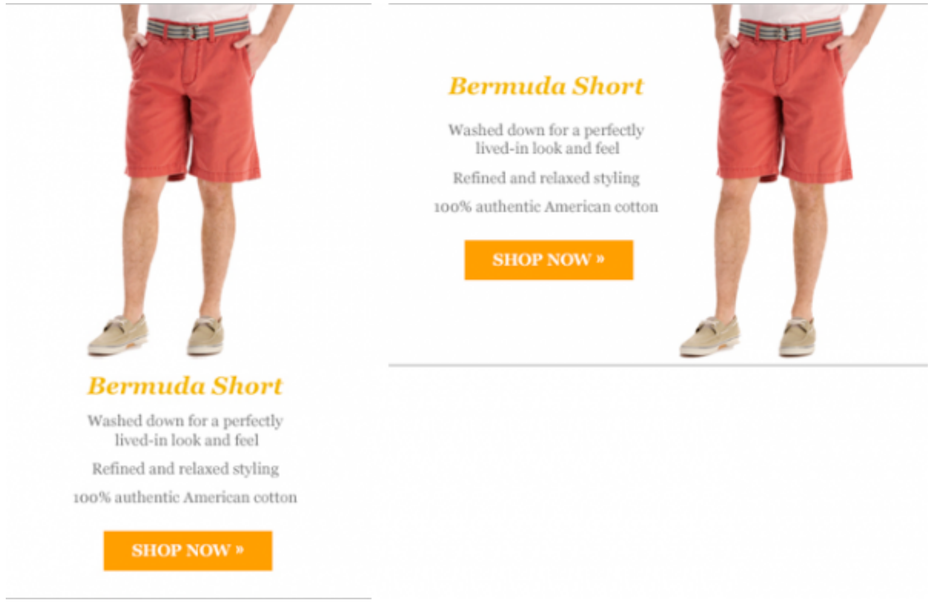
- *Content Stacking*

```
<table> /* “Desktop” width = 600px = 300*2 */
    <tr>
      <td class="col" width="300">...</td>
      <td class="col" width="300">...</td>
    </tr>
</table>
```



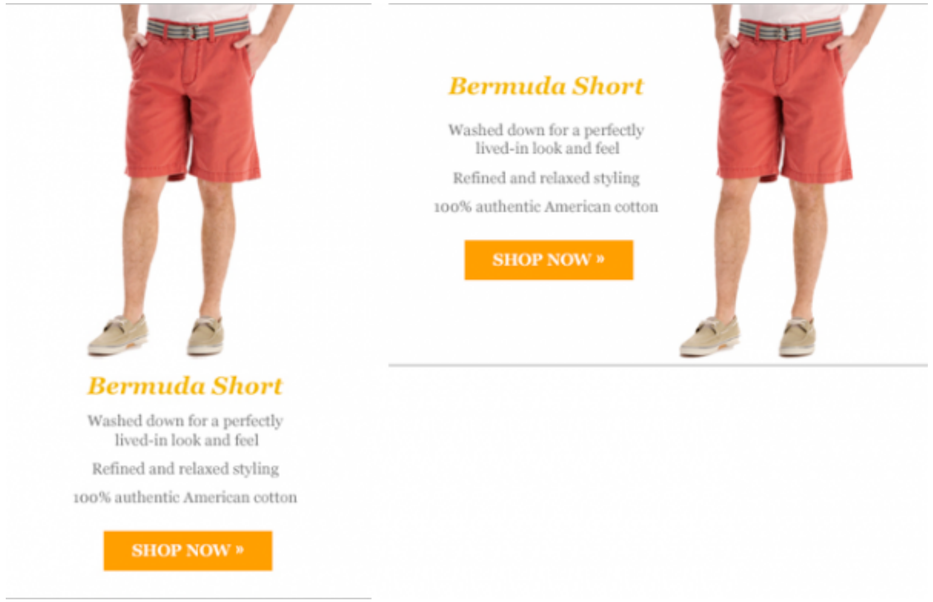
- *Content Stacking*

```
@media only screen and (max-width: 600px) {
    table, tr, td {
        display: block; /* table-cell -> block */
        width: 100%;
    }
}
```



- *Column Switching*

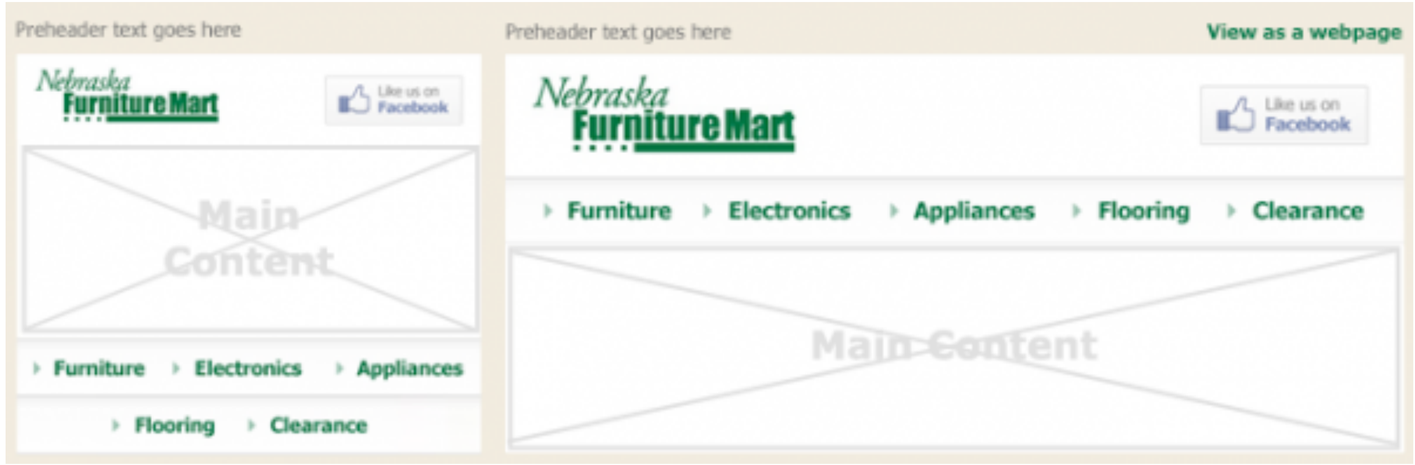
```
<table> /* “Desktop” width = 600px = 300*2 */
    <tr>
      <td class="sub-col" width="300">...</td>
      <td class="main-col" width="300">...</td>
    </tr>
</table>
```



- *Column Switching*

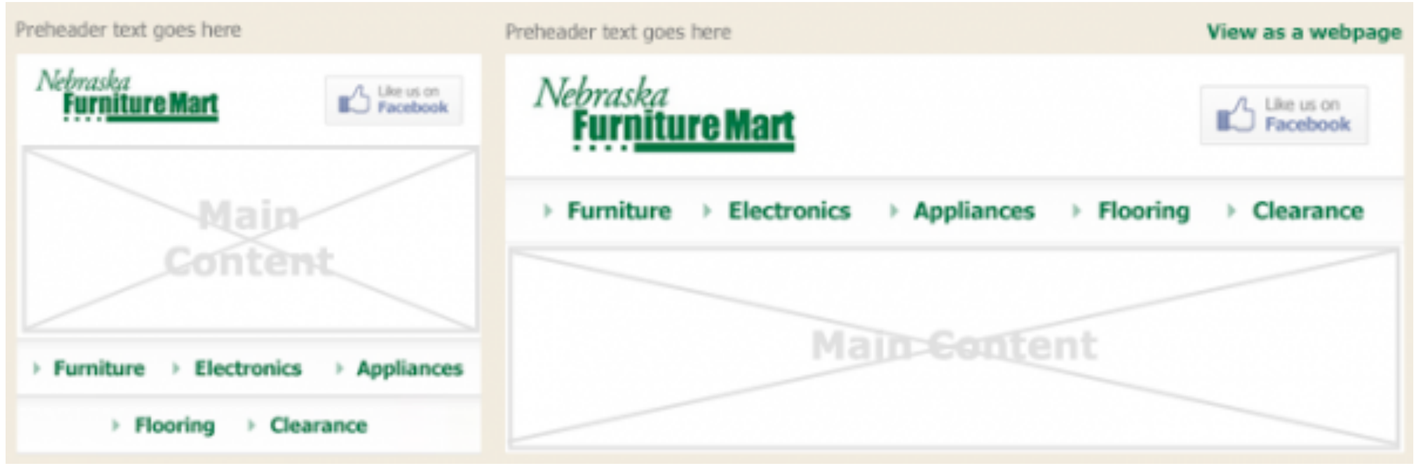
```
@media only screen and (max-width: 500px) {
    table, tr, td {
       display: block; /* table-cell -> block */
       width: 100%;
    }

    td[class=main-col] { display: table-header-group; }
    td[class=sub-col] { display: table-footer-group; }
}
```



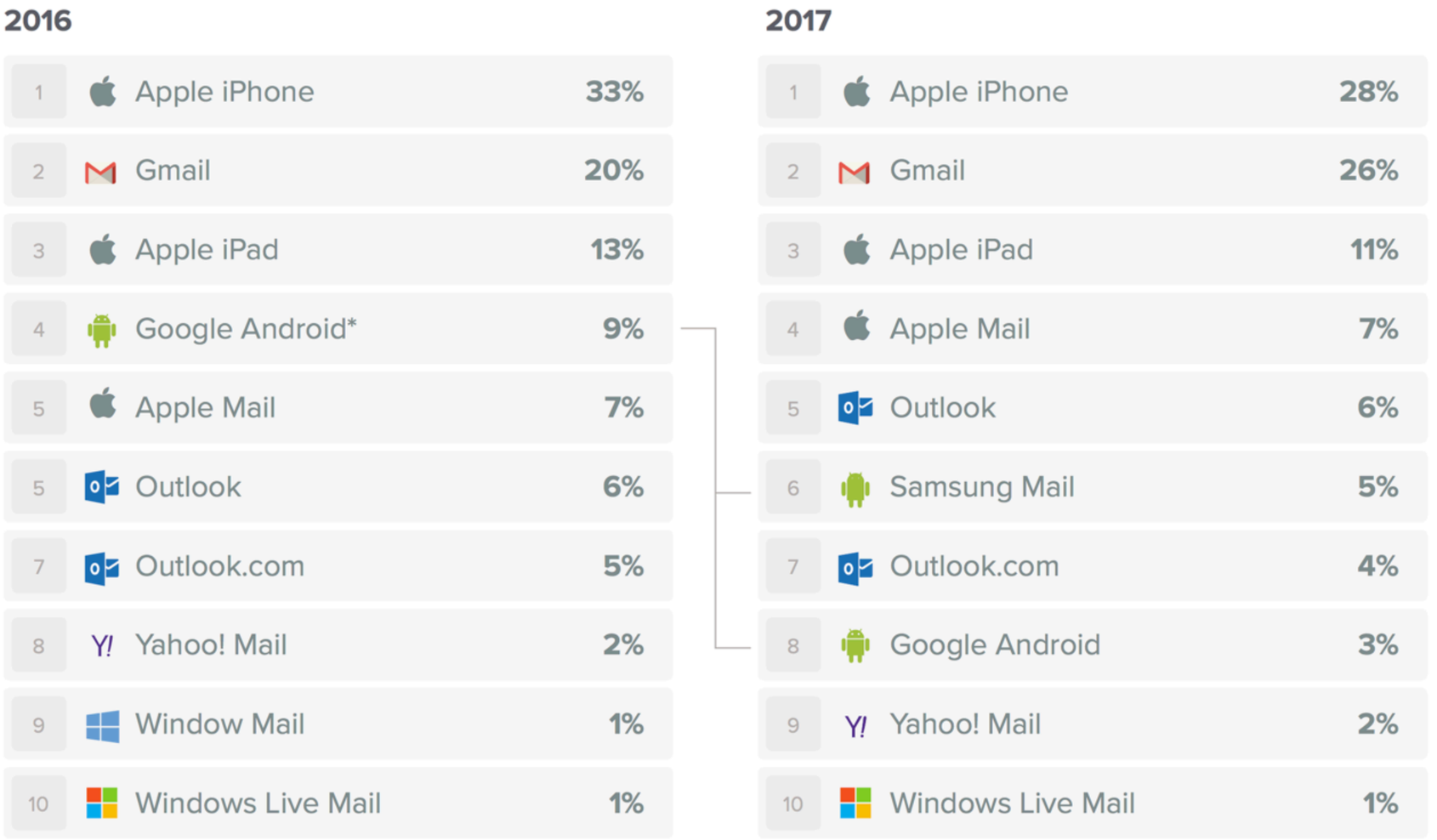
- *Order and Re-order*

```
<td class="wrapper"> /* Nested tables, oh my... */
    <table class="header">Header</table>
    <table class="nav">Navigation</table>
    <table class="content">Content</table>
    <table class="footer">Footer</table>
 /table>
```

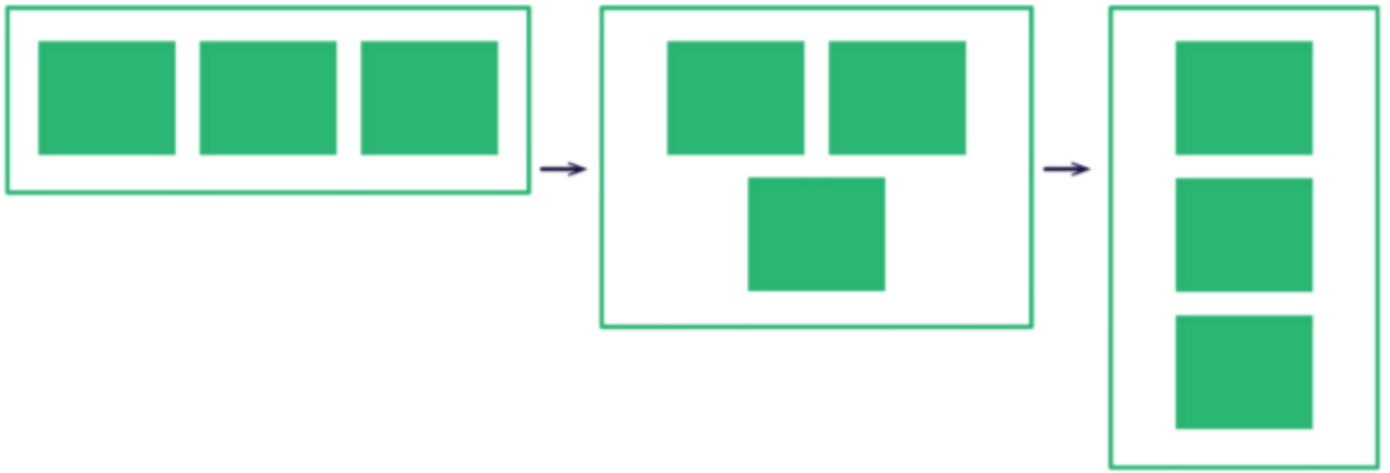


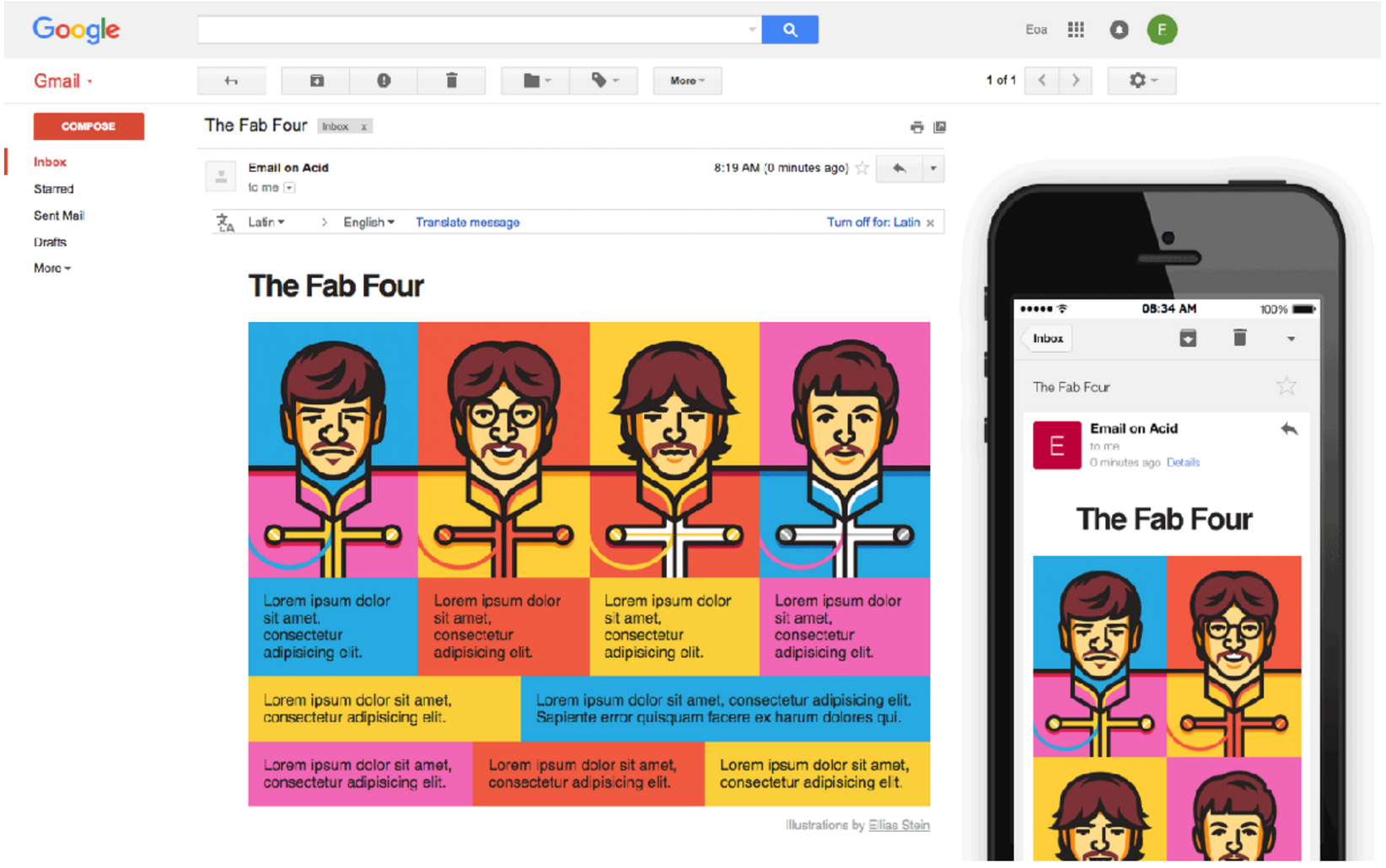
- *Order and Re-order*

```
@media only screen and (max-width: 500px) {
   table[class=wrapper] { display: table; }
   table[class=header] { display: table-caption; }
   table[class=nav] { display: block; }
   table[class=content] { display: table-header-group; }
   table[class=footer] { display: table-footer-group; }
}
```



Litmus, State of Email 2018 Report, https://litmus.com/blog/2018-state-of-email




Google
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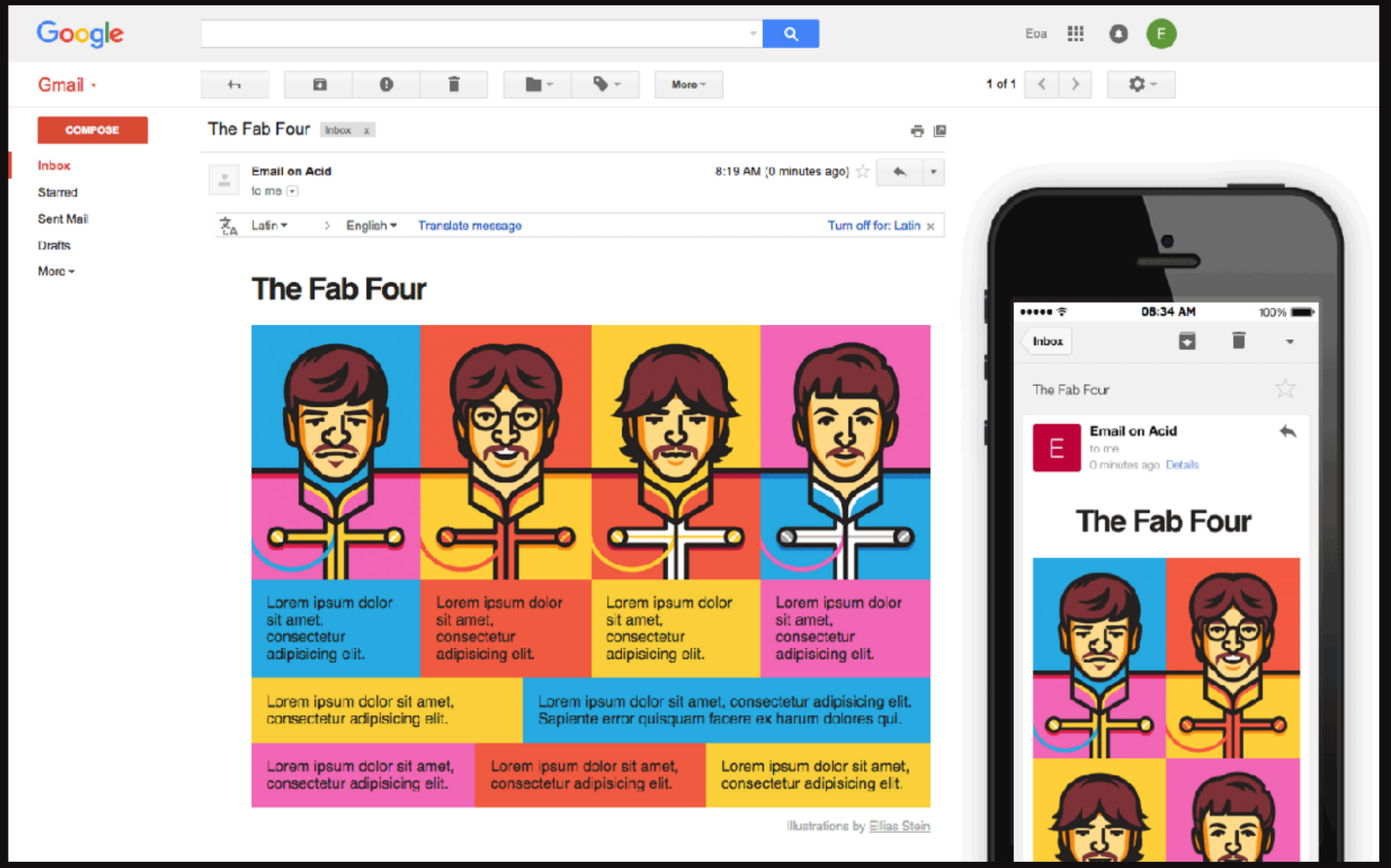
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Gmail
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Inbox
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Drafts
More
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to me
8:19 AM (0 minutes ago)
Latin
English
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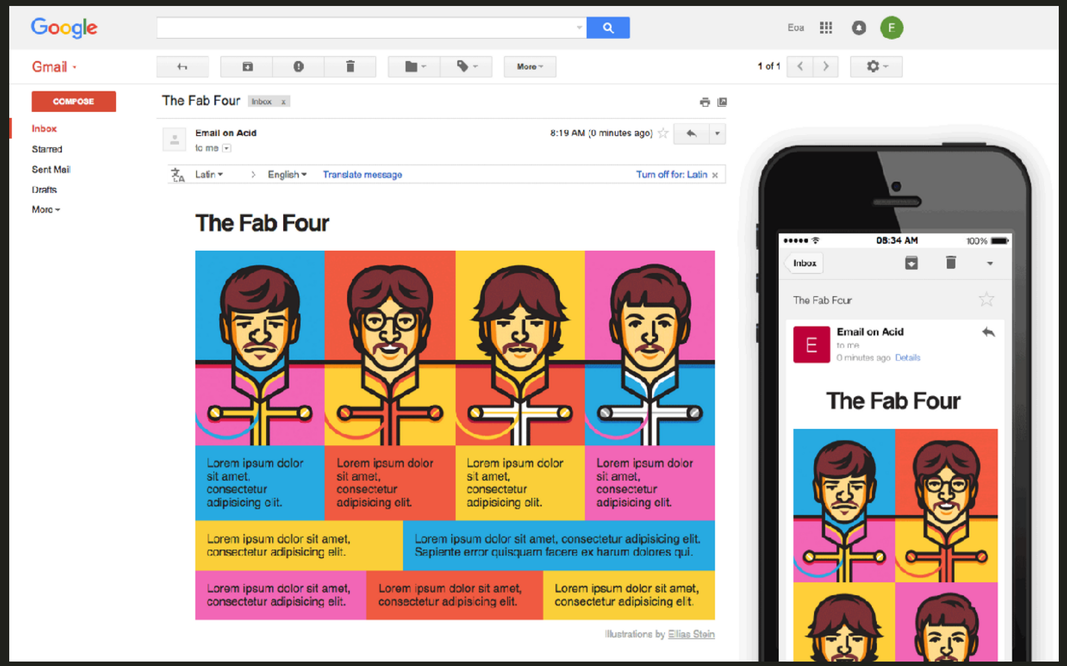
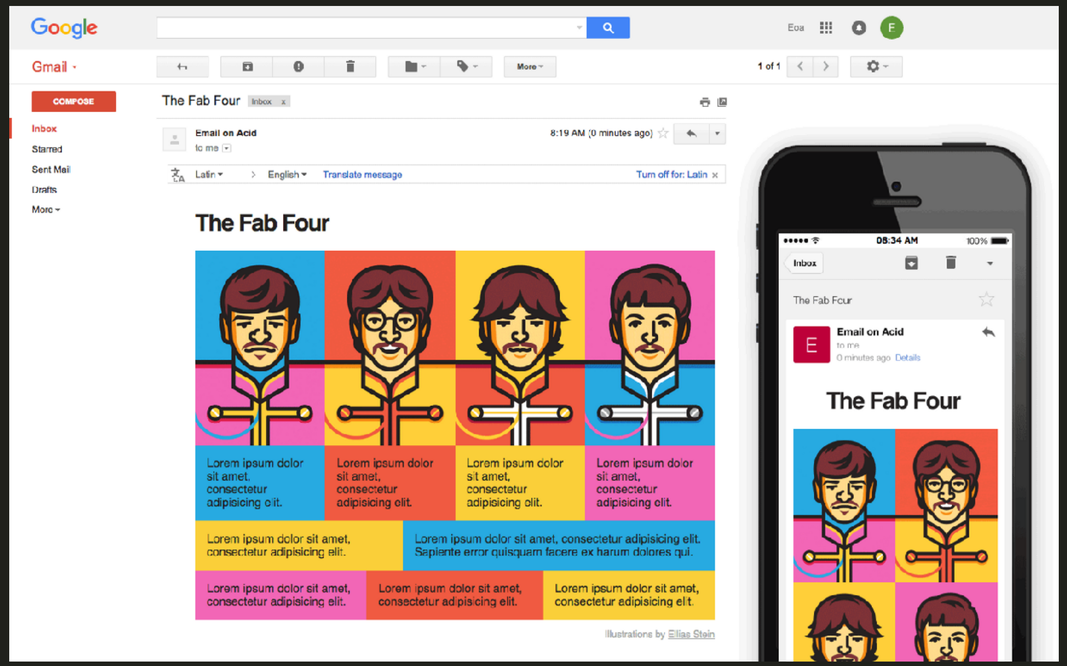


- CSS:

```
.box {
    width: 320px;
    min-width: 480px;
    max-width: 160px;
}
```

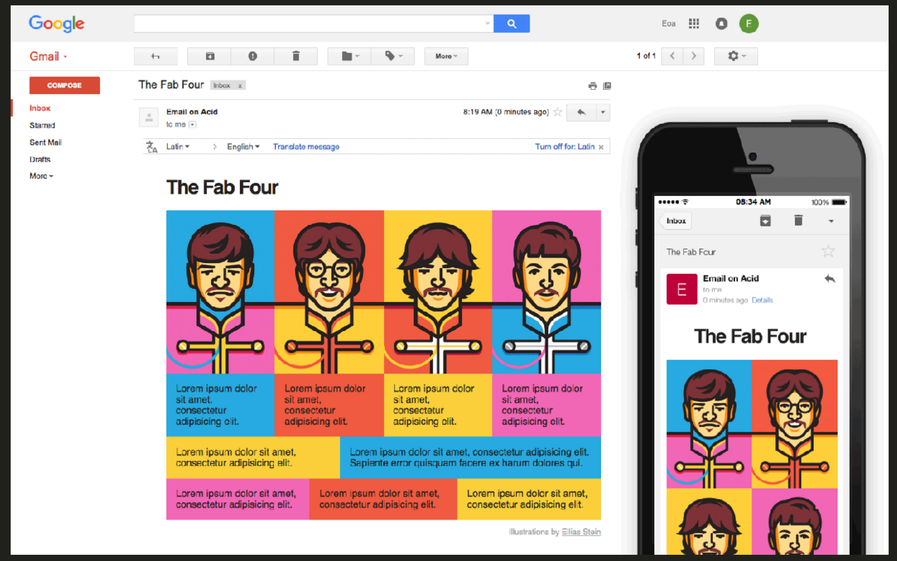
If the *width* value is greater than the *max-width* value, *max-width* wins.



- CSS:

```
.box {
    width: 320px;
    min-width: 480px;
    max-width: 160px;
}
```

If the *min-width* value is greater than the *width* or *max-width* values, then *min-width* wins.



Let's build a 2-col-layout that stacks and grows below 480px. No media queries allowed.

- CSS:

```
.box {
    display: inline-block;
    min-width: 50%; // basically 2-col-desktop version
    max-width: 100%; // basically 1-col-mobile version
    width: calc((480px - 100%) * 480);
/* 480px = the breakpoint, 100% = width of the parent
Goal: create a value bigger than our max-width or smaller
than our min-width, so that either one of those property is
applied instead. */
}
```

with a parent of 500px

```
.block {
    display:inline-block;
    min-width:50%; 250px winner
    max-width:100%; 500px
    width:calc((480px - 100%) * 480); -9600px
}
```

with a parent of 400px

```
.block {
    display:inline-block;
    min-width:50%; 200px
    max-width:100%; 400px winner
    width:calc((480px - 100%) * 480); 38400px
}
```

The Fab Four Technique

Vitaly

codepen.io/hteumeuleu/details/VaZgqg/

The Fab Four Technique

A PEN BY Rémi

Fork | Change View | Log In | Sign Up

The Fab Four



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Illustrations by Elias Stein

Live Twitter Feed

Tweet with #TEDC15 and refresh to see your tweet in the stream!



Amanda Soehnlen @asoehnlen · 3m

this is just about the best thing (minus #tedc15 emails) i have read today https://t.co/dx95dnr0kx



Jason Tropp @tropp · 4m

hey #TEDC15 the messages you hid in that email code are AMAZING! you like us you really like us :D #hiddenmessages



Jon Woodrow @jonwoodrow · 5m

This is very cool @connect_agency #TEDC15 http://t.co/cqs6RyGbt2



Marc Hedlund @Marc_everything · 6m

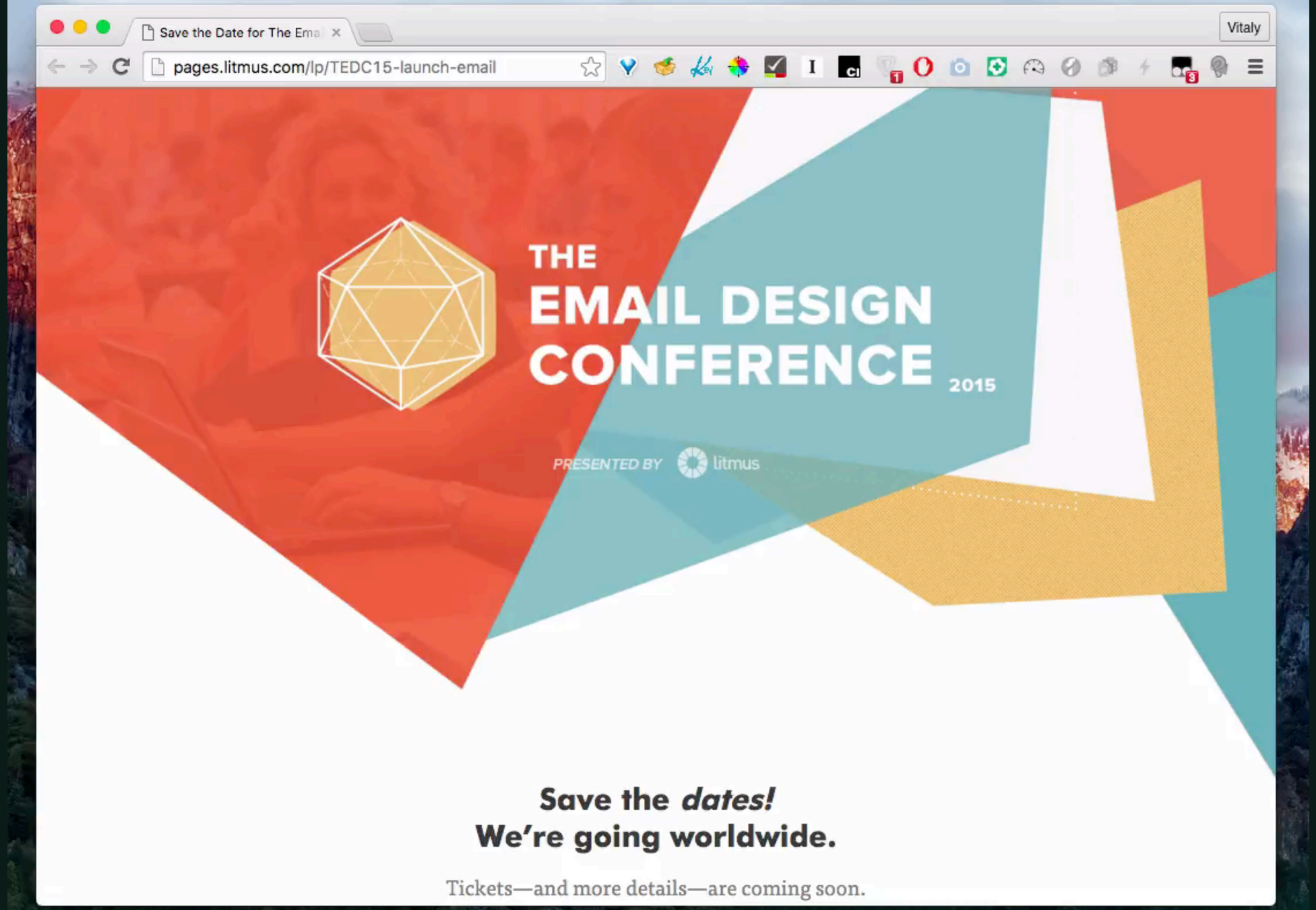
Live twitter feed in an email 0_o #TEDC15



Brittany R @brittles_86 · 6m

Litmus' live twitter feed - that EVEN works in Outlook - is wizardry! Where's platform 9 3/4? I need that knowledge #TEDC15

TWEET #TEDC15 TO JOIN THE FEED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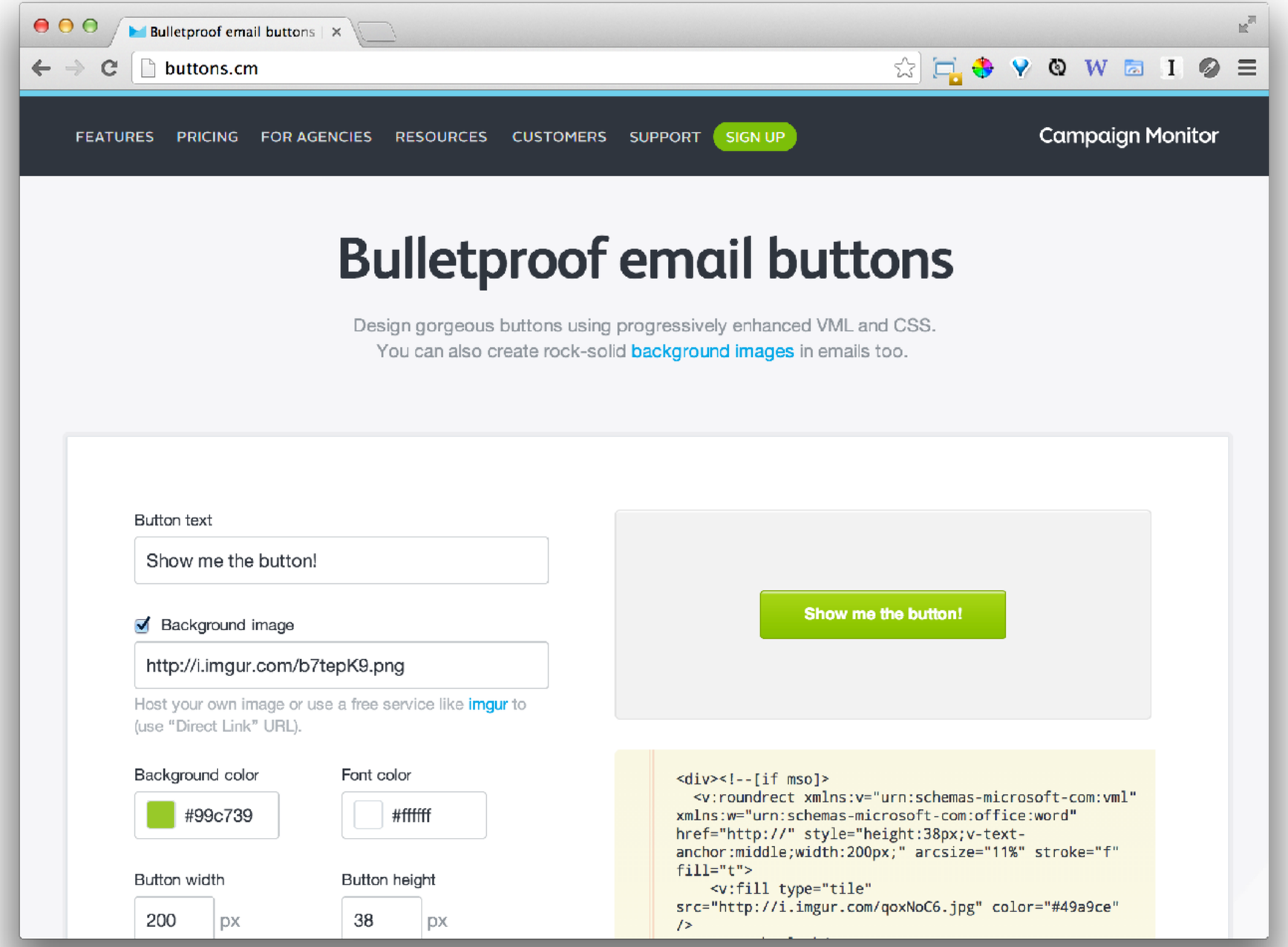
We're going worldwide.
Tickets—and more details—are coming soon.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Design gorgeous buttons using progressively enhanced VML and CSS.
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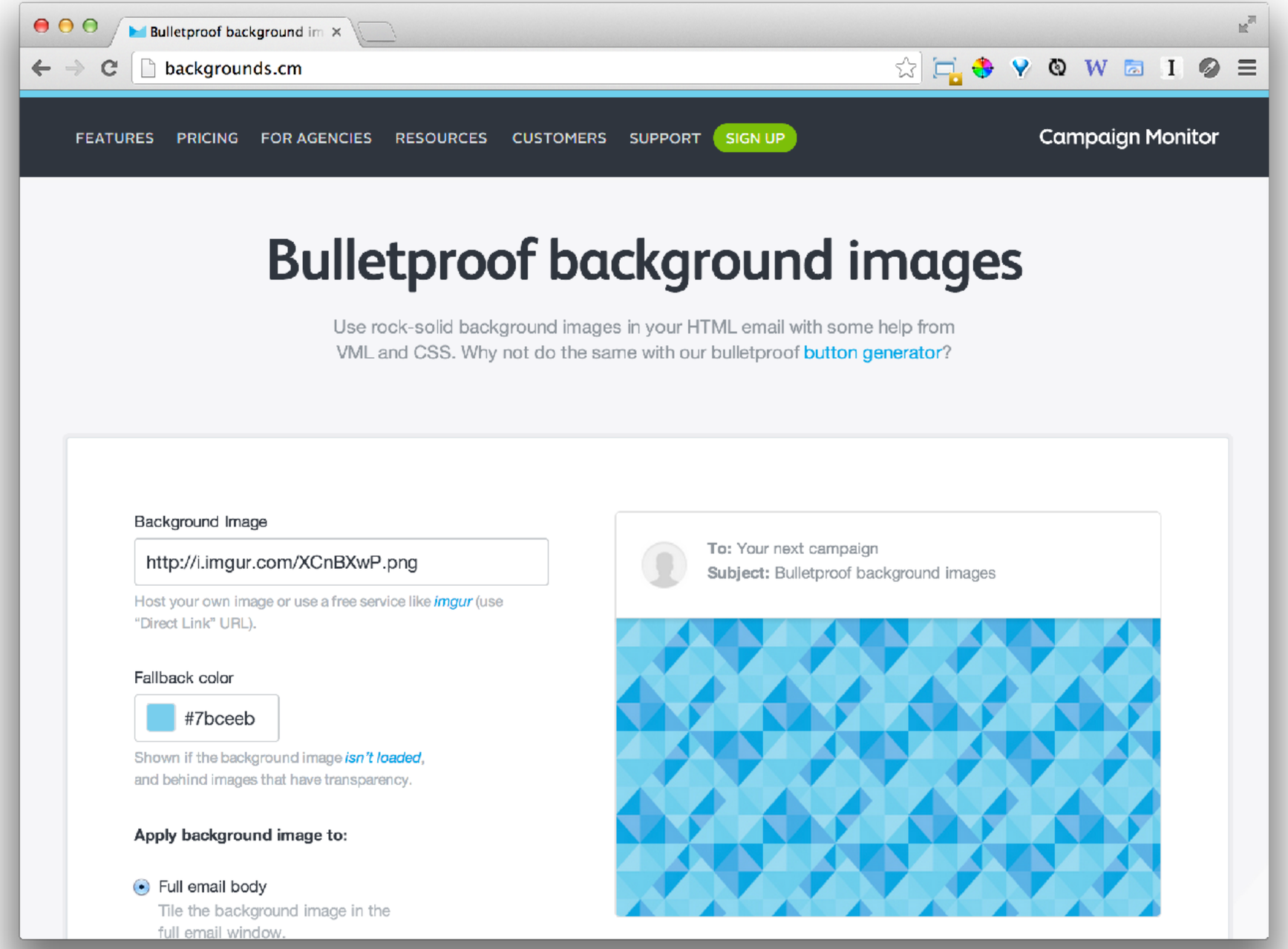
Background image
http://i.imgur.com/b7tepK9.png
Host your own image or use a free service like imgur to
(use "Direct Link" URL).
Background color
#99c739
Font color
#ffffff
Button width
200
px
Button height
38
px
Show me the button!
<!--[if mso]>
<v:roundrect xmlns:v="urn:schemas-microsoft-com:vml"
xmlns:w="urn:schemas-microsoft-com:office:word"
href="http://" style="height:38px;v-text-
anchor:middle;width:200px;" arcsize="11%" stroke="f"
fill="t">
<v:fill type="tile"
src="http://i.imgur.com/qoxNoC6.jpg" color="#49a9ce"
/>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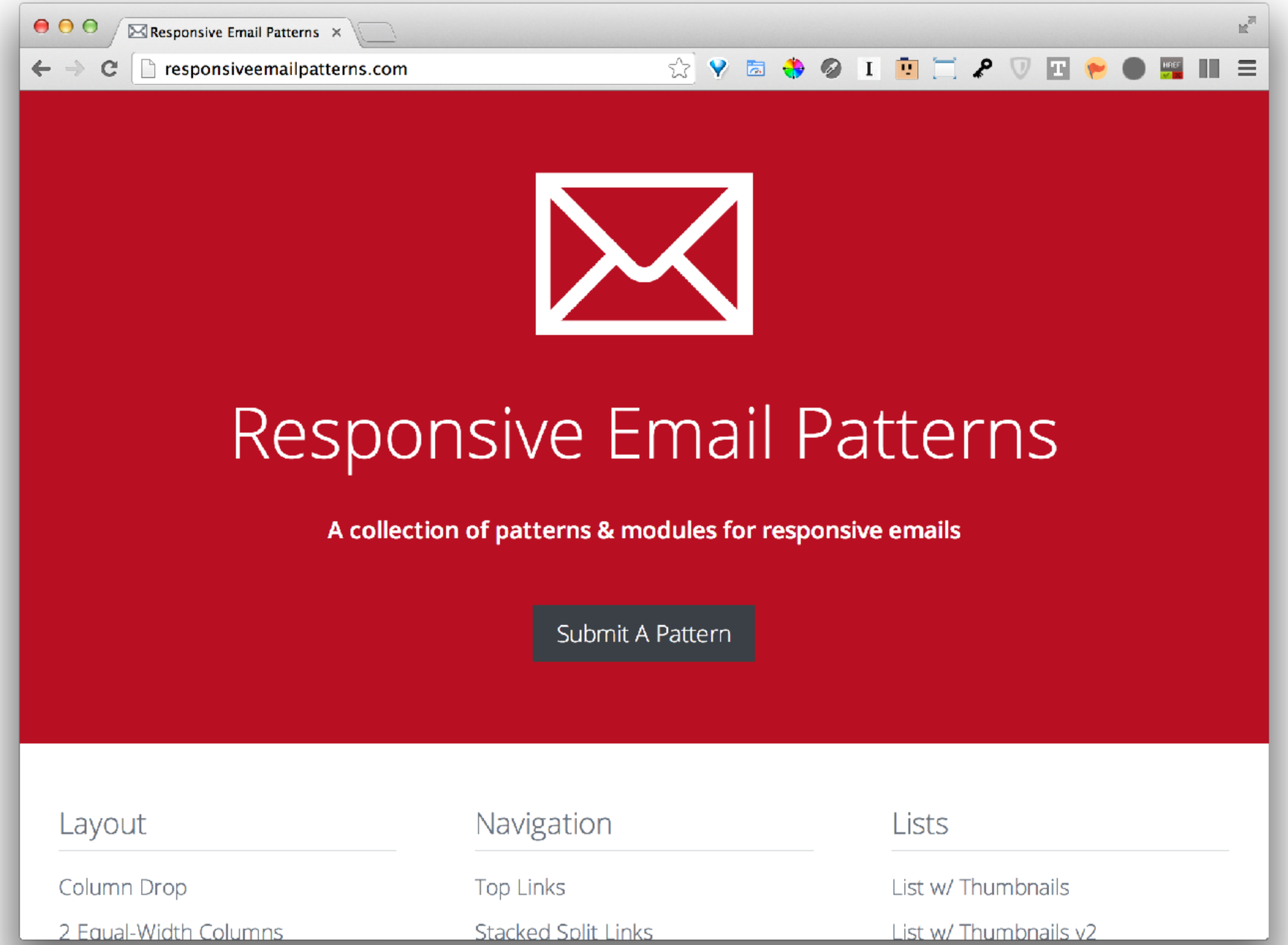
#7bceeb
Shown if the background image isn't loaded, and behind images that have transparency.
Apply background image to:
Full email body
Tile the background image in the full email window.
To: Your next campaign
Subject: Bulletproof background images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Responsive Email Patterns
A collection of patterns & modules for responsive emails
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Layout
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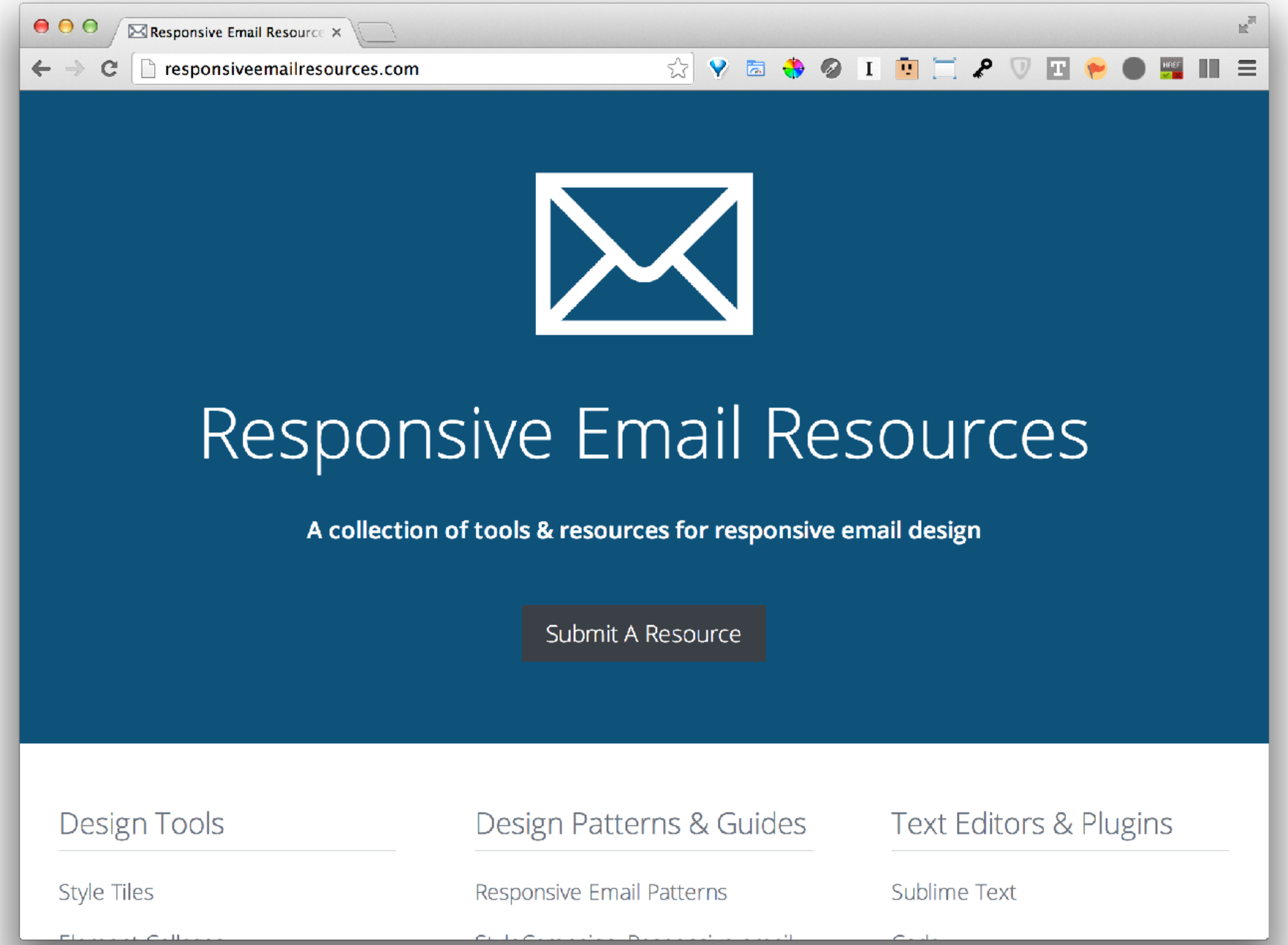
2 Equal-Width Columns
Navigation
Top Links
Stacked Split Links
Lists
List w/ Thumbnails
List w/ Thumbnails v2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Responsive Email Resources
A collection of tools & resources for responsive email design
Submit A Resource
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Style Tiles
Design Patterns & Guides
Responsive Email Patterns
Text Editors & Plugins
Sublime Text

The Fab Four technique to

Vitaly

https://medium.freecodecamp.com/the-fab-four-technique-to-create-responsive-emails-without-media-queries-baf11fdfa848#.96m2f0npj

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Rémi Parmentier Follow

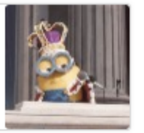
Web developer with an affection for emails. http://www.hteumeuleu.fr

Feb 11 · 7 min read

Next story

Do emails need to look...

Rémi Parmentier



The Fab Four technique to create Responsive Emails without Media Queries

I think I found a new way to create responsive emails, without media queries. The solution involves the CSS *calc()* function and the three *width*, *min-width* and *max-width* properties.

Or as I like to call them all together: the Fab Four (in CSS).



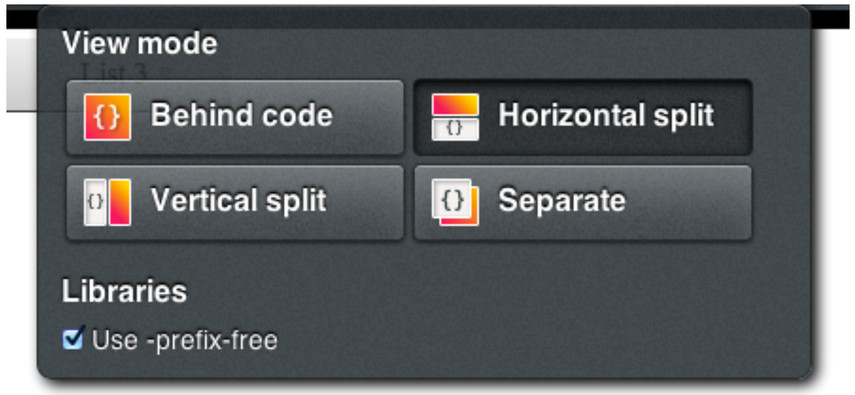
473 25

Rémi Parmentier · Follow

...hteumeuleu.com/do-emails-need-to-look-exactly-the-same-in-ever...

> Can we replicate interactivity that require *maintaining state*, such as switching tabs or panels or toggle menus, with CSS? JS binds events that manipulate classes and CSS restyles elements based on those classes. What if we used *radio buttons* for the same purpose?..
>
> — *Art Lawry*

> We use a connected label and checkbox input to control another element (e.g. * *). We hide the checkbox but *<label>* still toggles its value on and off. By using *adjacent sibling combinator,* we can style the * * differently based on the *:checked* state.
>
> — *Chris Coyier*

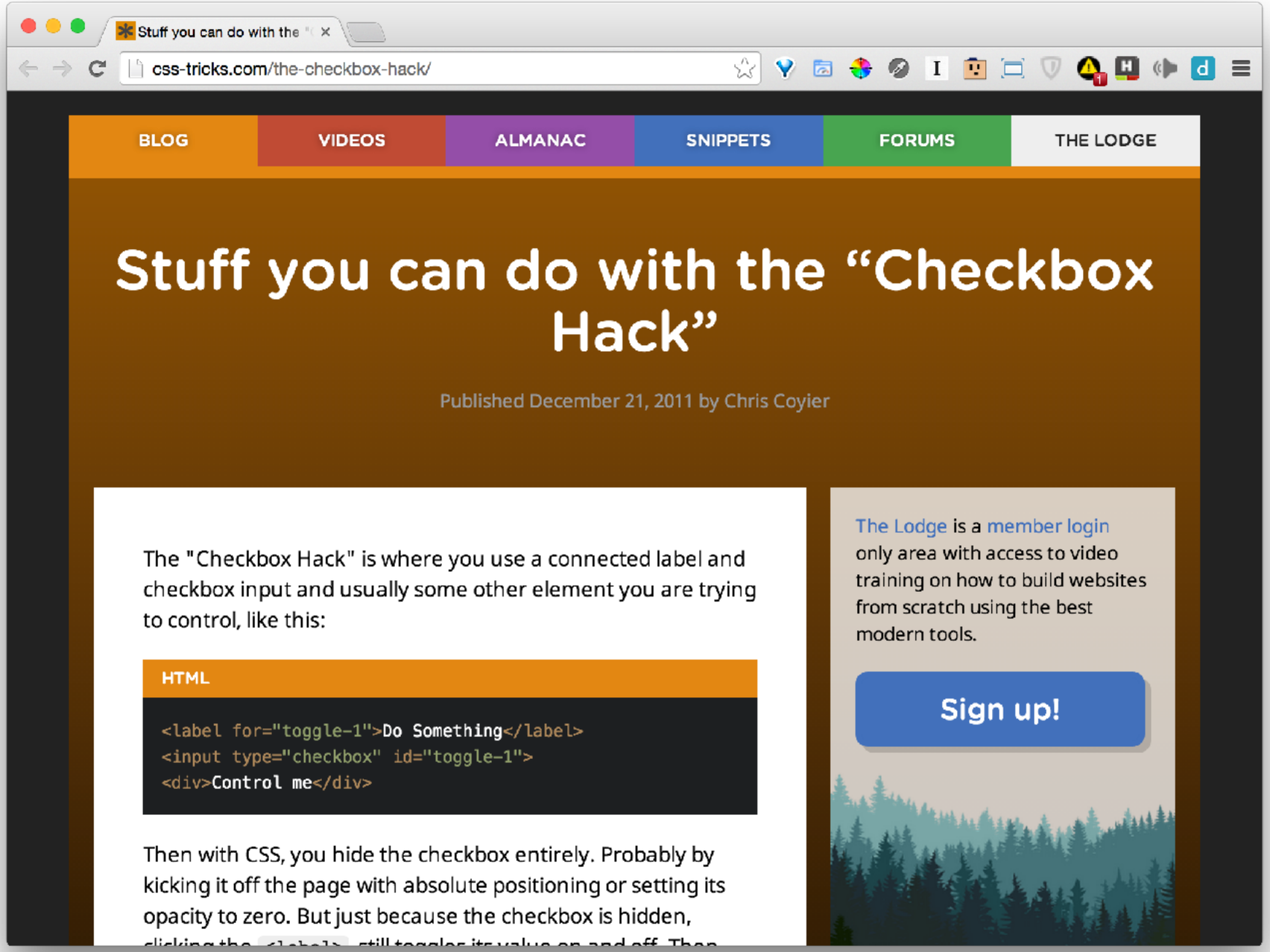


- HTML:

```
<label for="toggle-1">
<input type="checkbox" id="toggle-1" />
<div>Responsive component without JavaScript</div>
```

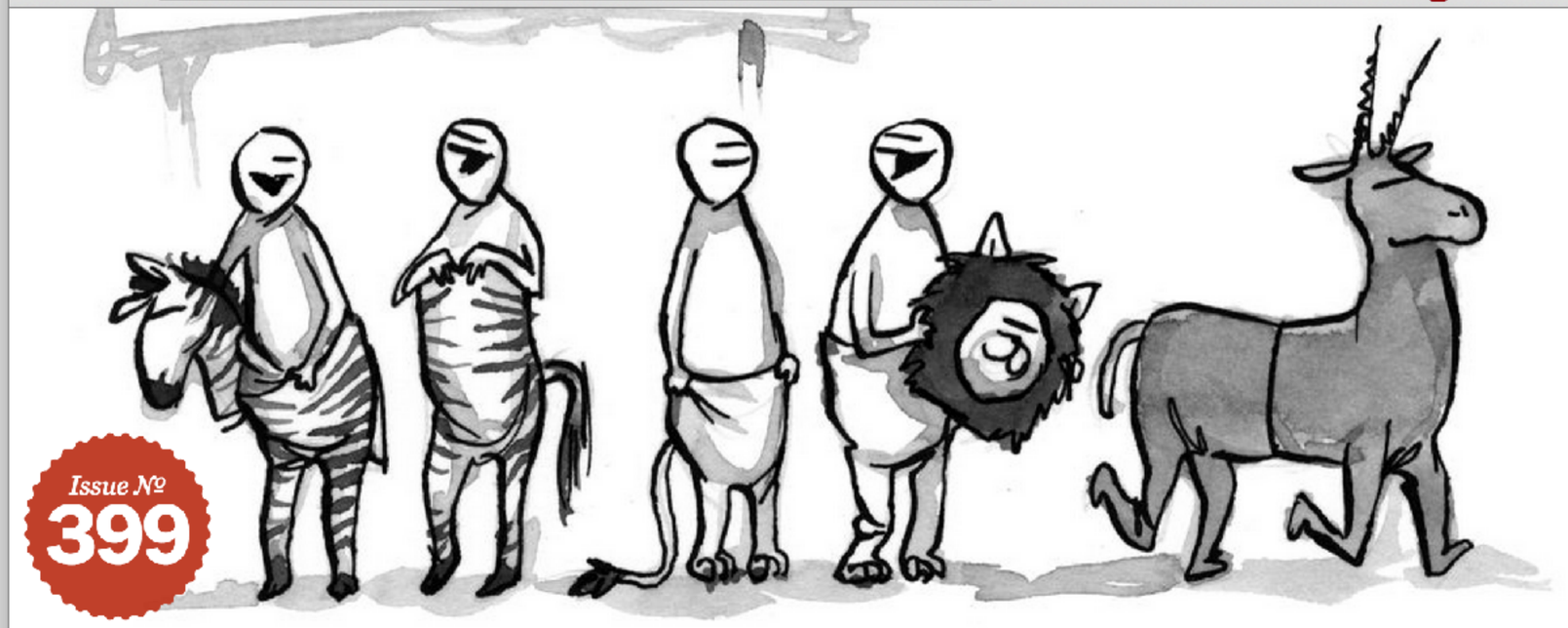
- CSS:

```
input[type=checkbox] { position: absolute;
                       top: -9999px; left: -9999px; }
/* Or checkbox on top of clickable area with opacity: 0; */
div { color: grey; } /* default state */
input[type=checkbox]:checked ~ div { color: red; } /* toggled */
```


Stuff you can do with the
css-tricks.com/the-checkbox-hack/
BLOG
VIDEOS
ALMANAC
SNIPPETS
FORUMS
THE LODGE
Stuff you can do with the “Checkbox Hack”
Published December 21, 2011 by Chris Coyier
The "Checkbox Hack" is where you use a connected label and checkbox input and usually some other element you are trying to control, like this:
HTML
<label for="toggle-1">Do Something</label>
<input type="checkbox" id="toggle-1">
Control me
Then with CSS, you hide the checkbox entirely. Probably by kicking it off the page with absolute positioning or setting its opacity to zero. But just because the checkbox is hidden,
The Lodge is a member login only area with access to video training on how to build websites from scratch using the best modern tools.
Sign up!

Radio-Controlled Web Des

alistapart.com/article/radio-controlled-web-design



Radio-Controlled Web Design

by **ART LAWRY** · *July 29, 2014*

Published in CSS, HTML, JavaScript · 18 Comments

Interactive user interfaces are a necessity in our responsive world. Smaller screens constrain the amount of content that can be displayed at any given time, so we need techniques to keep navigation and secondary information out of the way until they're

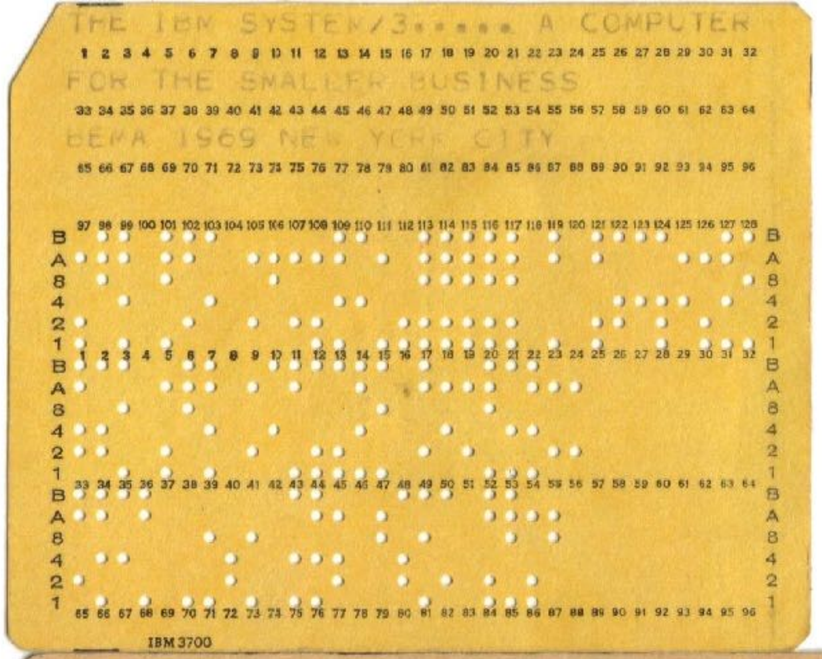
Jackthreads

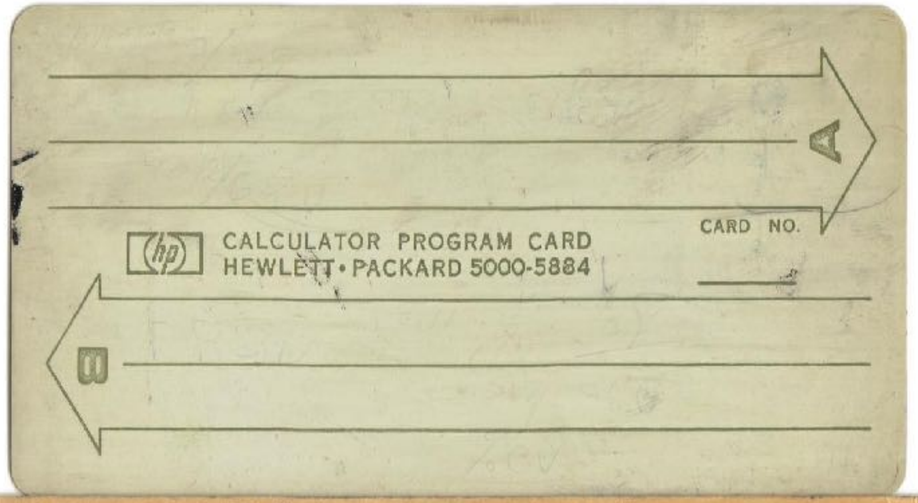
Reclaim Your Gear + Get 10% Off!

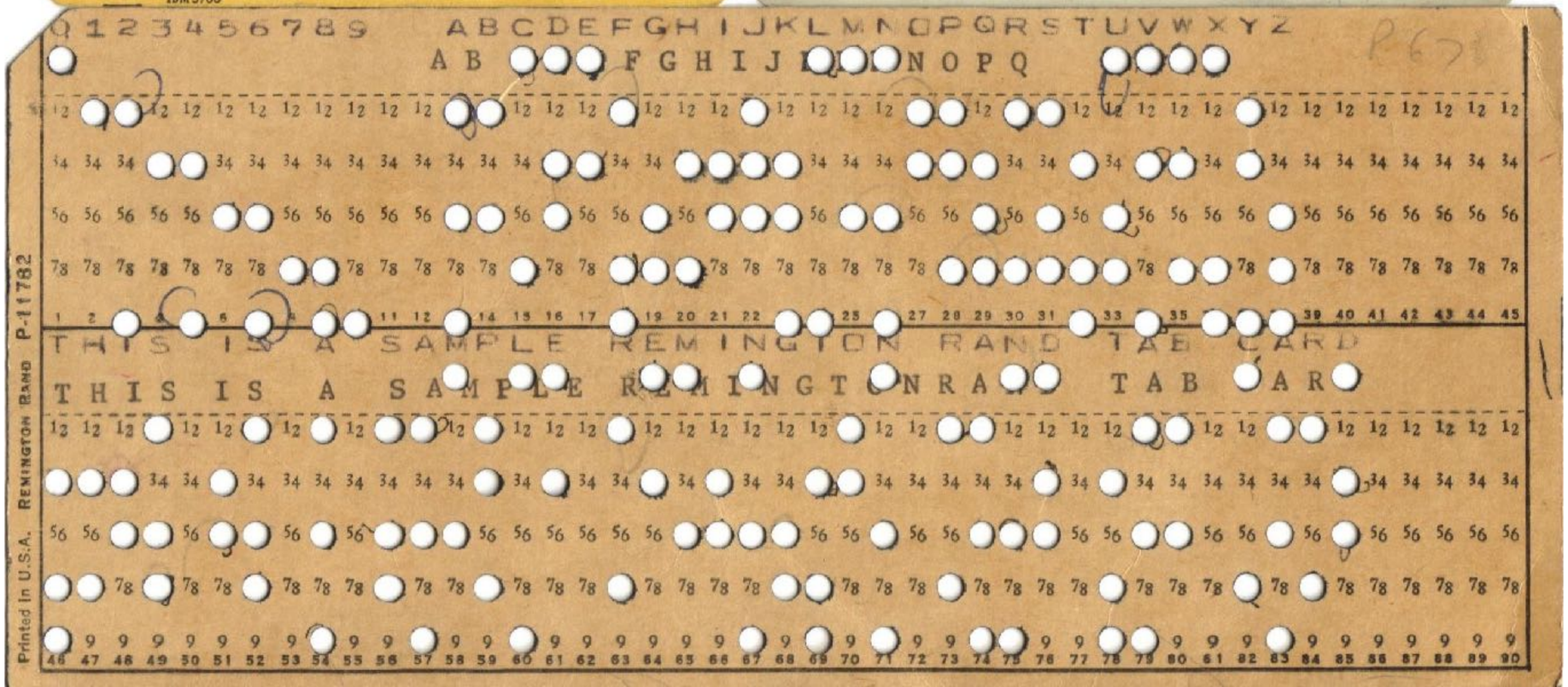
You left these items in your cart. Purchase these items in the next 24 hours to grab your discount.

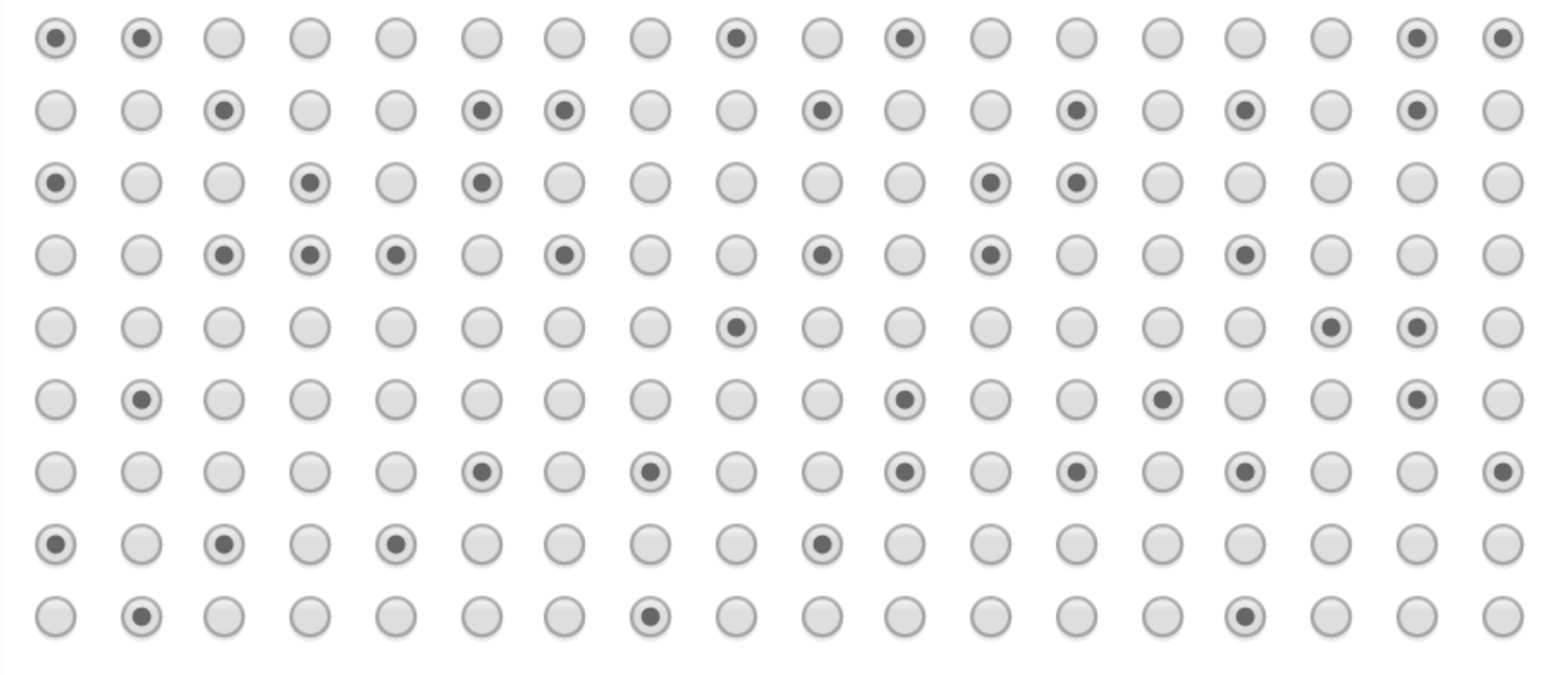
ITEM		QTY	TOTAL
	**Goodale Norwood Corduroy Pant** ~~$350.18~~ $249.00 Color: Tan Size: 32 Edit Remove	1	Sale $249.00
	**Retrofit Aztec Raglan Hoodie** $58.00 Color: Dk Char Hea Size: M Edit Remove	2	$116.00
	**Of All Threads Bull Dogs & Birds** $12.00 Edit Remove	1	$12.00

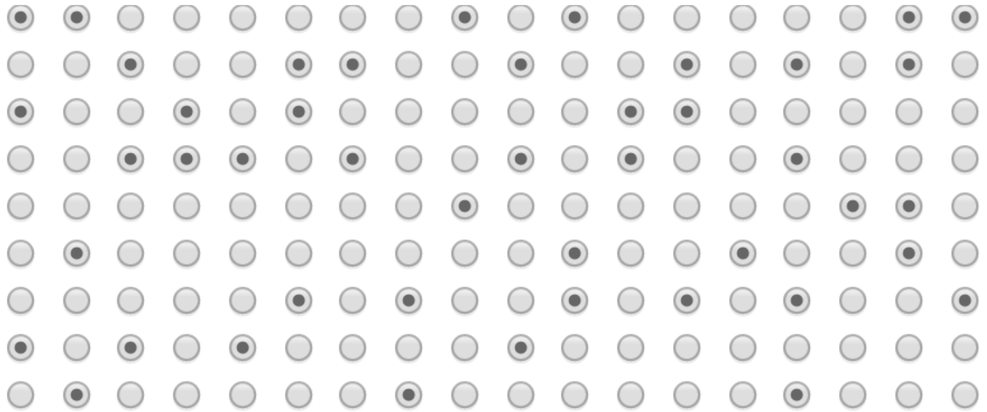
Subtotal:	$377.00
Tax:	$18.85
10% Discount:	$39.59
Total Price:	$395.85


THE IBM SYSTEM/3 **** A COMPUTER
FOR THE SMALLER BUSINESS
DEMA 1969 NEW YORK CITY
IBM 3700


A
B
CALCULATOR PROGRAM CARD
HEWLETT • PACKARD 5000-5884
CARD NO.


THIS IS A SAMPLE REMINGTON RAND TAB CARD
THIS IS A SAMPLE REMINGTON RAND TAB CARD
Printed in U.S.A. REMINGTON RAND P-11782





- HTML:

```
<input type="radio" id="itemA-1" />
<input type="radio" id="itemA-2" />
<input type="radio" id="itemA-3" />
...
<label for="itemA-1" />Carousel</label>
<label for="itemD-11" />Div</label>
...
```

- CSS:

```
#itemA-3:checked ~
#itemB-6:checked ~
#itemC-2:checked ~
#itemD-11:checked ~
#itemE-5:not:checked ~
#itemF-2:checked ~
#itemG-5:checked ~ * .div1 {
    display: block;
}
```

Jackthreads

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You left these items in your cart. Purchase these items in the next 24 hours to grab your discount.

ITEM		QTY	TOTAL
	**Goodale Norwood Corduroy Pant** ~~$350.18~~ $249.00 Color: Tan Size: 32 Edit Remove	1	Sale $249.00
	**Retrofit Aztec Raglan Hoodie** $58.00 Color: Dk Char Hea Size: M Edit Remove	2	$116.00
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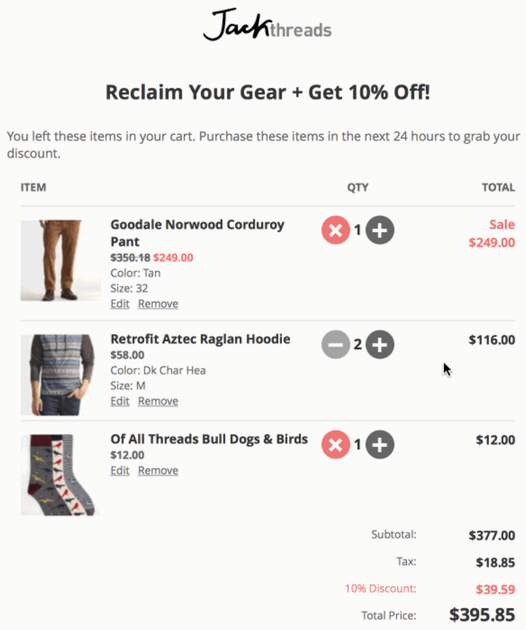


- Shopping Cart Email Checkout
  - — 117 `radio buttons`,
  - — 4 `checkboxes`,
  - — Multi-page layout,
  - — Adding/removing products,
  - — Edit quantity, color, size,
  - — See live calculation,
  - — Select payment and delivery,
  - — Form validation — all in the email,
  - — Fallback: just a regular ol' email.

- CSS:

```
body {
    counter-reset: amount;
}
#itemA-3:checked ~
#itemE-5:not:checked {
    counter-increment: amount;
}
.price {
    content: '$' + counter(amount);
}
```

In email clients, we just need support for *:checked* values and siblings selectors. *But:* In email, file size is limited to *102 Kb*. In Gmail, CSS is limited to 12,000 characters.

Support and fallbacks

Static

20%



Limited

19%



Interactive

61%



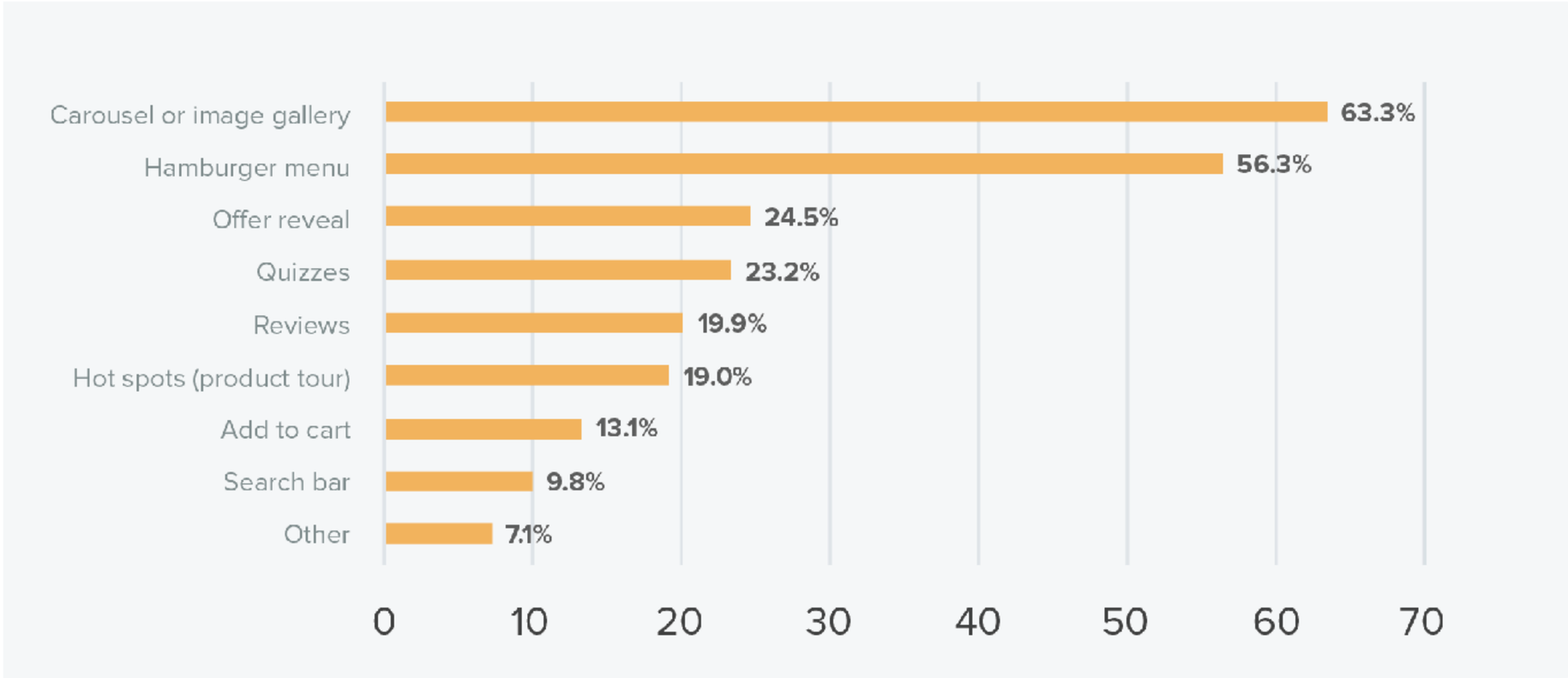
litmus

Interactive Email Elements Used

Which interactive elements has your company used in its marketing emails? (Select all that apply.)

324 respondents

B2B brands were much more likely to use hamburger menus, hot spots, and search bars, while B2C brands were much more likely to use carousels and quizzes.



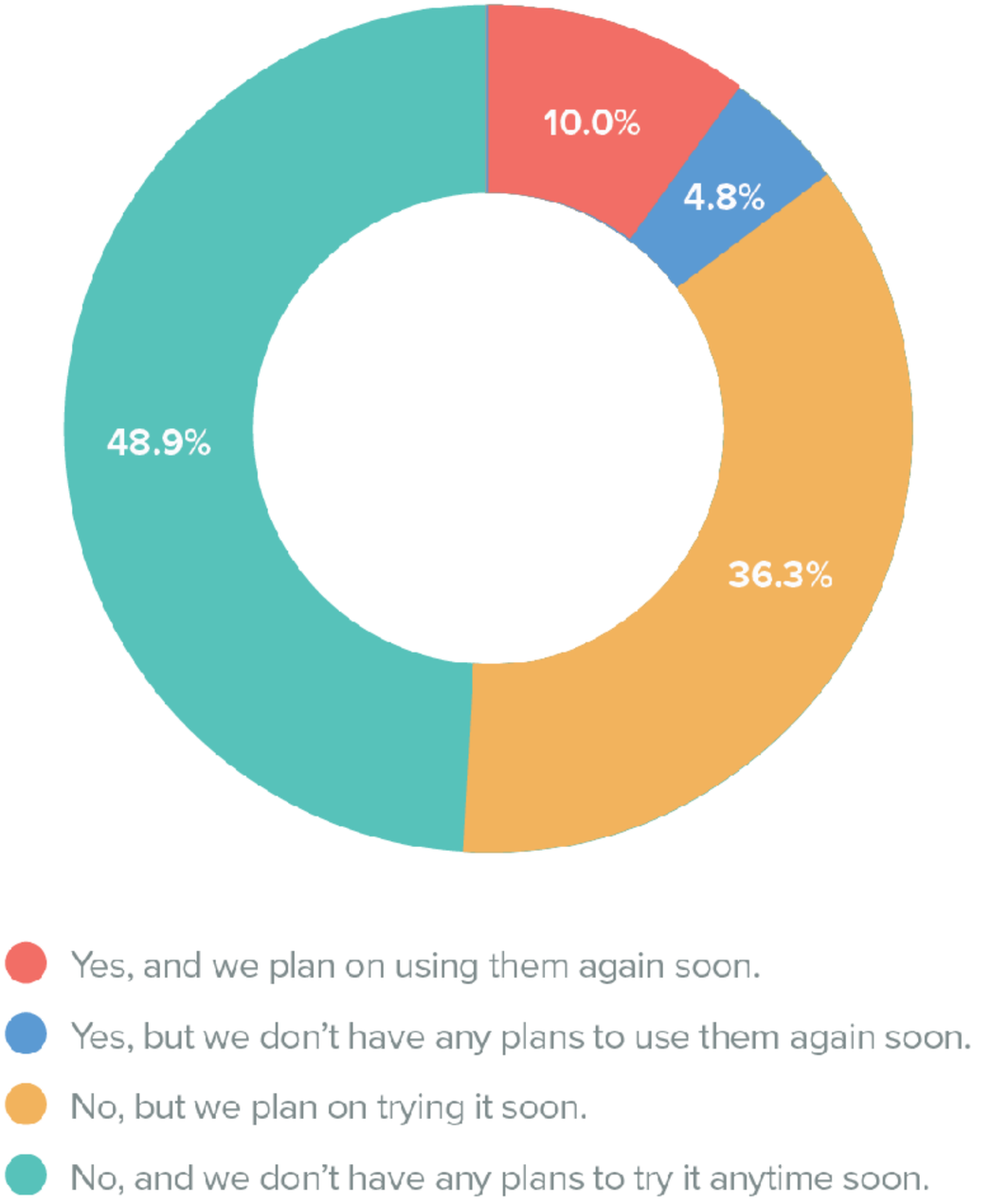
litmus

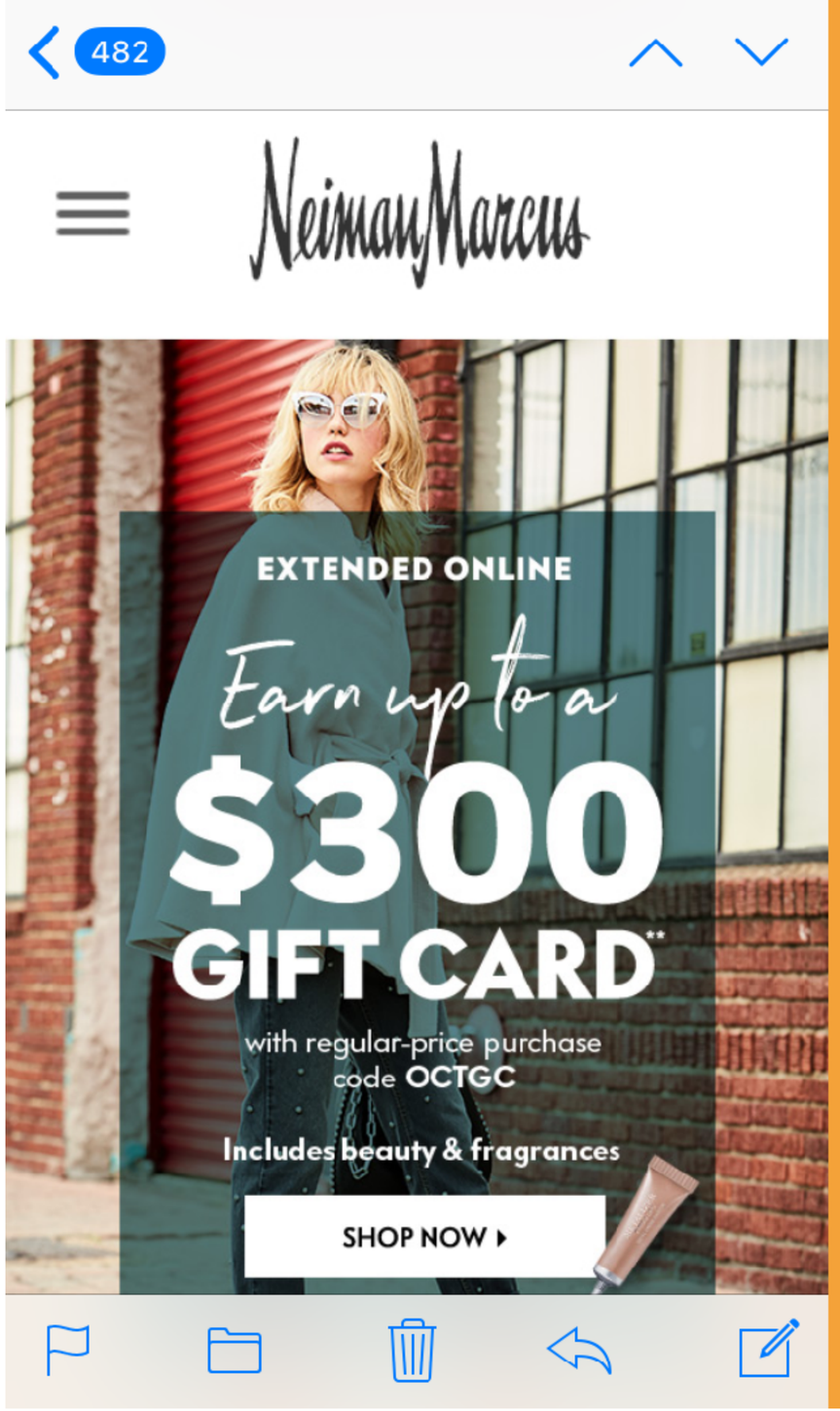
Interactive Email Usage

Has your company ever used interactive elements in its marketing emails (e.g., using hamburger menus, email carousels, etc.)?

2,273 respondents

B2C brands are 98% more likely than B2B brands to have used interactive email elements (16% vs. 8%).




482
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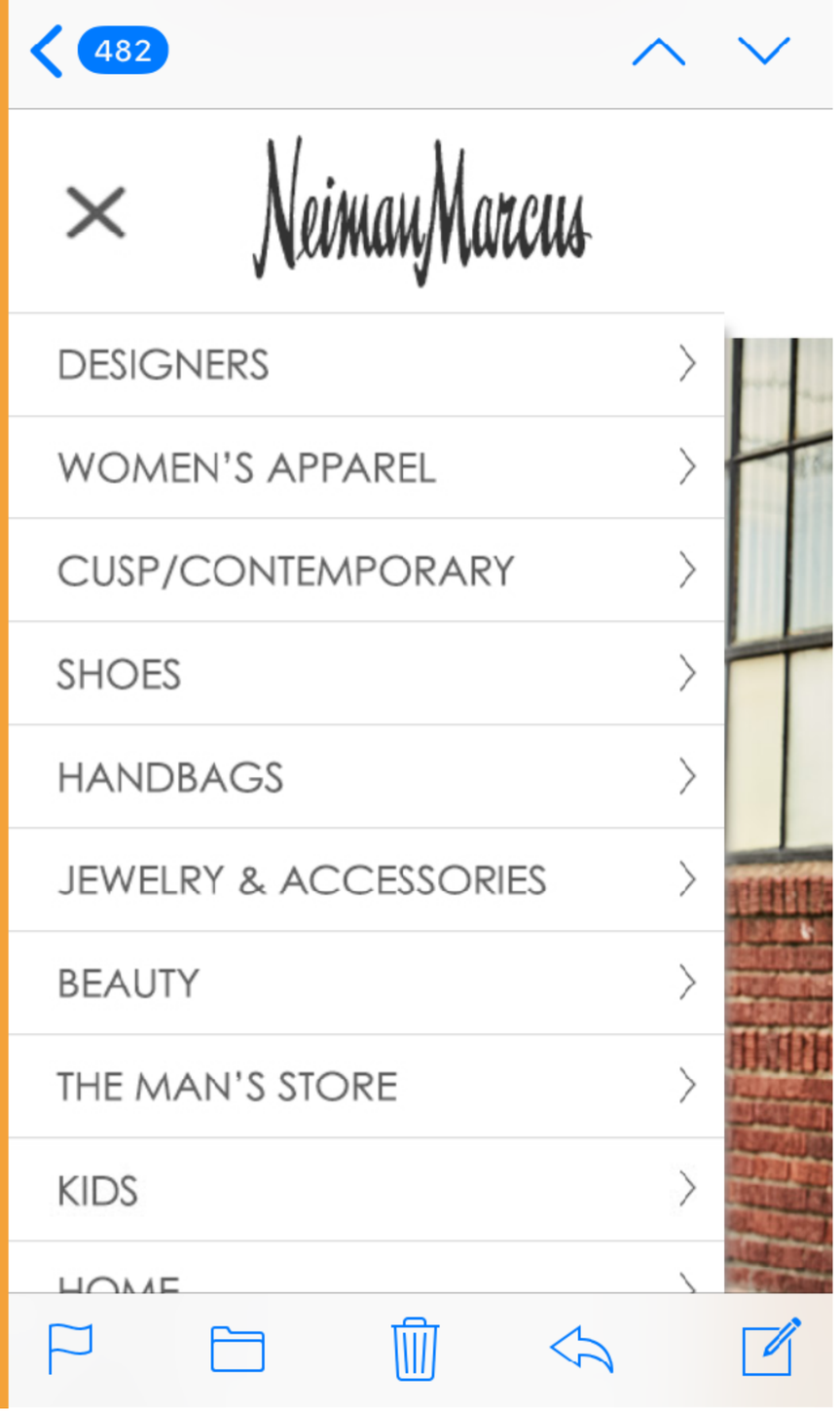
EXTENDED ONLINE
Earn up to a
$300
GIFT CARD**
with regular-price purchase
code OCTGC
Includes beauty & fragrances
SHOP NOW


482
NeimanMarcus
DESIGNERS
WOMEN'S APPAREL
CUSP/CONTEMPORARY
SHOES
HANDBAGS
JEWELRY & ACCESSORIES
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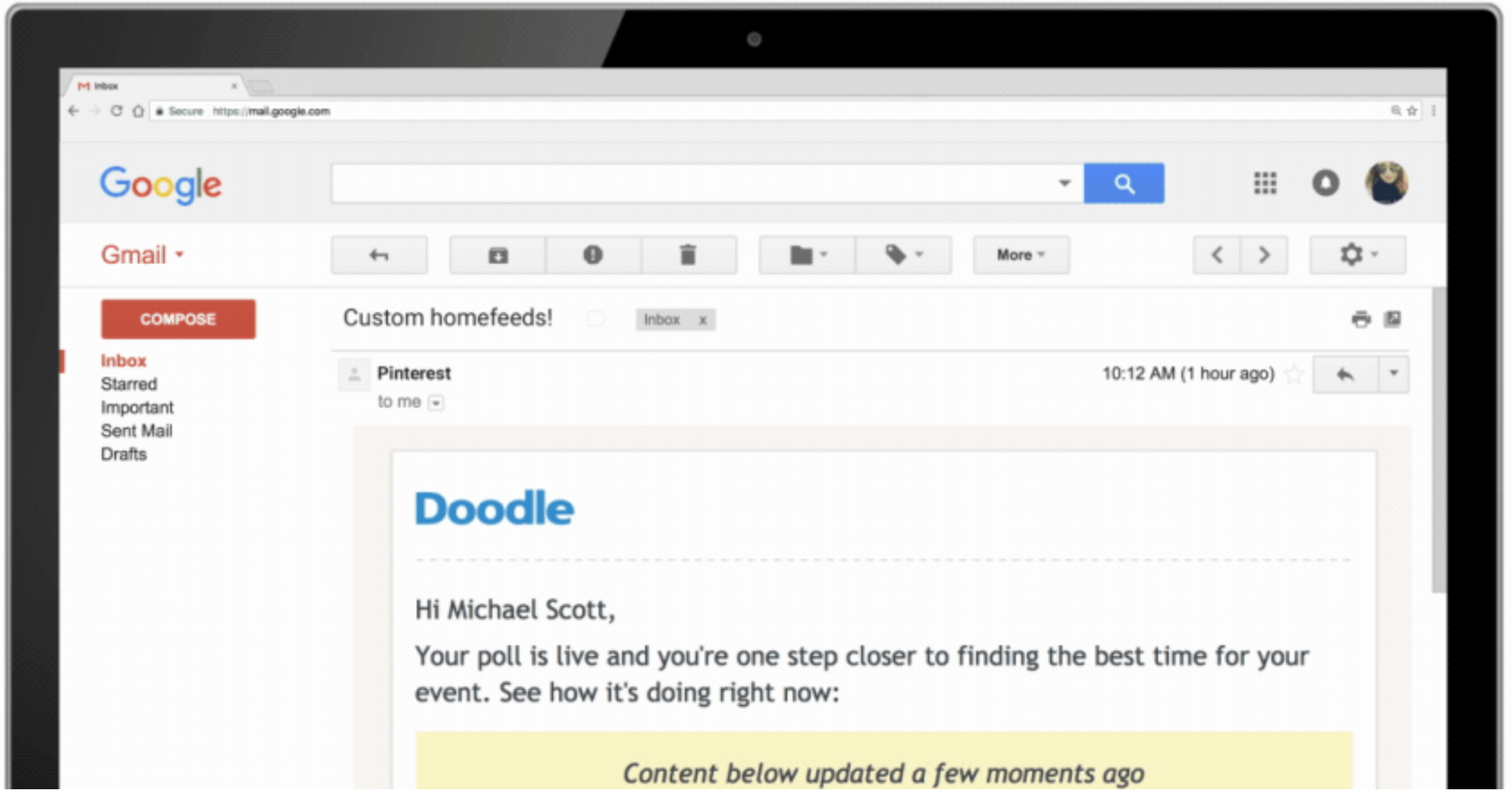
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Secure https://mail.google.com
Google
Gmail
More
COMPOSE
Inbox
Starred
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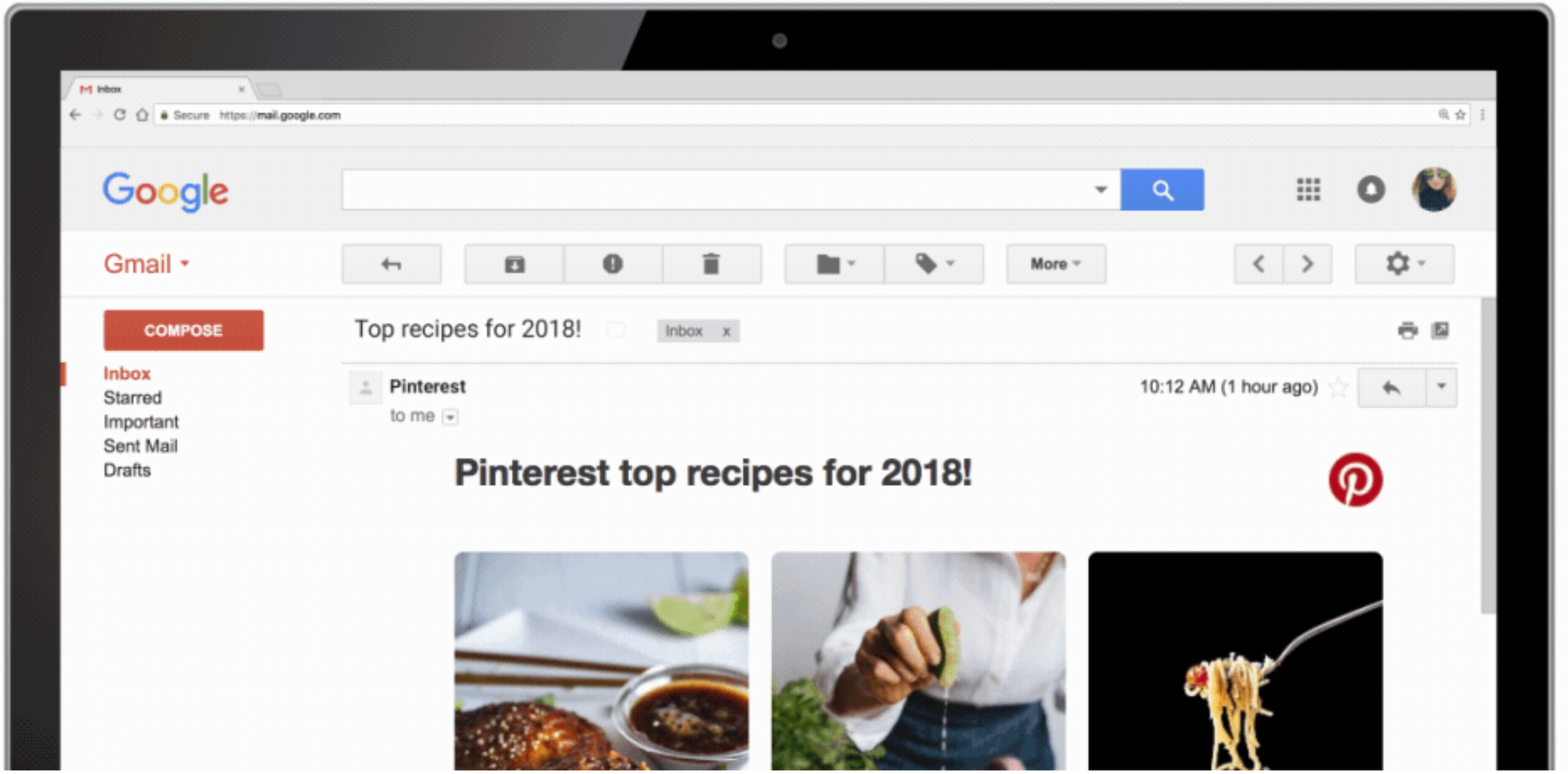
Drafts
Custom homefeeds!
Inbox x
Pinterest
to me
10:12 AM (1 hour ago)
Doodle
Hi Michael Scott,
Your poll is live and you're one step closer to finding the best time for your event. See how it's doing right now:
Content below updated a few moments ago


Inbox
Secure https://mail.google.com
Google
Gmail
More
COMPOSE
Inbox
Starred
Important
Sent Mail
Drafts
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Inbox x
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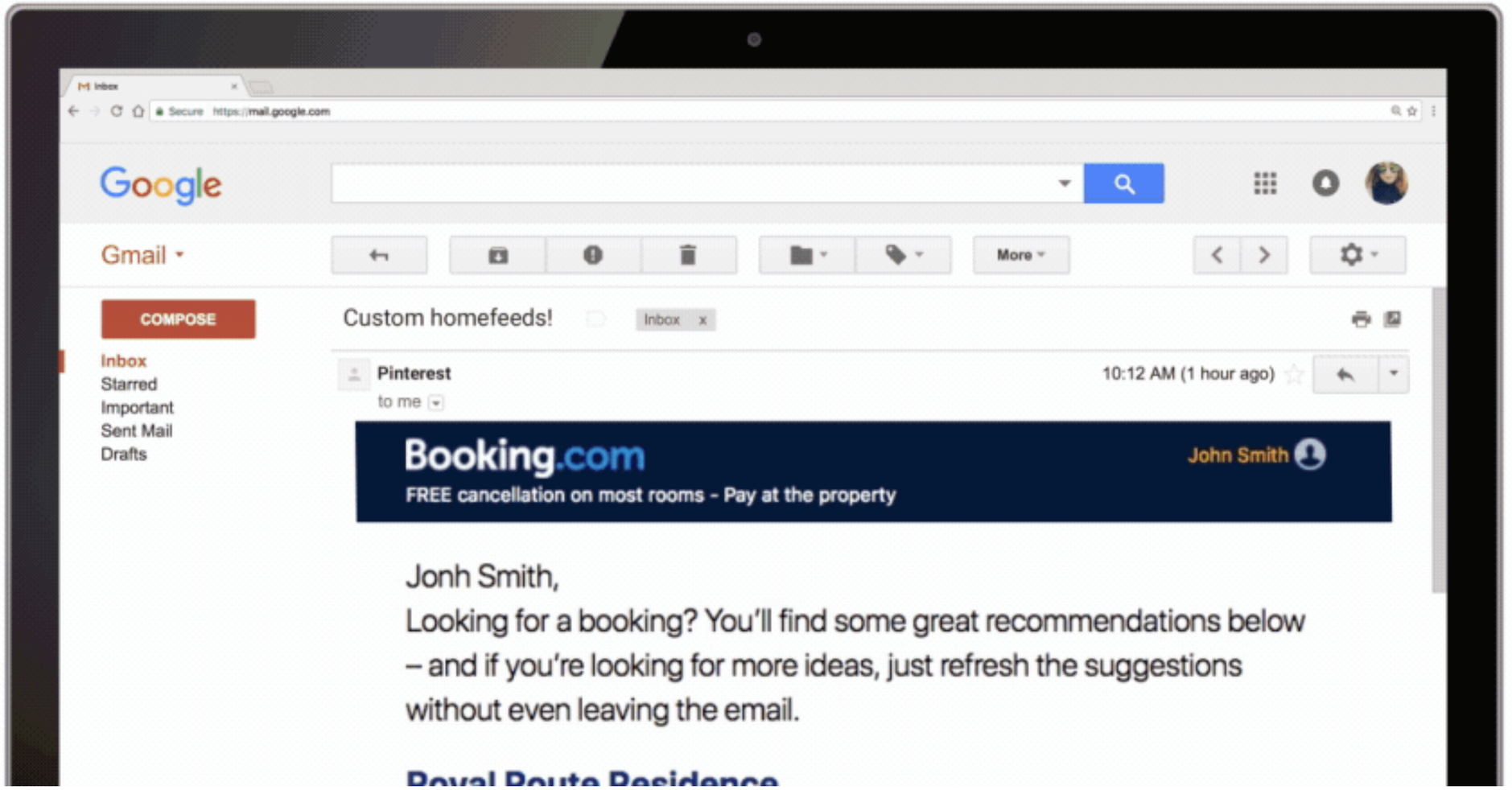
Pinterest top recipes for 2018!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Secure https://mail.google.com
Google
Gmail
More
COMPOSE
Inbox
Starred
Important
Sent Mail
Drafts
Custom homefeeds!
Inbox x
Pinterest
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10:12 AM (1 hour ago)
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John Smith
FREE cancellation on most rooms - Pay at the property
Jonh Smith,
Looking for a booking? You'll find some great recommendations below – and if you're looking for more ideas, just refresh the suggestions without even leaving the email.

CodePen - CSS Day slides - M

Vitaly

https://codepen.io/M_J_Robbins/full/MeeMew

CSS Day slides – Mark Robbins

A PEN BY Mark Robbins

Fork | Change View | Log In | Sign Up

CSS and interactive email

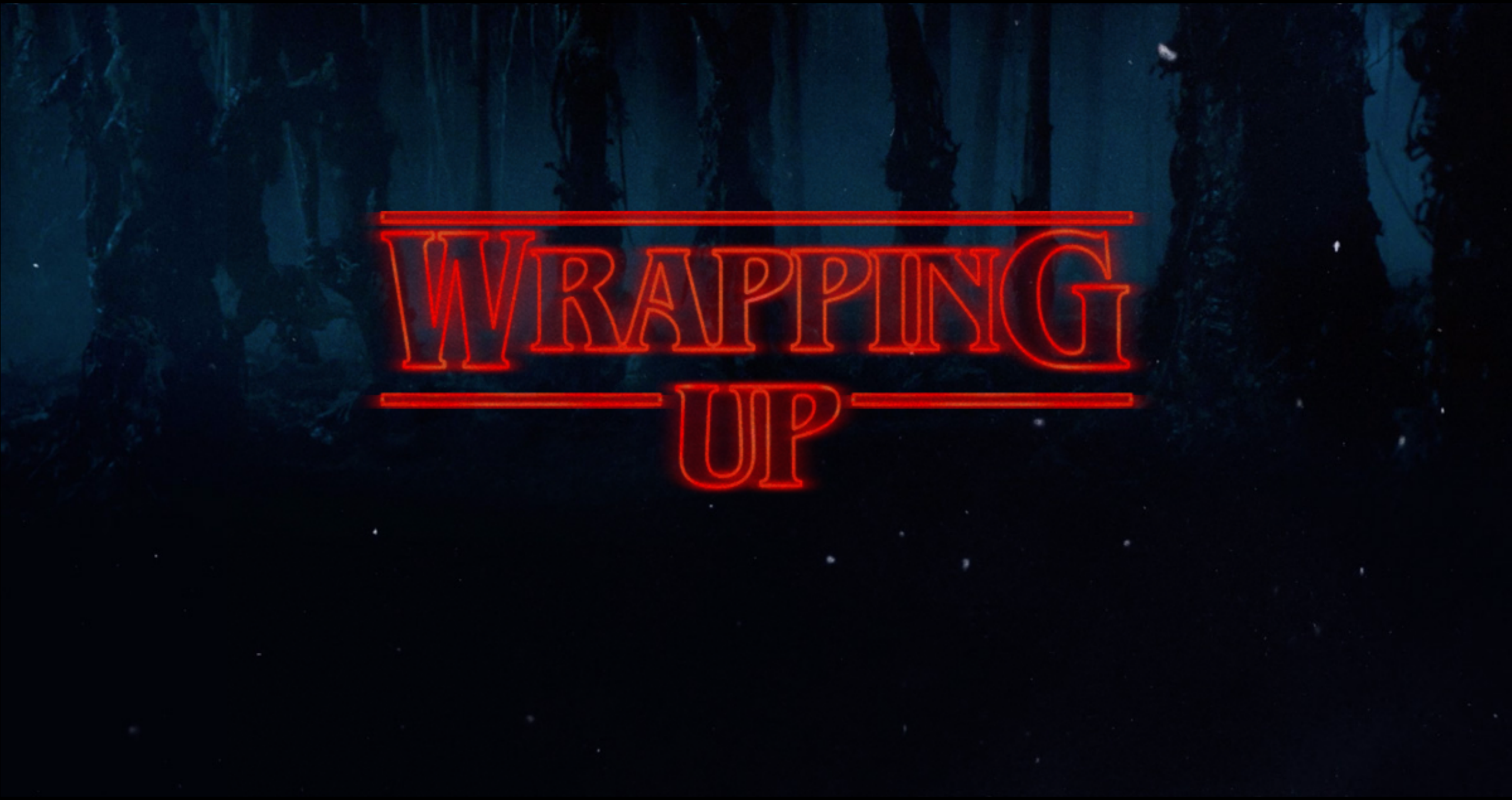


Mark Robbins

rebelmail

@M_J_Robbins @GoRebelmail #CSSday

00:00


WRAPPING
UP





smashingcat (23).png

Added by Ricardo G. on Aug 16 · 29 KB

12 comments Label...



smashingcat (22).png

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12 comments Label...



smashingcat (21).png

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12 comments Label...



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12 comments Label...



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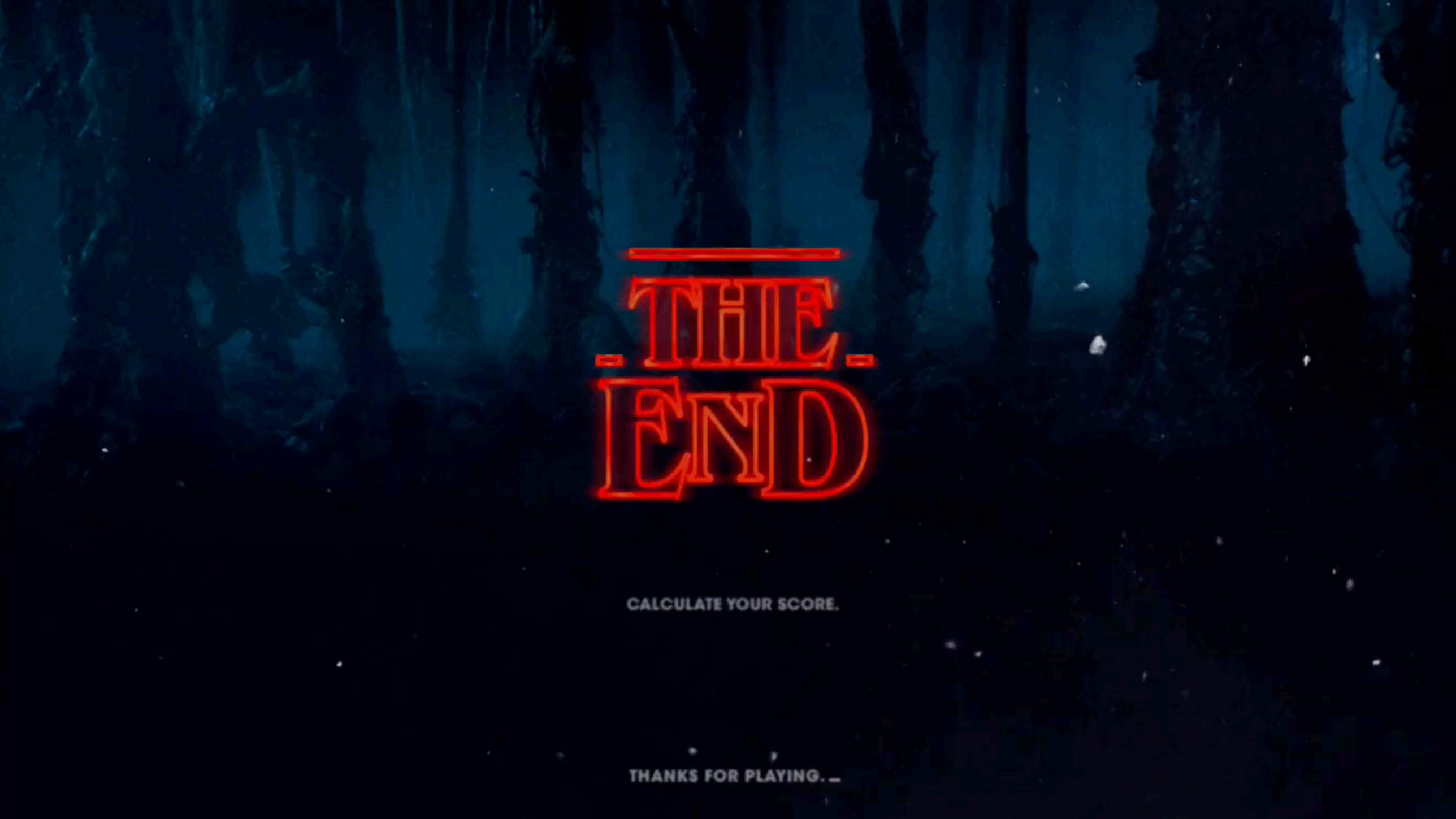
8 comments Label...

n/2122415/projects/10232583/attachments/298577355/smashingcat %2811%29.png


THE END
CALCULATE YOUR SCORE.
THANKS FOR PLAYING.


BONUS
LEVEL
SCORE EXTRA POINTS!



What's the deal with **emoji?** Can we style them with CSS, or change them with JavaScript? Or even better, can they be an *alternative* to SVG and icon fonts?





Clockwise Rightwards and Leftwards Open Circle Arrows With Circled One Overlay
(also known as U+1F502, 🔂 or \u1f502).



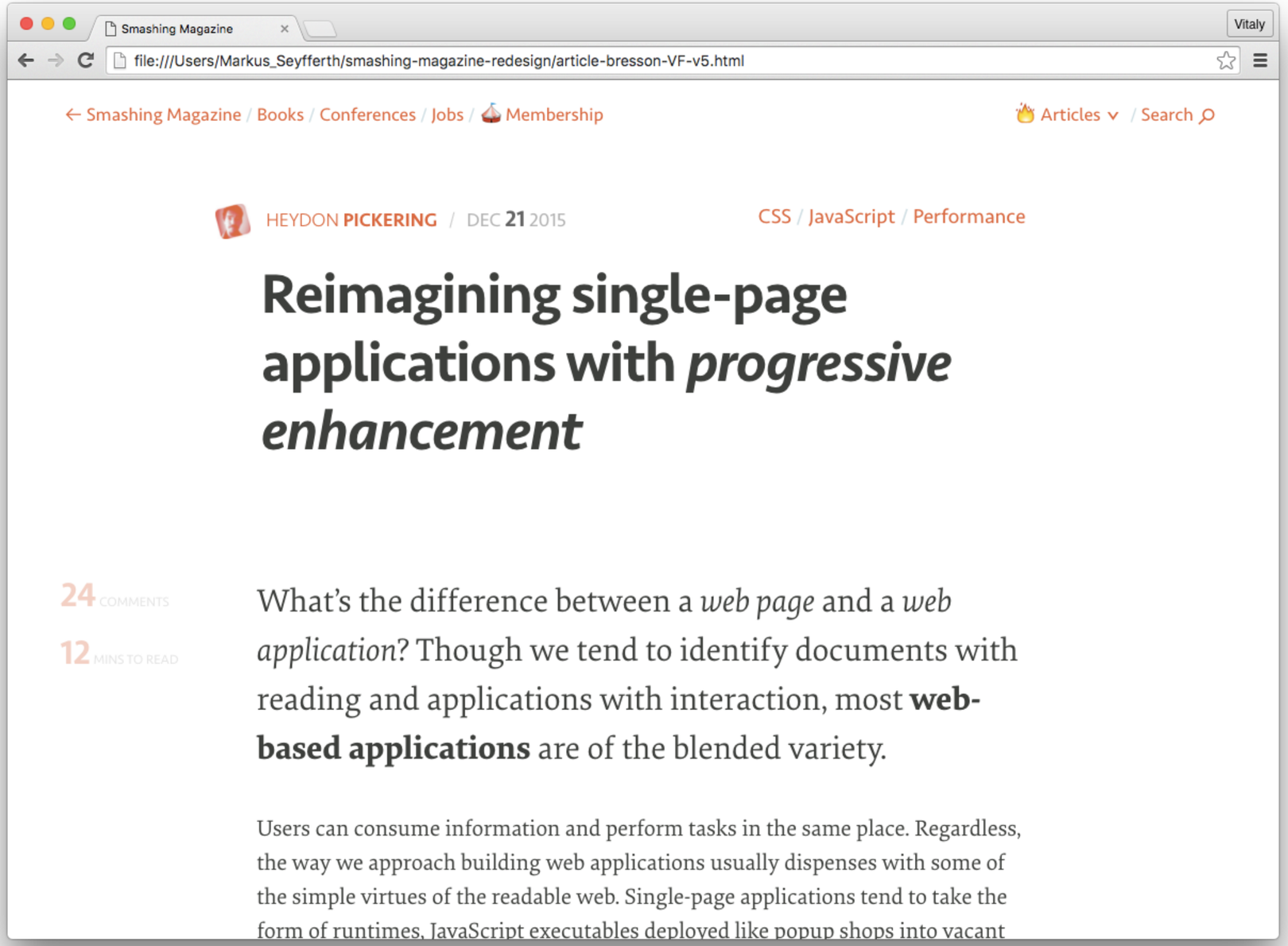
Person Raising Both Hands in Celebration (also known as *Festivus Miracle Emoji*, U+1F64C, &#1f64c; or \u1f64c).







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file:///Users/Markus_Seyfferth/smashing-magazine-redesign/article-bresson-VF-v5.html
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HEYDON PICKERING / DEC 21 2015
CSS / JavaScript / Performance
Reimagining single-page applications with progressive enhancement
24 COMMENTS
12 MINS TO READ
What's the difference between a web page and a web application? Though we tend to identify documents with reading and applications with interaction, most web-based applications are of the blended variety.
Users can consume information and perform tasks in the same place. Regardless, the way we approach building web applications usually dispenses with some of the simple virtues of the readable web. Single-page applications tend to take the form of runtimes, JavaScript executables deployed like popup shops into vacant

Smashing Magazine

Vitaly

file:///Users/Markus_Seyfferth/smashing-magazine-redesign/index-VF.html

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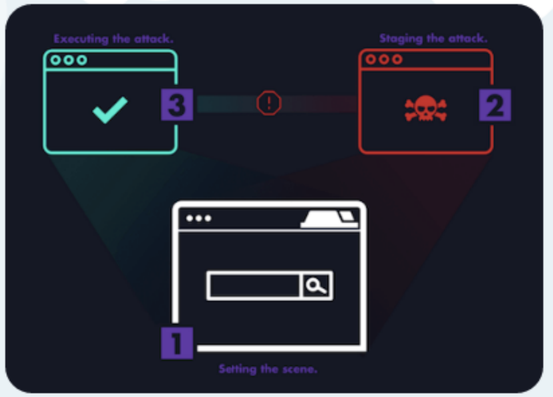
ESPEN **BRUNBORG** / Just published

Is the internet killing creativity?

The internet is a wonderful place (mostly). An unprecedented revolution in communication, it continues to empower more people to publish and share their knowledge than any other phenomenon in history. It is a limitless playground of ideas and unbridled creativity. Or *is it*?



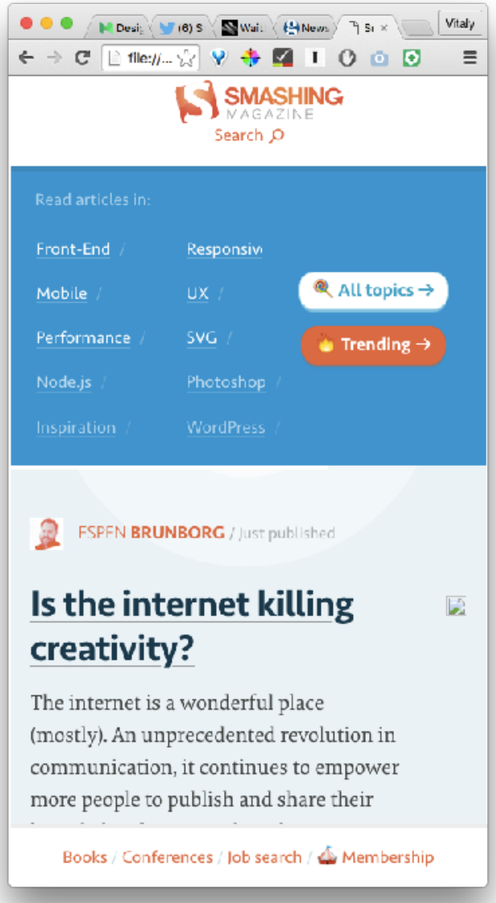
Posted in **Coding** CSS / Design / HTML

COSIMA **MIELKE** / Yesterday

Free Photoshop tools for web designers

CHRIS **ASHTON** / 3 days ago

High-impact, minimal-effort, cross-browser testing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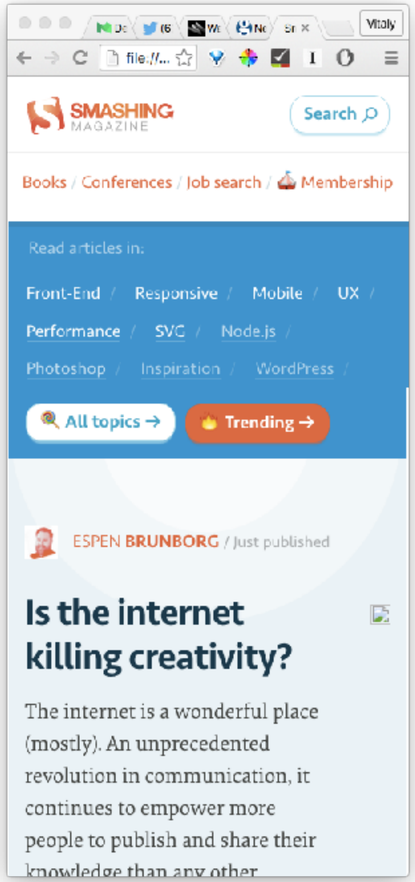
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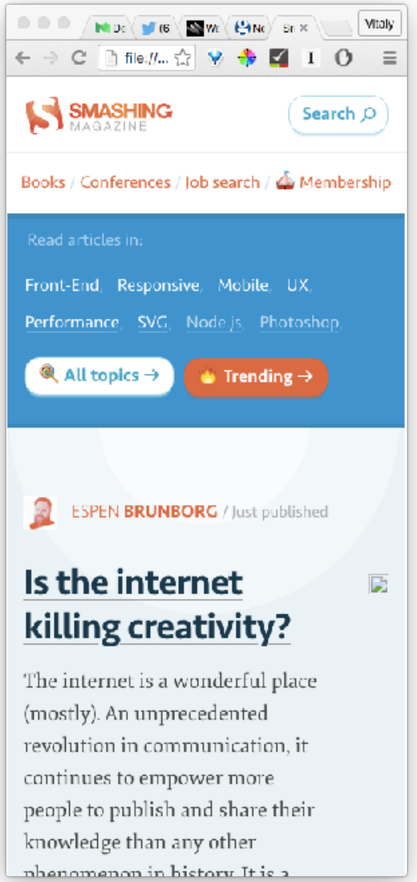
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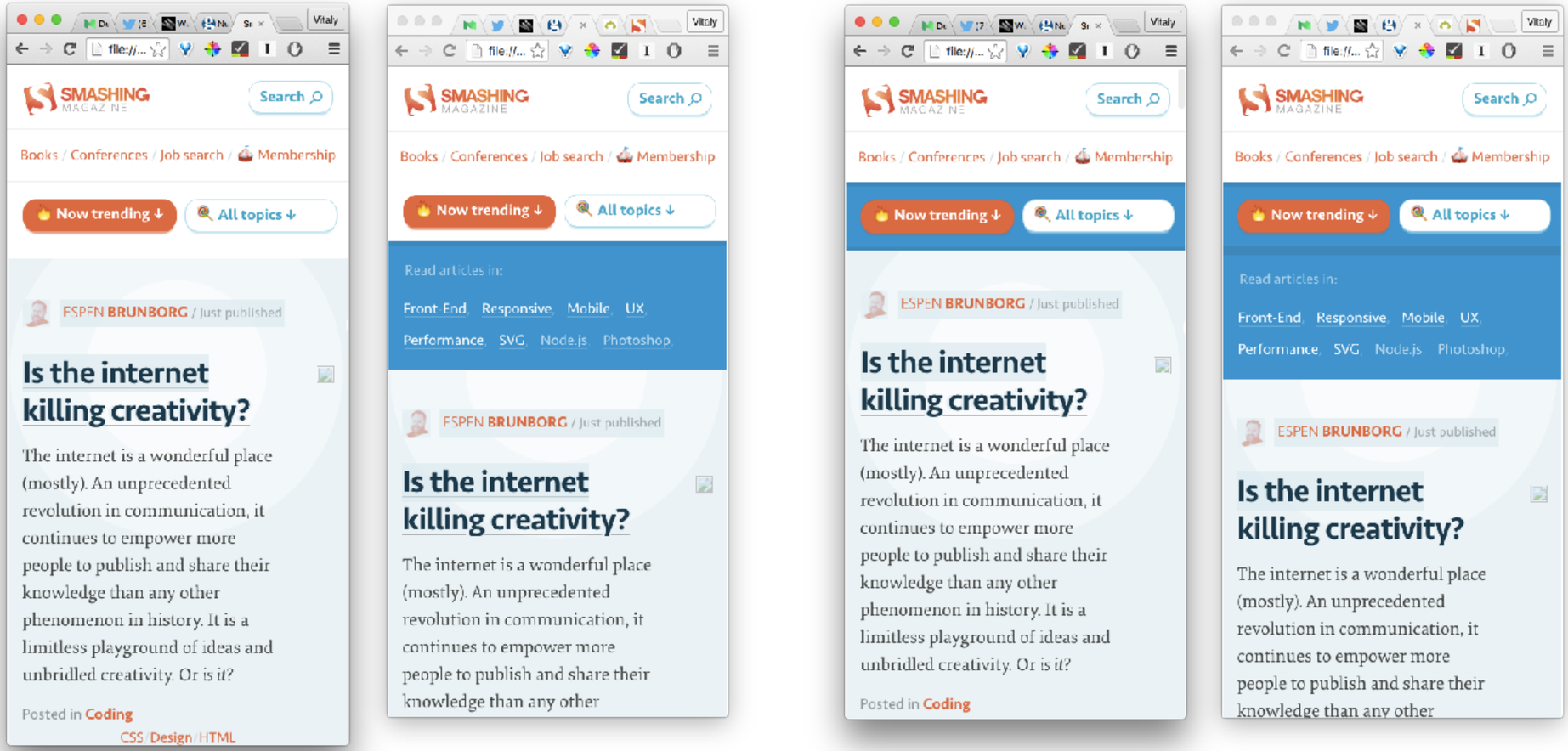
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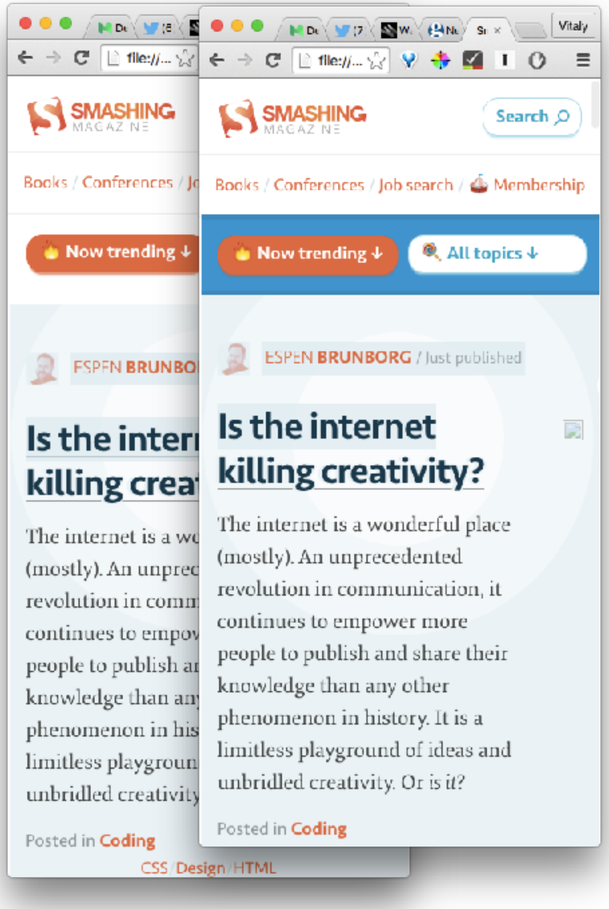
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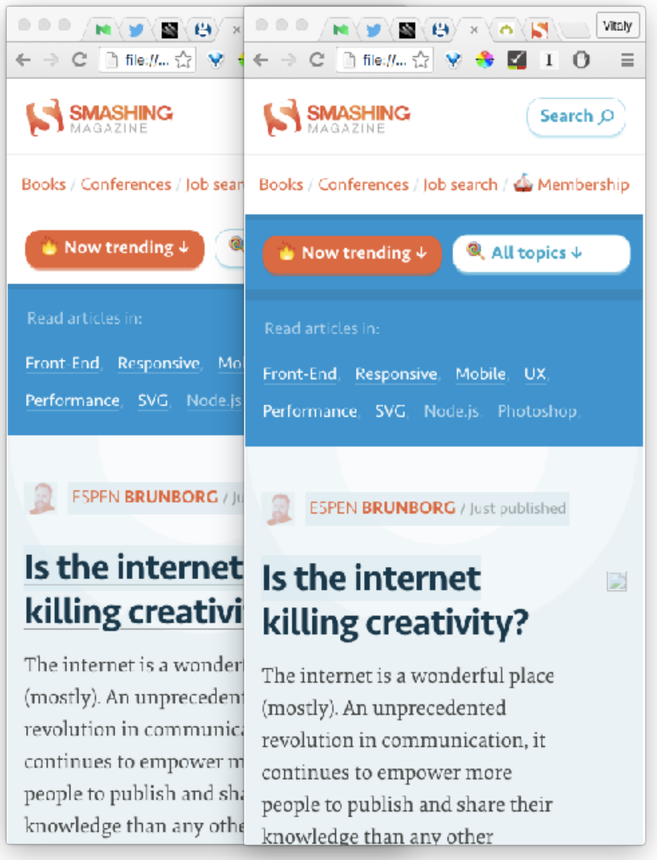
CSS Design HTML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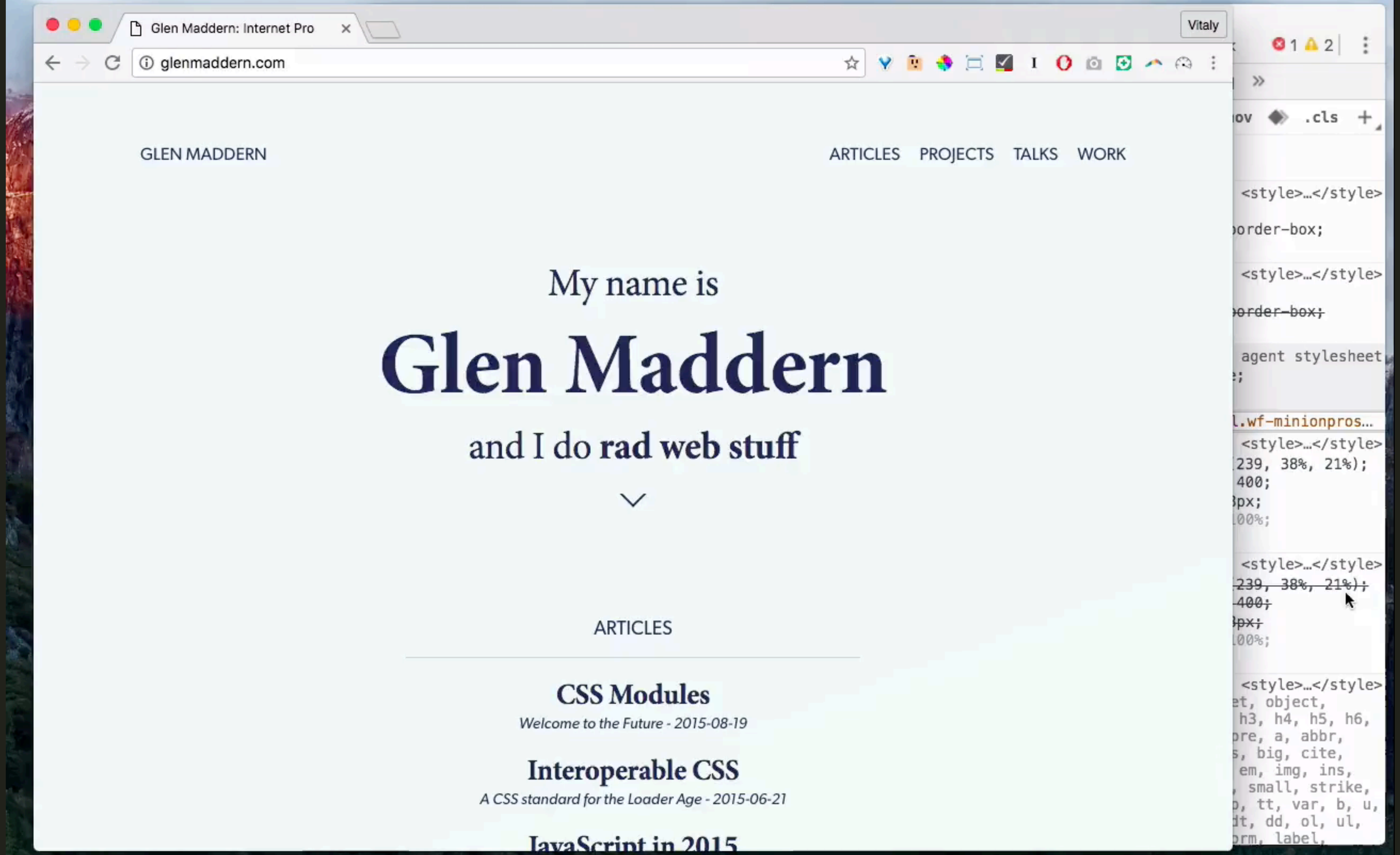
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ARTICLES PROJECTS TALKS WORK
My name is
Glen Maddern
and I do rad web stuff
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CSS Modules
Welcome to the Future - 2015-08-19
Interoperable CSS
A CSS standard for the Loader Age - 2015-06-21
JavaScript in 2015
.cls
<style>…</style>
agent stylesheet
.wf-minionpros…
239, 38%, 21%);
400;
3px;
100%;
et, object,
h3, h4, h5, h6,
pre, a, abbr,
s, big, cite,
em, img, ins,
small, strike,
tt, var, b, u,
dt, dd, ol, ul,
orm, label,

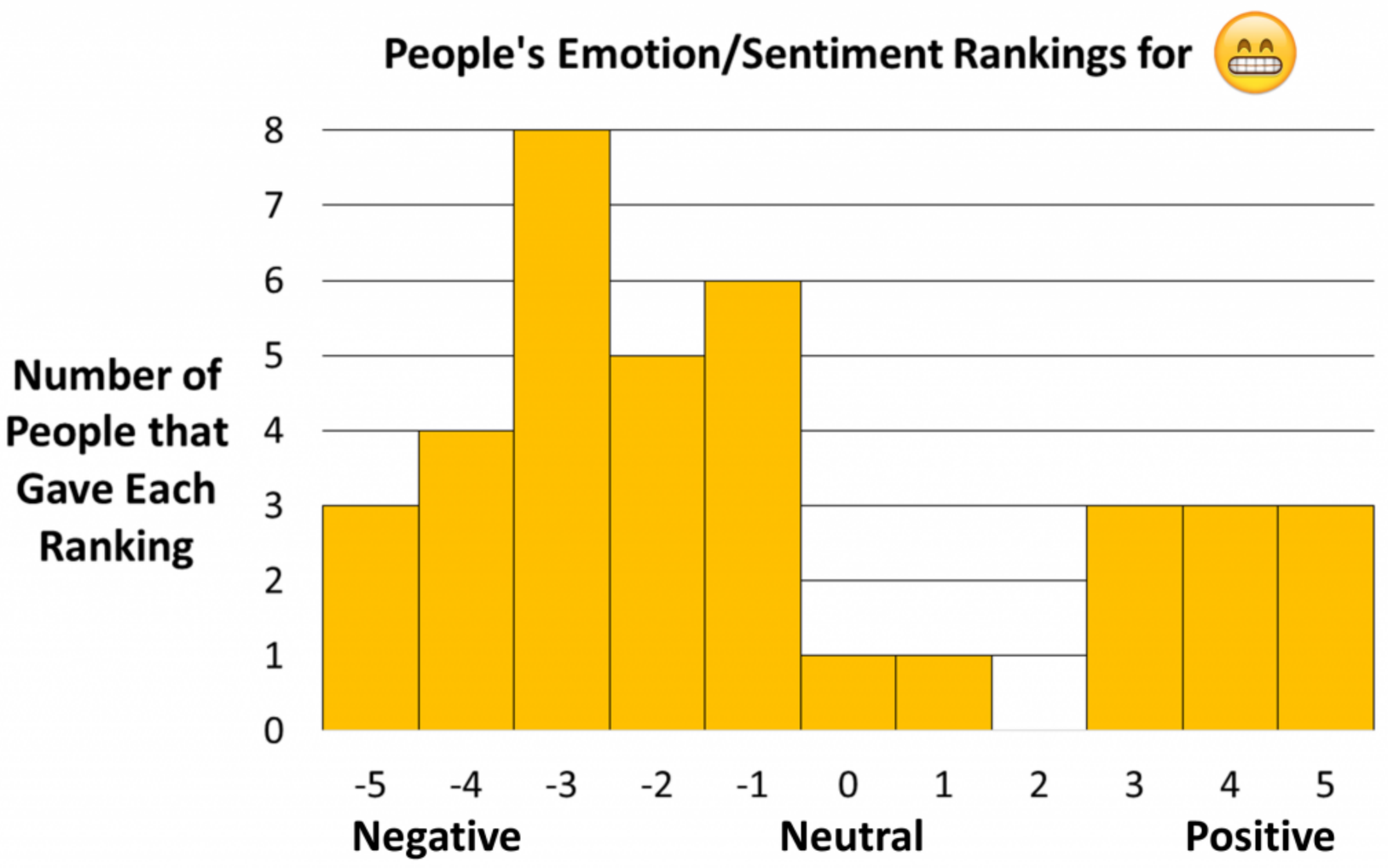
Emoji are coloured glyphs added into Unicode 6.0 in 2010. They are depicted in the spec, but the exact appearance *isn't defined* and varies between fonts, just like normal typefaces display letters differently.

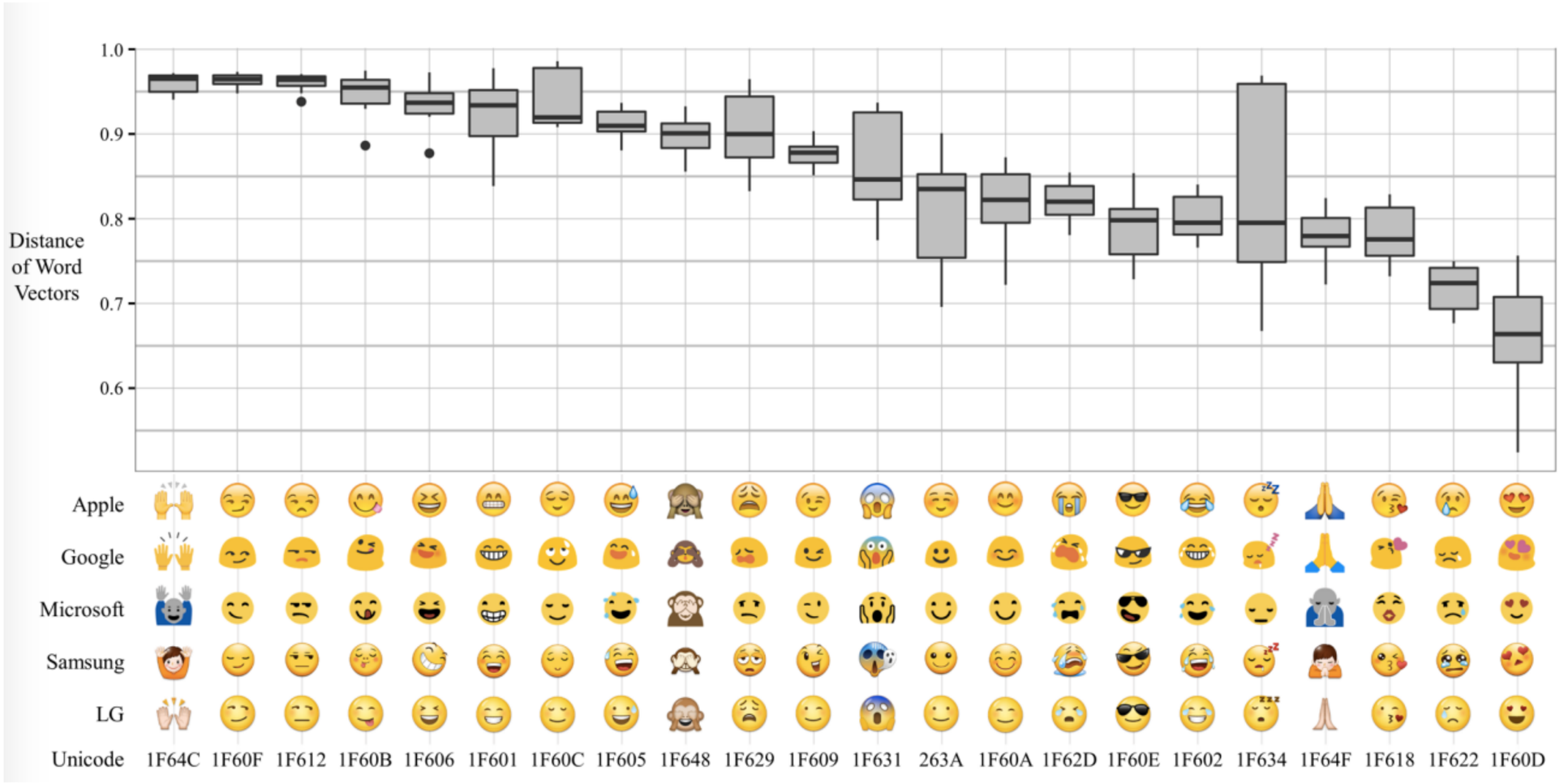
These are all the same emoji!

This is what the "grinning face with smiling eyes" emoji looks like on devices for each of these platforms:



Apple Google Microsoft Samsung LG HTC Twitter Facebook Mozilla Emoji One


People's Emotion/Sentiment Rankings for
Number of People that Gave Each Ranking
8
7
6
5
4
3
2
1
0
-5
-4
-3
-2
-1
0
1
2
3
4
5
Negative
Neutral
Positive


Distance of Word Vectors
1.0
0.9
0.8
0.7
0.6
Apple
Google
Microsoft
Samsung
LG
Unicode
1F64C 1F60F 1F612 1F60B 1F606 1F601 1F60C 1F605 1F648 1F629 1F609 1F631 263A 1F60A 1F62D 1F60E 1F602 1F634 1F64F 1F618 1F622 1F60D

“Blissfully happy” or “ready to fight”: Varying Interpretations of Emoji

Hannah Miller, Jacob Thebault-Spieker, Shuo Chang, Isaac Johnson,
Loren Terveen, Brent Hecht

GroupLens Research, University of Minnesota

Minneapolis, MN 55455, USA

{hmiller, thebault, schang, ijohnson, terveen, bhecht}@cs.umn.edu

Abstract

Emoji are commonly used in modern text communication. However, as graphics with nuanced details, emoji may be open to interpretation. Emoji also render differently on different viewing platforms (e.g., Apple’s iPhone vs. Google’s Nexus phone), potentially leading to communication errors. We explore whether emoji renderings or differences across platforms give rise to diverse interpretations of emoji. Through an online survey, we solicit people’s interpretations of a sample of the most popular emoji characters, each rendered for multiple platforms. Both in terms of sentiment and semantics, we analyze the variance in interpretation of the emoji, quantifying which emoji are most (and least) likely to be misinterpreted. In cases in which participants rated

Most commonly-used emoji are encoded in the Unicode standard for indexing characters[3]. There are currently 1,282 emoji in the Unicode standard, and for each of these, the Unicode Consortium provides a code and name (e.g., U+1F600 for “grinning face”) but not the actual graphic. This is the same as is the case for Unicode text characters: for example, the Unicode character U+0041 indexes the Latin capital letter ‘A’, but it does not indicate specifically how the ‘A’ should look. Instead, a font renders the Unicode characters a particular way: the appearance of this text that you are reading is dictated by the Times New Roman font.

Because *emoji* are Unicode code points, we can create a font with the emoji that we need in our interface and *override* platform-specific designs to avoid inconsistencies.

Native [1]	Apple [2]	Android [3]	Android [3]	Symbola [4]	Twitter [5]	Phantom [6]	Unicode	Bytes (UTF-8)	Description
							U+1F601	\xF0\x9F\x98\x81	grinning face with smiling eyes
							U+1F602	\xF0\x9F\x98\x82	face with tears of joy
							U+1F603	\xF0\x9F\x98\x83	smiling face with open mouth
							U+1F604	\xF0\x9F\x98\x84	smiling face with open mouth and smiling eyes
							U+1F605	\xF0\x9F\x98\x85	smiling face with open mouth and cold sweat
							U+1F606	\xF0\x9F\x98\x86	smiling face with open mouth and tightly-closed eyes
							U+1F609	\xF0\x9F\x98\x89	winking face

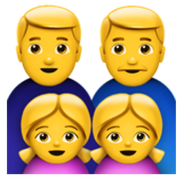
Internally strings are represented in *UTF-16,* so each code point can be represented by one or more 16-bit *code units*. Some emoji use only 1 code unit, others 2 and more.

Not all *emoji* are created equal. They can be modified with emoji *modifiers*, so some are *surrogates* which is why sometimes icons are rendered incorrectly.

```
"👍🏿".length  // returns 4
"🇮🇸".length  // returns 4
"👨‍👨‍👧‍👧".length  // returns 11
```









C
A



- HTML:

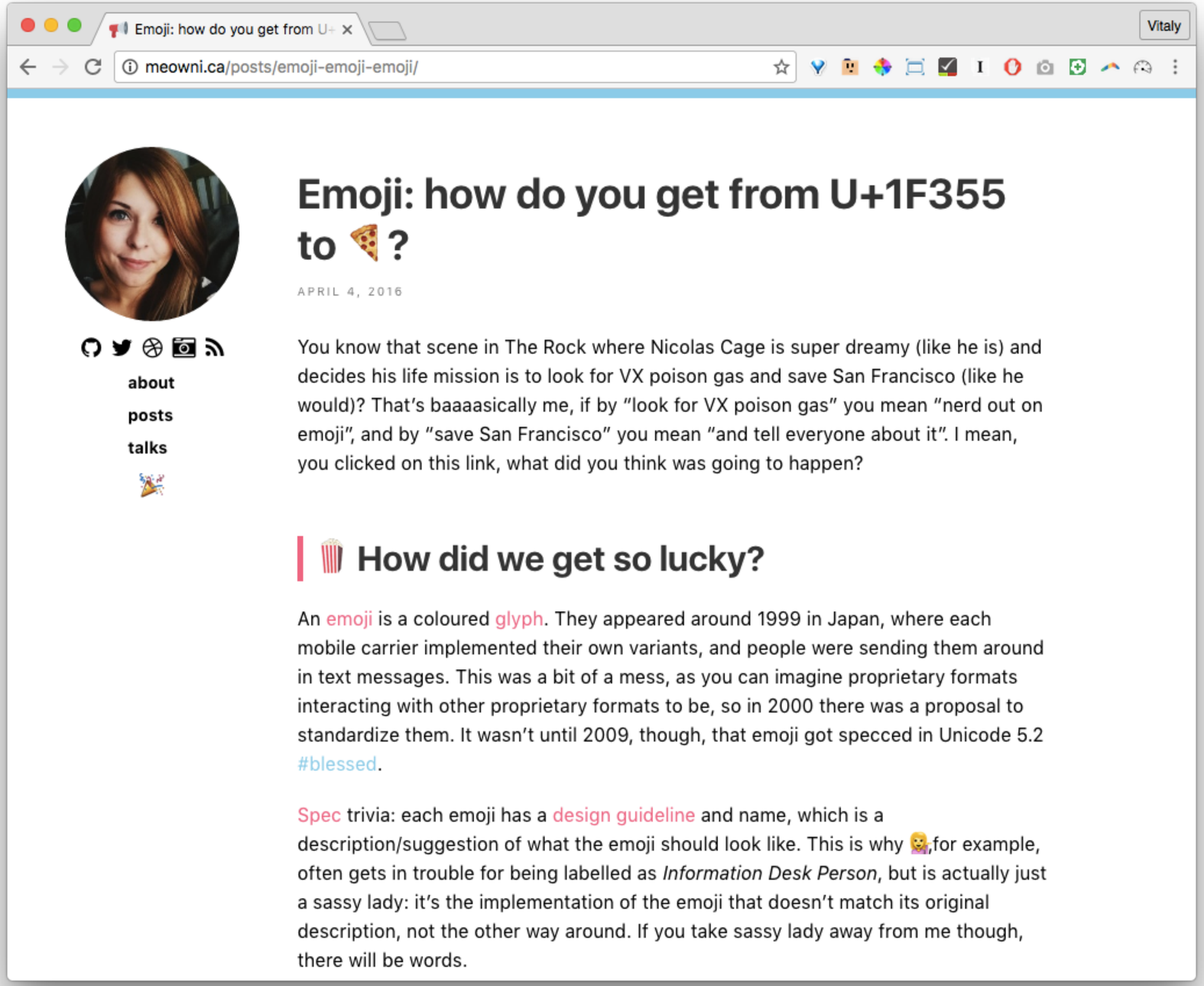
```
<p style="font-family: 'Comic Sans', sans-serif;">🇸🇪</p>
```

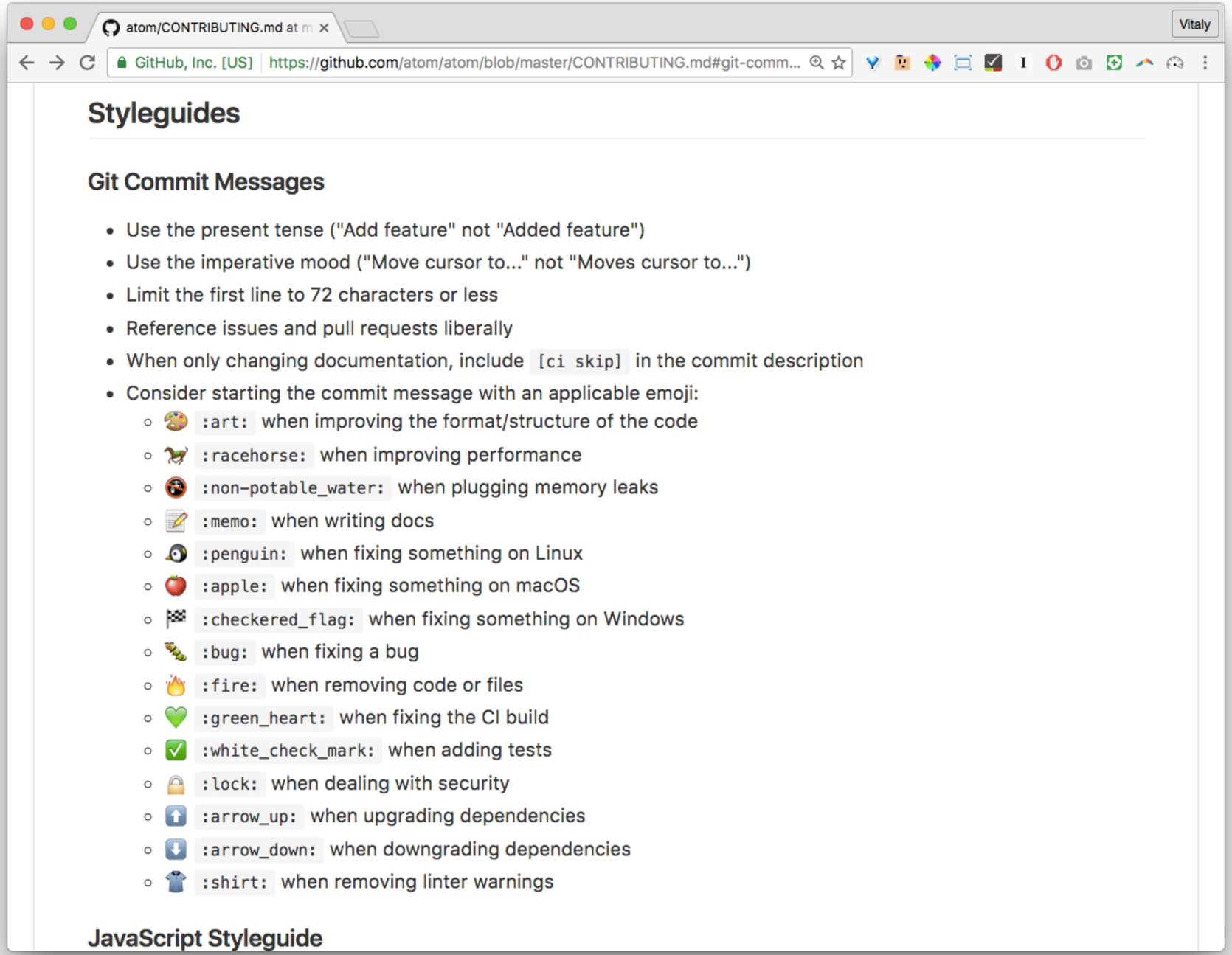
- HTML:

```
<p style="font-family: 'Comic Sans', sans-serif;">🇸🇪</p>
```

- The browser will:

  — Look up the glyph in the *Comic Sans* font,
  — If it can't find the glyph, it will fall back to the *fallback* font,
  — In this case, fallback is *sans-serif* (Helvetica/Arial),
  — The fallback doesn't have the glyph either,
  — Browser will try to figure out the glyph type,
  — Eventually it will look up in a locally installed Emoji font (e.g. *AppleColorEmoji*),
  — The browser will render the icon.


Emoji: how do you get from U+
Vitaly
meowni.ca/posts/emoji-emoji-emoji/
about
posts
talks
Emoji: how do you get from U+1F355 to 🍕?
APRIL 4, 2016
You know that scene in The Rock where Nicolas Cage is super dreamy (like he is) and decides his life mission is to look for VX poison gas and save San Francisco (like he would)? That's baaaasically me, if by "look for VX poison gas" you mean "nerd out on emoji", and by "save San Francisco" you mean "and tell everyone about it". I mean, you clicked on this link, what did you think was going to happen?
🍿 How did we get so lucky?
An emoji is a coloured glyph. They appeared around 1999 in Japan, where each mobile carrier implemented their own variants, and people were sending them around in text messages. This was a bit of a mess, as you can imagine proprietary formats interacting with other proprietary formats to be, so in 2000 there was a proposal to standardize them. It wasn't until 2009, though, that emoji got specced in Unicode 5.2 #blessed.
Spec trivia: each emoji has a design guideline and name, which is a description/suggestion of what the emoji should look like. This is why 💁,for example, often gets in trouble for being labelled as Information Desk Person, but is actually just a sassy lady: it's the implementation of the emoji that doesn't match its original description, not the other way around. If you take sassy lady away from me though, there will be words.

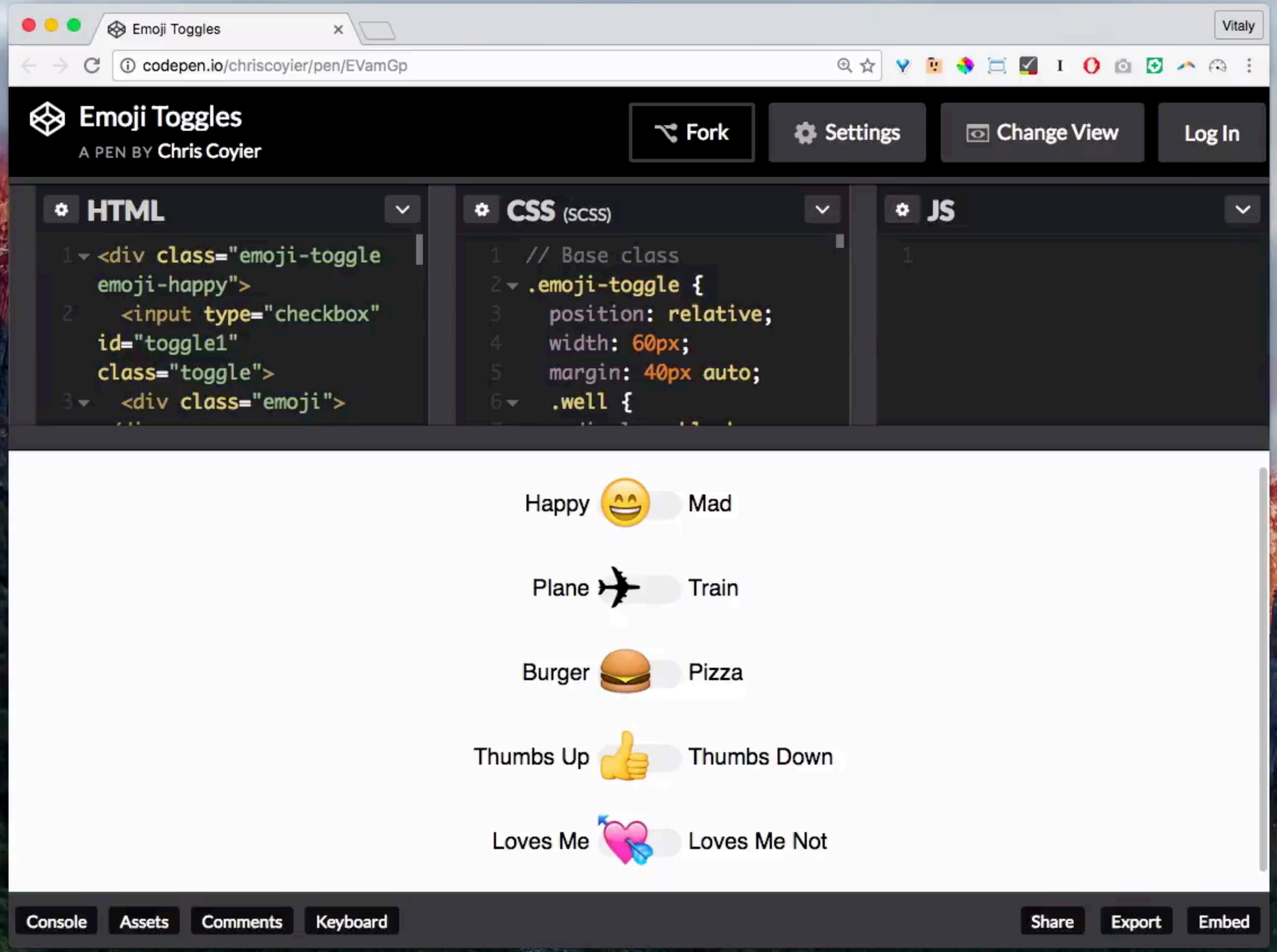


Styleguides

Git Commit Messages

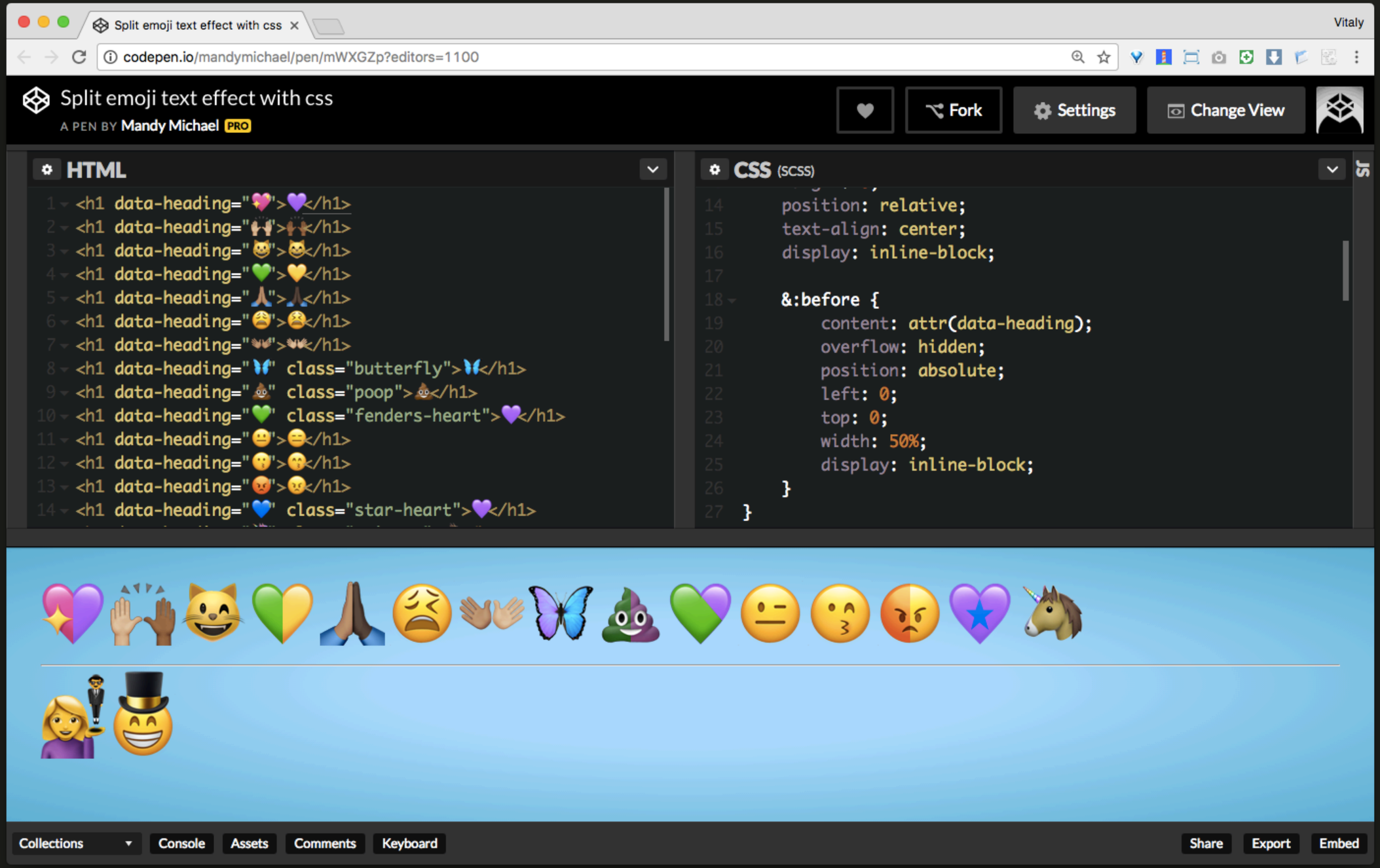
- Use the present tense ("Add feature" not "Added feature")
- Use the imperative mood ("Move cursor to..." not "Moves cursor to...")
- Limit the first line to 72 characters or less
- Reference issues and pull requests liberally
- When only changing documentation, include `[ci skip]` in the commit description
- Consider starting the commit message with an applicable emoji:
  - 🎨 `:art:` when improving the format/structure of the code
  - 🐎 `:racehorse:` when improving performance
  - 🚱 `:non-potable_water:` when plugging memory leaks
  - 📝 `:memo:` when writing docs
  - 🐧 `:penguin:` when fixing something on Linux
  - 🍎 `:apple:` when fixing something on macOS
  - 🏁 `:checkered_flag:` when fixing something on Windows
  - 🐛 `:bug:` when fixing a bug
  - 🔥 `:fire:` when removing code or files
  - 💚 `:green_heart:` when fixing the CI build
  - ✅ `:white_check_mark:` when adding tests
  - 🔒 `:lock:` when dealing with security
  - ⬆️ `:arrow_up:` when upgrading dependencies
  - ⬇️ `:arrow_down:` when downgrading dependencies
  - 👕 `:shirt:` when removing linter warnings

JavaScript Styleguide


Emoji Toggles
Vitaly
codepen.io/chriscoyier/pen/EVamGp
Emoji Toggles
A PEN BY Chris Coyier
Fork
Settings
Change View
Log In
HTML

<input type="checkbox" id="toggle1" class="toggle">

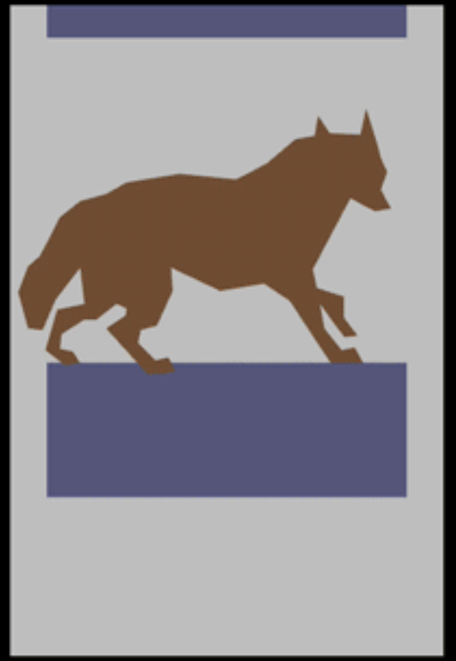
CSS (SCSS)
// Base class
.emoji-toggle {
position: relative;
width: 60px;
margin: 40px auto;
.well {
JS
Happy
Mad
Plane
Train
Burger
Pizza
Thumbs Up
Thumbs Down
Loves Me
Loves Me Not
Console
Assets
Comments
Keyboard
Share
Export
Embed


Split emoji text effect with css
codepen.io/mandymichael/pen/mWXGZp?editors=1100
Vitaly
Split emoji text effect with css
A PEN BY Mandy Michael PRO
Fork
Settings
Change View
HTML
<h1 data-heading="💖">💜</h1>
<h1 data-heading="🙌">🙌</h1>
<h1 data-heading="😻">😻</h1>
<h1 data-heading="💚">💛</h1>
<h1 data-heading="🙏">🙏</h1>
<h1 data-heading="😩">😫</h1>
<h1 data-heading="👐">👐</h1>
<h1 data-heading="🦋" class="butterfly">🦋</h1>
<h1 data-heading="💩" class="poop">💩</h1>
<h1 data-heading="💚" class="fenders-heart">💜</h1>
<h1 data-heading="😐">😑</h1>
<h1 data-heading="😗">😙</h1>
<h1 data-heading="😡">😠</h1>
<h1 data-heading="💙" class="star-heart">💜</h1>
CSS (SCSS)
position: relative;
text-align: center;
display: inline-block;
&:before {
content: attr(data-heading);
overflow: hidden;
position: absolute;
left: 0;
top: 0;
width: 50%;
display: inline-block;
}
}
Collections
Console
Assets
Comments
Keyboard
Share
Export
Embed



You've designed sophisticated **hover-effects** *(e.g. on images)* but what if hover isn't available? Is there a way to *reliably* check for interaction feature support and adjust the experience accordingly?







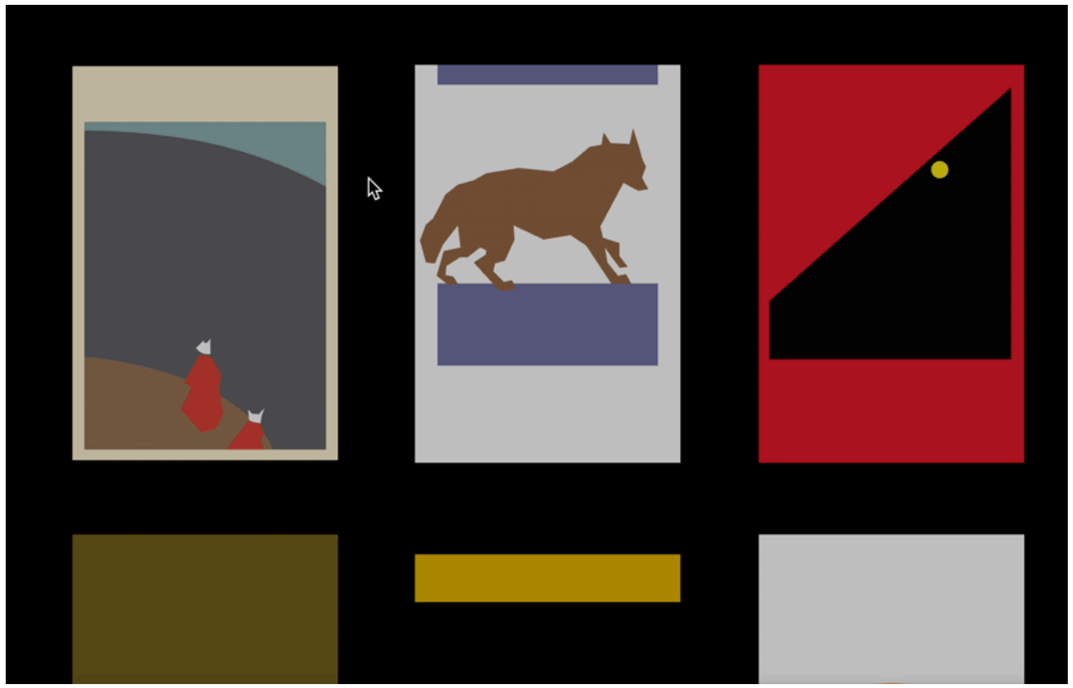






In the past, to handle *hover-based interactions,* we relied on JavaScript workarounds to detect hover or tap. With *CSS Level 4 Media Queries*, we can detect if *hover* is available.

(*Mouse* isn't the only device input that can "hover" (game consoles can "hover", too). Also, a device might have multiple inputs, but the media query looks up the *primary input.)*



— *Create 2 illustrations: low-fi SVG, high-fi SVG.*

— *Wrap a link around embedded low-fi SVG* first,

— *Set the high-fi SVG as background image* on that link,

— *By default →* set `opacity: 0` on *low-fi SVG,*

— *Hover supported →* set `opacity: 1` instead, animate to `0` on hover.



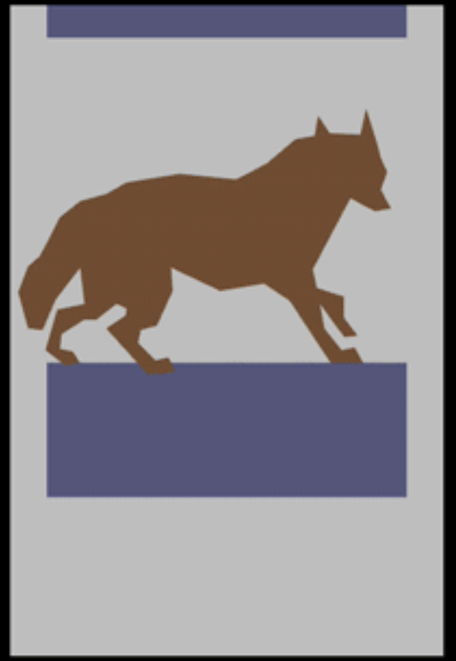
- CSS:

```
.source__image {
    opacity: .75;
    transition: opacity 400ms;
    background: url("high-fidelity.svg");
}

.source__image:hover {
    opacity: 1;
}

.source__image svg {
    opacity: 0;
}
```

- CSS:

```
@media (hover) {
    .source__image svg {
        opacity: 1;
        transition: opacity 400ms;
    }
    .source__image:hover svg {
        opacity: 0;
    }
}
```





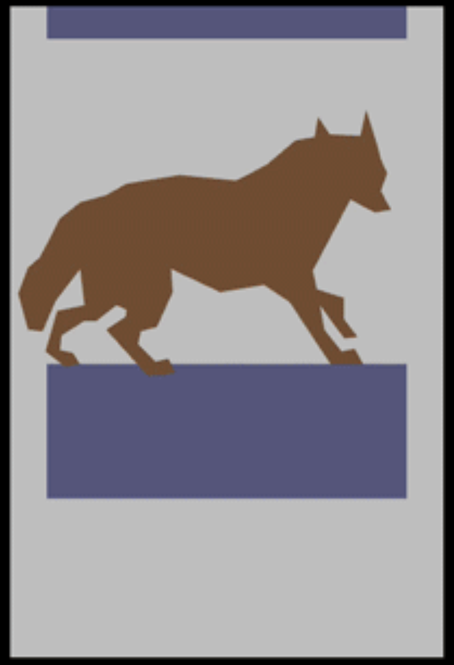




















- CSS:

```
.page-wrap::after {
    display: block;
    content: '';
    position: fixed;
    bottom: 0;
    left: 0;
    width: 100%;
    height: 10em;
    background: linear-gradient(rgba(0,0,0,0), rgba(0,0,0,1));
}
```



Beware: *any* content that falls underneath the shadow we just created will not be *selectable* or otherwise available for interaction.

We don’t want *any* user interaction,
and we don’t want to *block interactivity*
of elements falling beneath the fade
pseudo element. Meet *pointer-events*.

- CSS:

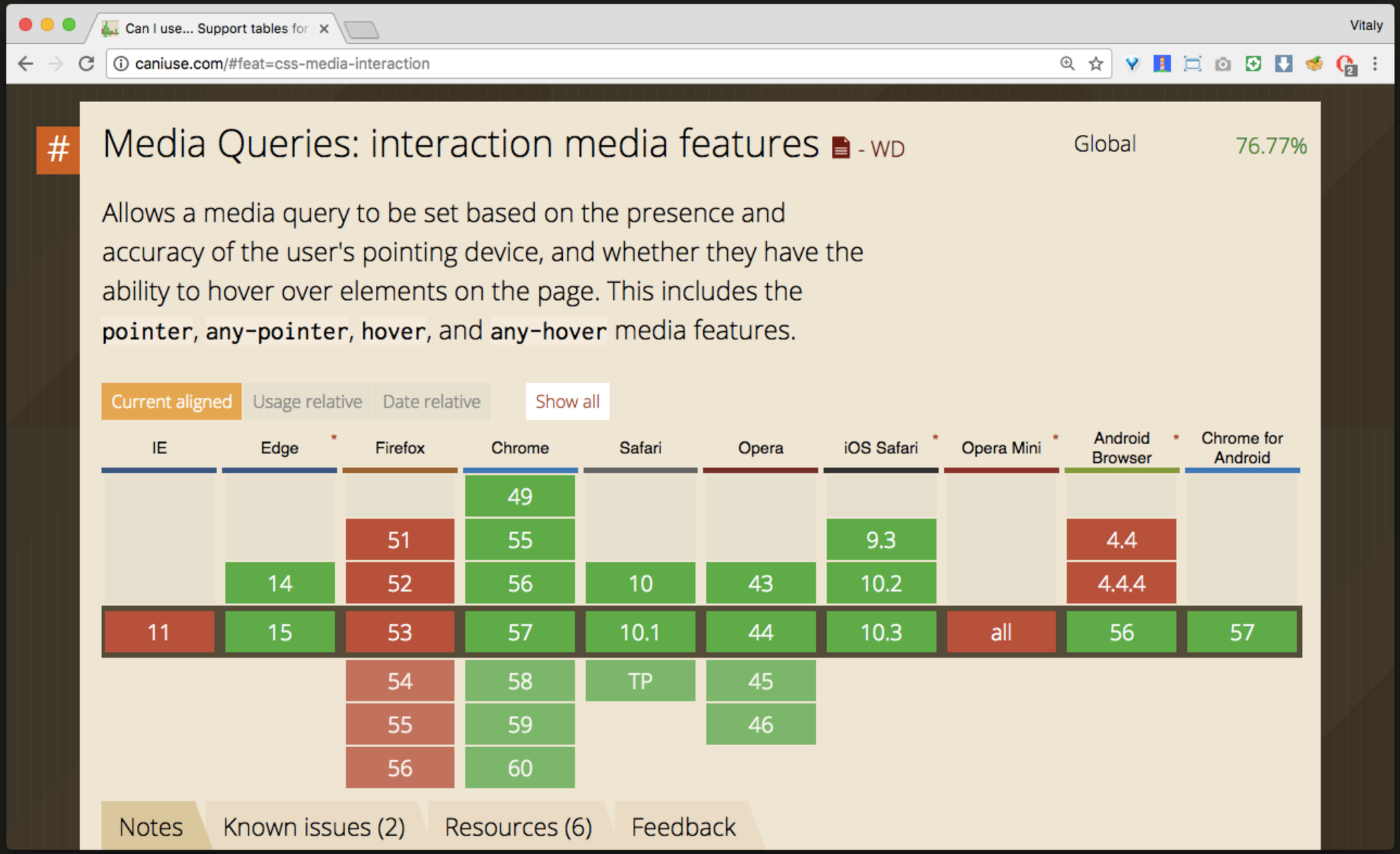
```
.page-wrap::after {
    display: block;
    content: '';
    position: fixed;
    bottom: 0;
    left: 0;
    width: 100%;
    height: 10em;
    background: linear-gradient(rgba(0,0,0,0), rgba(0,0,0,1));
}
```

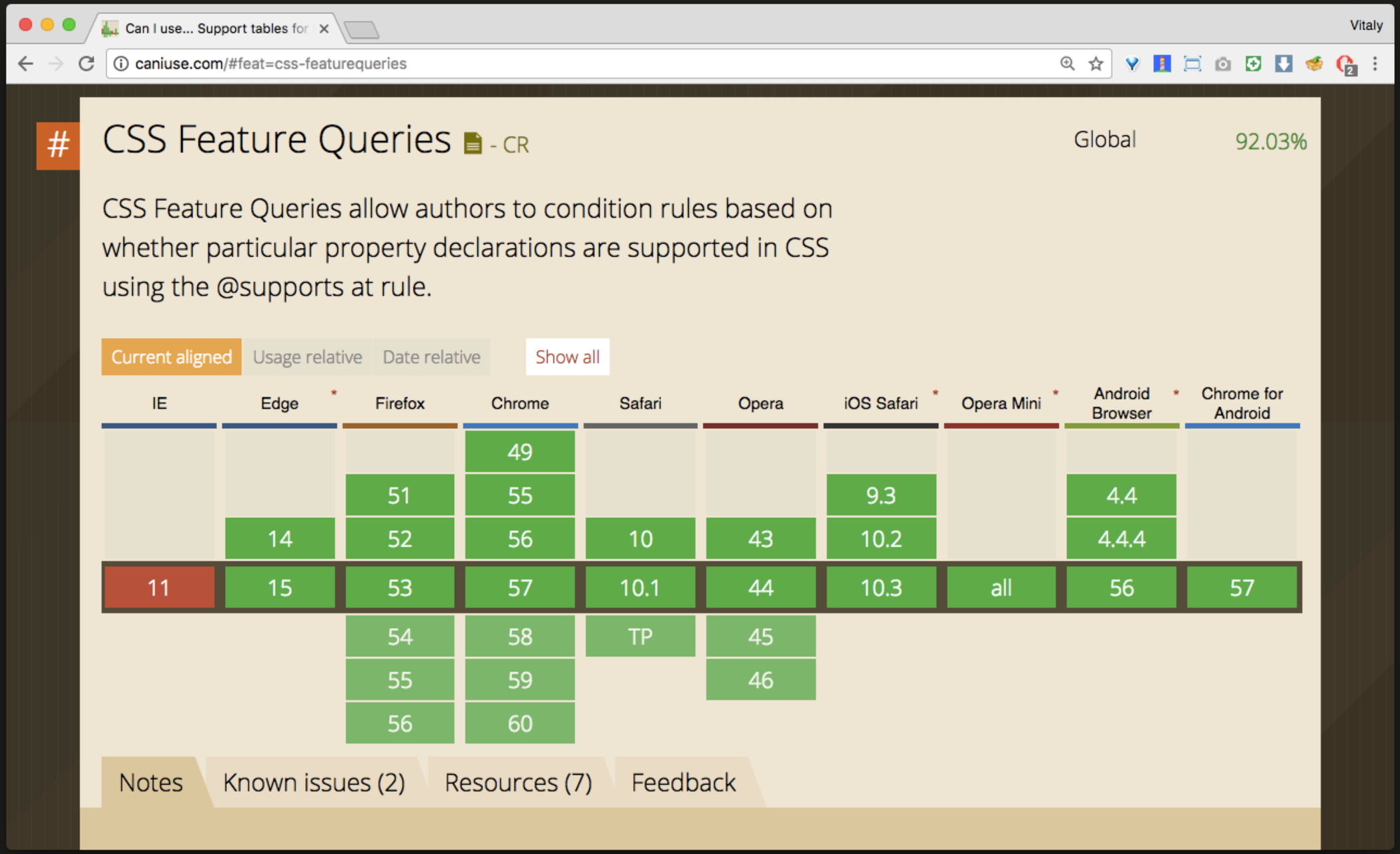


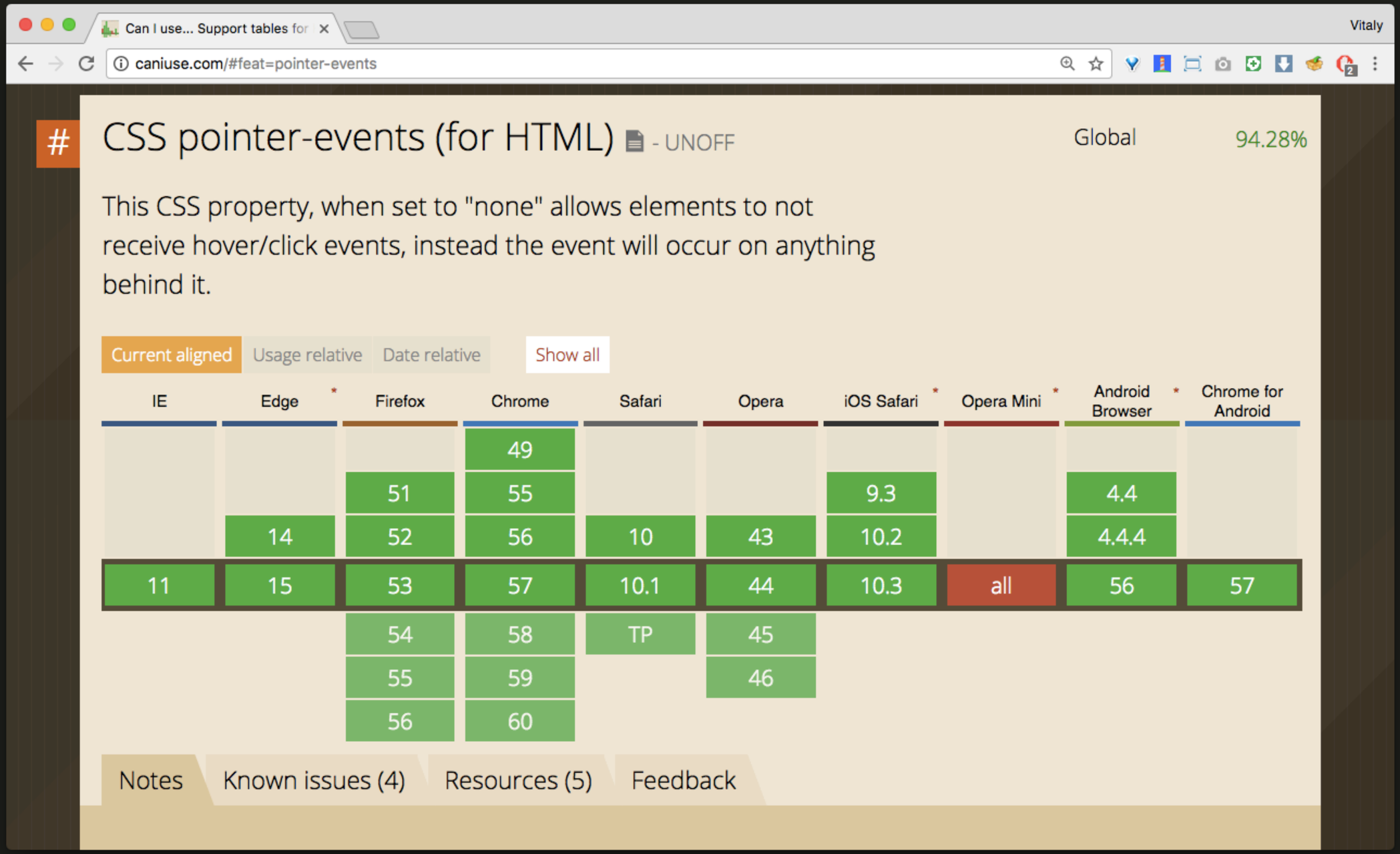
- CSS:

```
@supports (pointer-events: none)
    .page-wrap::after {
        display: block;
        content: '';
        position: fixed;
        bottom: 0;
        left: 0;
        width: 100%;
        height: 10em;
        background: linear-gradient(rgba(0,0,0,0), rgba(0,0,0,1));
        pointer-events: none;
    }
}
```




Can I use... Support tables for
Vitaly
caniuse.com/#feat=css-media-interaction
#
Media Queries: interaction media features - WD
Global
76.77%
Allows a media query to be set based on the presence and accuracy of the user's pointing device, and whether they have the ability to hover over elements on the page. This includes the pointer, any-pointer, hover, and any-hover media features.
Current aligned
Usage relative
Date relative
Show all
IE
Edge *
Firefox
Chrome
Safari
Opera
iOS Safari *
Opera Mini *
Android Browser *
Chrome for Android
49
51
55
9.3
4.4
14
52
56
10
43
10.2
4.4.4
11
15
53
57
10.1
44
10.3
all
56
57
54
58
TP
45
55
59
46
56
60
Notes
Known issues (2)
Resources (6)
Feedback


Can I use... Support tables for
Vitaly
caniuse.com/#feat=css-featurequeries
#
CSS Feature Queries - CR
Global
92.03%
CSS Feature Queries allow authors to condition rules based on whether particular property declarations are supported in CSS using the @supports at rule.
Current aligned
Usage relative
Date relative
Show all
IE
Edge *
Firefox
Chrome
Safari
Opera
iOS Safari *
Opera Mini *
Android Browser *
Chrome for Android
49
51
55
9.3
4.4
14
52
56
10
43
10.2
4.4.4
11
15
53
57
10.1
44
10.3
all
56
57
54
58
TP
45
55
59
46
56
60
Notes
Known issues (2)
Resources (7)
Feedback


Can I use... Support tables for
Vitaly
caniuse.com/#feat=pointer-events
#
CSS pointer-events (for HTML) - UNOFF
Global
94.28%
This CSS property, when set to "none" allows elements to not receive hover/click events, instead the event will occur on anything behind it.
Current aligned
Usage relative
Date relative
Show all
IE
Edge
Firefox
Chrome
Safari
Opera
iOS Safari
Opera Mini
Android Browser
Chrome for Android
49
51
55
9.3
4.4
14
52
56
10
43
10.2
4.4.4
11
15
53
57
10.1
44
10.3
all
56
57
54
58
TP
45
55
59
46
56
60
Notes
Known issues (4)
Resources (5)
Feedback

New side project: highlights minisite, and checking for interaction feature support

Posted March 20, 2017

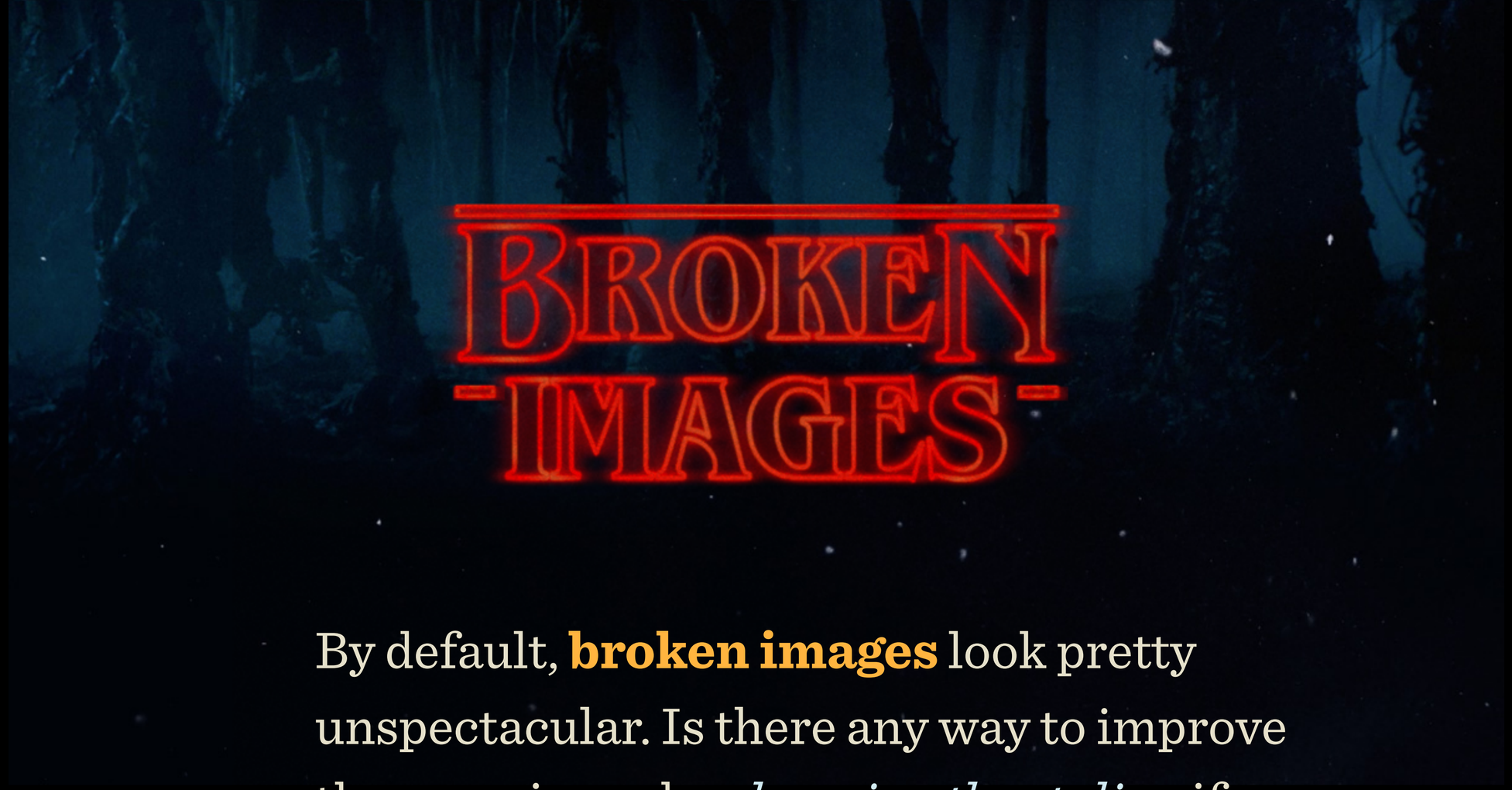
Tagged new work personal project web design web development css

I read quite a bit, and wanted somewhere to keep highlights from books and articles. That "somewhere" is highlights.melanie-richards.com, a simple Jekyll site hosted on Github Pages. I'm not doing anything fancy to get the highlights into the project (for various reasons I won't bore you with), just using some YAML data files.

I did, however, come across a couple neat little use cases for interaction feature queries.

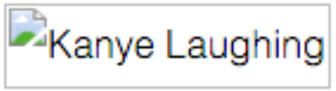
Handling a hover-dependent interaction





By default, **broken images** look pretty unspectacular. Is there any way to improve the experience by *changing the styling* if images are actually broken?

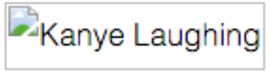
We're sorry, the image below is broken :(



(url: http://bitsofco.de/broken.jpg)

The *<img>* element is a *replaced* element. This is an element “whose appearance and dimensions are defined by an *external resource*. Pseudo-elements typically shouldn’t work with it.

We're sorry, the image below is broken :(



(url: http://bitsofco.de/broken.jpg)

Kanye Laughing

Broken Image of Kanye Laughing

Broken Image of Kanye Laughing

```
img {
  /* Same as first example */
  min-height: 50px;
}

img:before {
  content: " ";
  display: block;

  position: absolute;
  top: -10px;
  left: 0;
  height: calc(100% + 10px);
  width: 100%;
  background-color: rgb(230, 230, 230);
  border: 2px dotted rgb(200, 200, 200);
  border-radius: 5px;
}
```




```
img:after {
  content: "\f127" " Broken Image of " attr(alt);
  display: block;
  font-size: 16px;
  font-style: normal;
  font-family: FontAwesome;
  color: rgb(100, 100, 100);

  position: absolute;
  top: 5px;
  left: 0;
  width: 100%;
  text-align: center;
}
```

Browser	Alt Text	:before	:after
Chrome (Desktop and Android)	✓	✓	✓
Firefox (Desktop and Android)	✓	✓	✓
Opera (Desktop)	✓	✓	✓
Opera Mini	✓ **	✗	✗
Safari (Desktop and iOS)	✓ *	✗	✗
iOS Webview (Chrome, Firefox, others)	✓ *	✗	✗

** The alt text will only show if the width of the image is large enough to accommodate it. If no width is specified for the img, the alt text may not be displayed at all*
*** Font styling not applied*

Styling Broken Images

Vitaly

bitsofco.de/styling-broken-im...

bitsofcode

Styling Broken Images

Mar 8th, 2016 css

Broken images are ugly.



But they don't always have to be. We can use CSS to apply styles to the `<img>` element to provide a better experience than the default.

Two Facts About The `<img>` Element

To understand how we can style broken images, there are two facts about the way the `<img>` element behaves that we need to understand first.

1. **We can apply regular typography-related styling to the `<img>` element**. These styles will be applied to the alternative text, if it is displayed, and will not affect the working image.

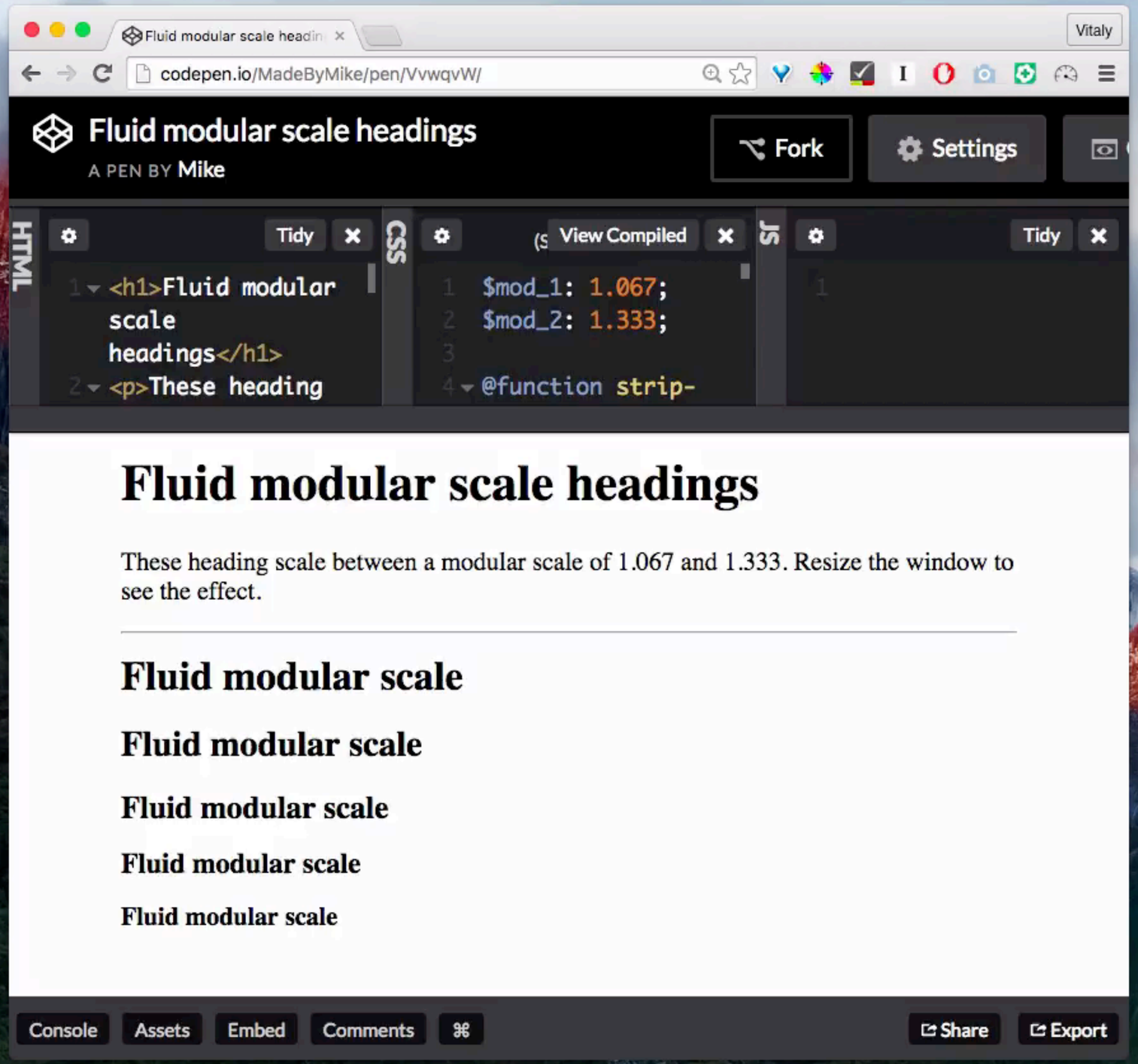
2. **The `<img>` element is a replaced element**. This is an element "whose appearance and


LEVEL 3
FLUIDTYPE



You have to build in **fluid, flexible type,** and designers want you to implement perfect *modular scale.* The proportions have to stay consistent across screens.


Modularscale
Vitaly
www.modularscale.com/?16&px&1.5&web&text
Modular Scale
Not sure how this calculator works? Here are some tips.
This calculator makes a set of numbers called a modular scale, which you use like a ruler. More →
Bases
16px
a
Bases are a scale's root numbers. For example, the size at which your body text typeface looks best. More →
Ratios
1.5
a
Ratios are multiplied by the base to produce a scale of numbers that is proportionally related. More →
Web
Sass
JS
Get your scale as a plugin, or reference calculated results right here on the web. More →
This site is built & maintained by Scott Kellum and Tim Brown.
Copyright © 2010–2015 Tim Brown.
Table
Text
The quick bro
a 121.5px 7.594em 7.594em @ 16
The quick brown fox
a 81px 5.063em 5.063em @ 16
The quick brown fox jumps ove
a 54px 3.375em 3.375em @ 16
The quick brown fox jumps over the lazy dog
a 36px 2.25em 2.25em @ 16
The quick brown fox jumps over the lazy dog
a 24px 1.5em 1.5em @ 16
The quick brown fox jumps over the lazy dog
a 16px 1em 1em @ 16
The quick brown fox jumps over the lazy dog


Fluid modular scale headin
Vitaly
codepen.io/MadeByMike/pen/VvwqvW/
Fluid modular scale headings
A PEN BY Mike
Fork
Settings
HTML
Tidy
<h1>Fluid modular scale headings</h1>
<p>These heading
CSS
View Compiled
$mod_1: 1.067;
$mod_2: 1.333;
@function strip-
JS
Tidy
Fluid modular scale headings
These heading scale between a modular scale of 1.067 and 1.333. Resize the window to see the effect.
Fluid modular scale
Fluid modular scale
Fluid modular scale
Fluid modular scale
Fluid modular scale
Console
Assets
Embed
Comments
Share
Export

> How do you *efficiently* scale up / down any UI component (e.g. a slider or calendar) and keep all the proportions intact—without fiddling with width, height or border-radius manually?
>
> — *@simurai*

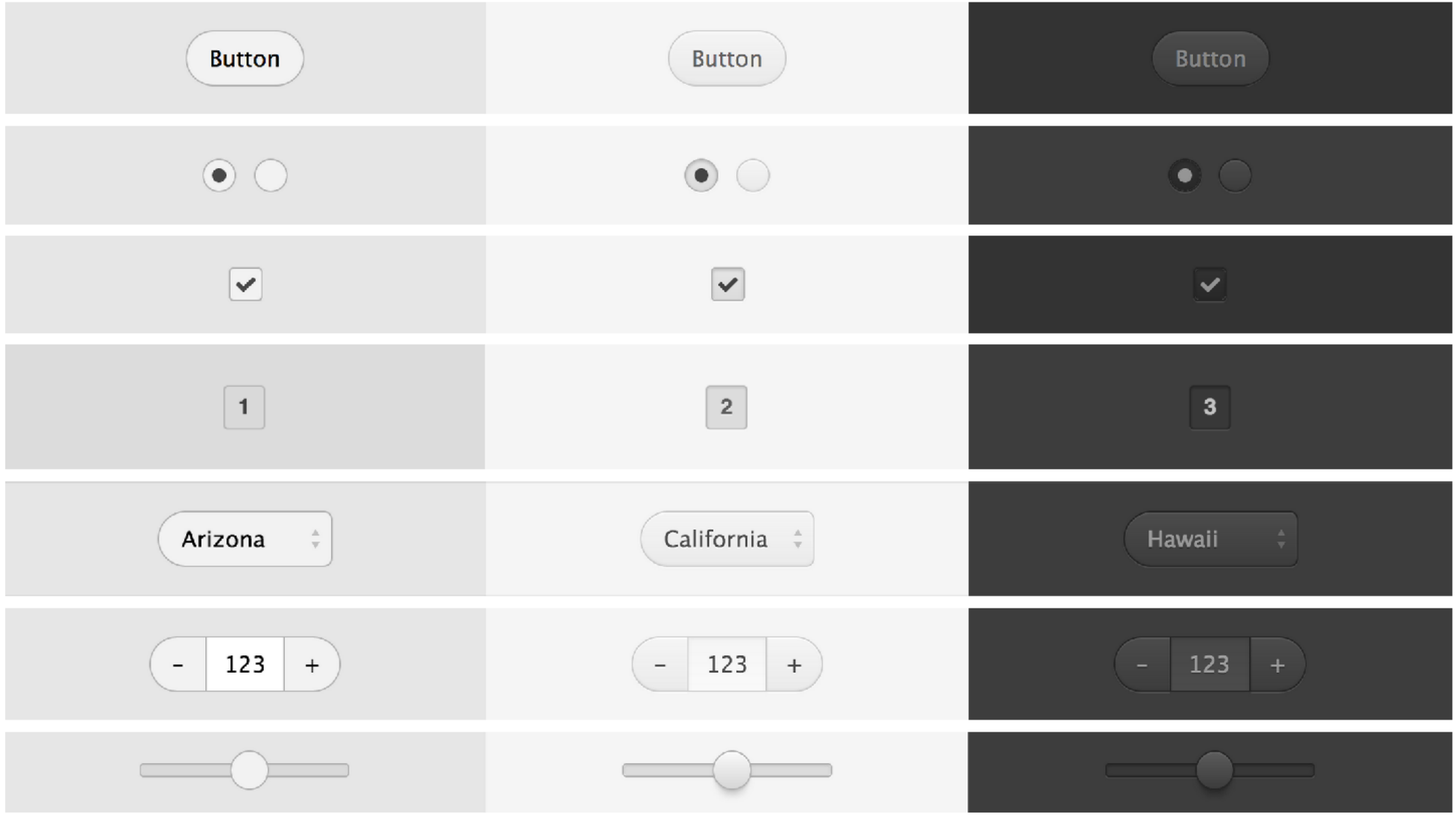
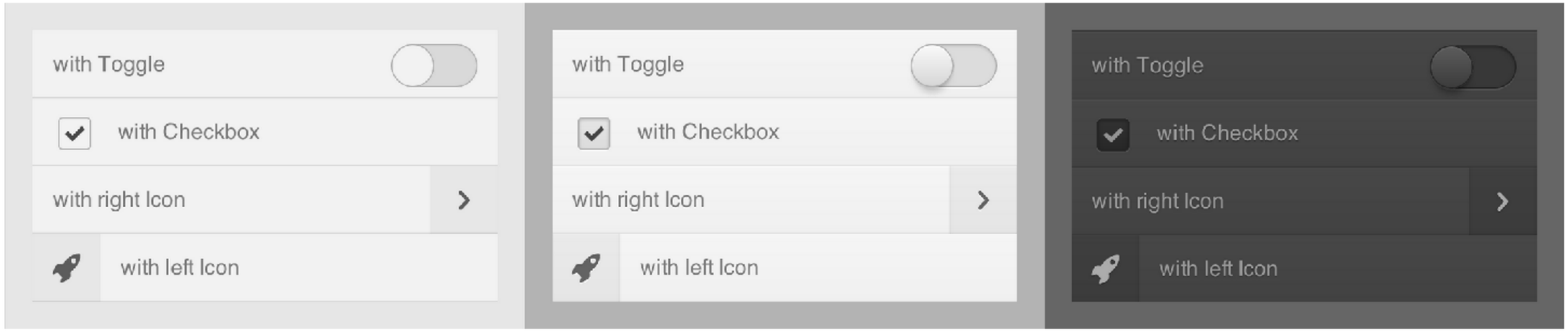
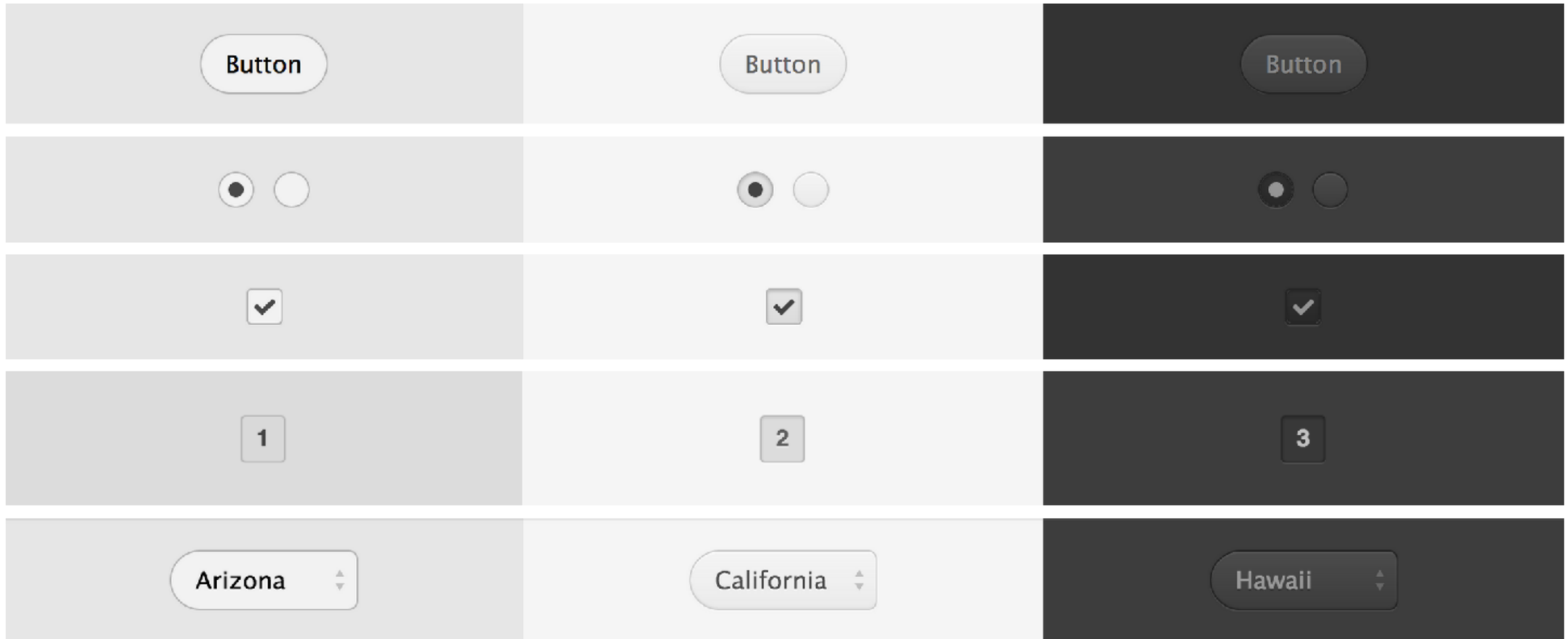
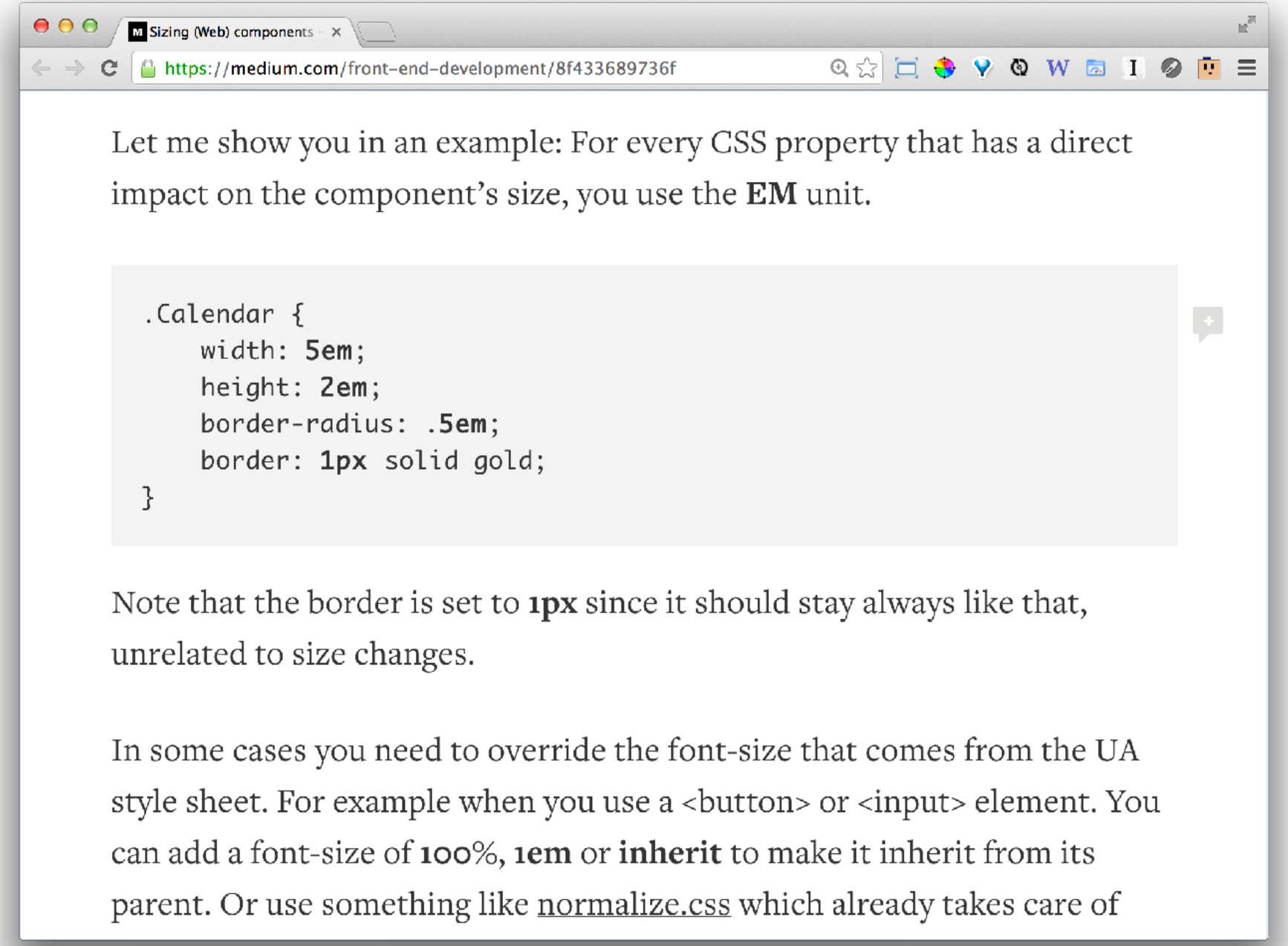


Image credit: @simurai


with Toggle
with Checkbox
with right Icon
with left Icon
with Toggle
with Checkbox
with right Icon
with left Icon
with Toggle
with Checkbox
with right Icon
with left Icon


Button
Button
Button
1
2
3
Arizona
California
Hawaii

> By sneaking a *Trojan horse* into your components. We use *rem* for components "root" and *em* for sub-parts of the components. Then, by adjusting the *font-size of the root*, we adjust *all* size-related CSS properties of a component at once.
>
> — *@simurai*

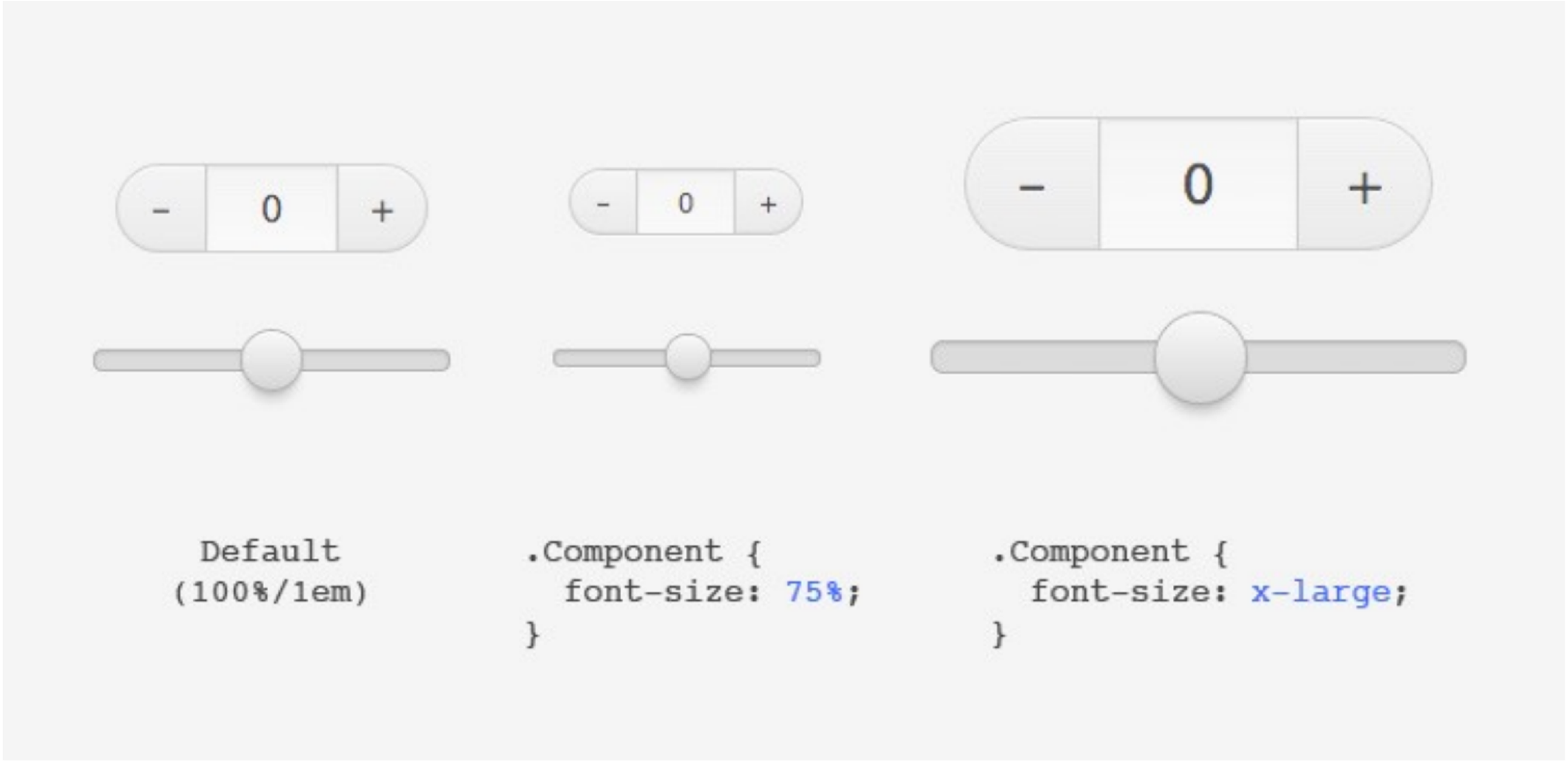


Let me show you in an example: For every CSS property that has a direct impact on the component's size, you use the **EM** unit.

```
.Calendar {
    width: 5em;
    height: 2em;
    border-radius: .5em;
    border: 1px solid gold;
}
```

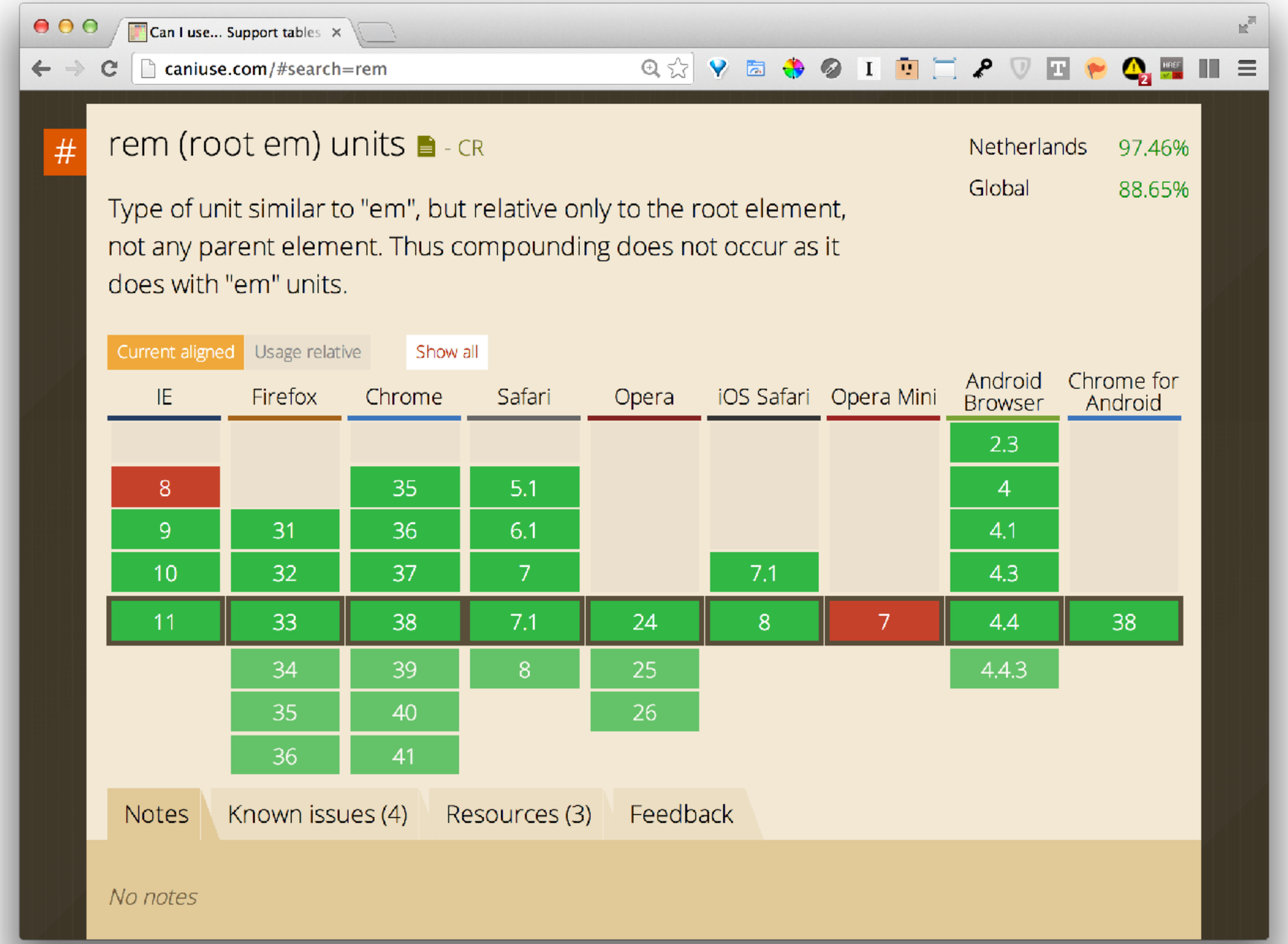
Note that the border is set to **1px** since it should stay always like that, unrelated to size changes.

In some cases you need to override the font-size that comes from the UA style sheet. For example when you use a <button> or <input> element. You can add a font-size of **100%**, **1em** or **inherit** to make it inherit from its parent. Or use something like normalize.css which already takes care of



Example used: Digit components

Image credit: @simurai


Can I use... Support tables
caniuse.com/#search=rem
#
rem (root em) units - CR
Netherlands 97.46%
Global 88.65%
Type of unit similar to "em", but relative only to the root element, not any parent element. Thus compounding does not occur as it does with "em" units.
Current aligned
Usage relative
Show all
IE
Firefox
Chrome
Safari
Opera
iOS Safari
Opera Mini
Android Browser
Chrome for Android
8
9
10
11
31
32
33
34
35
36
35
36
37
38
39
40
41
5.1
6.1
7
7.1
8
24
25
26
7.1
8
7
2.3
4
4.1
4.3
4.4
4.4.3
38
Notes
Known issues (4)
Resources (3)
Feedback
No notes

With media queries, we can target specific screen *width ranges* and adjust type by just manipulating the font-size **rem** value of the article's *container*.

Fluid Typography, rem

- *Main CSS* contains default type styles:

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 { font-size: 3.375rem }
h2 { font-size: 2.25rem }
h3 { font-size: 1.5rem }
h4 { font-size: 1rem }
caption { font-size: 0.667rem }
small { font-size: 0.444rem }
```

Fluid Typography, rem

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 { font-size: 3.375rem }
h2 { font-size: 2.25rem }
h3 { font-size: 1.5rem }
h4 { font-size: 1rem }
caption { font-size: 0.667rem }
small { font-size: 0.444rem }

/* Ideal line length: 66 ch; => max-width: 33em */
article { max-width: 33em; }
:lang(de) article { max-width: 40em; }
p, ul, ol, dl, table { margin-bottom: 1.45rem; }
```

Fluid Typography, rem

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 { font-size: 54px; font-size: 3.375rem } /* Ratio 1.5 /*
h2 { font-size: 36px; font-size: 2.25rem } /* Ratio 2.25 /*
h3 { font-size: 16px; font-size: 1rem; }
h4 { font-size: 24px; font-size: 1.5rem }
caption { font-size: 7px; font-size: 0.667rem }
small { font-size: 11px; font-size: 0.444rem }

/* Ideal line length: 66 ch; => max-width: 33em */
article { max-width: 33em; }
:lang(de) article { max-width: 40em; }
p, ul, ol, dl, table { margin-bottom: 1.45rem; }
```

Fluid Typography, px

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
@media screen and (max-width: 650px) {
    h1 { font-size: 45px; } /* 45 ÷ 30 = 1.5 /*
    h2 { font-size: 30px; } /* 30 ÷ 12 = 2.25 /*
    h3 { font-size: 12px; }
}

@media screen and (max-width: 1050px) {
    h1 { font-size: 54px; } /* 54 ÷ 36 = 1.5 /*
    h2 { font-size: 36px; } /* 36 ÷ 16 = 2.25 /*
    h3 { font-size: 16px; }
}
```

Fluid Typography, rem

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
@media screen and (max-width: 650px) {
    h1 { font-size: 2.8125rem; } /* 2.8125 ÷ 1.875 = 1.5 /*
    h2 { font-size: 1.875rem; } /* 1.875 ÷ 0.75 = 2.25 /*
    h3 { font-size: 0.75rem; }
}

@media screen and (max-width: 1050px) {
    h1 { font-size: 3.375rem; } /* 3.375 ÷ 2.25 = 1.5 /*
    h2 { font-size: 2.25rem; } /* 2.25 ÷ 1 = 2.25 /*
    h3 { font-size: 1rem; }
}
```

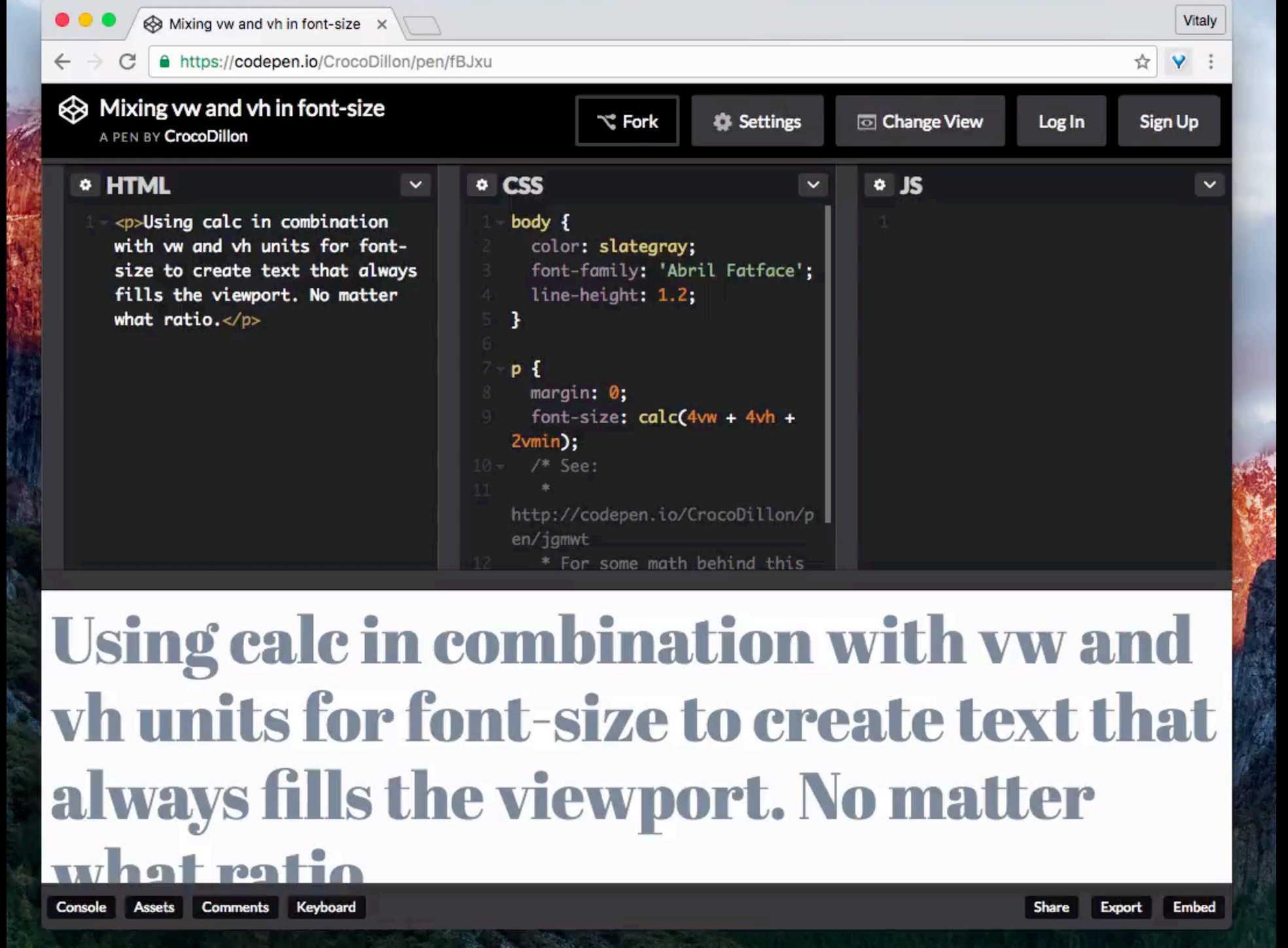
Fluid Typography, rem

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }
h1, h2, h3 { transition: font-size 0.2s; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
@media screen and (max-width: 650px) {
    h1 { font-size: 2.8125rem; } /* 2.8125 ÷ 1.875 = 1.5 /*
    h2 { font-size: 1.875rem; } /* 1.875 ÷ 0.75 = 2.25 /*
    h3 { font-size: 0.75rem; }
}

@media screen and (max-width: 1050px) {
    h1 { font-size: 3.375rem; } /* 3.375 ÷ 2.25 = 1.5 /*
    h2 { font-size: 2.25rem; } /* 2.25 ÷ 1 = 2.25 /*
    h3 { font-size: 1rem; }
}
```

“ To achieve **fluid typography**, we can combine the **calc()** function in CSS with viewport units (vw/vh/vmin/vmax). But what if we want to apply a **modular scale** to font sizes?

We can get perfectly fluid type with *html* { font-size: *calc*(1em + 1vw); } but it gives us little control over the rate at which viewport units change. Media queries? Well, with them usually there is an annoying “visual” **jump** between fixed and fluid values.

— *Mike Riethmuller*


Mixing vw and vh in font-size
Vitaly
https://codepen.io/CrocoDillon/pen/fBJxu
Mixing vw and vh in font-size
A PEN BY CrocoDillon
Fork
Settings
Change View
Log In
Sign Up
HTML
Using calc in combination with vw and vh units for font-size to create text that always fills the viewport. No matter what ratio.
CSS
body {
color: slategray;
font-family: 'Abril Fatface';
line-height: 1.2;
}
p {
margin: 0;
font-size: calc(4vw + 4vh + 2vmin);
/* See:
*
http://codepen.io/CrocoDillon/pen/jgmwt
* For some math behind this
JS
Using calc in combination with vw and vh units for font-size to create text that always fills the viewport. No matter what ratio
Console
Assets
Comments
Keyboard
Share
Export
Embed

...E.g. if we wanted to choose a font-size of **16px** at a screen resolution of **400px** and then transition to **24px** at a resolution of **800px,** we can't do it without a breakpoint.

— *Mike Riethmuller*

	1vw	2vw	3vw	4vw	5vw
400px	4px	8px	12px	16px	20px
500px	5px	10px	15px	20px	25px
600px	6px	12px	18px	24px	30px
700px	7px	14px	21px	28px	35px
800px	8px	16px	24px	32px	40px

Image credit: Mike Riethmueller

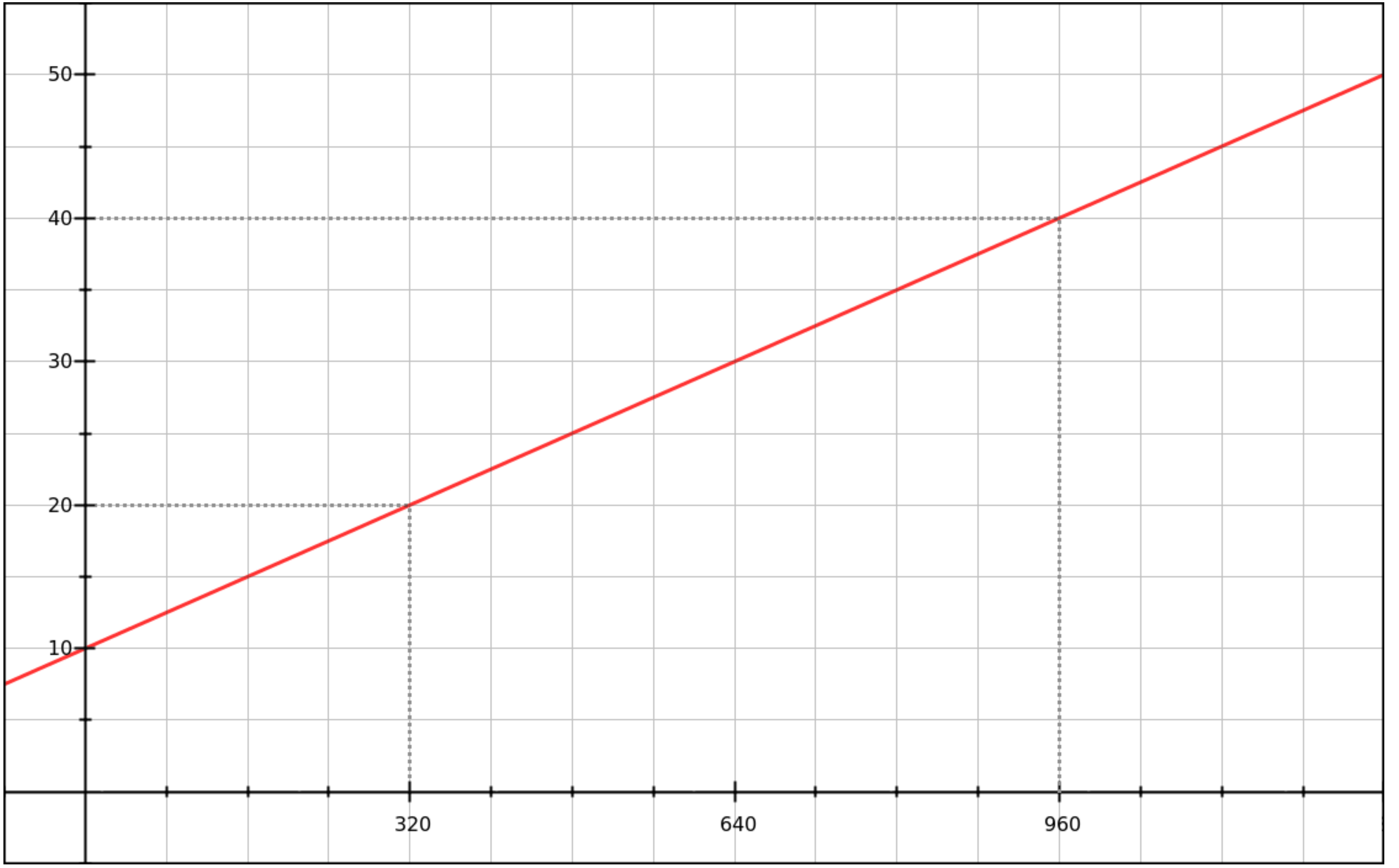


Image credit: Mike Riethmueller

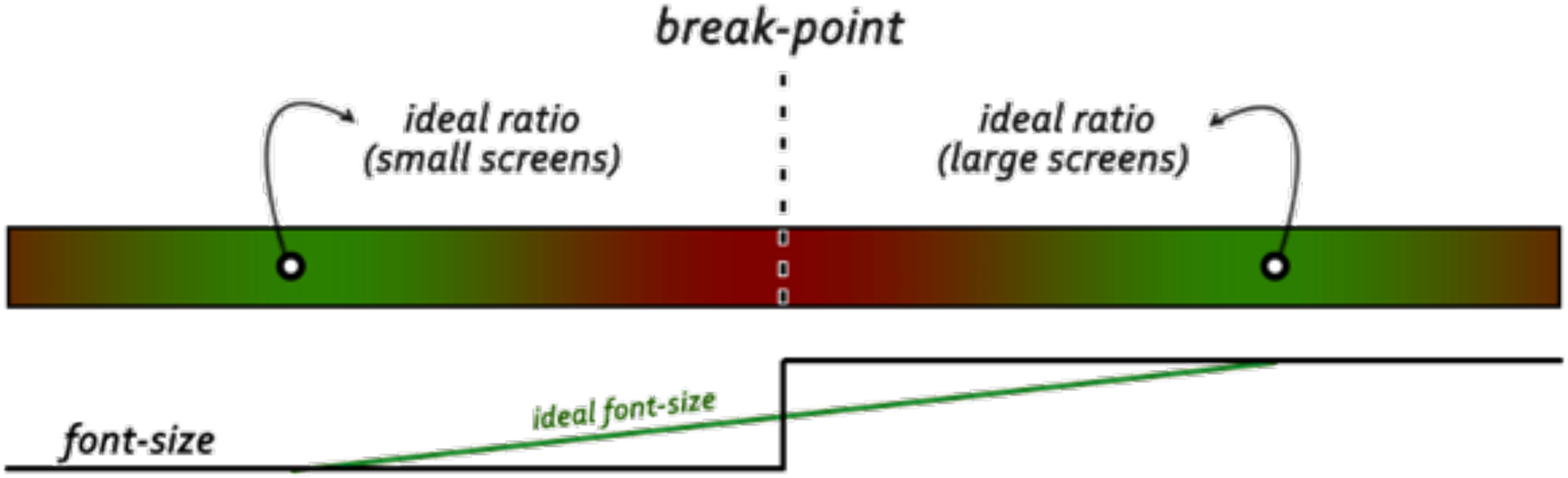


Image credit: Mike Riethmueller

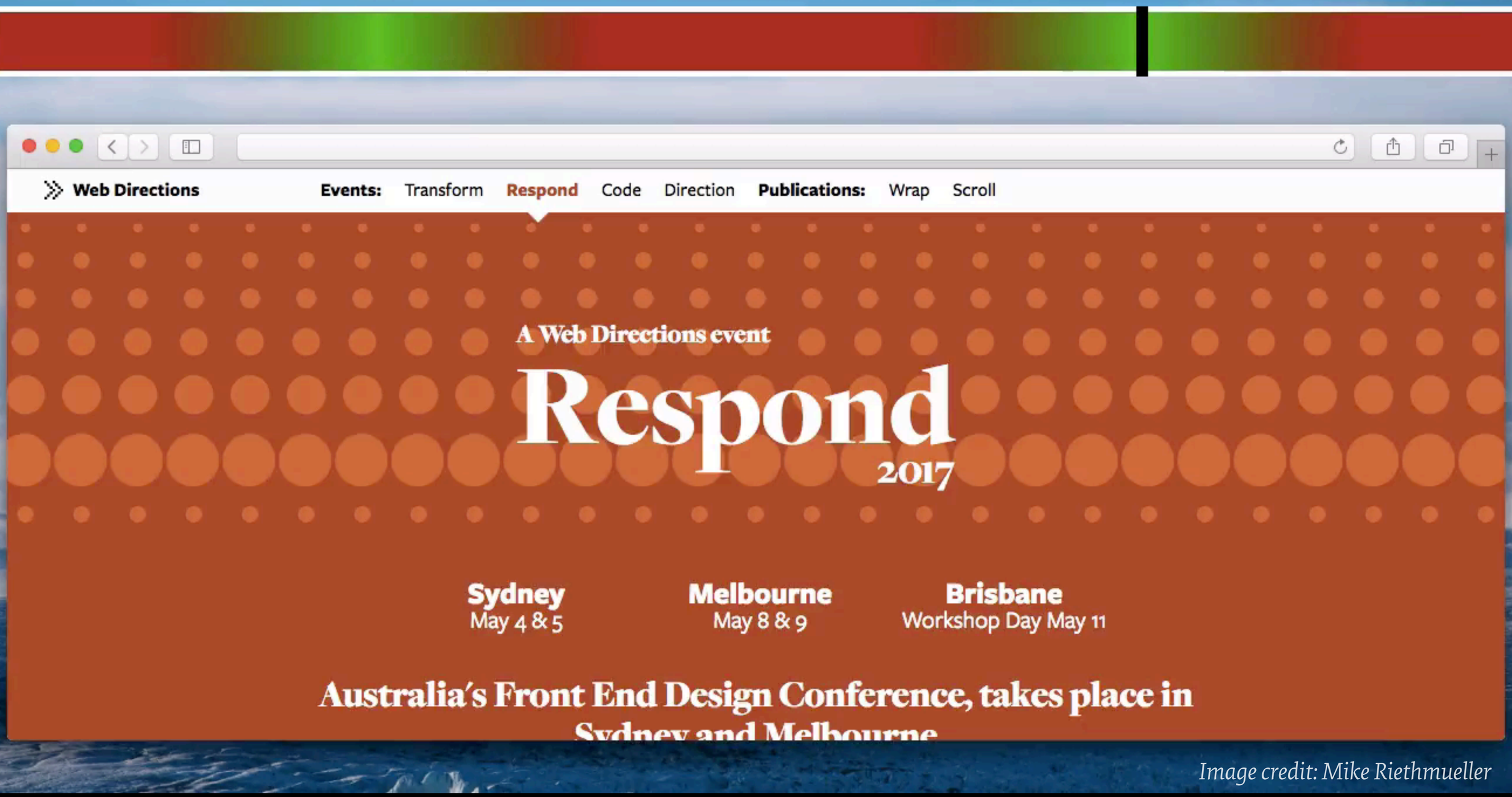


Image credit: Mike Riethmueller

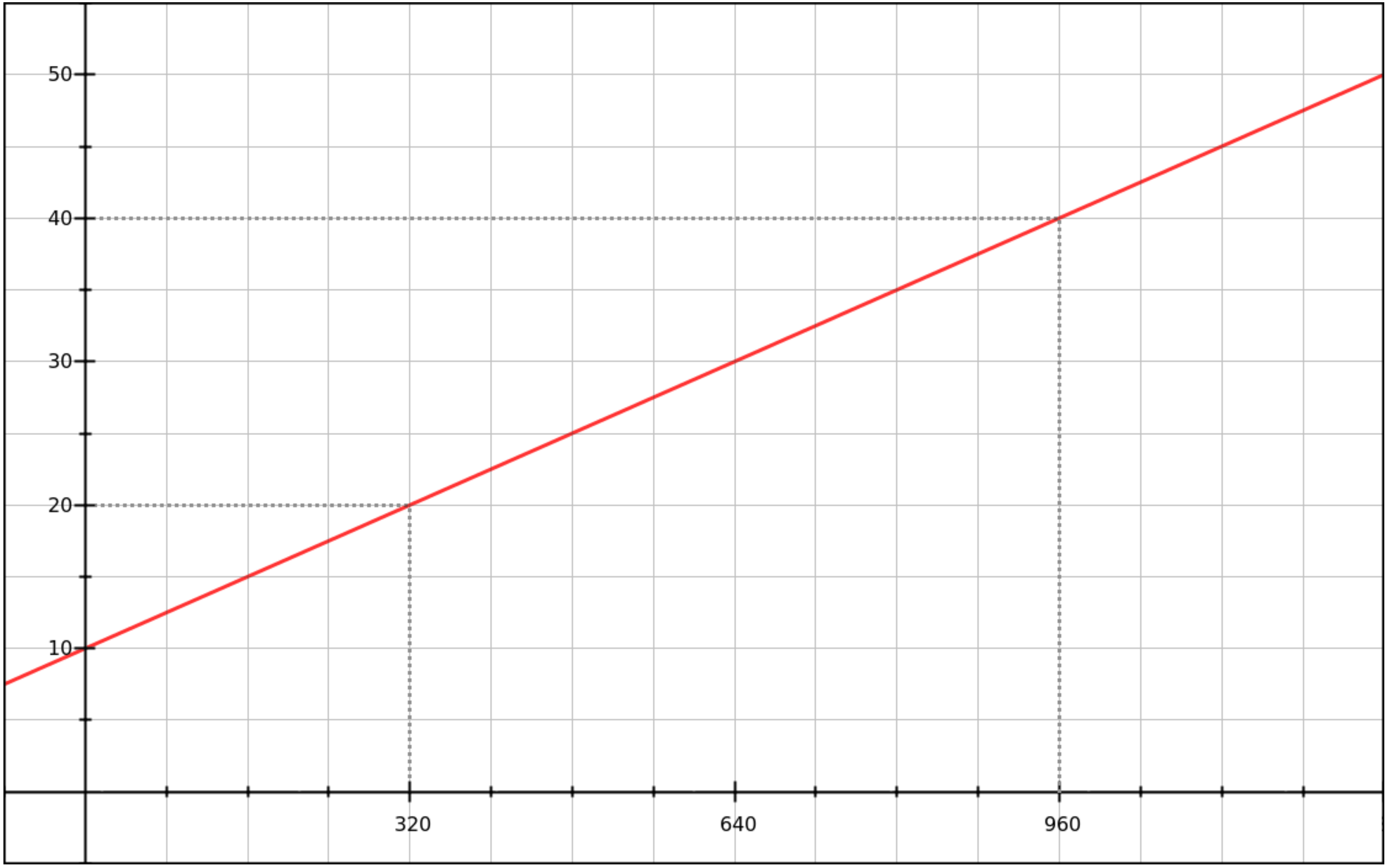


Image credit: Mike Riethmueller

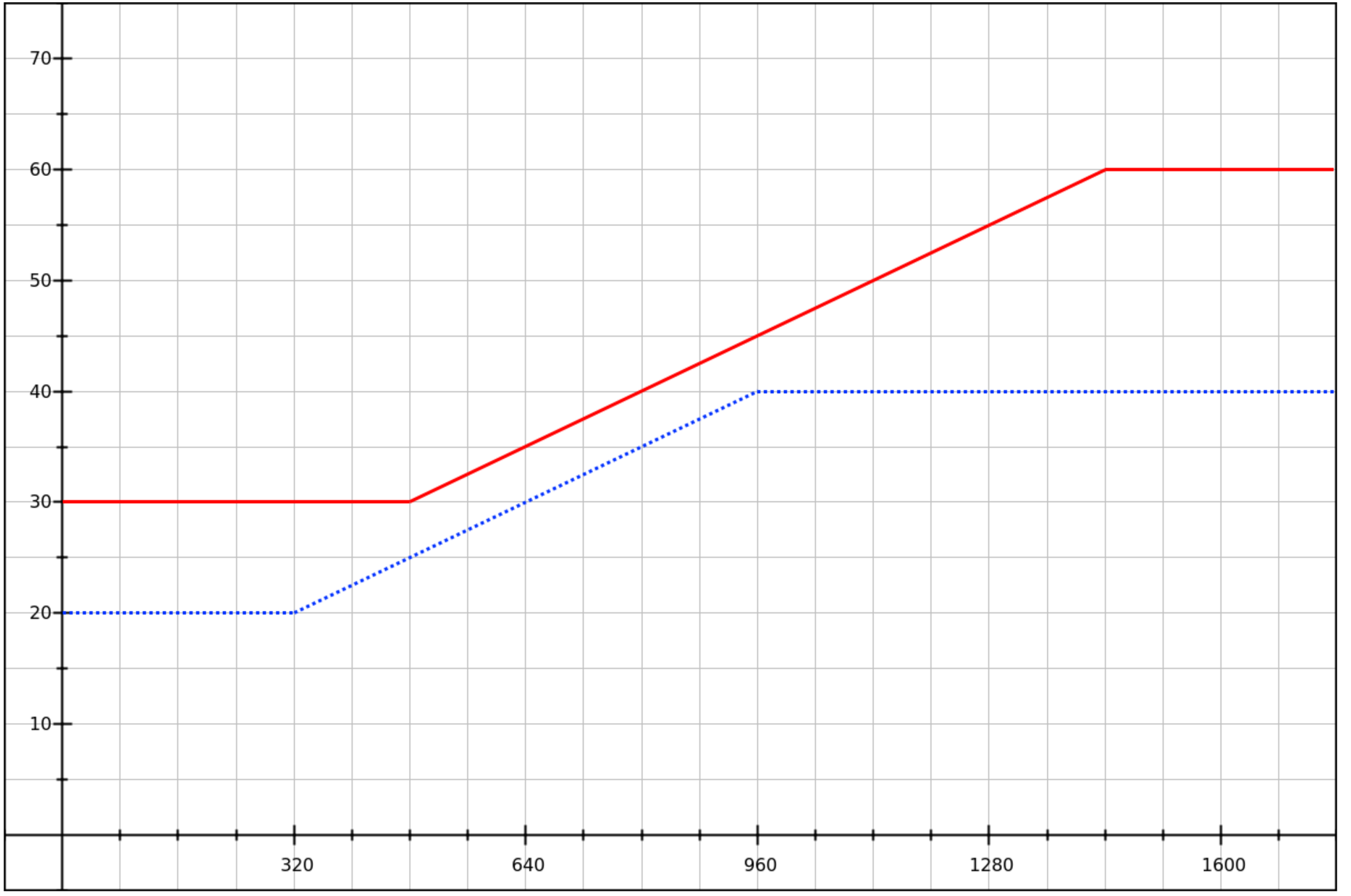


Image credit: Mike Riethmueller

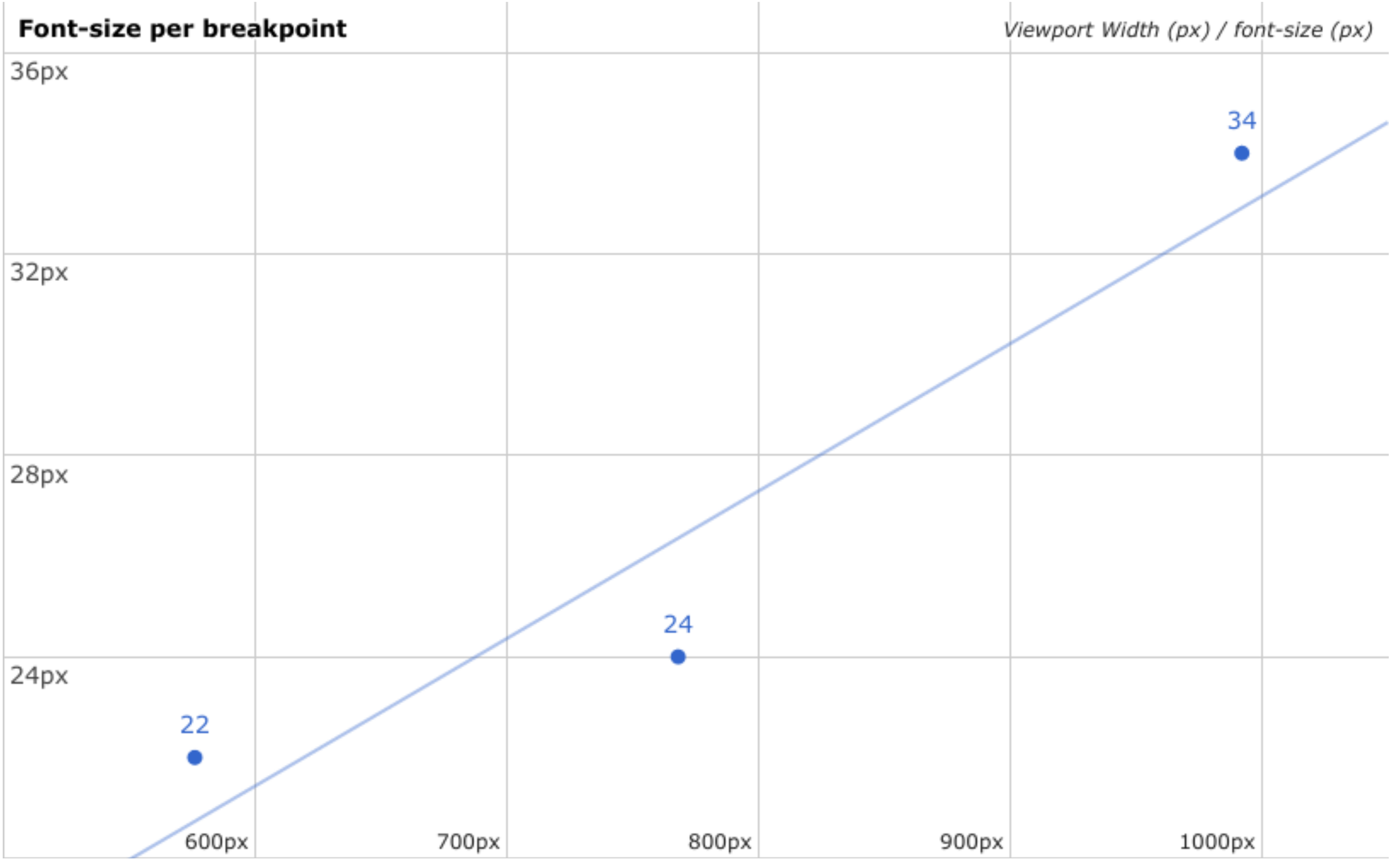


Image credit: Jake Wilson

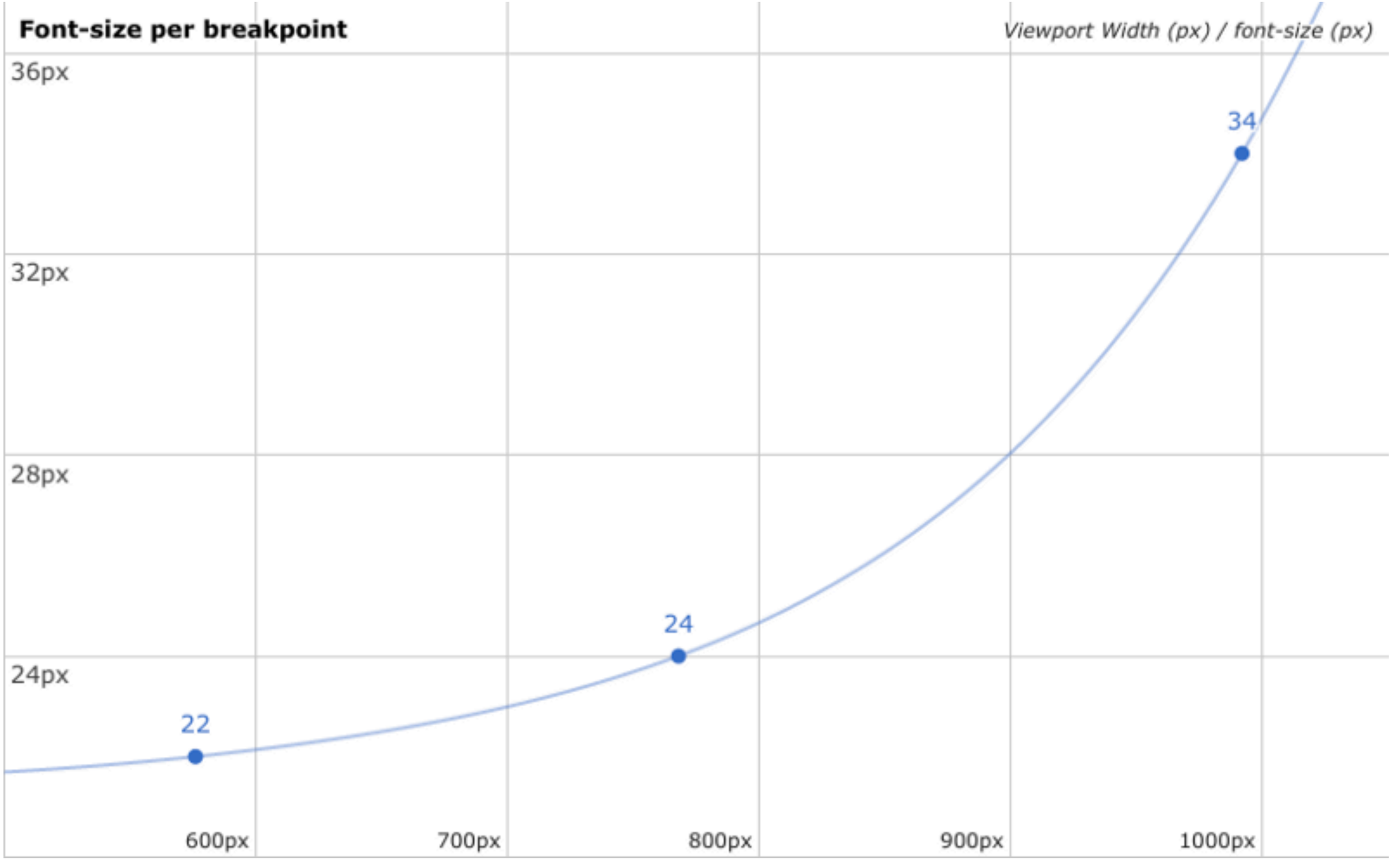


Image credit: Jake Wilson

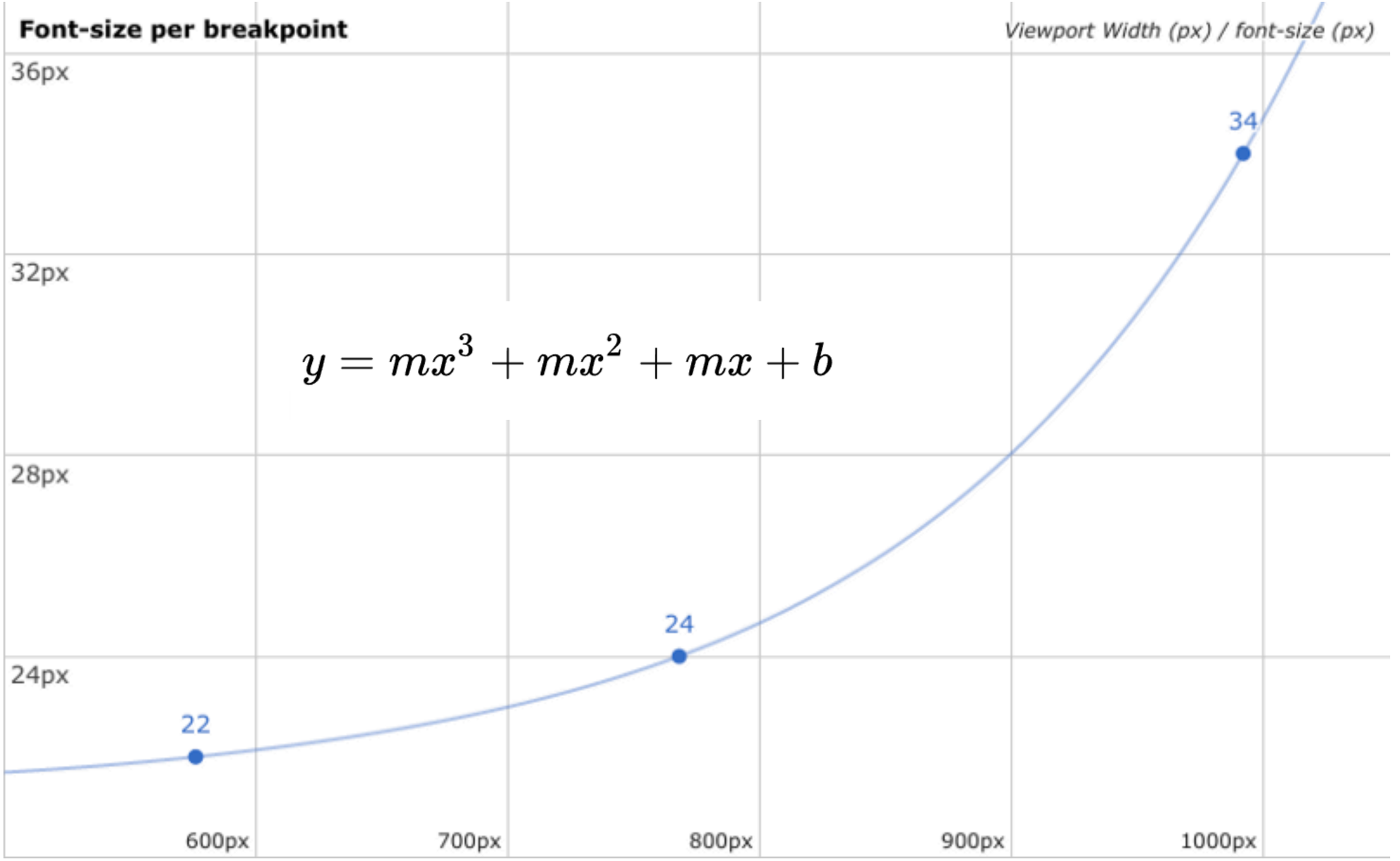


Image credit: Jake Wilson

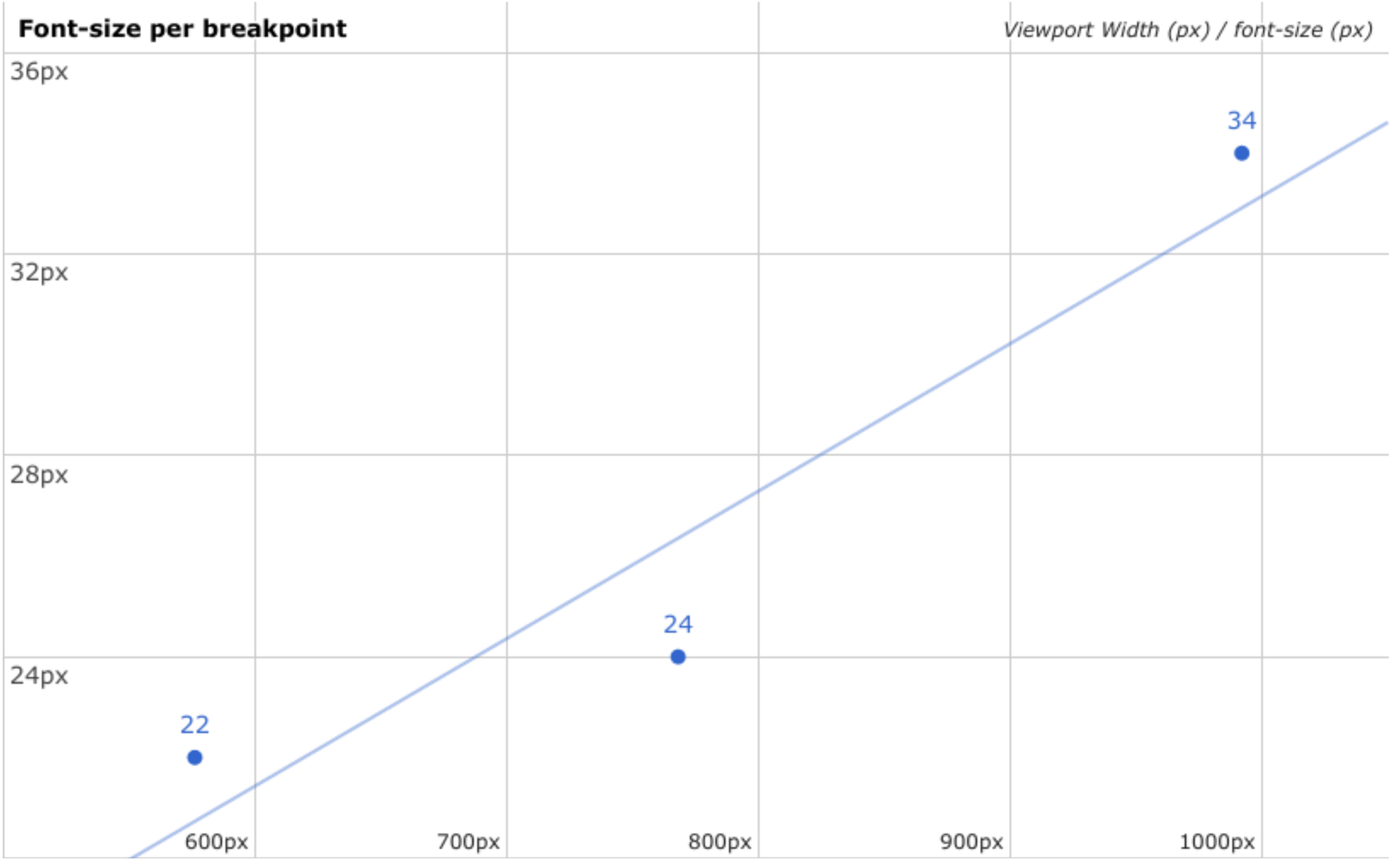
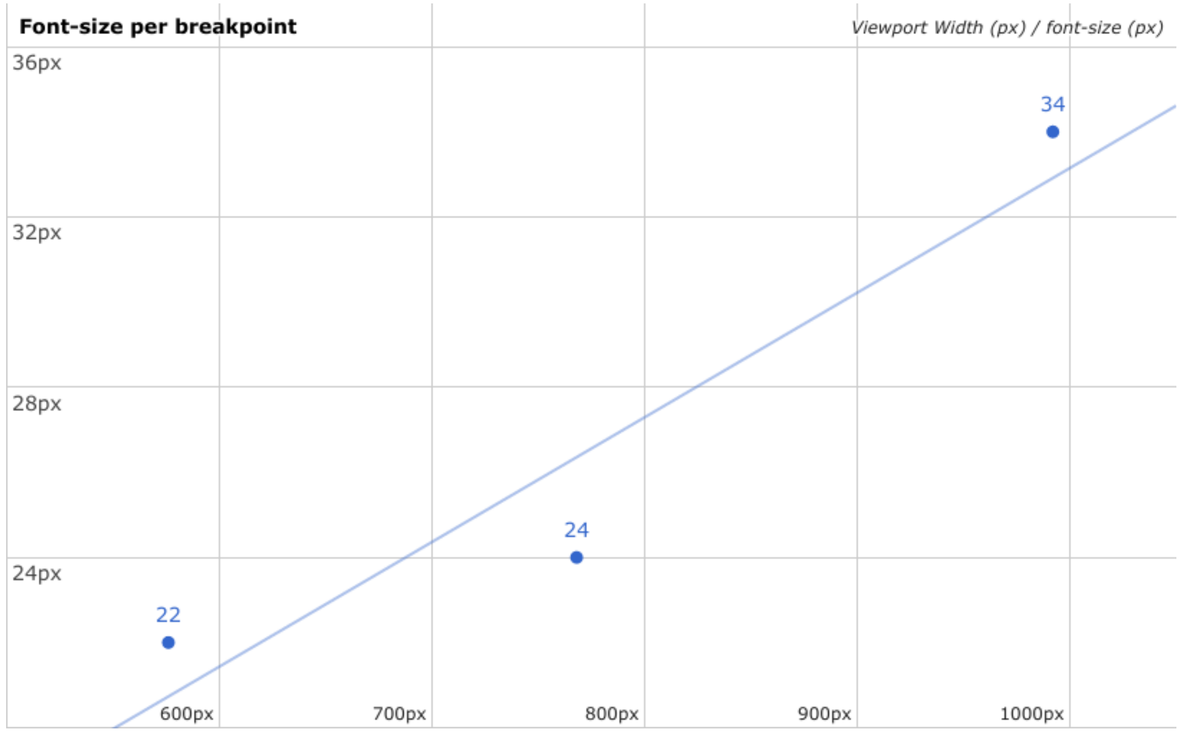


Image credit: Jake Wilson

$$y = mx + b$$



m = slope

x = current **viewport width**

b = the y-intercept

y = resulting **font size**

$$\overline{X} = \frac{\sum_{i=1}^{n} x_i}{n} \qquad m = \frac{\sum_{i=1}^{n} (x_i - \overline{X})(y_i - \overline{Y})}{\sum_{i=1}^{n} (x_i - \overline{X})^2} \qquad b = \overline{Y} - m\overline{X}$$

$$\overline{Y} = \frac{\sum_{i=1}^{n} y_i}{n}$$

m = slope

x = current **viewport width**

b = the y-intercept

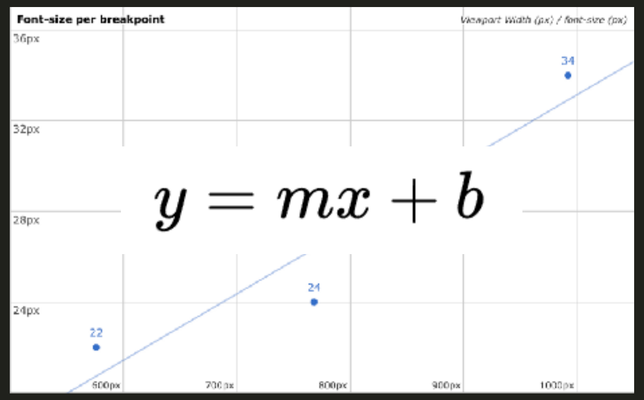
y = resulting **font size**

Fluid Typography, rem

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
@media screen and (max-width: 650px) {
    h1 { font-size: 2.8125rem; } /* 2.8125 ÷ 1.875 = 1.5 /*
    h2 { font-size: 1.875rem; } /* 1.875 ÷ 0.75 = 2.25 /*
    h3 { font-size: 0.75rem; }
}

@media screen and (max-width: 1050px) {
    h1 { font-size: 3.375rem; } /* 3.375 ÷ 2.25 = 1.5 /*
    h2 { font-size: 2.25rem; } /* 2.25 ÷ 1 = 2.25 /*
    h3 { font-size: 1rem; }
}
```

Fluid Typography, calc

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 { font-size: calc({slope-h1}*100vw + {y-intercept-h1}px); }
h2 { font-size: calc({slope-h2}*100vw + {y-intercept-h2}px); }
h3 { font-size: calc({slope-h3}*100vw + {y-intercept-h3}px); }
```



m = slope
b = the y-intercept
x = current viewport width
y = resulting font size

Fluid Typography, calc + px

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 { font-size: calc({slope-h1}*100vw + {y-intercept-h1}px); }
h2 { font-size: calc({slope-h2}*100vw + {y-intercept-h2}px); }
h3 { font-size: calc({slope-h3}*100vw + {y-intercept-h3}px); }

nav { width: calc({slope-nav}*100vw + {y-intercept-nav}px); }
button { padding: calc({slope-btn}*100vw + {y-intercept-btn}px); }

.lightbox {
    font-size: calc({slope-lightbox}*100vw +
                    {y-intercept-lightbox}px);
}
```

Fluid Typography, calc + rem

```
/* CSS Reset of your choice */
body { font-size: 100%; line-height: 1.45em; }

/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 { font-size: calc({slope-h1}*100vw + rem({y-intercept-h1})rem); }
h2 { font-size: calc({slope-h2}*100vw + rem({y-intercept-h2})rem); }
h3 { font-size: calc({slope-h3}*100vw + rem({y-intercept-h3})rem); }

nav { width: calc({slope-nav}*100vw + rem({y-intercept-nav})rem); }
button { padding: calc({slope-btn}*100vw + rem({y-intercept-btn})rem); }

.lightbox {
    font-size: calc({slope-lightbox}*100vw +
                    rem({y-intercept-lightbox})rem);
}
```

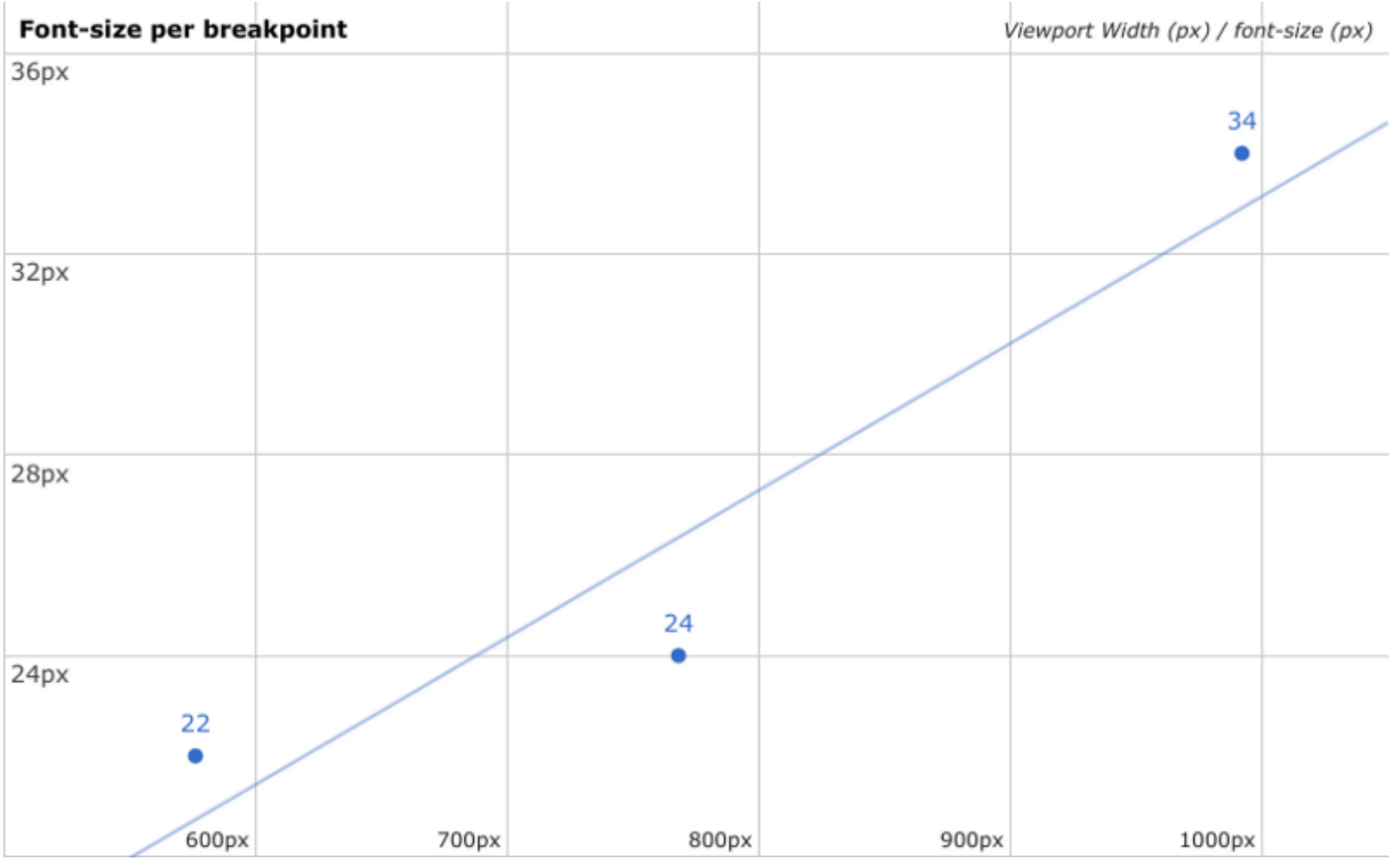


Image credit: Jake Wilson

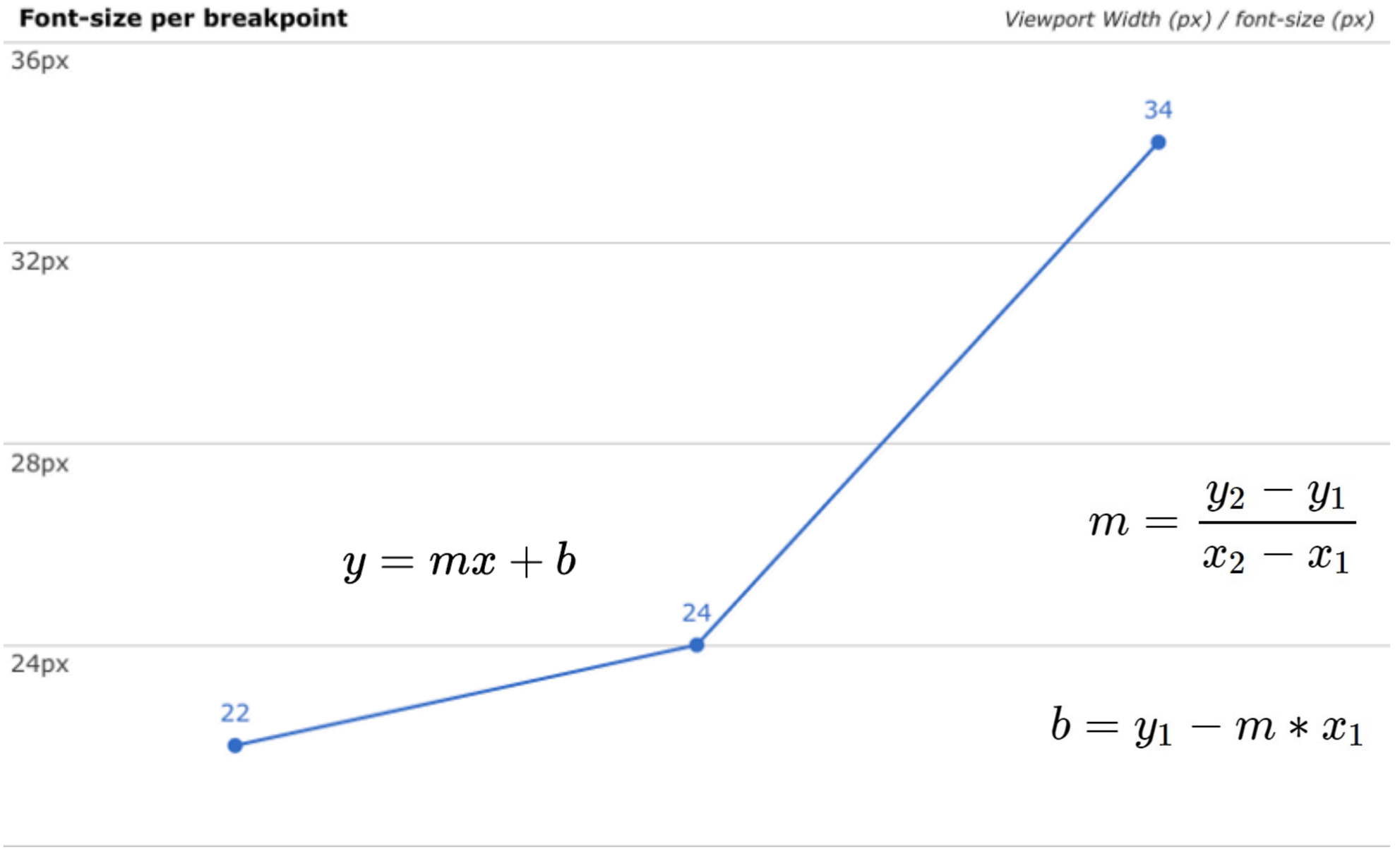


Image credit: Jake Wilson

```scss
@mixin poly-fluid-sizing($property, $map) {
  // Get the number of provided breakpoints
  $length: length(map-keys($map));

  // Error if the number of breakpoints is < 2
  @if ($length < 2) {
    @error "poly-fluid-sizing() $map requires at least values"
  }

  // Sort the map by viewport width (key)
  $map: map-sort($map);
  $keys: map-keys($map);

  // Minimum size
  #{$property}: map-get($map, nth($keys,1));

  // Interpolated size through breakpoints
  @for $i from 1 through ($length - 1) {
    @media (min-width:nth($keys,$i)) {
      $value1: map-get($map, nth($keys,$i));
      $value2: map-get($map, nth($keys,($i + 1)));
      // If values are not equal, perform linear interpolation
      @if ($value1 != $value2) {
        #{$property}: linear-interpolation((nth($keys,$i): $value1, nth($keys,($i+1)): $va
      } @else {
        #{$property}: $value1;
      }
    }
  }
```

Fluid Typography, SCSS → CSS

```scss
/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 {
    $map(576px: 22px, 320px: 18px, 992px: 34px, 768px: 24px);
    @include polyFluidSizing('font-size',$map);
}

h2 {
    $map(592px: 14px, 380px: 16px, 1017px: 22px, 694px: 18px);
    @include polyFluidSizing('font-size',$map);
}

nav {
    $map(500px: 8px, 396px: 6px, 990px: 12px, 605px: 10px);
    @include polyFluidSizing('padding',$map);
}
```

Fluid Typography, SCSS → CSS

```scss
/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 {
    $map(576px: 22px, 320px: 18px, 992px: 34px, 768px: 24px);
    @include polyFluidSizing('font-size',$map);
}
```

```css
h1 { font-size: 18px; } /* Minimum font size: 18px; */

@media screen and (min-width: 320px) { /* Interpolation: 18px → 22px */
    h1 { font-size: calc(1.04166667vw + 14.2444px); }
}

@media screen and (min-width: 576px) { /* Interpolation: 22px → 24px */
    h1 { font-size: calc(2.1821vw + 9.4621px); }
}
```

Fluid Typography, SCSS → CSS

```scss
/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 {
    $map(576px: 22px, 320px: 18px, 992px: 34px, 768px: 24px);
    @include polyFluidSizing('font-size',$map);
}
```

```scss
@media screen and (min-width: 768px) { /* Interpolation: 24px → 34px */
    h1 { font-size: calc(4.7787vw + 21.2444px); }
}

@media screen and (min-width: 992px) { /* Maximum font size: 34px */
    h1 { font-size: 34px; }
}
```

Fluid Typography, SCSS → CSS

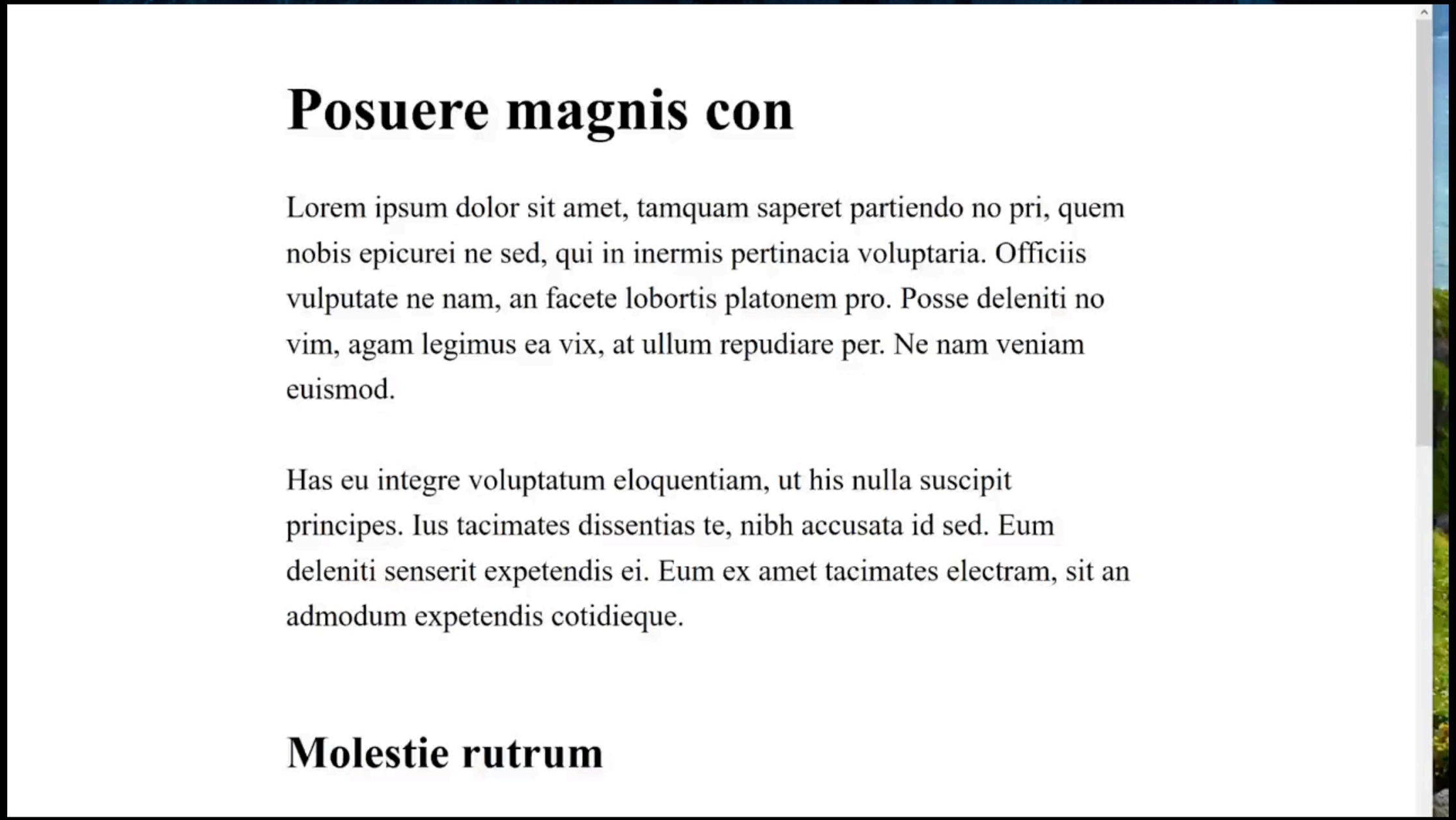
```scss
/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 {
    $map(576px: 1.5rem, 320px: 1rem, 992px: 3.375rem, 768px: 2.8125rem);
    @include polyFluidSizing('font-size',$map);
}
```

```scss
@media screen and (min-width: 768px) { /* Interpolation: 24px → 34px */
    h1 { font-size: calc(4.7787vw + 21.2444px); }
}

@media screen and (min-width: 992px) { /* Maximum font size: 34px */
    h1 { font-size: 34px; }
}
```

Fluid Typography, SCSS → CSS

```scss
/* 2:3 Perfect Fifth: 7.111, 10.667, 16 (i), 24, 36, 54  */
h1 {
    $map(320px: 1rem, 576px: 1.5rem, 768px: 2.8125rem, 992px: 3.375rem);
    @include polyFluidSizing('font-size',$map);
}
```

```scss
@media screen and (min-width: 768px) { /* Interpolation: 24px → 34px */
    h1 { font-size: calc(4.7787vw + 21.2444px); }
}

@media screen and (min-width: 992px) { /* Maximum font size: 34px */
    h1 { font-size: 34px; }
}
```



Posuere magnis con

Lorem ipsum dolor sit amet, tamquam saperet partiendo no pri, quem nobis epicurei ne sed, qui in inermis pertinacia voluptaria. Officiis vulputate ne nam, an facete lobortis platonem pro. Posse deleniti no vim, agam legimus ea vix, at ullum repudiare per. Ne nam veniam euismod.

Has eu integre voluptatum eloquentiam, ut his nulla suscipit principes. Ius tacimates dissentias te, nibh accusata id sed. Eum deleniti senserit expetendis ei. Eum ex amet tacimates electram, sit an admodum expetendis cotidieque.

Molestie rutrum

Image credit: Mike Riethmueller

Fluid Behavior, Turn OFF

```
html {
    font-size: calc(100% + 8 * ((100vw - 400px) / 400);
}

.testimonial { /* Use rem to adjust font-sizes */
    width: 4.5rem;
    padding: 0.5rem;
    font-size: 1.75rem;
}

/* Turn OFF fluid behavior in a fixed container */
.fixed-container { font-size: 18px; }
.fixed-container .testimonial { font-size: 2em; }
```

Posuere magnis con

Lorem ipsum dolor sit amet, tamquam saperet partiendo no pri, quem nobis epicurei ne sed, qui in inermis pertinacia voluptaria. Officiis vulputate ne nam, an facete lobortis platonem pro. Posse deleniti no vim, agam legimus ea vix, at ullum repudiare per. Ne nam veniam euismod.

Has eu integre voluptatum eloquentiam, ut his nulla suscipit principes. Ius tacimates dissentias te, nibh accusata id sed. Eum deleniti senserit expetendis ei. Eum ex amet tacimates electram, sit an admodum expetendis cotidieque.

Information not important

Pro wisi munere accumsan eu, sea ne adhuc volutpat, duo justo vituperatoribus ea. Nec ei fierent dolores, eam in mundi suscipit. Qui at iudico invidunt. Id simul fierent concludaturque cum, ius an sumo dicant nominati.

Molestie rutrum

Image credit: Mike Riethmueller

Fluid Behavior, Turn ON

```
html {
    font-size: 100%;
}

.testimonial { /* Use rem to adjust font-sizes */
    width: 4.5rem;
    padding: 0.5rem;
    font-size: 1.75rem;
}

/* Turn ON fluid behavior in a fluid container */
.fluid-container { font-size: calc(100% + 8 * ((100vw - 400px) / 400); }
.fluid-container .testimonial { font-size: 2em; }
```



Posuere magnis con

Lorem ipsum dolor sit amet, tamquam saperet partiendo no pri, quem nobis epicurei ne sed, qui in inermis pertinacia voluptaria. Officiis vulputate ne nam, an facete lobortis platonem pro. Posse deleniti no vim, agam legimus ea vix, at ullum repudiare per. Ne nam veniam euismod.

Emphasised if space is available

Pro wisi munere accumsan eu, sea ne adhuc volutpat, duo justo vituperatoribus ea. Nec ei fierent dolores, eam in mundi suscipit. Qui at iudico invidunt. Id simul fierent concludaturque cum, ius an sumo dicant nominati.

Has eu integre voluptatum eloquentiam, ut his nulla suscipit principes. Ius tacimates dissentias te, nibh accusata id sed. Eum deleniti senserit expetendis ei. Eum ex amet tacimates electram, sit an admodum expetendis cotidieque.

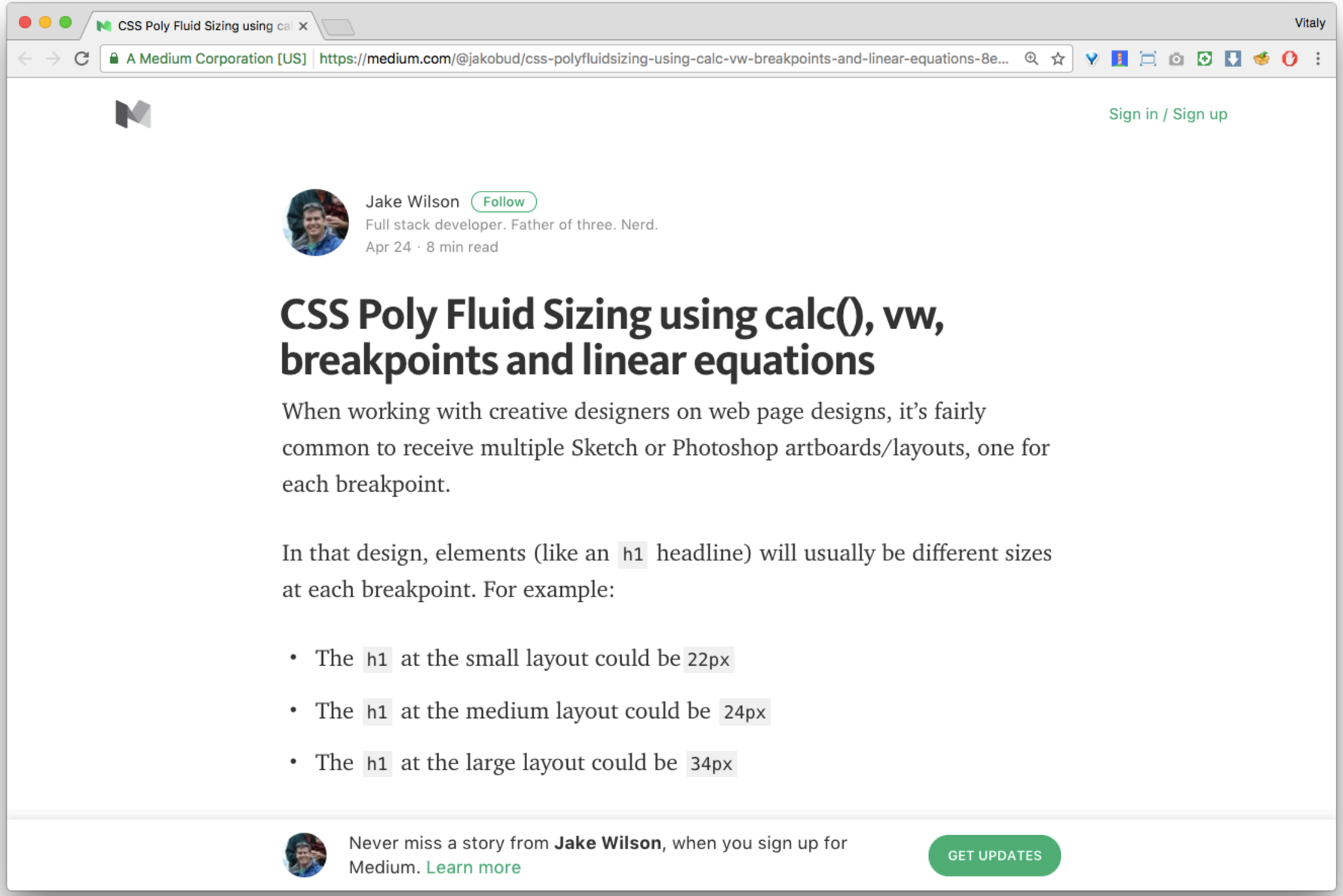
Molestie rutrum

Meis reprimique mei an. Ius primis aperiri accusata te, nam quas postulant eu. Ferri doming cetero ut has, sed an alia atqui constituto, in est salutatus moderatius. Sea aperiri fastidii cu, nec cu veniam electram vituperata. Lobortis scriptorem definitionem no mea. Eum malorum graecis qualisque cu, per velit corrumpit reprehendunt id, quis alterum sadipscing mea ut.

Etiam habemus ius te, qui primis reformidans at, et vocent laoreet salutandi vix. Elit nemore consequat eu mea, eam ei nobis detraxit antiopam. Ea agam commune qui. Ius eros mollis an, cu diam decore sit, at quod partem elaboraret usu. In aeque epicuri has, putent oportere ne per.

Pro wisi munere accumsan eu, sea ne adhuc volutpat, duo justo vituperatoribus ea. Nec ei fierent dolores, eam in mundi suscipit. Qui at iudico invidunt. Id simul fierent concludaturque cum, ius an sumo dicant nominati. Vis at omnes aperiri.

Image credit: Mike Riethmueller


CSS Poly Fluid Sizing using ca
Vitaly
A Medium Corporation [US]
https://medium.com/@jakobud/css-polyfluidsizing-using-calc-vw-breakpoints-and-linear-equations-8e...
Sign in / Sign up
Jake Wilson
Follow
Full stack developer. Father of three. Nerd.
Apr 24 · 8 min read
CSS Poly Fluid Sizing using calc(), vw, breakpoints and linear equations
When working with creative designers on web page designs, it's fairly common to receive multiple Sketch or Photoshop artboards/layouts, one for each breakpoint.
In that design, elements (like an h1 headline) will usually be different sizes at each breakpoint. For example:
The h1 at the small layout could be 22px
The h1 at the medium layout could be 24px
The h1 at the large layout could be 34px
Never miss a story from Jake Wilson, when you sign up for Medium. Learn more
GET UPDATES

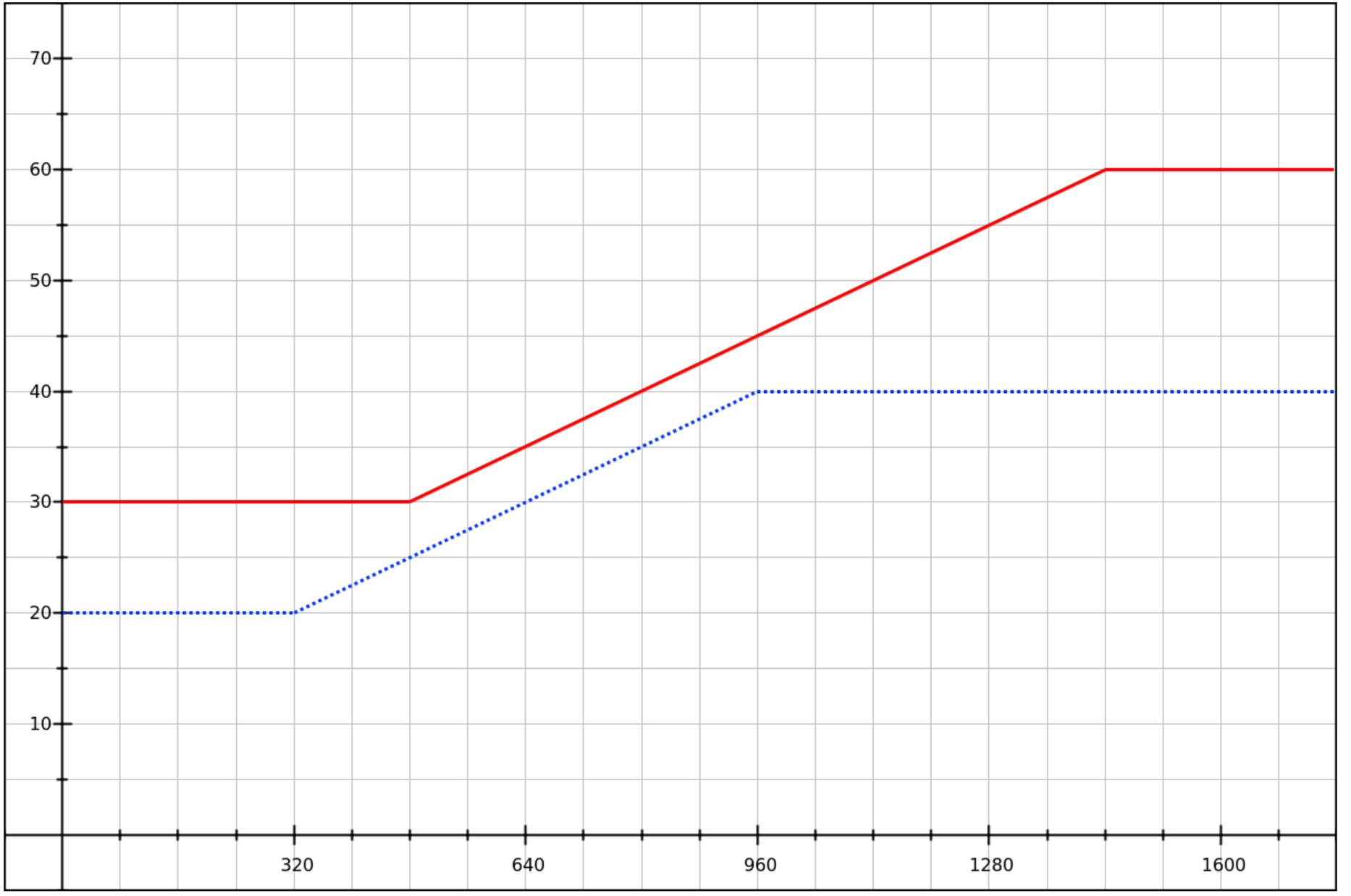


Image credit: Mike Riethmueller

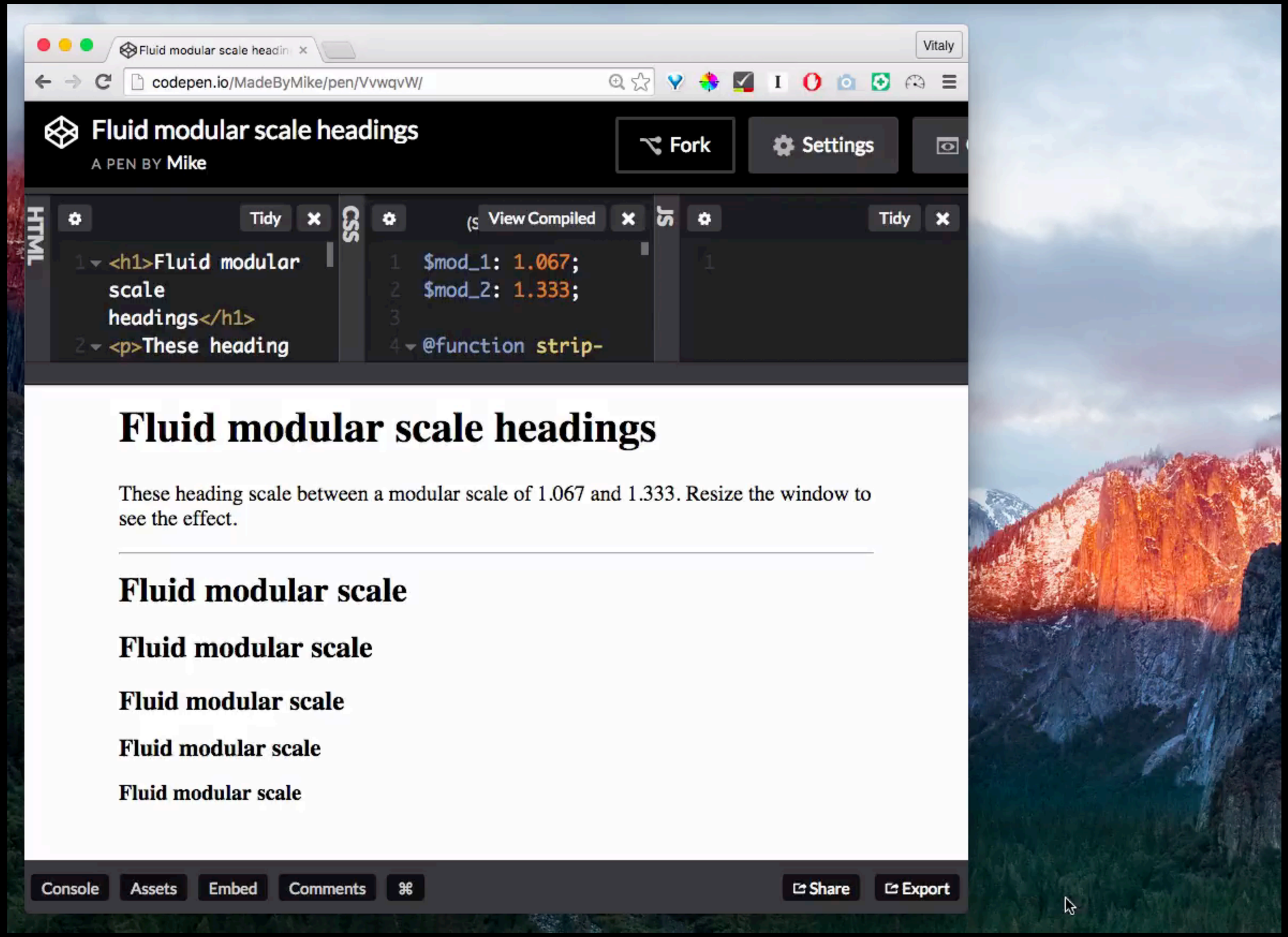


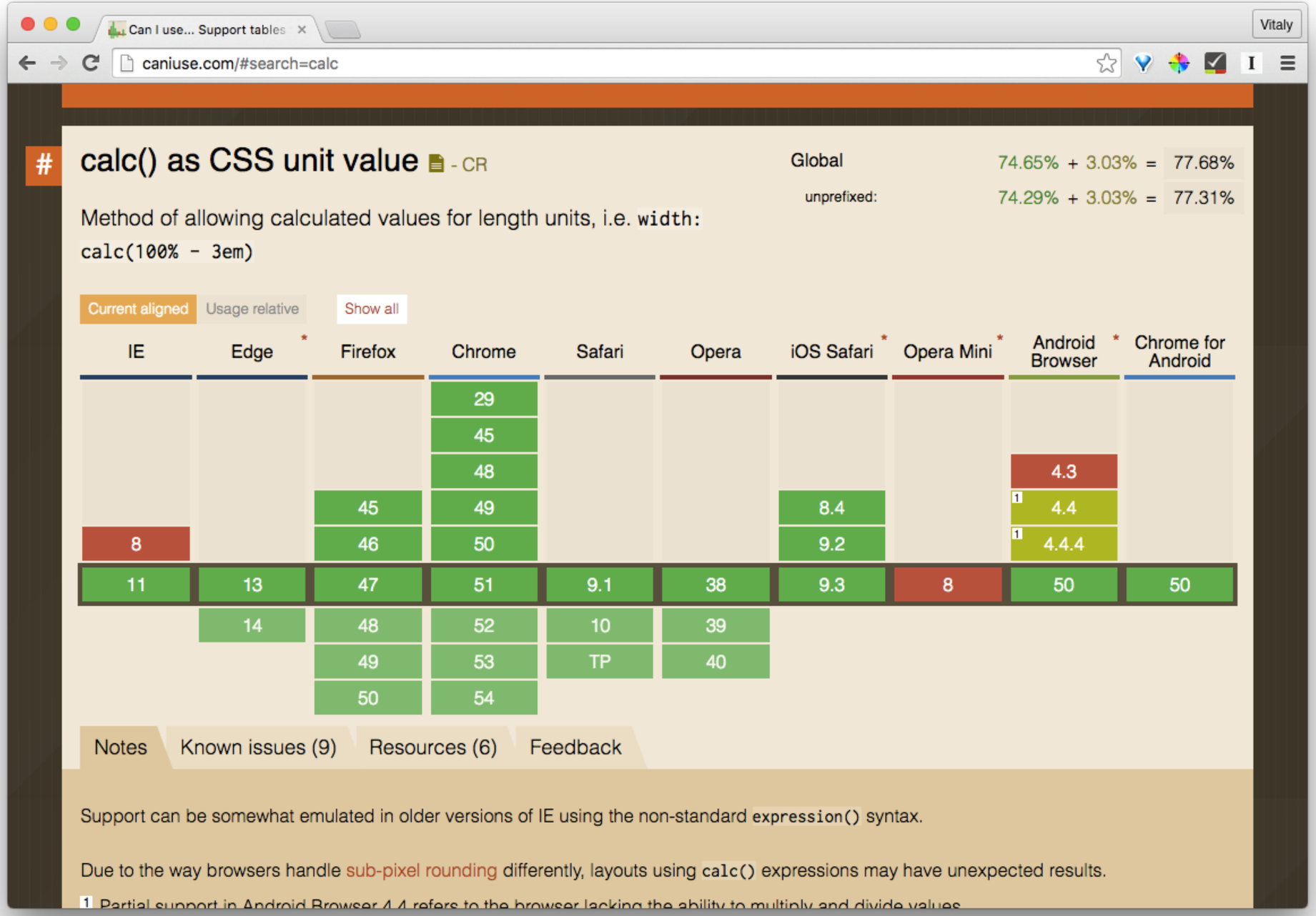
Image credit: Mike Riethmueller

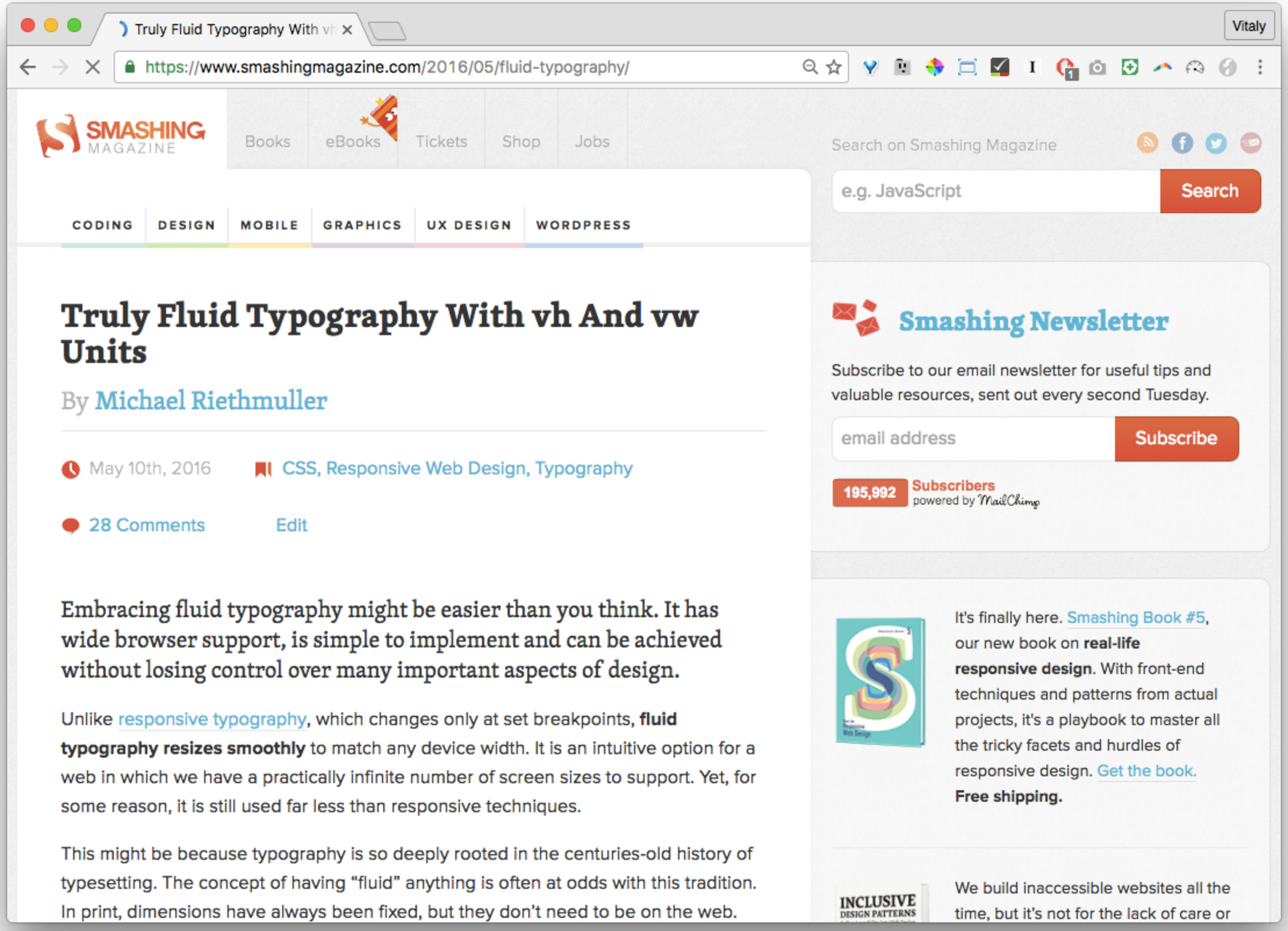


You choose the *min* and *max* font-size and the *screen sizes,* over which the font should scale and plug them into the equation. You can use any unit type including ems, rems or px.

— *Mike Riethmuller*


Fluid modular scale headin
Vitaly
codepen.io/MadeByMike/pen/VvwqvW/
Fluid modular scale headings
A PEN BY Mike
Fork
Settings
HTML
Tidy
<h1>Fluid modular scale headings</h1>
<p>These heading
CSS
View Compiled
$mod_1: 1.067;
$mod_2: 1.333;
@function strip-
JS
Tidy
Fluid modular scale headings
These heading scale between a modular scale of 1.067 and 1.333. Resize the window to see the effect.
Fluid modular scale
Fluid modular scale
Fluid modular scale
Fluid modular scale
Fluid modular scale
Console
Assets
Embed
Comments
⌘
Share
Export


Can I use... Support tables
Vitaly
caniuse.com/#search=calc
#
calc() as CSS unit value - CR
Global 74.65% + 3.03% = 77.68%
unprefixed: 74.29% + 3.03% = 77.31%
Method of allowing calculated values for length units, i.e. width: calc(100% - 3em)
Current aligned
Usage relative
Show all
IE
Edge *
Firefox
Chrome
Safari
Opera
iOS Safari *
Opera Mini *
Android Browser *
Chrome for Android
8
11
13
14
45
46
47
48
49
50
29
45
48
49
50
51
52
53
54
9.1
10
TP
38
39
40
8.4
9.2
9.3
8
4.3
1 4.4
1 4.4.4
50
50
Notes
Known issues (9)
Resources (6)
Feedback
Support can be somewhat emulated in older versions of IE using the non-standard expression() syntax.
Due to the way browsers handle sub-pixel rounding differently, layouts using calc() expressions may have unexpected results.
1 Partial support in Android Browser 4.4 refers to the browser lacking the ability to multiply and divide values


Truly Fluid Typography With vh
Vitaly
https://www.smashingmagazine.com/2016/05/fluid-typography/
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eBooks
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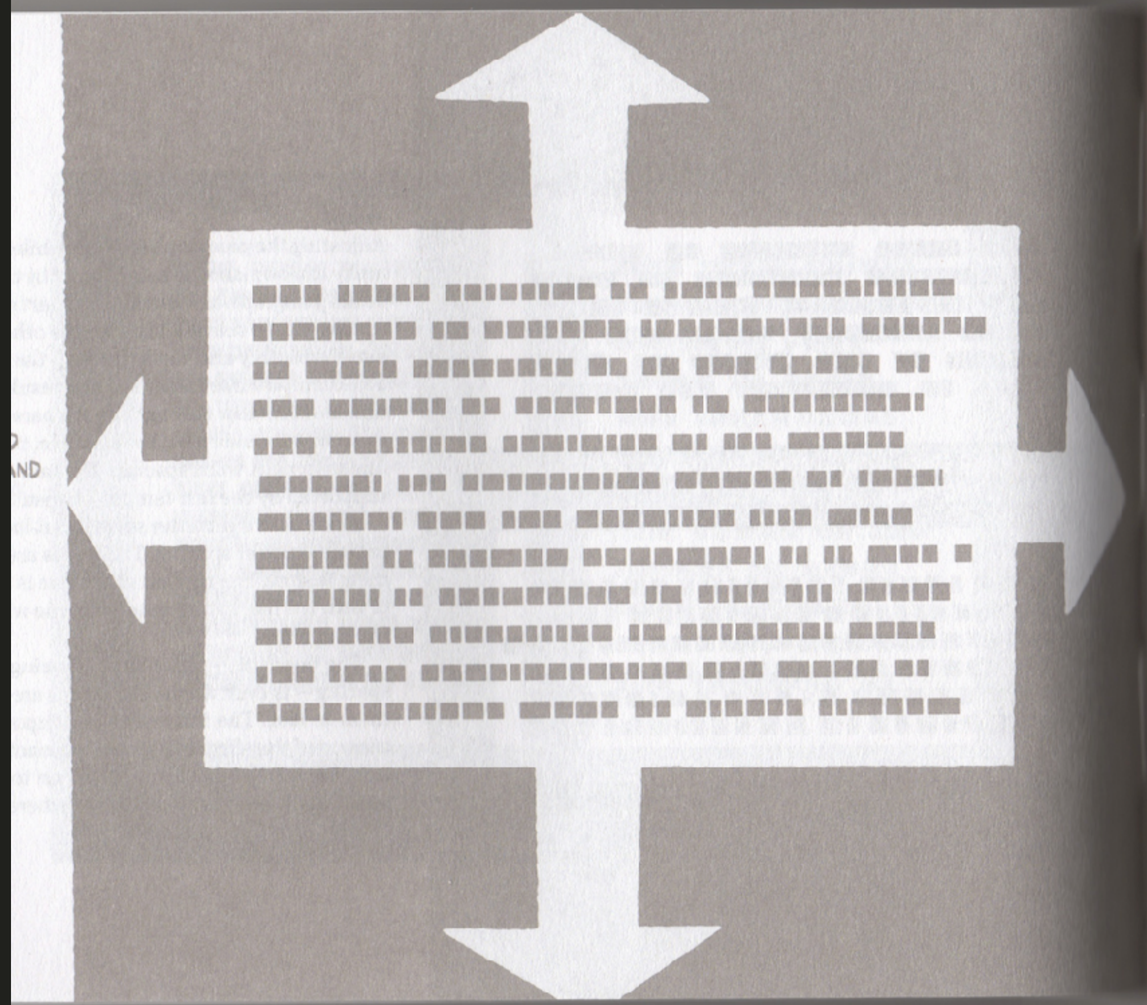
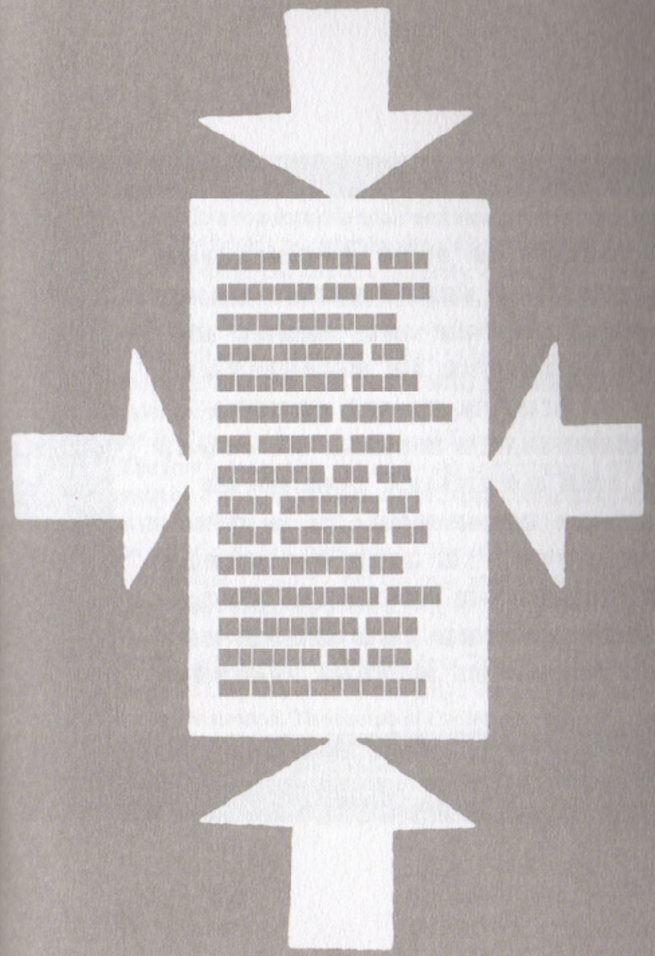
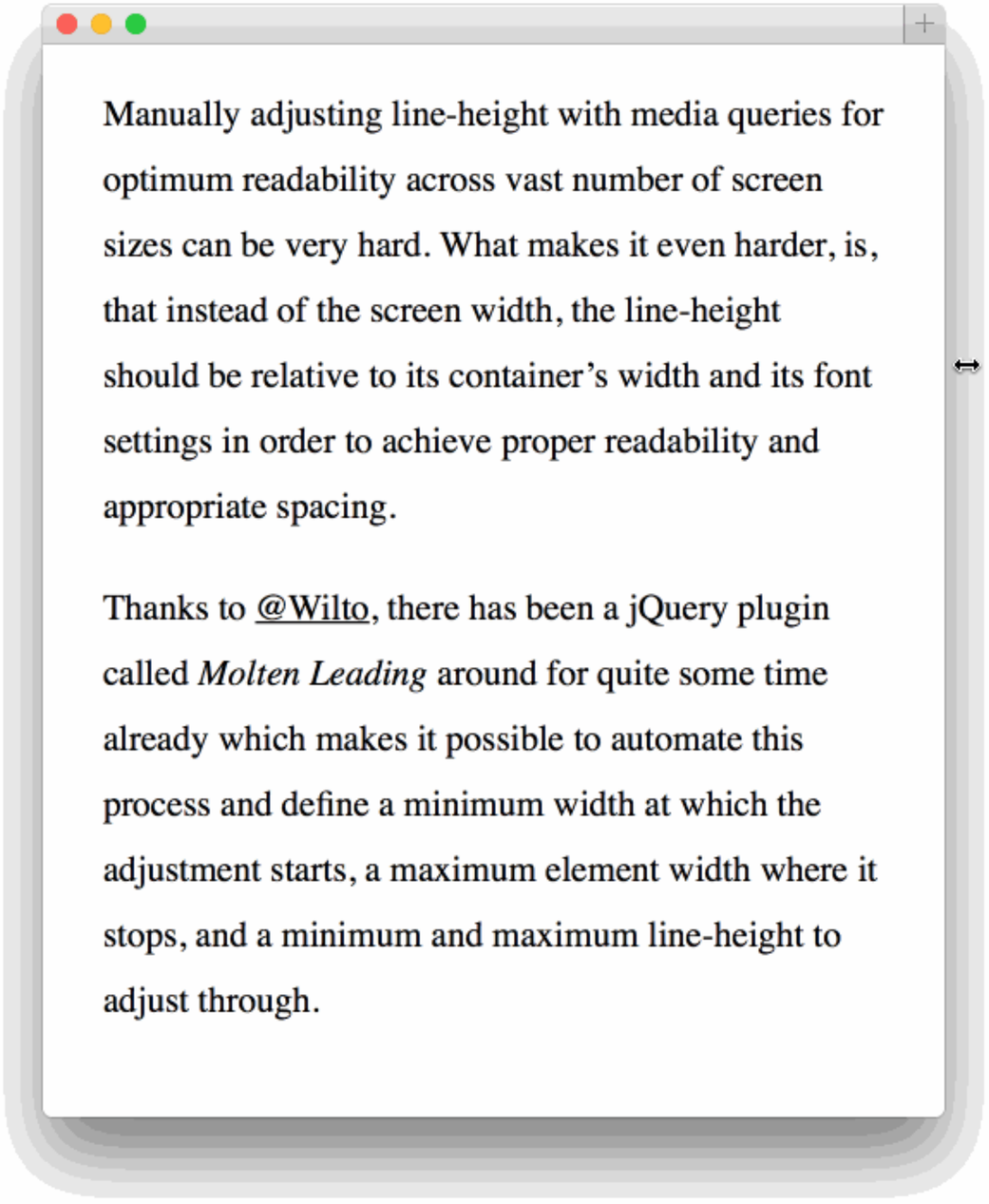
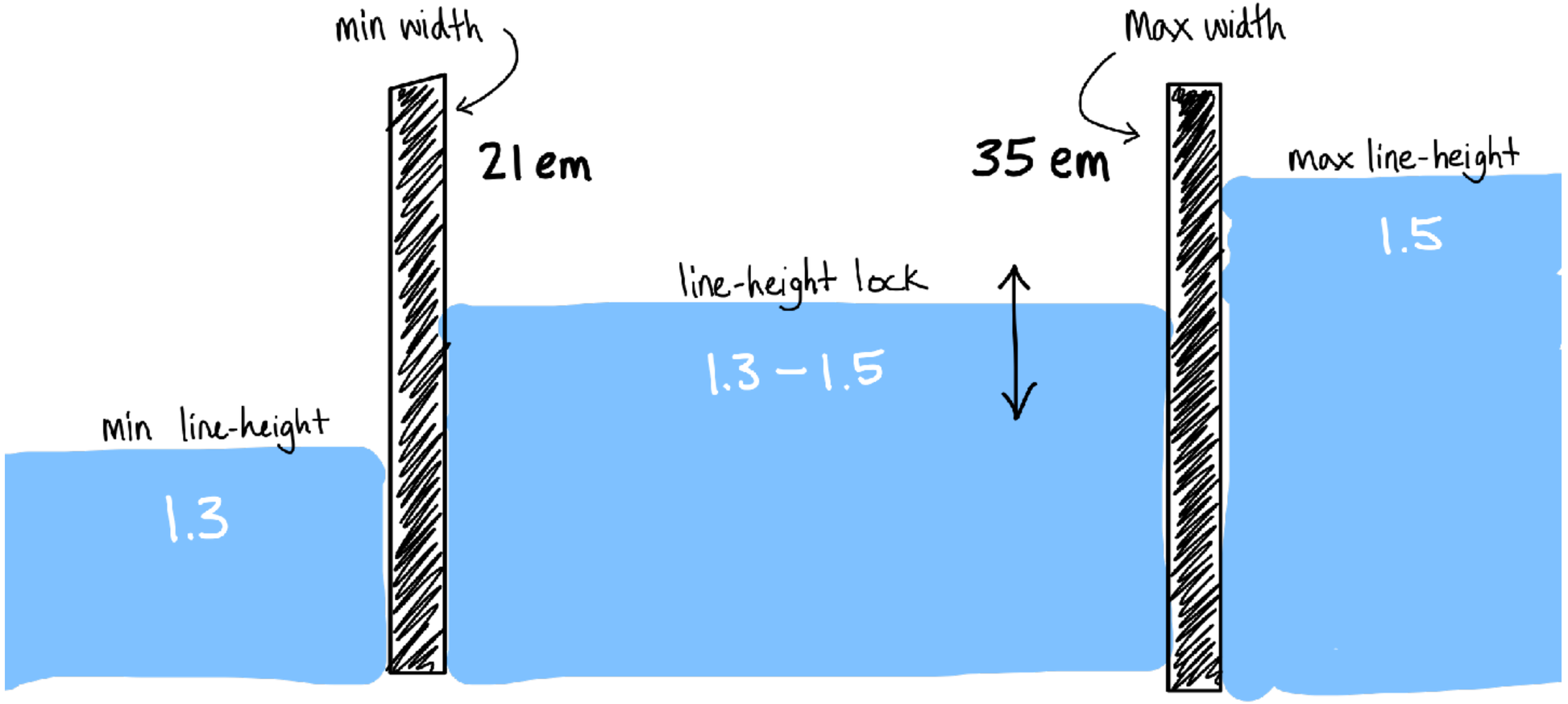
Jobs
Search on Smashing Magazine
e.g. JavaScript
Search
CODING
DESIGN
MOBILE
GRAPHICS
UX DESIGN
WORDPRESS
Truly Fluid Typography With vh And vw Units
By Michael Riethmuller
May 10th, 2016
CSS, Responsive Web Design, Typography
28 Comments
Edit
Embracing fluid typography might be easier than you think. It has wide browser support, is simple to implement and can be achieved without losing control over many important aspects of design.
Unlike responsive typography, which changes only at set breakpoints, fluid typography resizes smoothly to match any device width. It is an intuitive option for a web in which we have a practically infinite number of screen sizes to support. Yet, for some reason, it is still used far less than responsive techniques.
This might be because typography is so deeply rooted in the centuries-old history of typesetting. The concept of having “fluid” anything is often at odds with this tradition. In print, dimensions have always been fixed, but they don’t need to be on the web.
Smashing Newsletter
Subscribe to our email newsletter for useful tips and valuable resources, sent out every second Tuesday.
email address
Subscribe
195,992 Subscribers
powered by MailChimp
It's finally here. Smashing Book #5, our new book on real-life responsive design. With front-end techniques and patterns from actual projects, it's a playbook to master all the tricky facets and hurdles of responsive design. Get the book. Free shipping.
INCLUSIVE DESIGN PATTERNS
We build inaccessible websites all the time, but it’s not for the lack of care or






Manually adjusting line-height with media queries for optimum readability across vast number of screen sizes can be very hard. What makes it even harder, is, that instead of the screen width, the line-height should be relative to its container's width and its font settings in order to achieve proper readability and appropriate spacing.
Thanks to @Wilto, there has been a jQuery plugin called *Molten Leading* around for quite some time already which makes it possible to automate this process and define a minimum width at which the adjustment starts, a maximum element width where it stops, and a minimum and maximum line-height to adjust through.


min width
21 em
Max width
35 em
max line-height
1.5
line-height lock
1.3 – 1.5
min line-height
1.3

And here's what a CSS lock looks like in code:

```
line-height: calc(1.3em + (1.5 - 1.3) * ((100vw - 21em)/(35 - 21)));
```

To understand how the formula works within **calc()**, we're going to work through it backwards.

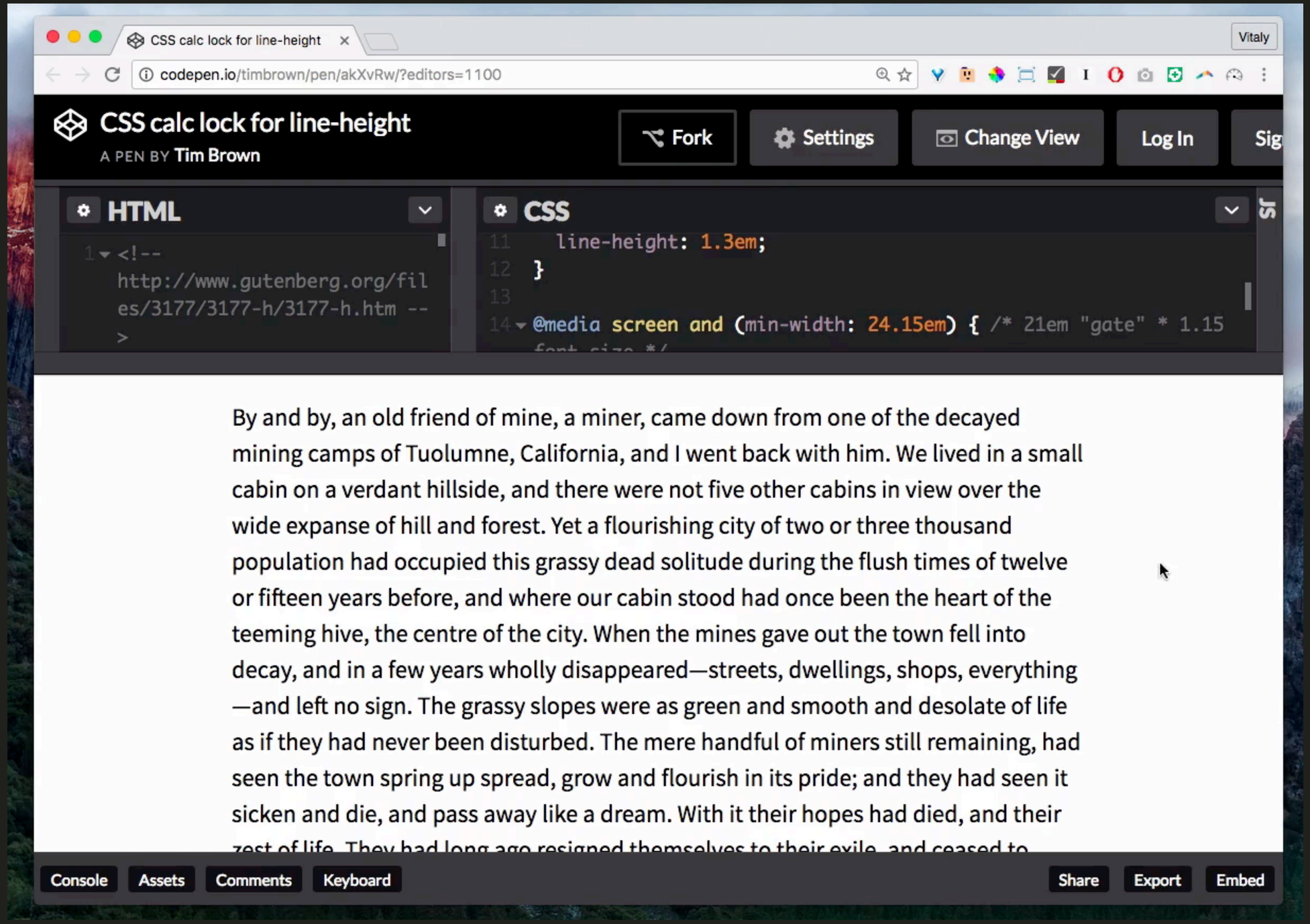
1. See the very last part? **35–21**. That gives us the *full range of our paragraph's width*. It resolves to 14, because **14em** is the difference between our paragraph's width at its most narrow and most wide.
2. To the left of that, we've got **100vw–21em**. Because of the way CSS calc works, this resolves to an em-based value—and gives us a numerator to place above the 14em we already figured out. So, for example, let's say the viewport width (100vw) is equivalent to 34em. 34em–21em = 13em. *Note that the viewport unit in this step is our secret sauce. The fact that this value can change dynamically with browser window width is what makes a dynamic line-height value possible.*
3. So the whole expression to the right of the multiplication sign gets distilled down to this: 13em / 14em, or **0.928571429em**. Think of this as how close we are to the "upper gate" of our lock. If it's near zero, we're close to the lower gate. If it's near one, we're close to the upper gate.
4. Moving to the left of the multiplication sign, we compute the difference between our maximum and minimum line heights. 1.5–1.3 = **0.2**. This gives us *the full range of our fluid line height*.
5. Now we multiply the full range of our fluid line height (step 4) by how far along we are toward the upper gate of our lock (step 3):
   0.2 * 0.928571429em = **0.185714286em**.

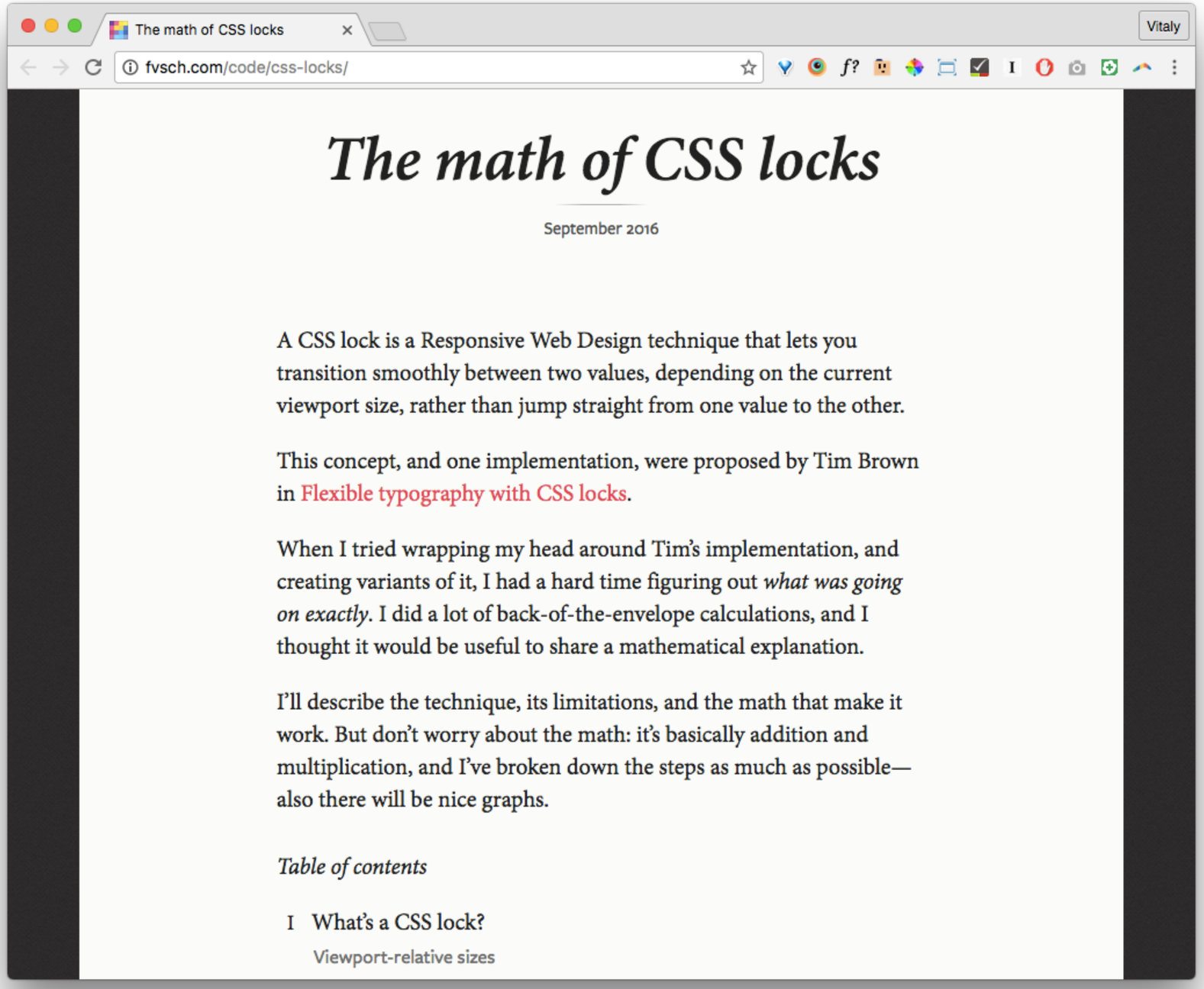
And here's what a CSS lock looks like in code:

```
line-height: calc(1.3em + (1.5 - 1.3) * ((100vw - 21em)/(35 - 21)));
```

To understand how the formula works within **calc()**, we're going to work through it backwards.

1. See the very last part? **35–21**. That gives us the *full range of our paragraph's width*. It resolves to 14, because **14em** is the difference between our paragraph's width at its most narrow and most wide.
2. To the left of that, we've got **100vw–21em**. Because of the way CSS calc works, this resolves to an em-based value—and gives us a numerator to place above the 14em we already figured out. So, for example, let's say the viewport width (100vw) is equivalent to 34em. 34em–21em = 13em. *Note that the viewport unit in this step is our secret sauce. The fact that this value can change dynamically with browser window width is what makes a dynamic line-height value possible.*
3. So the whole expression to the right of the multiplication sign gets distilled down to this: 13em / 14em, or **0.928571429em**. Think of this as how close we are to the "upper gate" of our lock. If it's near zero, we're close to the lower gate. If it's near one, we're close to the


CSS calc lock for line-height
Vitaly
codepen.io/timbrown/pen/akXvRw/?editors=1100
CSS calc lock for line-height
A PEN BY Tim Brown
Fork
Settings
Change View
Log In
Sig
HTML
<!--
http://www.gutenberg.org/files/3177/3177-h/3177-h.htm --
>
CSS
line-height: 1.3em;
}
@media screen and (min-width: 24.15em) { /* 21em "gate" * 1.15
By and by, an old friend of mine, a miner, came down from one of the decayed mining camps of Tuolumne, California, and I went back with him. We lived in a small cabin on a verdant hillside, and there were not five other cabins in view over the wide expanse of hill and forest. Yet a flourishing city of two or three thousand population had occupied this grassy dead solitude during the flush times of twelve or fifteen years before, and where our cabin stood had once been the heart of the teeming hive, the centre of the city. When the mines gave out the town fell into decay, and in a few years wholly disappeared—streets, dwellings, shops, everything —and left no sign. The grassy slopes were as green and smooth and desolate of life as if they had never been disturbed. The mere handful of miners still remaining, had seen the town spring up spread, grow and flourish in its pride; and they had seen it sicken and die, and pass away like a dream. With it their hopes had died, and their
Console
Assets
Comments
Keyboard
Share
Export
Embed


The math of CSS locks
Vitaly
fvsch.com/code/css-locks/
The math of CSS locks
September 2016
A CSS lock is a Responsive Web Design technique that lets you transition smoothly between two values, depending on the current viewport size, rather than jump straight from one value to the other.
This concept, and one implementation, were proposed by Tim Brown in Flexible typography with CSS locks.
When I tried wrapping my head around Tim's implementation, and creating variants of it, I had a hard time figuring out what was going on exactly. I did a lot of back-of-the-envelope calculations, and I thought it would be useful to share a mathematical explanation.
I'll describe the technique, its limitations, and the math that make it work. But don't worry about the math: it's basically addition and multiplication, and I've broken down the steps as much as possible—also there will be nice graphs.
Table of contents
I What's a CSS lock?
Viewport-relative sizes

The Typekit Blog | Flexible typ

Vitaly

blog.typekit.com/2016/08/17/flexible-typography-with-css-locks/

Flexible typography with CSS locks

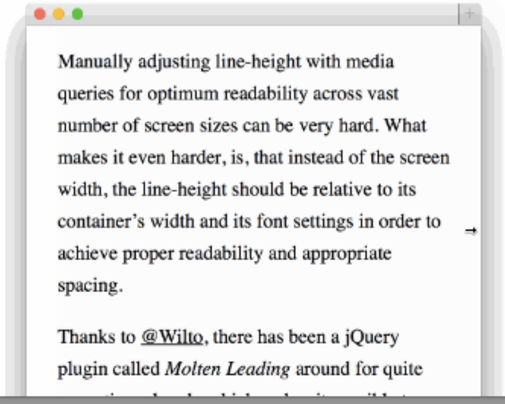
Tim Brown · August 17, 2016 · Using Type



TIM BROWN

Head of Typography for Adobe Typekit & Adobe Type. Practicing typography and web design every day. I write, speak, and make tools to share what I learn. I try to be helpful. I love my wife, kids, family, friends, teachers, and dogs. I'm a volunteer firefighter.

In early 2012, I shared a formula for "molten leading", or fluid line spacing. Experienced typographers know that long lines of text need more line spacing, but line spacing can be tighter for short lines of text. The problem is that on the web, our texts are flexible. So our line spacing needs to flex, too:



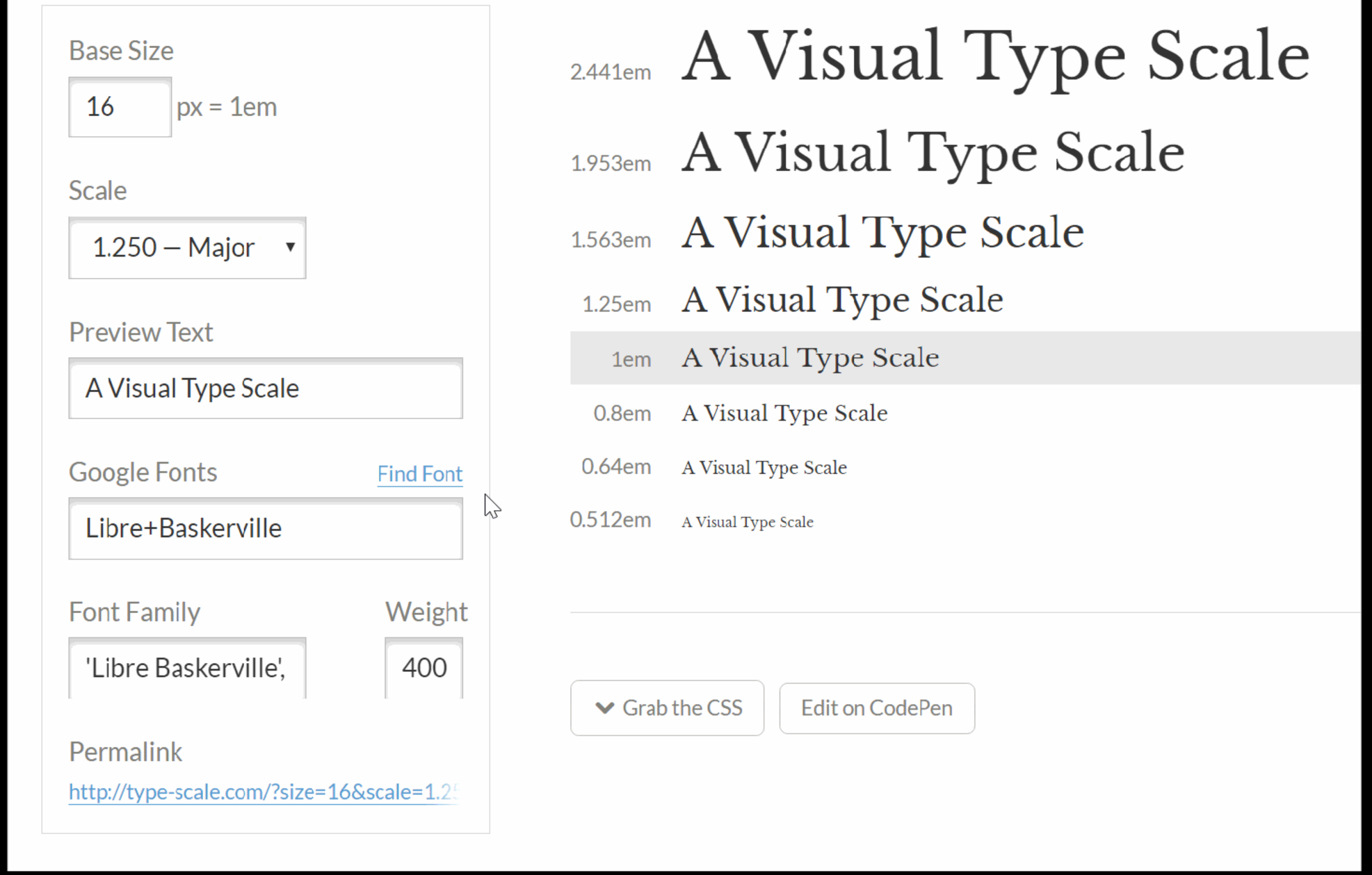


Image credit: Mike Riethmueller

Mobile Scale

1.067

h1: 22.128px
h2: 39.063px
h3: 19.436px
h4: 18.216px
h5: 17.072px
h6: 16px

Desktop Scale

1.25

h1: 48.828px
h2: 20.739px
h3: 31.25px
h4: 25px
h5: 20px
h6: 16px

Demos and slides kindly provided by Mike Riethmueller (@MikeRiethmuller)

Fluid Typography, SCSS → CSS

```scss
/* Interpolation: Mobile Scale 1.067 → Desktop Scale 1.25 */
h1 {
    $map(320px: 22.128px, 1024px: 48.828px);
    @include polyFluidSizing('font-size',$map);
}

h2 {
    $map(320px: 20.739px, 1024px: 39.063px);
    @include polyFluidSizing('font-size',$map);
}

h3 {
    $map(320px: 19.436px, 1024px: 31.25px);
    @include polyFluidSizing('font-size',$map);
}
```

An Alternative Approach to Layout

Staring Bill Murray



Bill 1



Bill 2

In this example the text block will grow and shrink, but maintain a consistent line length where possible.

Image blocks scale fluidly between a 1:1 and 16:9 ratio.

Both padding and margin between blocks and content is fluid.

The overall effect is a tight instagram like layout on mobile and a

Image credit: Mike Riethmueller

Fluid Vertical Rhythm

This is an example of fluid type that maintains vertical rhythm. I'll try and find the time to write it up in detail soon.

If the lines seem to glitch out ocasionally it's not because the vertical rhythm is broken. I think it's because of the way the browser rounds. The height of the gradient background that draws the lines on the body element is only rounded once, whereas real line hight is rounded on a per element basis. This adds up by the time you get to the bottom of the page. No idea how to fix it!

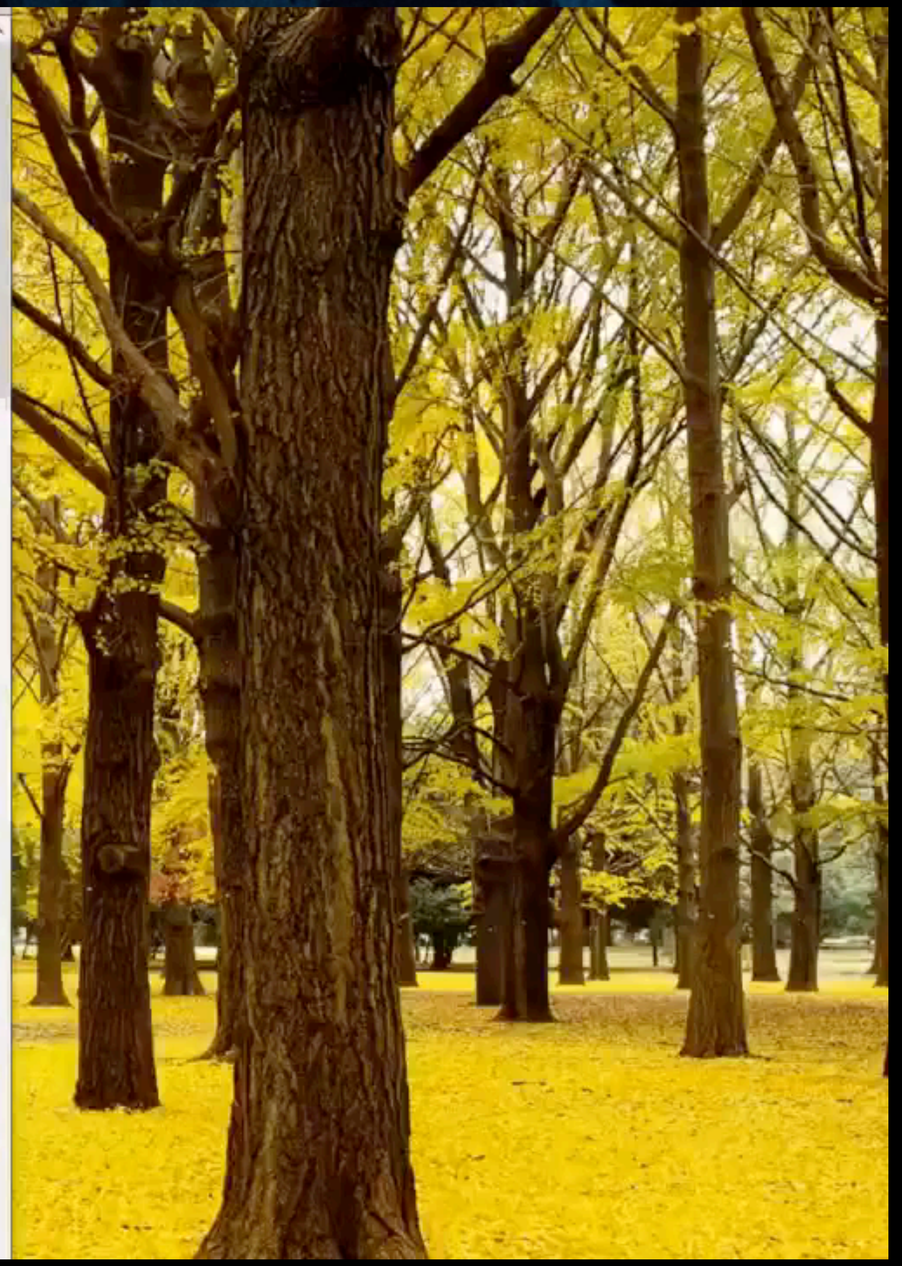
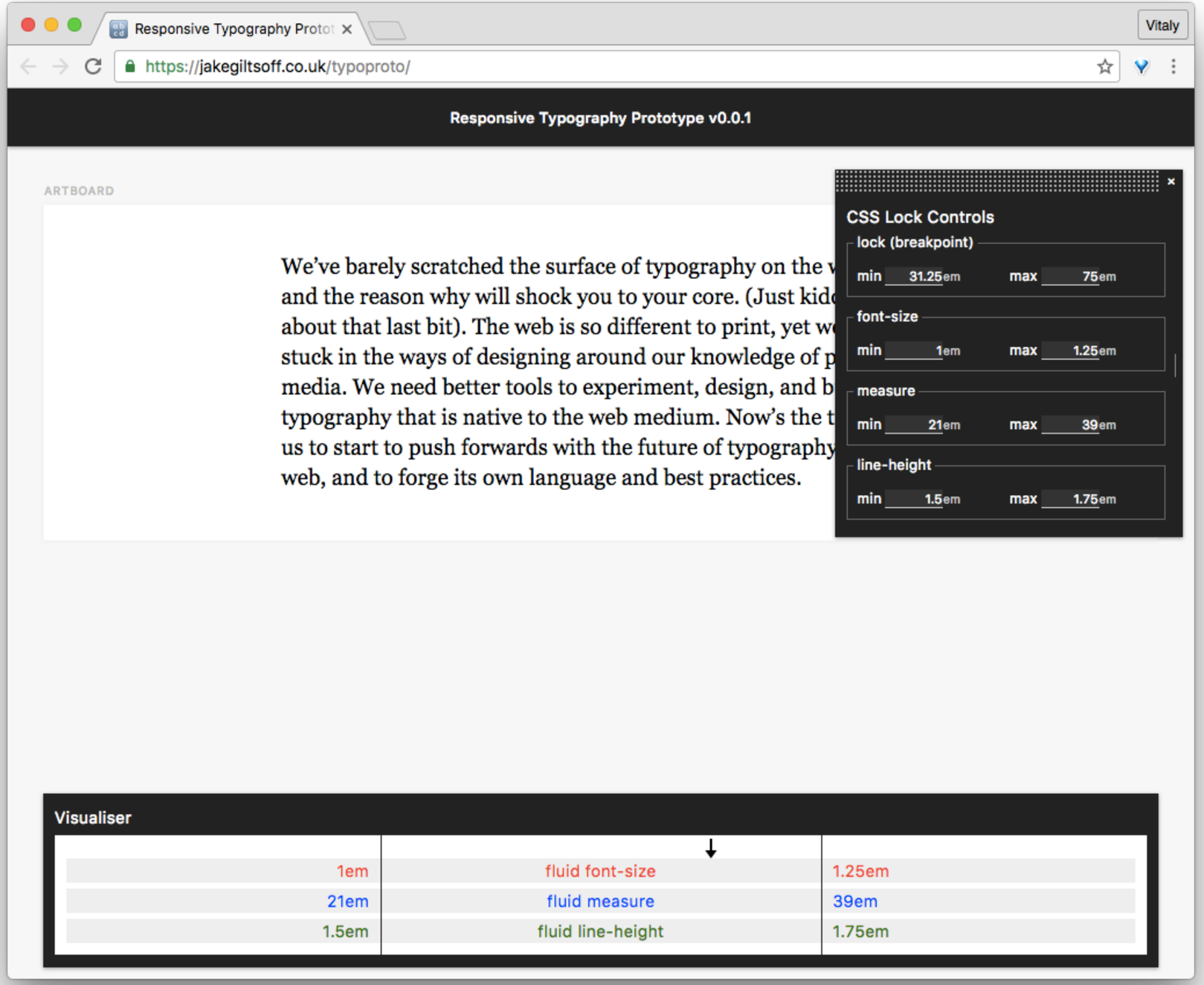
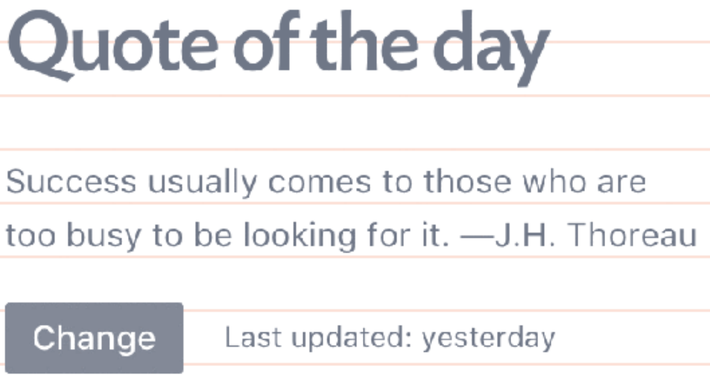


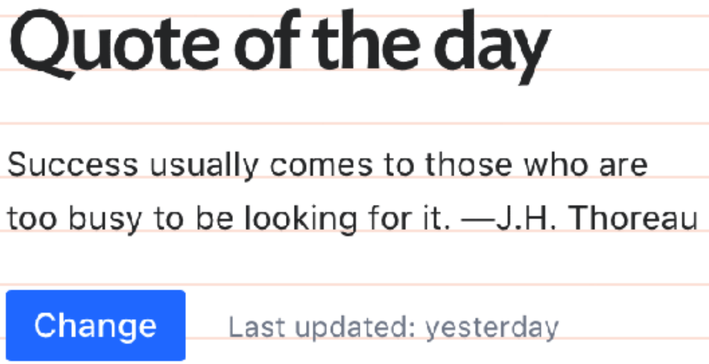
Image credit: Mike Riethmueller


Responsive Typography Protot
Vitaly
https://jakegiltsoff.co.uk/typoproto/
Responsive Typography Prototype v0.0.1
ARTBOARD
We've barely scratched the surface of typography on the v
and the reason why will shock you to your core. (Just kid
about that last bit). The web is so different to print, yet w
stuck in the ways of designing around our knowledge of p
media. We need better tools to experiment, design, and b
typography that is native to the web medium. Now's the t
us to start to push forwards with the future of typography
web, and to forge its own language and best practices.
CSS Lock Controls
lock (breakpoint)
min 31.25em max 75em
font-size
min 1em max 1.25em
measure
min 21em max 39em
line-height
min 1.5em max 1.75em
Visualiser
1em fluid font-size 1.25em
21em fluid measure 39em
1.5em fluid line-height 1.75em


LEVEL 6
RHYTHM
BASELINE RHYTHM WITH CSS GRID & CUSTOM PROPERTIES
GET READY



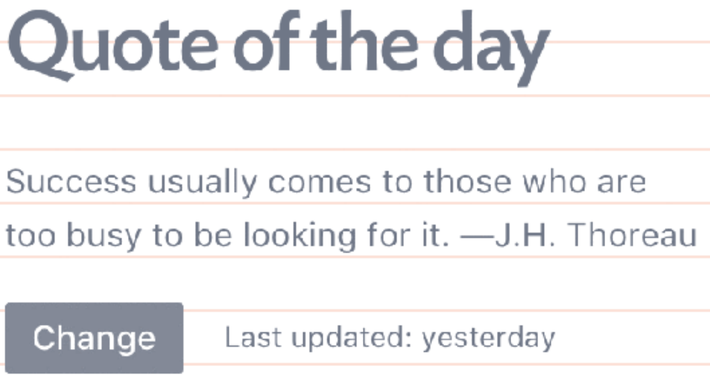
MISAPPLIED CONCEPT



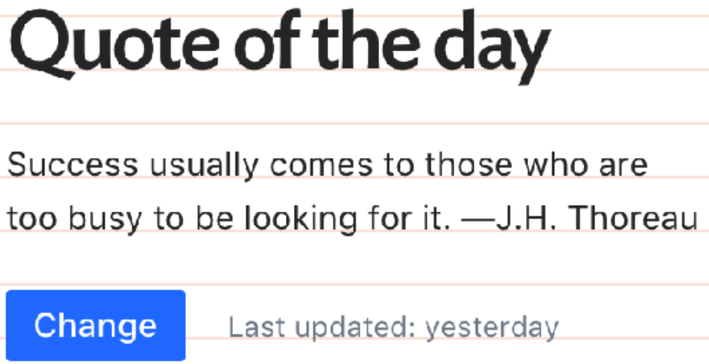
JUST RIGHT

Often we define a common *line height* value (or its multiple) that's used for all elements, including their *paddings* and *margins*, occasionally taking *border widths* into the equation.

What if we *align the baseline* instead? So that all type—regardless of its size—lies on the same *grid line*? We just need to calculate the *offset* and then shift the content by that offset.



MISAPPLIED CONCEPT



JUST RIGHT

By default, browsers *center the cap height* between grid lines (the height of a capital letter above the baseline). So we shift it by *half* the difference between line height and cap height.

To determine the *cap height,* we fiddle with *offset values* until the type is properly aligned with the grid.

- vertical-rhythm.scss:

```
$line-height: 24px;

$font-stacks: (
    s: $font-stack-text,
    m: $font-stack-text,
    l: $font-stack-display,
   xl: $font-stack-display
);

$font-sizes: (s: 13px, m: 15px, l: 19px, xl: 27px);
$cap-heights: (s: 0.8, m: 0.8, l: 0.68, xl: 0.68);
```

```
$line-height: 24px;

$font-stacks: (
    s: $font-stack-text,
    m: $font-stack-text,
    l: $font-stack-display,
   xl: $font-stack-display
);

$font-sizes: (s: 13px, m: 15px, l: 19px, xl: 27px);
$cap-heights: (s: 0.8, m: 0.8, l: 0.68, xl: 0.68);

@function rhythm-shift($size-name) {
    $font-size: map-get($font-sizes, $size-name);
    $cap-height: map-get($cap-heights, $size-name);
    $offset: ($line-height - $cap-height * $font-size) / 2;
    return round($offset);
}
```

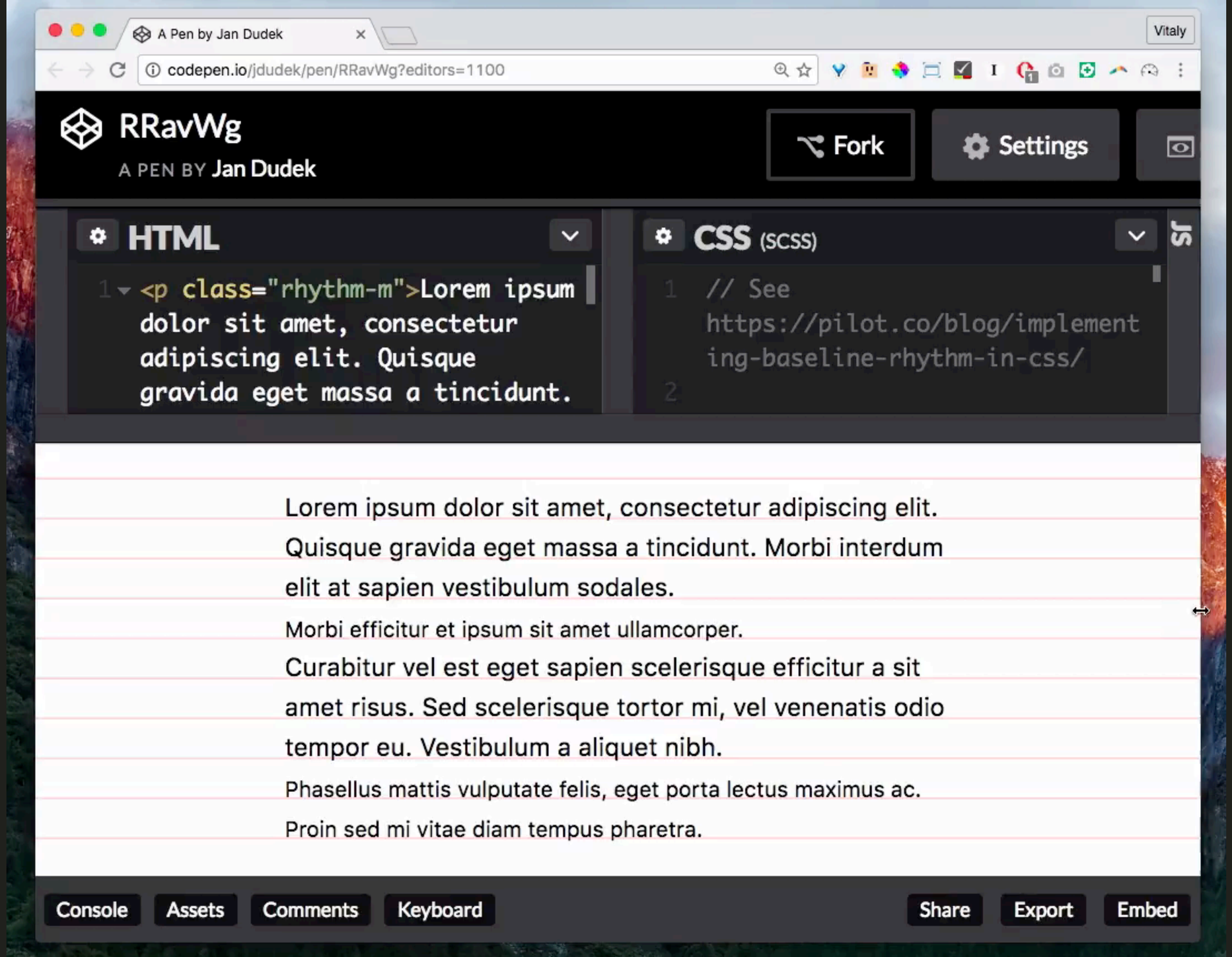
Now we just need to *apply the offset,* and do so reliably. We can combine *positive* top margin and *negative* bottom margin to make it work.

```
$offset: rhythm-shift(m);

.rhythm-m {
    margin-top: $offset;
    margin-bottom: -1 * $offset;
}
```

- *Collapsing* works differently with positive and negative margins:
    - *Two positive margins*
      The bigger one wins.
    - *Two negative margins*
      The lower (i.e. the *more* negative) wins.
    - *One positive, one negative margin*
      The margins *sum up.*

If an element doesn’t have a *border nor padding*, and its first child has a margin, that margin will *flow out* of the parent. Use *overflow*: hidden.


A Pen by Jan Dudek
Vitaly
codepen.io/jdudek/pen/RRavWg?editors=1100
RRavWg
A PEN BY Jan Dudek
Fork
Settings
HTML
<p class="rhythm-m">Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quisque gravida eget massa a tincidunt.
CSS (SCSS)
// See https://pilot.co/blog/implementing-baseline-rhythm-in-css/
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quisque gravida eget massa a tincidunt. Morbi interdum elit at sapien vestibulum sodales.
Morbi efficitur et ipsum sit amet ullamcorper.
Curabitur vel est eget sapien scelerisque efficitur a sit amet risus. Sed scelerisque tortor mi, vel venenatis odio tempor eu. Vestibulum a aliquet nibh.
Phasellus mattis vulputate felis, eget porta lectus maximus ac.
Proin sed mi vitae diam tempus pharetra.
Console
Assets
Comments
Keyboard
Share
Export
Embed

Implementing baseline rhythm

Vitaly

https://pilot.co/blog/implementing-baseline-rhythm-in-css/

Pilot Blog

Pilot Guides

Implementing baseline rhythm in CSS

WRITTEN BY JAN DUDEK



15 JUNE 2016

Vertical rhythm is a typographic concept that's so often misunderstood by front-end engineers.

By aligning type to a vertical grid, designers can make their work look harmonious and clean. And by having the same visual rhythm implemented correctly, front-end architects can achieve consistent, good-looking results more easily and in shorter time. All that without the need for designers' input in the process.

```
<article>

    <h2>Vertical Rhythm With Holy.js</h2>
    <p>Imagine that you're tasked with building or managing
       a website containing a real-estate agency's portfolio.</p>

    <h3>Example</h3>
    <p>Let's look at a standard admin overview screen for
       custom post types.</p>

    <figure class="break-out">
        <a href="/"><img src="image.svg" alt="Text" /></a>
        <figcaption>Image description</figcaption>
    </figure>

    <p>Let's look at a standard admin overview screen for
       custom post types.</p>

</article>
```

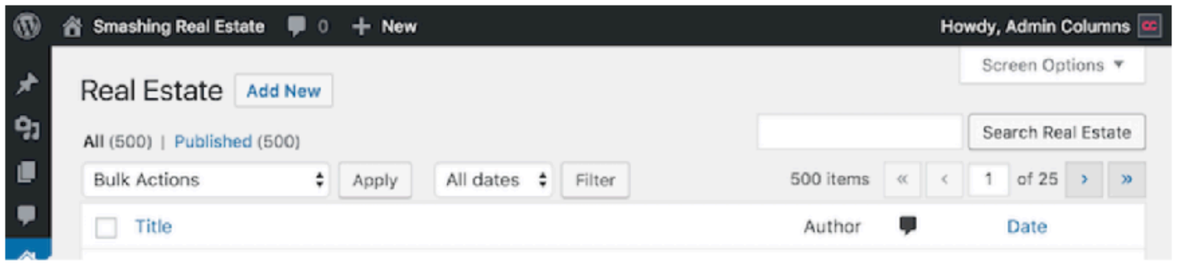
Vertical Rhythm With CSS Grid

Imagine that you're tasked with building or managing a website containing a real-estate agency's portfolio. On the website, you display pictures, house addresses, locations, number of rooms and other attributes. On the admin screen, you manage the portfolio, adding, removing and editing existing real estate.

The columns WordPress shows by default (title, author, publication date, number of comments) are hardly relevant for your real-estate website, and you'd be more interested in seeing the existing pictures and information about the real-estate listings as a whole.

Example

Let's look at a standard admin overview screen for custom post types:



Defining The Fold

```
html {
    font-size: 100%;
}

body {
    font-size: calc(1rem + .75vmin);
    line-height: calc(1.35rem + 1.5vmin);
}

:root {
    --gutter: 1rem + 2vmin;
}
```

```
html {
    font-size: 100%;
}

body {
    font-size: calc(1rem + .75vmin);
    line-height: calc(1.35rem + 1.5vmin);
}

:root {
    --gutter: 1rem + 2vmin;
}

@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }
```

ch (character unit) represents the width of the character `0` in the current font, of particular use in combination with monospace fonts.

Vertical Rhythm With CSS Grid

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Example

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ch (character) unit - CR

Global 90.49% + 3.65% = 94.13%

Unit representing the width of the character "0" in the current font, of particular use in combination with monospace fonts.

Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	iOS Safari *	Opera Mini *	Chrome for Android	UC Browser for Android	Samsung Internet
			49						
			61		10.2				4
	15	56	62	10.1	10.3				5
1 11	16	57	63	11	11.2	all	62	11.4	6.2
	17	58	64	TP					
		59	65						
		60	66						

Notes | Known issues (0) | Resources (3) | Feedback

[1] IE supports the **ch** unit, but unlike other browsers its width is that specifically of the "0" glyph, not its surrounding space. As a result, 3ch for example is shorter than the width of the string "000" in IE.

```
html {
    font-size: 100%;
}

body {
    font-size: calc(1rem + .75vmin);
    line-height: calc(1.35rem + 1.5vmin);
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            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }
```

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            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

```
<article>

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</article>
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            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
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    }
}
```

```
    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}

h2 {
    margin: calc(2 * var(--offset, 1.5em)) 0 0 0;
    font-size: calc(1.5rem + 2.5vmin);
    line-height: calc(2rem + 1vmin);
}


h3 {
    margin: calc(0.5 * var(--offset, 1.5em)) 0 0 0;
    font-size: calc(1rem + 1.5vmin);
}
```

CodePen - Vertical rhythm with
https://codepen.io/rwdworkshop/full/qVzyej/
Suchen
Vertical rhythm with calc, CSS Custom Properties and CSS Grid
A PEN BY smashingmag
Fork
Change View
Log In
Sign Up

Vertical Rhythm With CSS Grid

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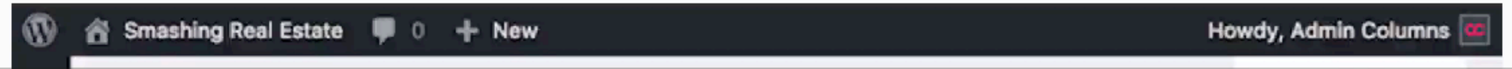

Debugging CSS Grid Layouts

Vitaly

Secure https://deploy-preview-2102--smashing-prod.netlify.com/2017/12/grid-inspector/

Articles
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Topics



You may have heard quite a bit of talk about a CSS feature called "Grid" this year. If you are someone who cringes when you hear the words "CSS" and "grid" in the same sentence, then I highly suggest you check out this new CSS module called CSS Grid.



ABOUT THE AUTHOR

Chen Hui Jing is a self-taught designer and developer with an inordinate love for CSS. Reducing lines of code in her web projects makes her extremely happy. She … More about Huijing…

DECEMBER 4, 2017 • 2 COMMENTS

Debugging CSS Grid Layouts With Firefox Grid Inspector

CSS 231 # CSS Grid 9 # Browsers 26 # Testing 39

```
@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

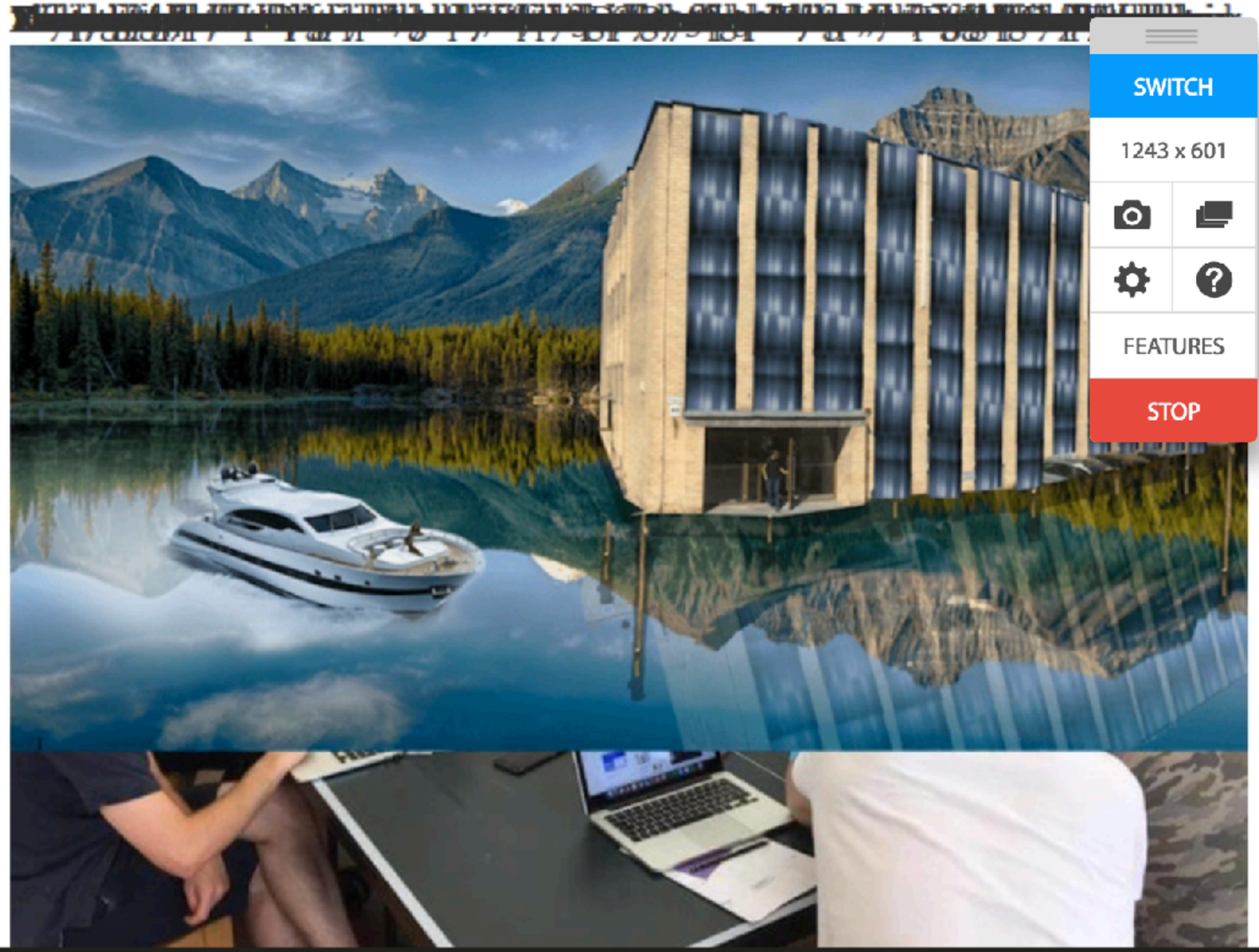
Using Design Workouts

smashingmagazine.com/2017/12/design-workouts-world-class-teams

Continue reading



No need for silly advertising. At this point we just



SWITCH

1243 x 601

FEATURES

STOP

```
@supports (display: grid) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
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            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

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        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

```
@supports (grid-gap: 0) {
    article {
        display: grid;
        grid-template-columns:
            [full-width-start] 1fr
            [content-start] repeat(12, minmax(0, 4.85ch))
            [content-end] 1fr
            [full-width-end];
       grid-row-gap: calc(var(--gutter, 1.5em));
    }

    article > * + * {
        margin: 0;
        grid-column: content;
    }

    article > .break-out {
       grid-column: full-width;
       justify-self: center;
       margin: calc(0.5 * var(--offset, 1.5em)) 0;
    }
}
```

A Title To Go Here Upto This Column

A subtitle here that can go up to this grid column and maybe two lines

This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle.

- Thing number one
- The second thing goes right here
- The last thing

and a link here

A Title To Go Here Upto This Column

A subtitle here that can go up to this grid column and maybe two lines

This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle. This will be some text and it will fir the the same column as the subtitle.

- Thing number one
- The second thing goes right here
- The last thing

and a link here

```
.features {
  grid-column: col-start 1 / span 6;
  --features-grid-columns: 5;
}

@supports (display: grid) {
  @media (min-width: 700px) {
    .features {
      display: grid;
    grid-gap: .75em;
      grid-template-columns: repeat(var(--features-grid-columns),
      [col-start] 1fr);
    }
  }
}

@supports (display: grid) {
  @media (min-width: 1100px) {
    .features {
      grid-column-end: 9;
      --features-grid-columns: 7;
    }
  }
}
```

```
.features {
    display: grid;
    grid-template-columns: repeat(var(--features-grid-columns),
    [col-start] 1fr);
    grid-template-areas:
     ". title     title     title     title     title    title"
     ". subtitle  subtitle  subtitle  subtitle  subtitle .    "
     ". content   content   content   content   .        .    "
     ". list      list      list      .         .        .    "
     ". .         .         .         link      link     link ";
  }

.features__title { grid-area: title; }
.features__subtitle { grid-area: subtitle; }
.features__content { grid-area: content; }
.features__list { grid-area: list; }
.features__link { grid-area: link; }
```

Design Systems and CSS Grid

Vitaly

Secure https://24ways.org/2017/design-systems-and-css-grid/

24 WAYS to impress your friends



Design Systems and CSS Grid

Stuart Robson

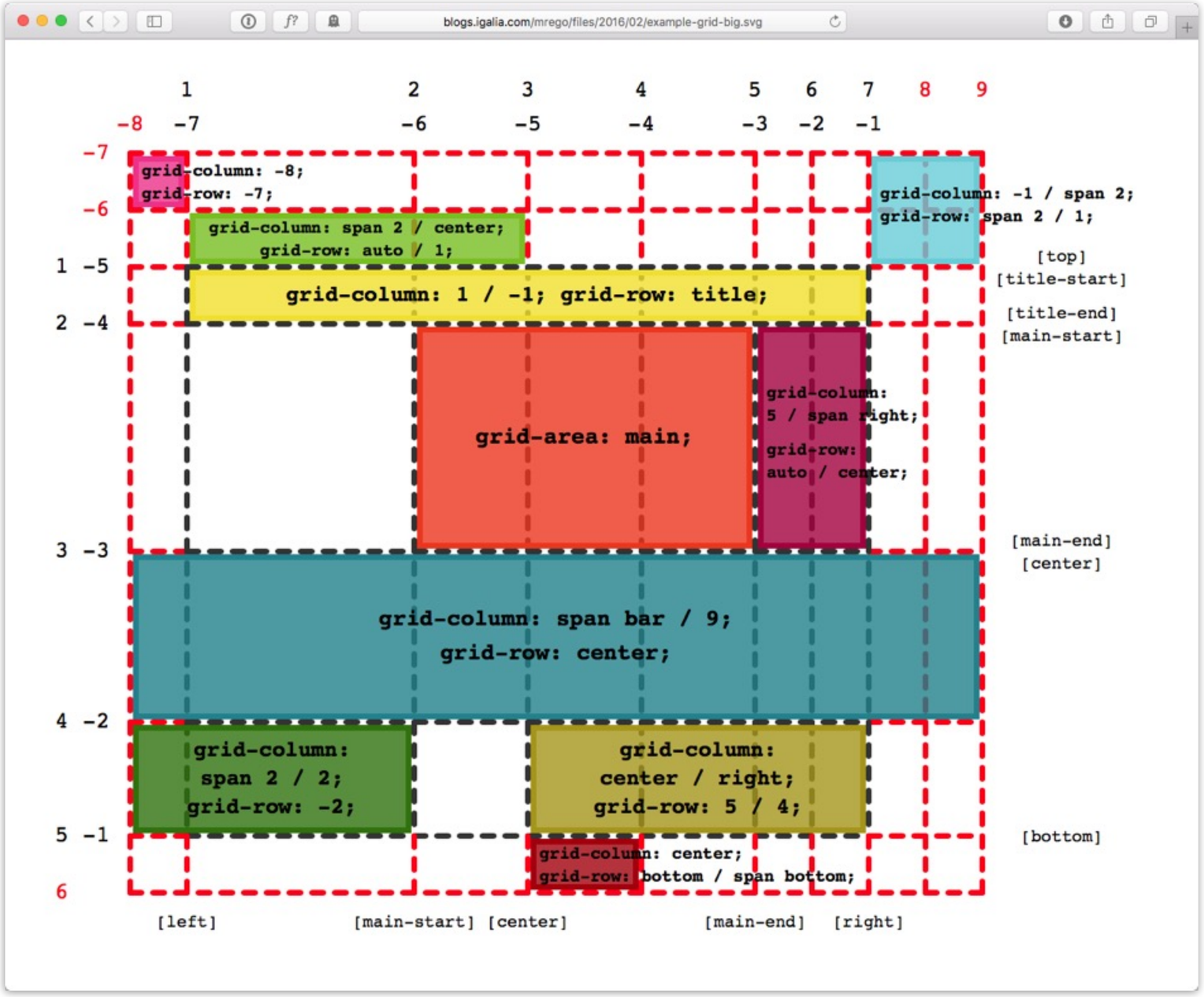
12 December 2017

Published in Code

2 comments

Recently, my client has been looking at creating a few new marketing pages for their website. They currently have a design system in place but they're looking to push this forward into 2018 with some small and possibly some larger changes.

To start with we are creating a couple of new marketing pages. As well as making use of existing components within the design systems component library there are a



by Manuel Rego Casasnovas
http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/

CSS Grid Layout - CR

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.

Global 69.57% + 5.77% = 75.34%

unprefixed: 69.57%

Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			1 49						
		4 52	60			10.2			
	2 15	55	61	10.1		10.3		4.4	
2 11	16	56	62	11	48	11	all	56	61
	17	57	63	TP	49				
		58	64		50				
		59	65						

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)

LEVEL 5 ACCESSIBILITY

RETAINING ACCESSIBILITY FROM START — EVEN IN SPAS!

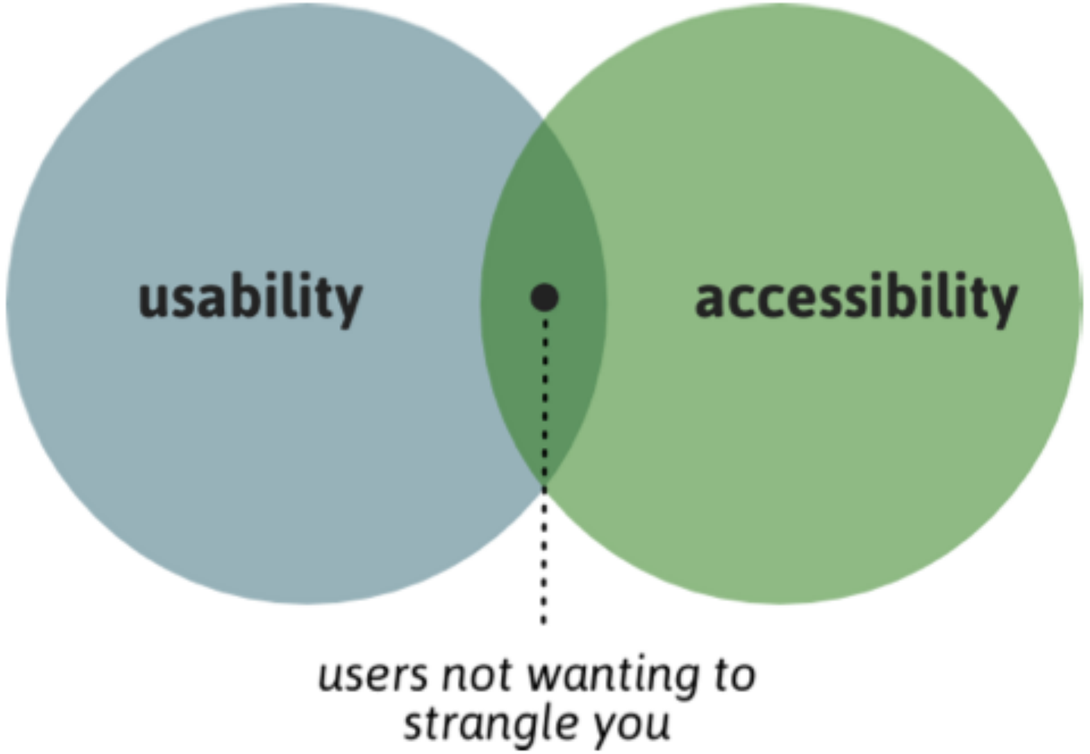
> Accessibility is not something we add to a website, but something we *start with and risk losing* with every enhancement. It is to be *retained*.

— *Scott Jehl*

https://twitter.com/scottjehl/status/411237303579721728

Accessibility: The Foundation

- Most guidelines are rather about *not* making things *inaccessible* than making things *accessible*.
  - *WAI-WCAG 2.09 (Web Content Accessibility Guidelines)*
    Set of general, basic accessibility recommendations.
  - *WAI-ARIA 1.0 (Accessible Rich Internet Applications)*
    Advanced, ambitious guide that takes a11y to a new level.
- *Goal:* keep the content usable by *keyboard users* and *screen readers users*, e.g. buttons and widgets.


usability
accessibility
users not wanting to strangle you

// Load sc

Accessibility Techniques

- Accessibility is about defining *relationships,* properties and behaviors of elements explicitly.
  - *Buttons* have different states; they control elements,
  - *Forms* require concise and appropriate feedback,
  - *Widgets* have complex properties and behaviors,
  - *Navigation* requires appropriate sectioning.
- *Problem:* misconceptions about how users use screen readers/keyboards—and *browser support.*

Accessibility Techniques

- *Problem:* misconceptions about how users use screen readers/keyboards—and *browser support.*
  - Accessibility tools *do have JavaScript support*,
  - Screen readers can't *predict structure or purpose,*
  - Accessibility builds *on top of* existing experience,
  - *ARIA is well-supported*; native controls are better.

> *Semantic HTML* is markup that makes a positive contribution to the meaning of the page in a standardized way which can be understood by a *maximal range of user agents*...
>
> — *Heydon Pickering*
>
> *"Apps for All"*

> ...As a result, screen readers can understand the patterns and provide an equivalent experience of the same content both visually and aurally. Semantics is embedded in *attributes and HTML elements*.

— *Heydon Pickering*

"Apps for All"

Accessibility Techniques

- *Problem:* misconceptions about how users use screen readers/keyboards—and *browser support.*
  - Accessibility tools *do have JavaScript support*,
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Accessibility Techniques

- Accessibility is about defining *relationships,* properties and behaviors of elements explicitly.
  - *Buttons* have different states; they control elements,
  - *Navigation* requires appropriate sectioning.
  - *Forms* require concise and appropriate feedback,
  - *Widgets* have complex properties and behaviors,
- *Problem:* misconceptions about how users use screen readers/keyboards—and *browser support.*

Accessible Buttons

- Only <button> should look like a button; classes on <a>, , aren't conducive to accessibility.

- HTML:

```
<button type="button">Read more…</button>
/* Beware: implicit type is ‘submit’, so be specific. */

<a class="button">Read more…</a>
<span class="button">Read more…</a>
```

- To activate a button, keyboard users must first be able to *focus* it. Screen readers rely on *aural feedback.*

Accessible Buttons

- To activate a button, keyboard users must first be able to *focus* it. Screen readers rely on *aural feedback*.
- <button> receives focus, can be operated via keyboard and is announced as “button” by screen readers.
- *Hint: perceived tactility* of interactive controls helps to communicate their utility. Big, bold, clickable.

Accessible Buttons

- <button> receives focus, can be operated via keyboard and is announced as “button” by screen readers.
- Buttons can have different *states:*
  - — *Pressed/unpressed* buttons,
  - — *Disabled* buttons,
  - — Buttons which *control other elements*,
  - — Buttons that *show/hide* parts of the page.
- *Hint: perceived tactility* of interactive controls helps to communicate their utility. Big, bold, clickable.



- HTML:

```
<button type="button">Save</button>
```

- CSS:

```
button {
    background-color: DarkSlateBlue;
    border-radius: 0.25em;
    box-shadow: 0 4px 0 #222; }

button:hover, button:focus {
    /* Make it look like you can press it */ }
```



- CSS:

```
button:active {
    position: relative;
    top: 3px; /* 3px drop */
    box-shadow: 0 0 0 #222; /* less by 3px (to zero) */
 }

button[disabled] {
    /* Styles for a disabled button */
    pointer-events: none;
    /* or cursor: not-allowed; */
}
```



- Nested text *within* <button> will be read out by screen readers when the button is accessed.
- For <input> buttons, the *value* attribute will be announced. Both should *never* be left empty.
- *WAI-ARIA* enhancements are always required when dealing with non-textual content.



- HTML:

```
<button aria-label="Undo">&#xE000;</button>

<p class="tooltip hidden">You can restore defaults
with <strong id="undo-text">Undo</strong> button.</p>
<button aria-labelledby=“undo-text">&#xE000;</button>
```

ARIA Roles, Properties, States

- WAI-ARIA is a gap-filler for HTML semantics.
  It defines three kinds of accessibility attributes:

  — *Roles* define the meaning of an element
  (`role="tooltip"`, `role="tablist"`, `role="search"`),

  — *Properties* describe its characteristics
  (`aria-required`, `aria-controls`, `aria-label`, `aria-labelledby`),

  — *States* describe its current interaction states
  (`aria-checked`, `aria-expanded`, `aria-hidden`, `aria-required`).



- HTML:

```
<button aria-label="Undo">&#xE000;</button>

<p class="tooltip hidden">You can restore defaults
with <strong id="undo-text">Undo</strong> button.</p>
<button aria-labelledby=“undo-text">&#xE000;</button>
```



- HTML:

```
<div role="button" aria-label="Undo"><img
src="undo_icon.png" alt="Undo" /></div>

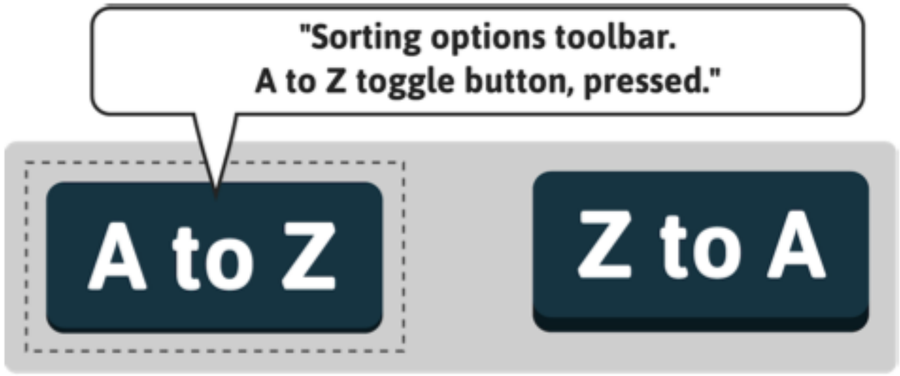
<p aria-hidden="true" class="tooltip hidden">Undo</p>
```



- Legacy code can be *augmented* with ARIA roles to patch code that is otherwise unsemantic.
- Using ARIA-roles should be a method of last resort, as it fully *overrides* native semantics.



button visually depressed to denote state

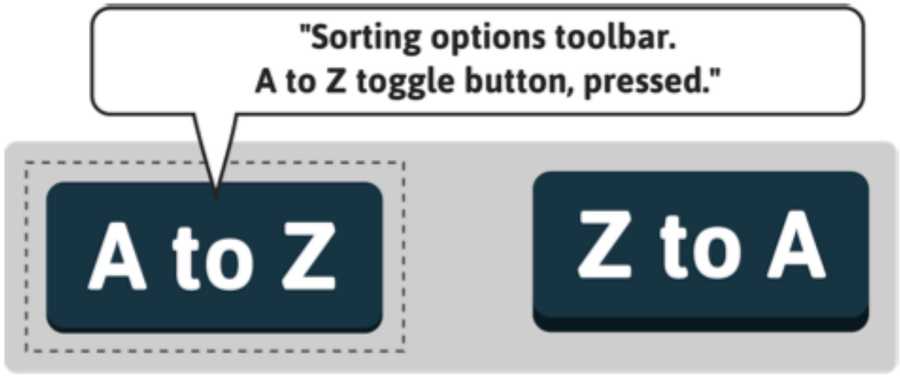


button visually depressed to denote state

- HTML:

```
<div role="toolbar"
     aria-label="sorting options"
     aria-controls="sortable">
        <button aria-pressed="true">A to Z</button>
        <button aria-pressed="false">Z to A</button>
</div>

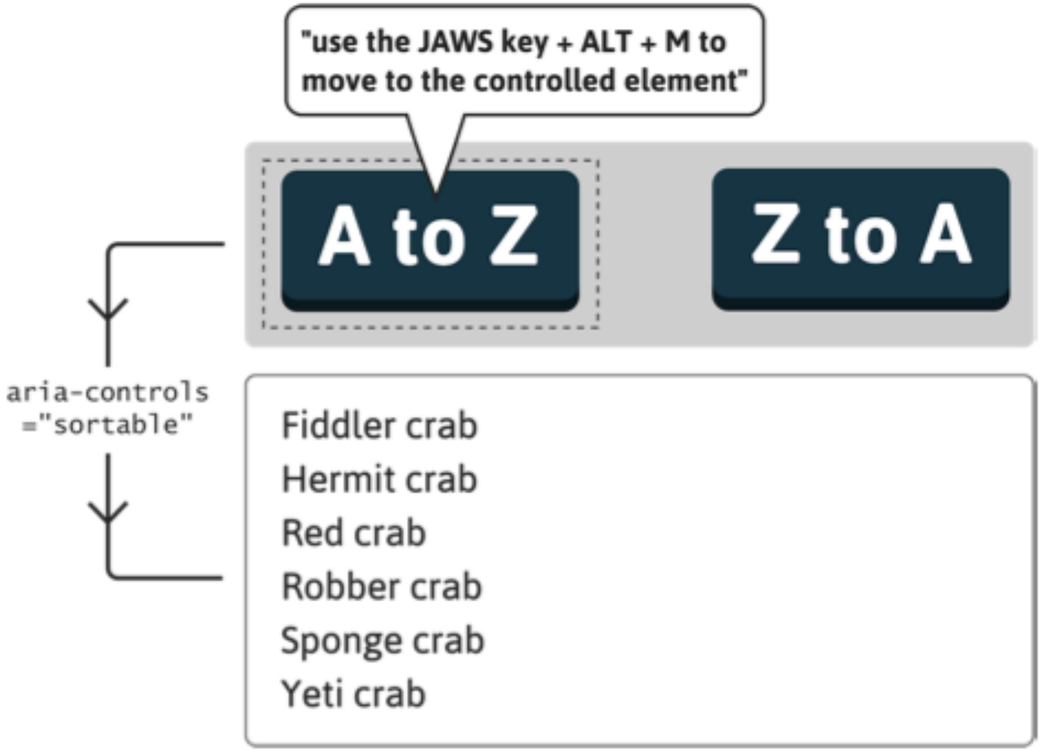
<ul id="sortable" tabindex="-1">
    <li>Fiddler crab</li> <li>Hermit crab</li> ...
</ul>
```



button visually depressed to denote state

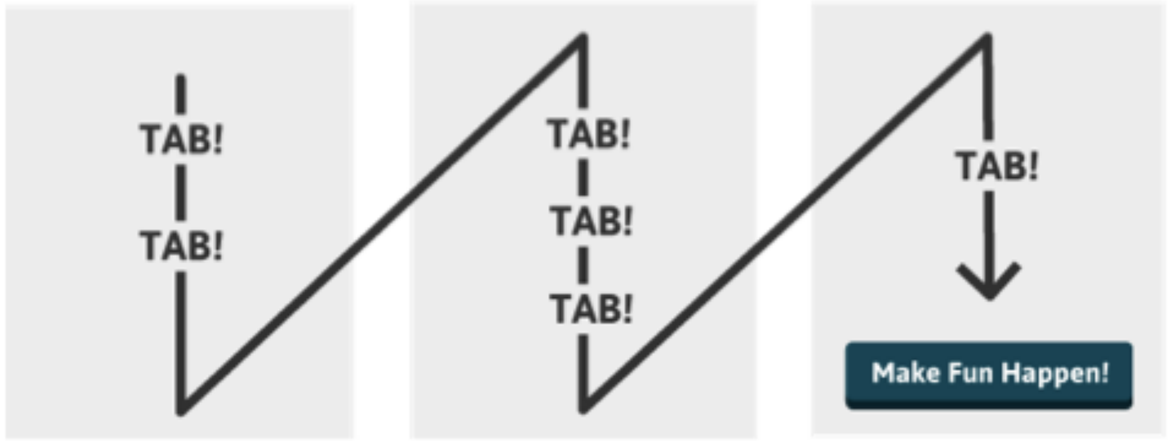
- CSS:

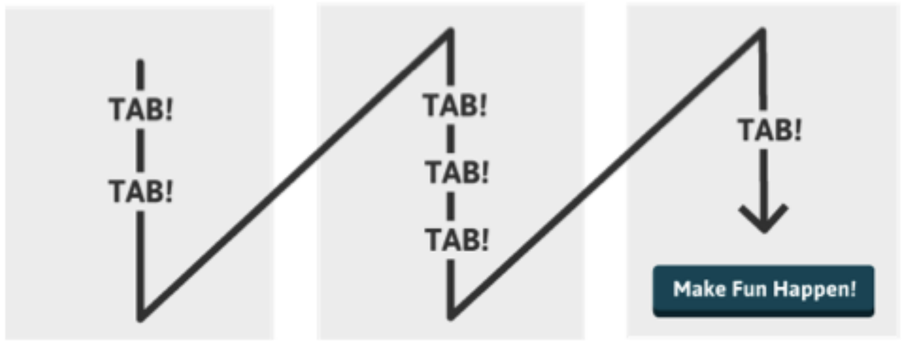
```
button:active,
button[aria-pressed="true"] {
    position: relative;
    top: 3px; /* 3px drop */
    box-shadow: 0 0 0 #222; /* less by 3px (to zero) */
}
```


"use the JAWS key + ALT + M to move to the controlled element"
A to Z
Z to A
aria-controls ="sortable"
Fiddler crab
Hermit crab
Red crab
Robber crab
Sponge crab
Yeti crab

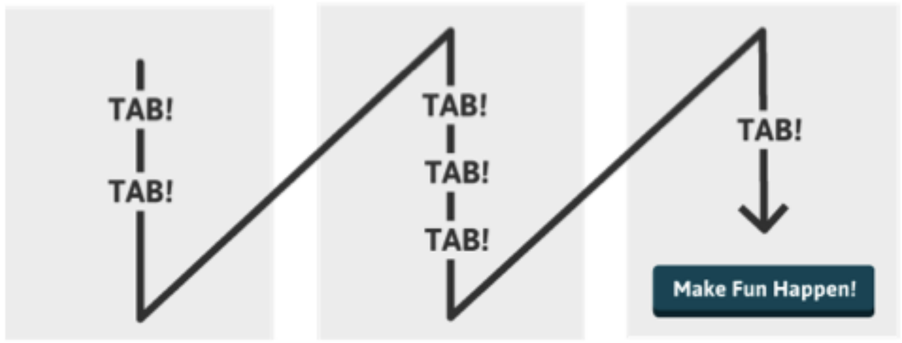
Accessibility Techniques

- Accessibility is about defining *relationships,* properties and behaviors of elements explicitly.
  - *Buttons* have different states; they control elements,
  - *Navigation* requires appropriate sectioning.
  - *Forms* require concise and appropriate feedback,
  - *Widgets* have complex properties and behaviors,
- *Problem:* misconceptions about how users use screen readers/keyboards—and *browser support.*

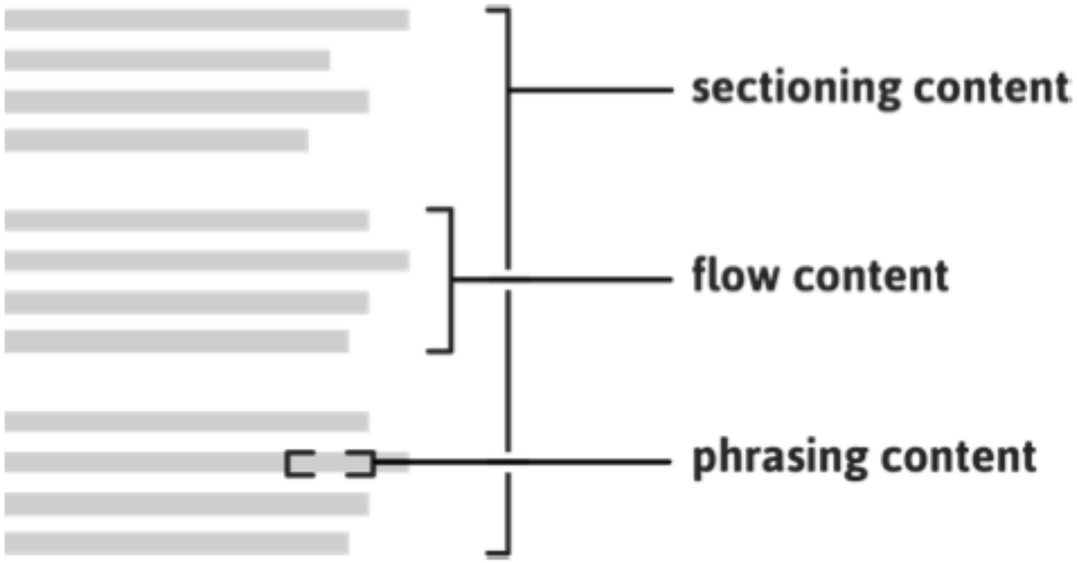

TAB!
TAB!
TAB!
TAB!
TAB!
TAB!
Make Fun Happen!

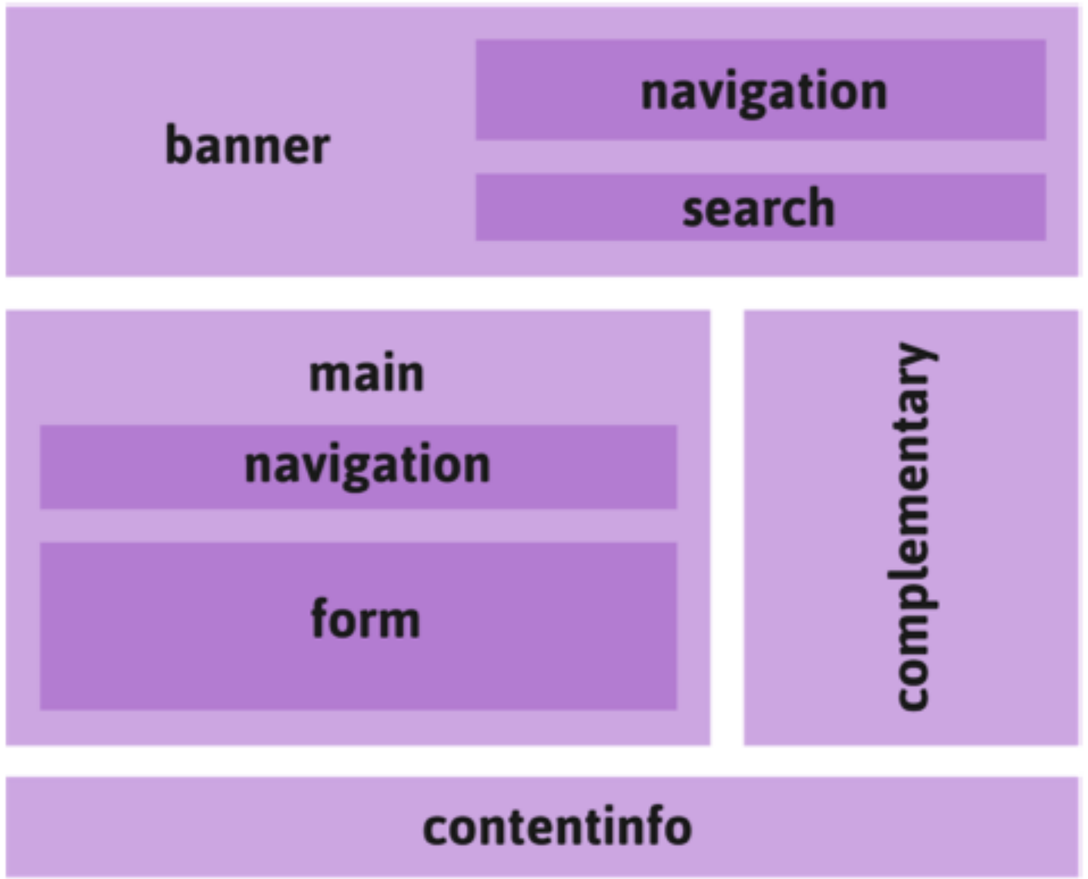


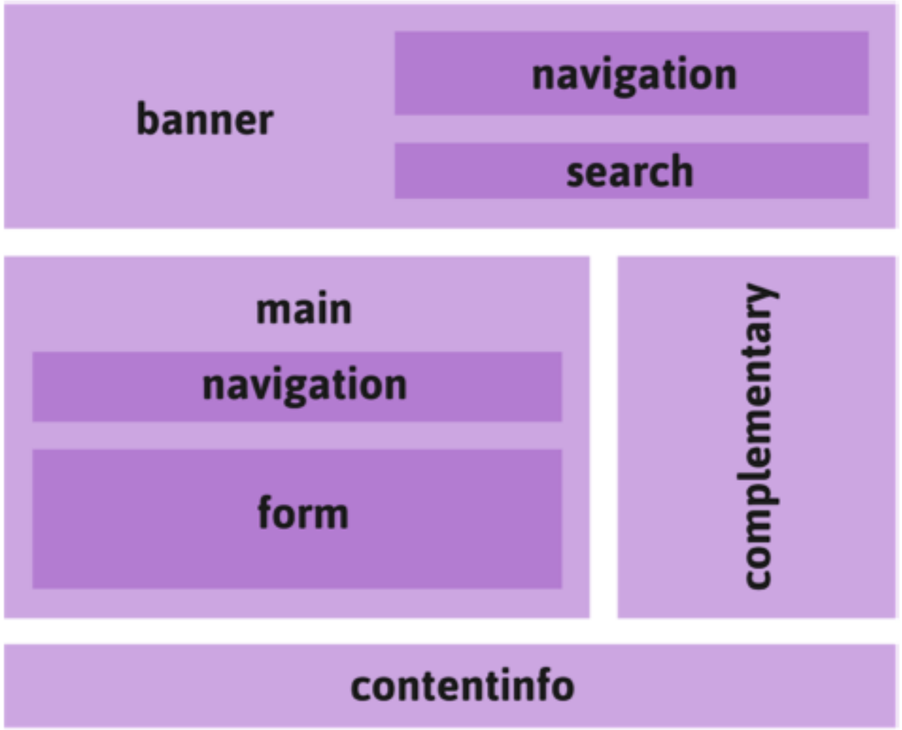
- *Links* can be focused by screen readers; they can distinguish between “Link” and “Same page link”.
- But *grid* is *invisible* to screen readers. Keyboard users don’t benefit from it either, they have to cover the same distance, *sideways*.



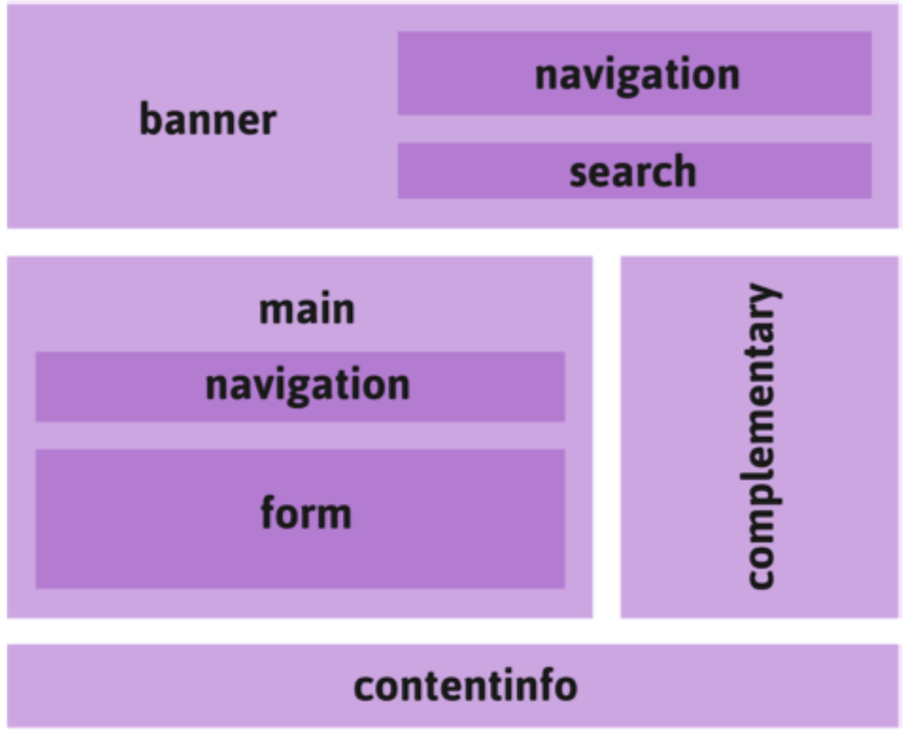
- But *grid* is *invisible* to screen readers. Keyboard users don't benefit from it either, they have to cover the same distance, *sideways*.
- *Solution:* draw an *invisible map* of the page by sectioning content and providing landmarks.


sectioning content
flow content
phrasing content


banner
navigation
search
main
navigation
form
complementary
contentinfo



- *Sectioning* conveys structure to screen readers and keyboard users. But: avoid too much nesting!
- *Meaningful, consistent headings* and landmark roles help users jump between sections seamlessly.



— *banner* (role="banner")

— *contentinfo* (role="contentinfo")

— *main* (role="main")

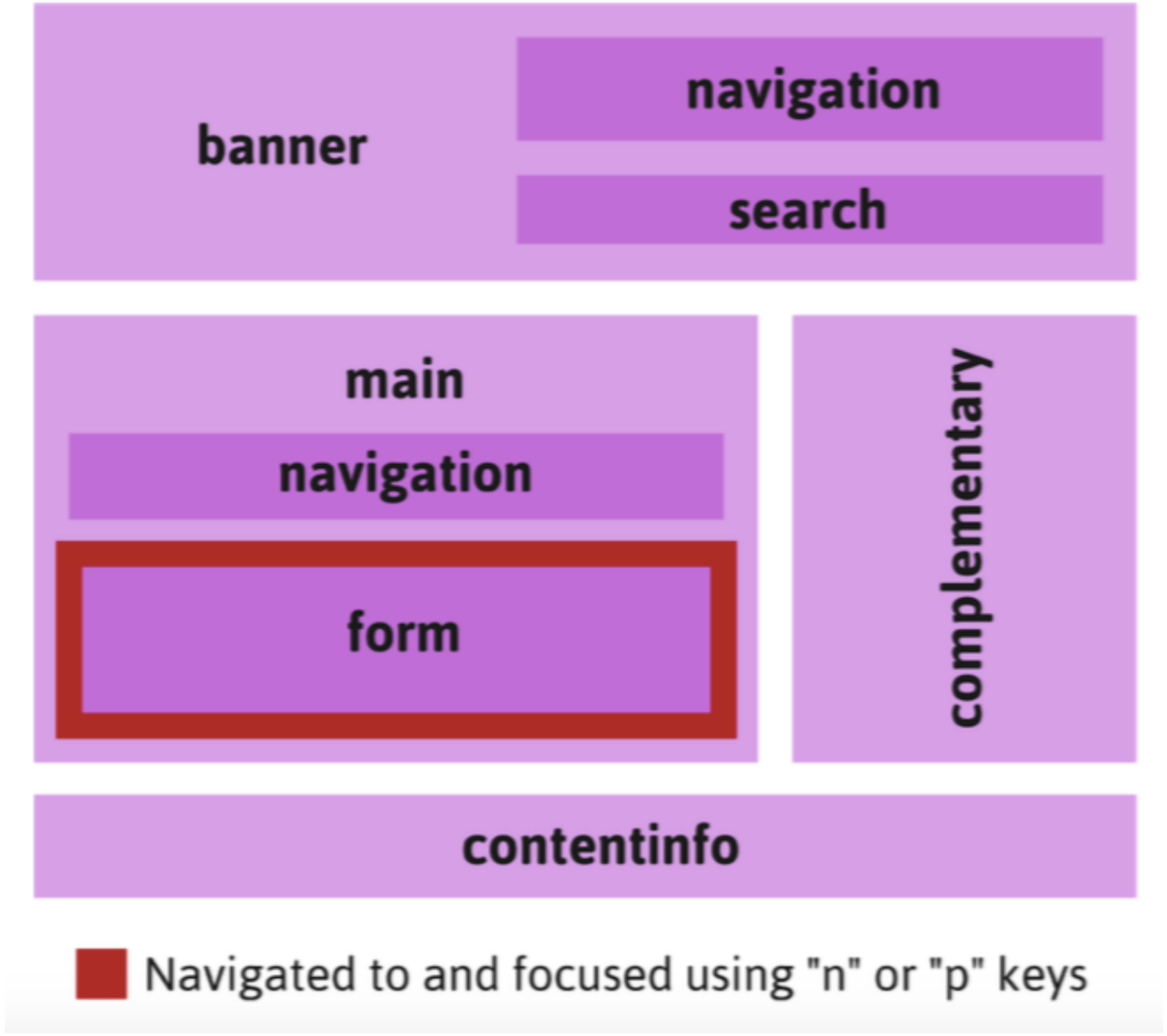
— *navigation* (role=“navigation")

— *search* (role="search")

— *form* (role="form")

— *complementary* (role=“complementary")

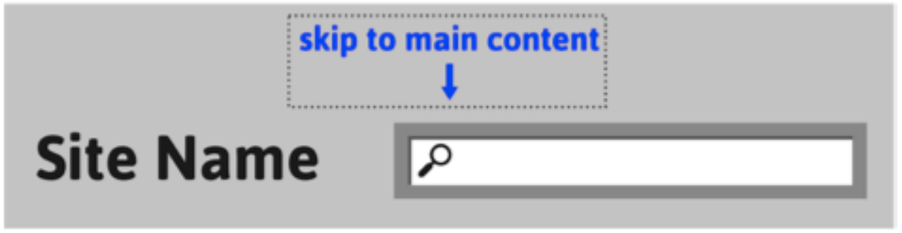
Applicable like `<div role="search" … >` to any HTML element.


banner
navigation
search
main
navigation
form
complementary
contentinfo
Navigated to and focused using "n" or "p" keys

// Load sc



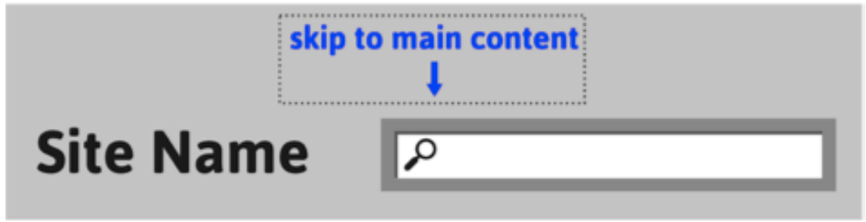
a.skip



a.skip:focus



a.skip



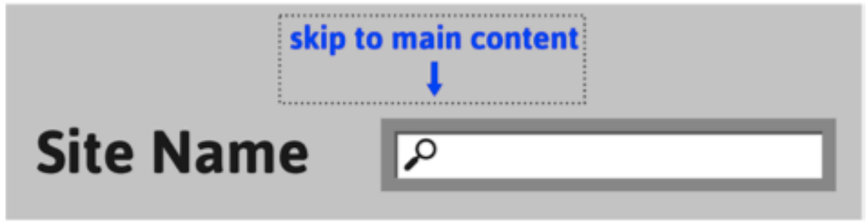
a.skip:focus

- *“Skip to content” links* often built incorrectly:

```
a.skip {
    display: none; /* Nobody can see it. */
}
```



a.skip



a.skip:focus

- *“Skip to content” links* better pushed off-screen:

```
a.skip {
    position: relative;
    top: -100px;
}
```

```
a.skip:focus {
    top: 0;
}
```

Accessibility Techniques

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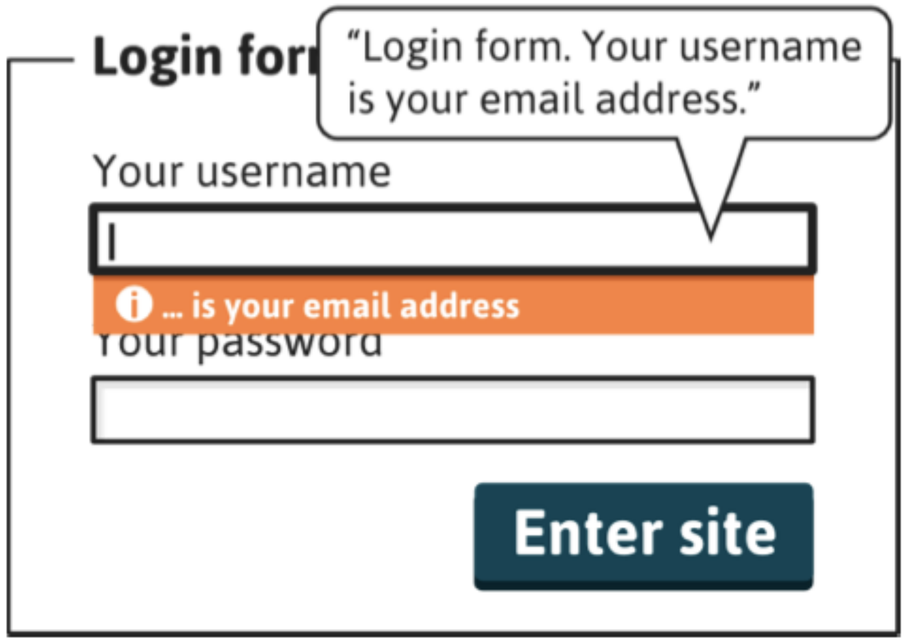
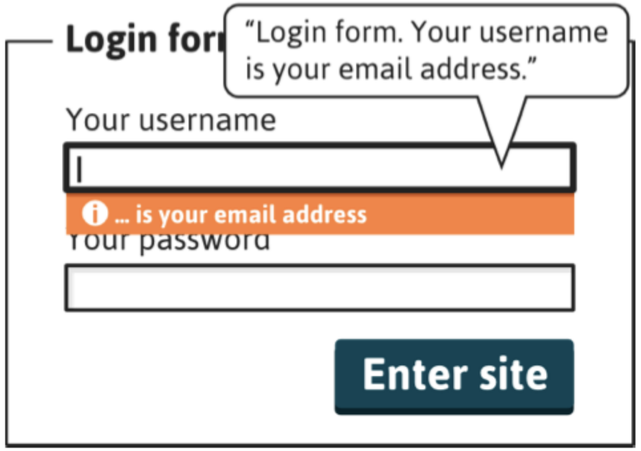
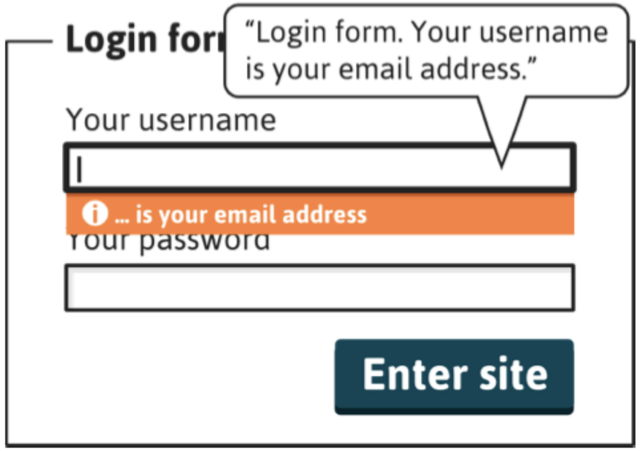
  - *Buttons* have different states; they control elements,
  - *Navigation* requires appropriate sectioning.
  - *Forms* require concise and appropriate feedback,
  - *Widgets* have complex properties and behaviors,
- *Problem:* misconceptions about how users use screen readers/keyboards—and *browser support.*


Login for
"Login form. Your username is your email address."
Your username
... is your email address
Your password
Enter site



- HTML:

```
<form>
    <fieldset><legend>Login form</legend>
        <div>
            <label for="username">Your username</label>
            <input id="username" type="text"
                   aria-describedby="username-hint">
            <div role="tooltip" id="username-hint">
                &hellip; is your email address</div>
        </div>
    </fieldset>
   <button type="submit">Enter site</button>
</form>
```



- CSS:

```
[role="tooltip"] {
    background: orange;
    color: white;
    padding: 0.5em;
    display: none;
}

input:focus + [role="tooltip"] {
    display: block;
}
```

Accessibility Techniques

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  - *Buttons* have different states; they control elements,
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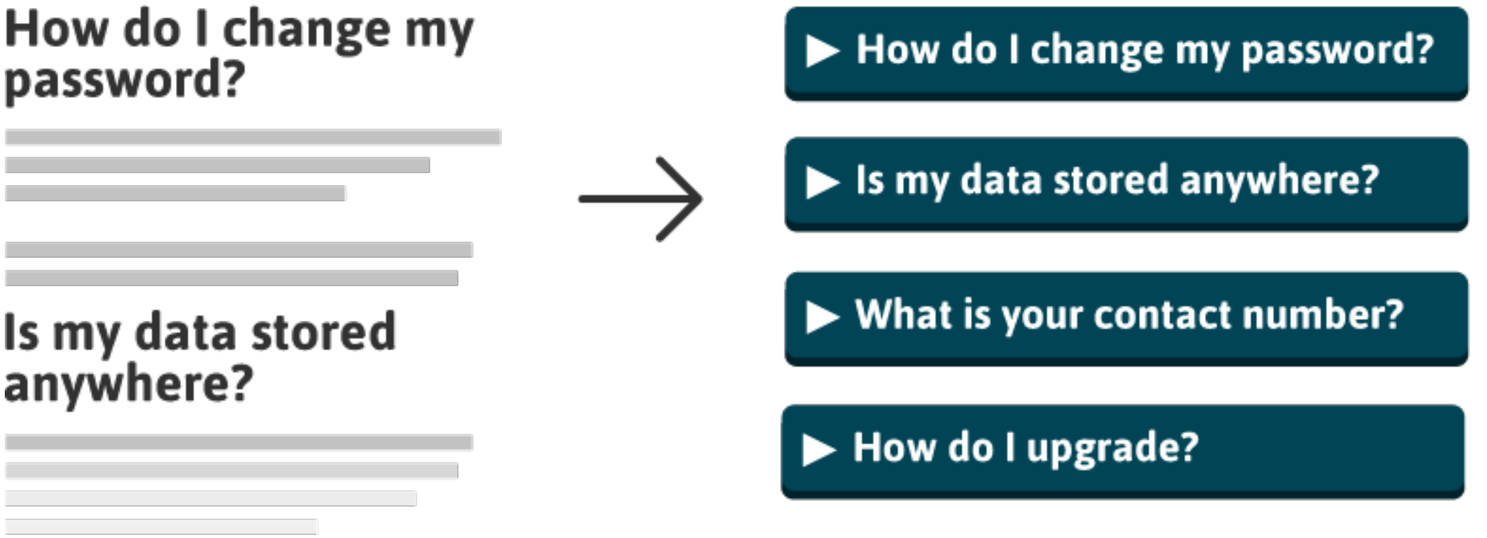
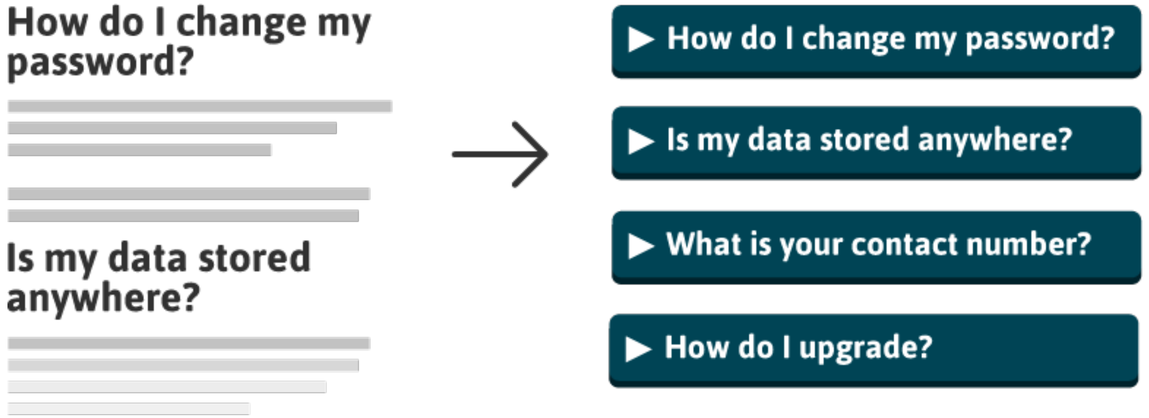

How do I change my password?
Is my data stored anywhere?
▶ How do I change my password?
▶ Is my data stored anywhere?
▶ What is your contact number?
▶ How do I upgrade?

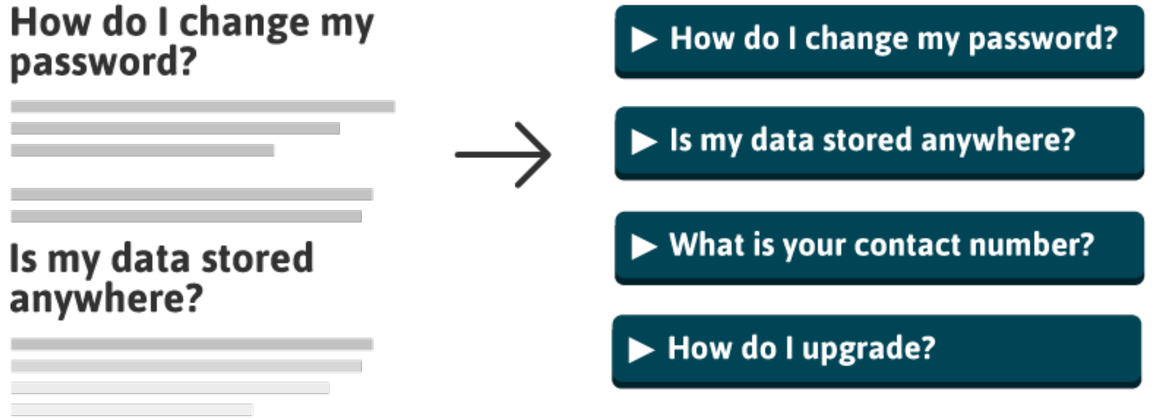


- HTML:

```
<h2>How do I change my password?</h2>
<p>…</p>

<h2>Is my data stored anywhere?</h2>
<p>…</p>

<h2>What is your contact number?</h2>
<p>…</p>
```

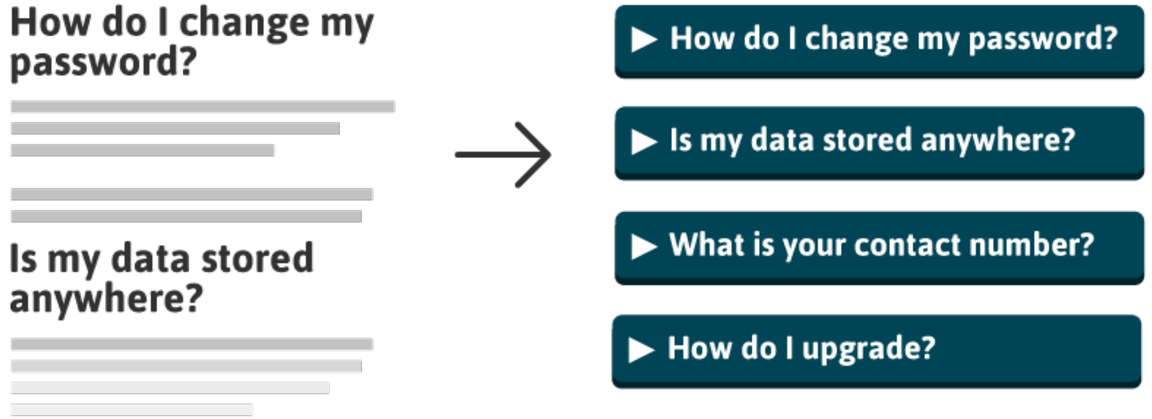


- HTML:

```
<h2 role="button">How do I change my password?</h2>
<p>…</p>

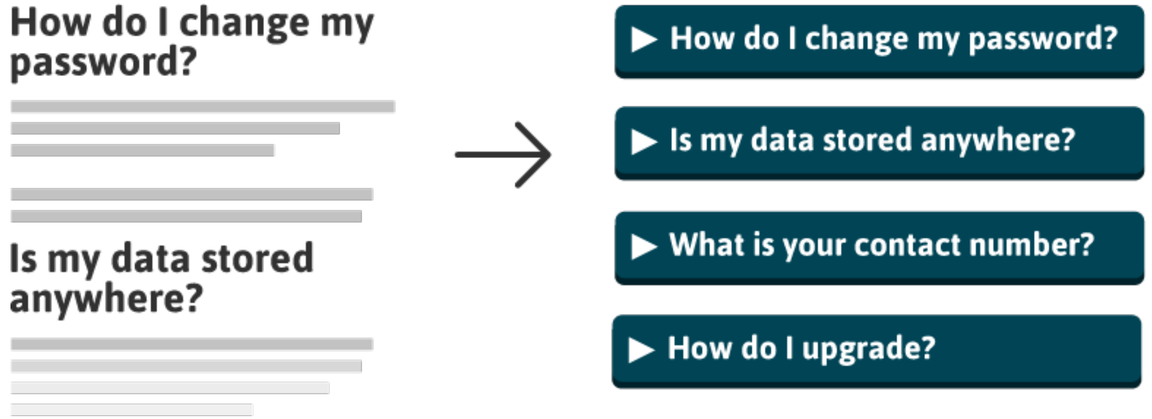
<h2 role="button">Is my data stored anywhere?</h2>
<p>…</p>

<h2 role="button">What is your contact number?</h2>
<p>…</p>
```



- HTML:

```
<h2>
    <button aria-expanded=“false"
            aria-controls=“change-pass”>
            How do I change my password?
    </button>
</h2>
<div id="change-pass" aria-hidden="true">
    <p>…</p>
</div>
```



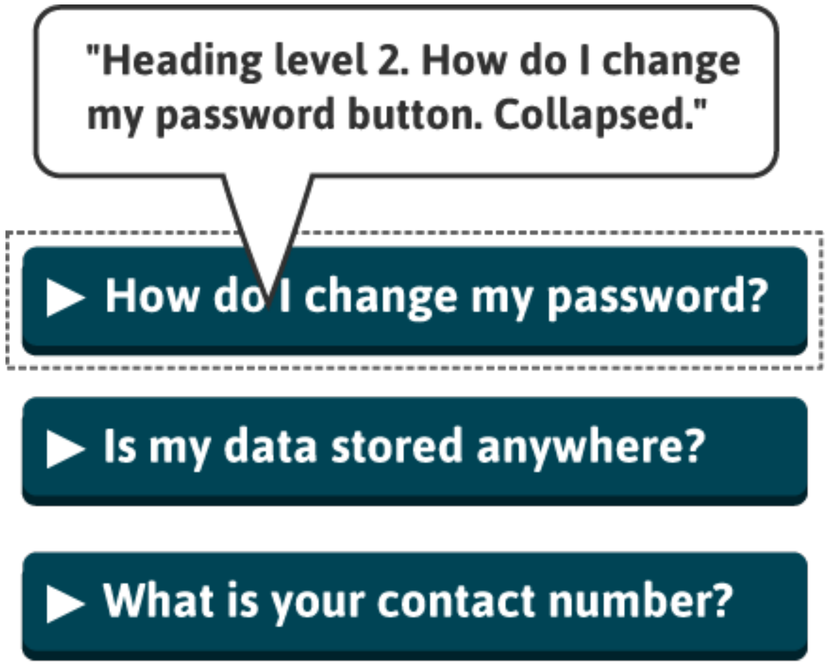
- CSS:

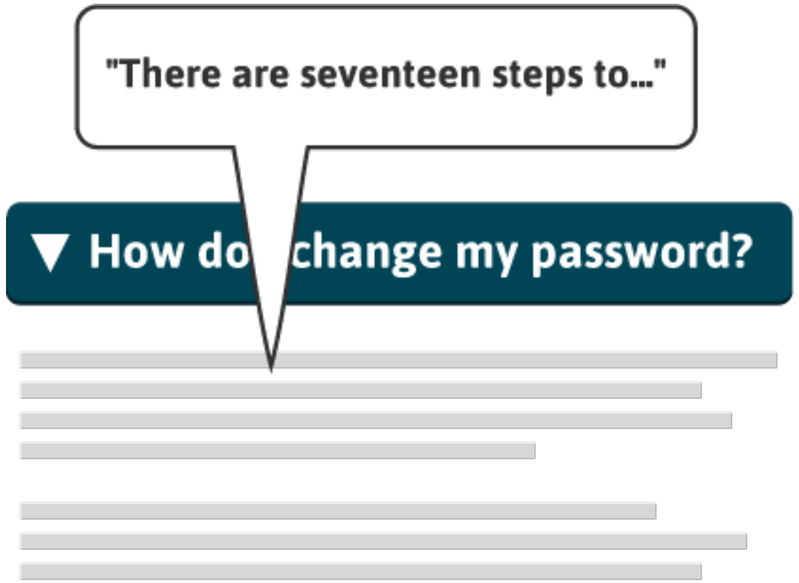
```
[aria-hidden] {
    display: none;
}

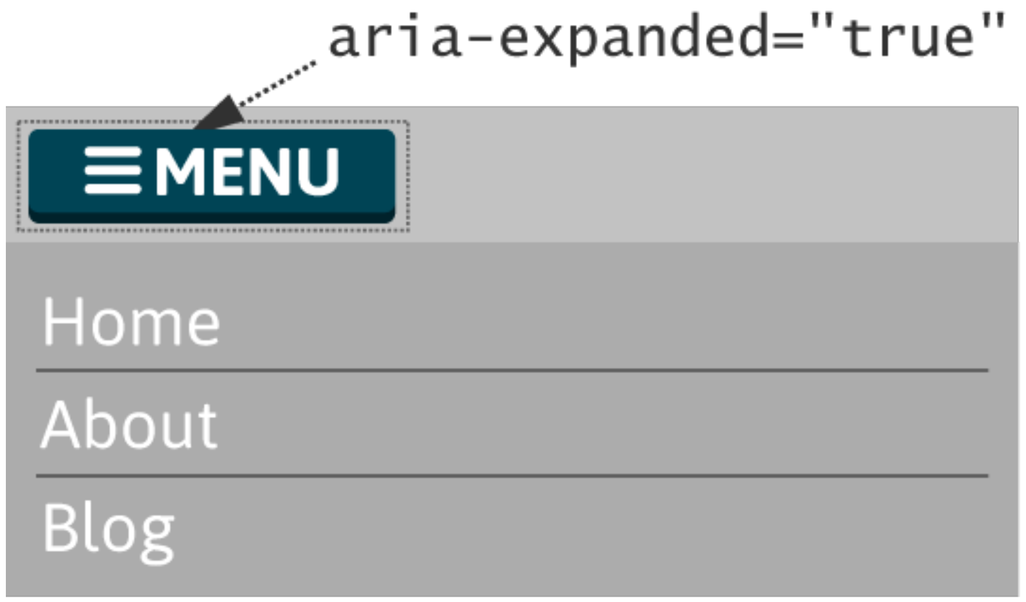
[aria-hidden="false"] {
    display: block;
}
```

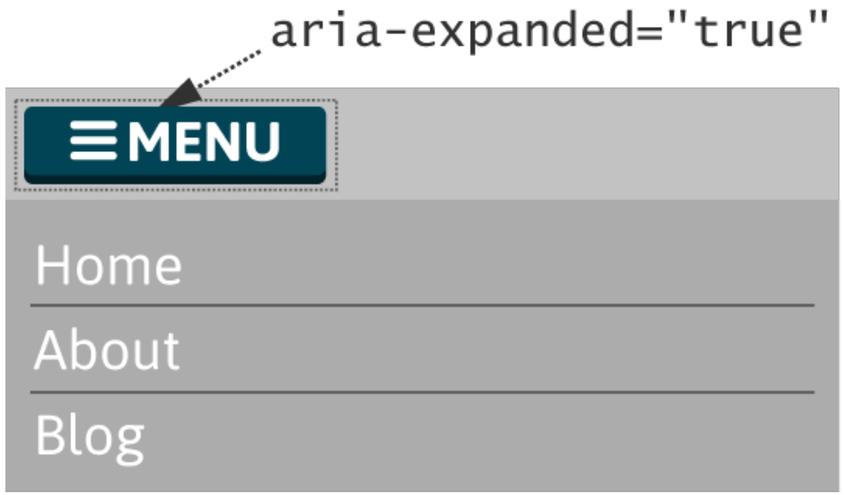
```
[aria-expanded]:before {
    content: '\25ba\0020';
}

[aria-expanded="false"]:before {
    content: '\25bc\0020';
}
```


"Heading level 2. How do I change my password button. Collapsed."
▶ How do I change my password?
▶ Is my data stored anywhere?
▶ What is your contact number?

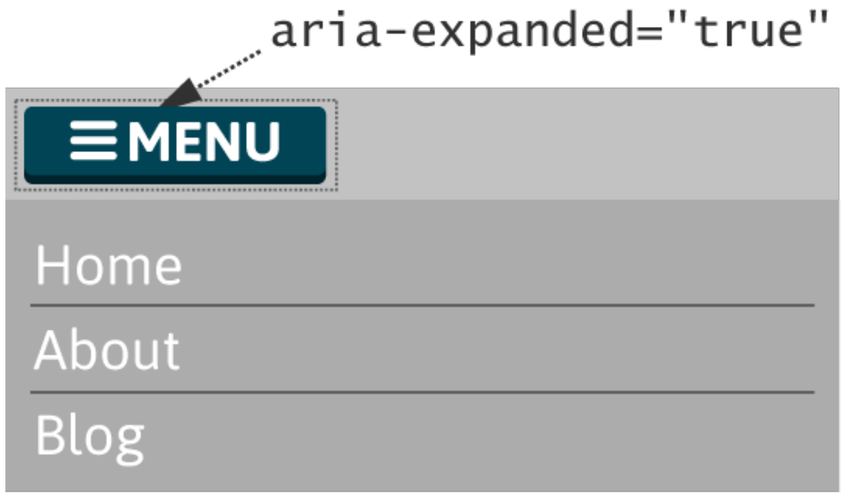

"There are seventeen steps to..."
How do change my password?


aria-expanded="true"
MENU
Home
About
Blog



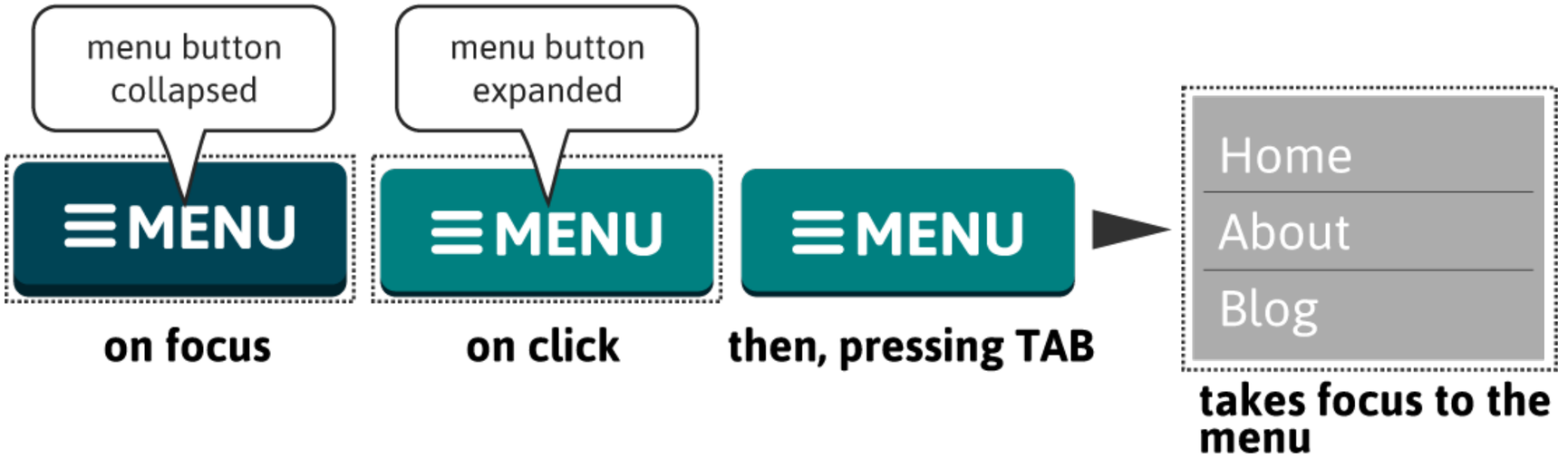
- HTML:

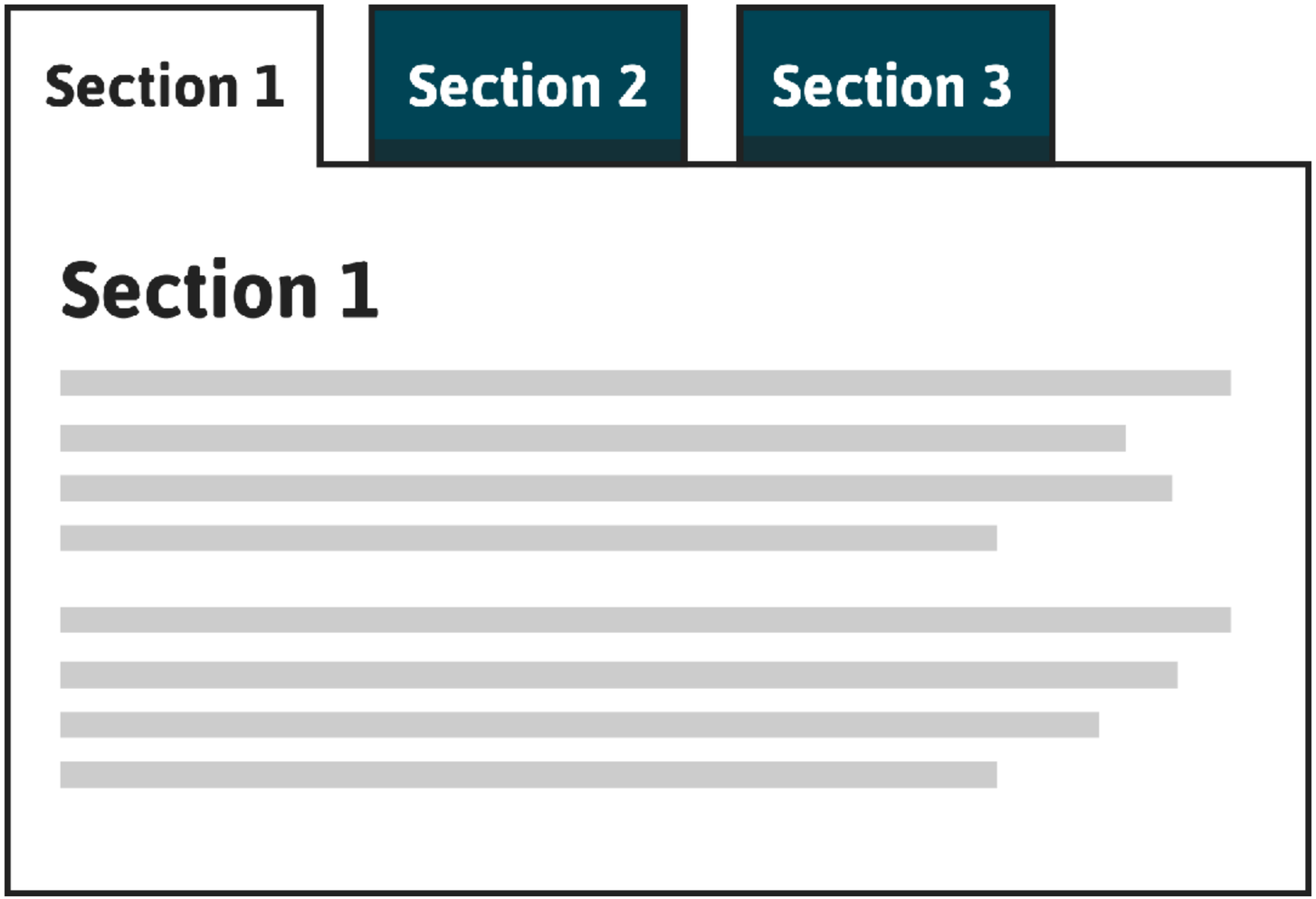
```
<a href=“#nav”>Menu</a>
<!-- other markup… -->
<nav id="nav" role="navigation">
    <ul>
        <li><a href="/">Home</a></li>
        <li><a href="/about">About</a></li>
        <li><a href="/blog">Blog</a></li>
    </ul>
</nav>
```

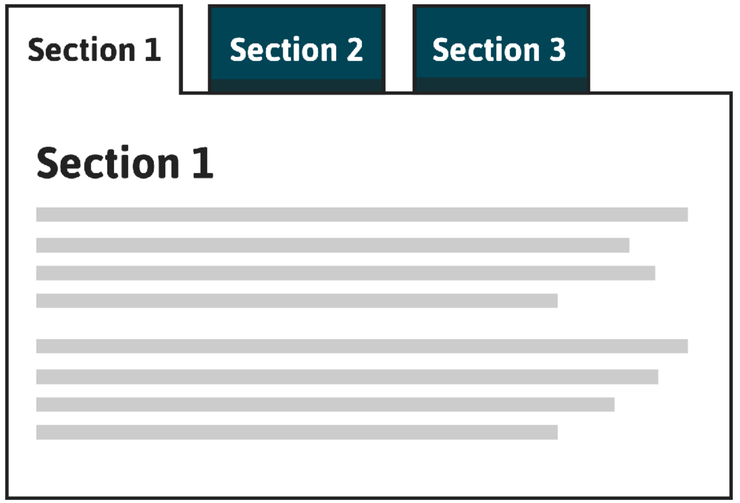


- HTML:

```
<a href="#nav" role="button" aria-controls="nav"
                             aria-expanded="false">Menu</a>
<!-- other markup… -->
<nav id="nav" role="navigation" aria-hidden="true">
    <ul>
        <li><a href="/">Home</a></li>
        <li><a href="/about">About</a></li>
        <li><a href="/blog">Blog</a></li>
    </ul>
</nav>
```


menu button collapsed
MENU
on focus
menu button expanded
MENU
on click
MENU
then, pressing TAB
Home
About
Blog
takes focus to the menu

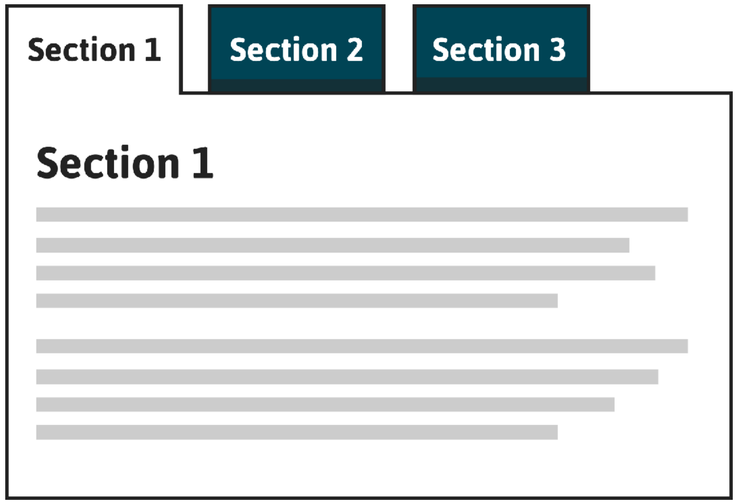

Section 1
Section 2
Section 3
Section 1



- HTML:

```
<ul>
    <li><a href="#sec1">Section 1</a></li>
    <li><a href="#sec2">Section 2</a></li>
    <li><a href="#sec3">Section 3</a></li>
</ul>

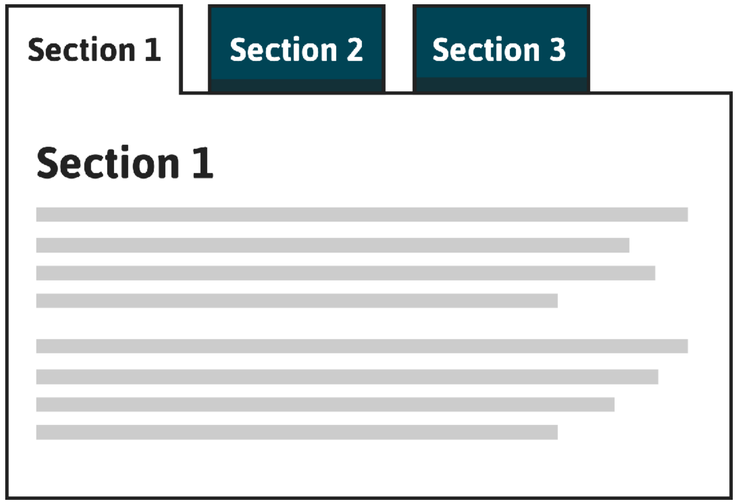
<section id="sec1">...</section>
<section id="sec2">...</section>
<section id="sec3">...</section>
```



- HTML:

```
<ul role="tablist">
    <li><a role=“tab" href="#sec1">Section 1</a></li>
    <li><a role=“tab" href="#sec2">Section 2</a></li>
    <li><a role=“tab" href="#sec3">Section 3</a></li>
</ul>

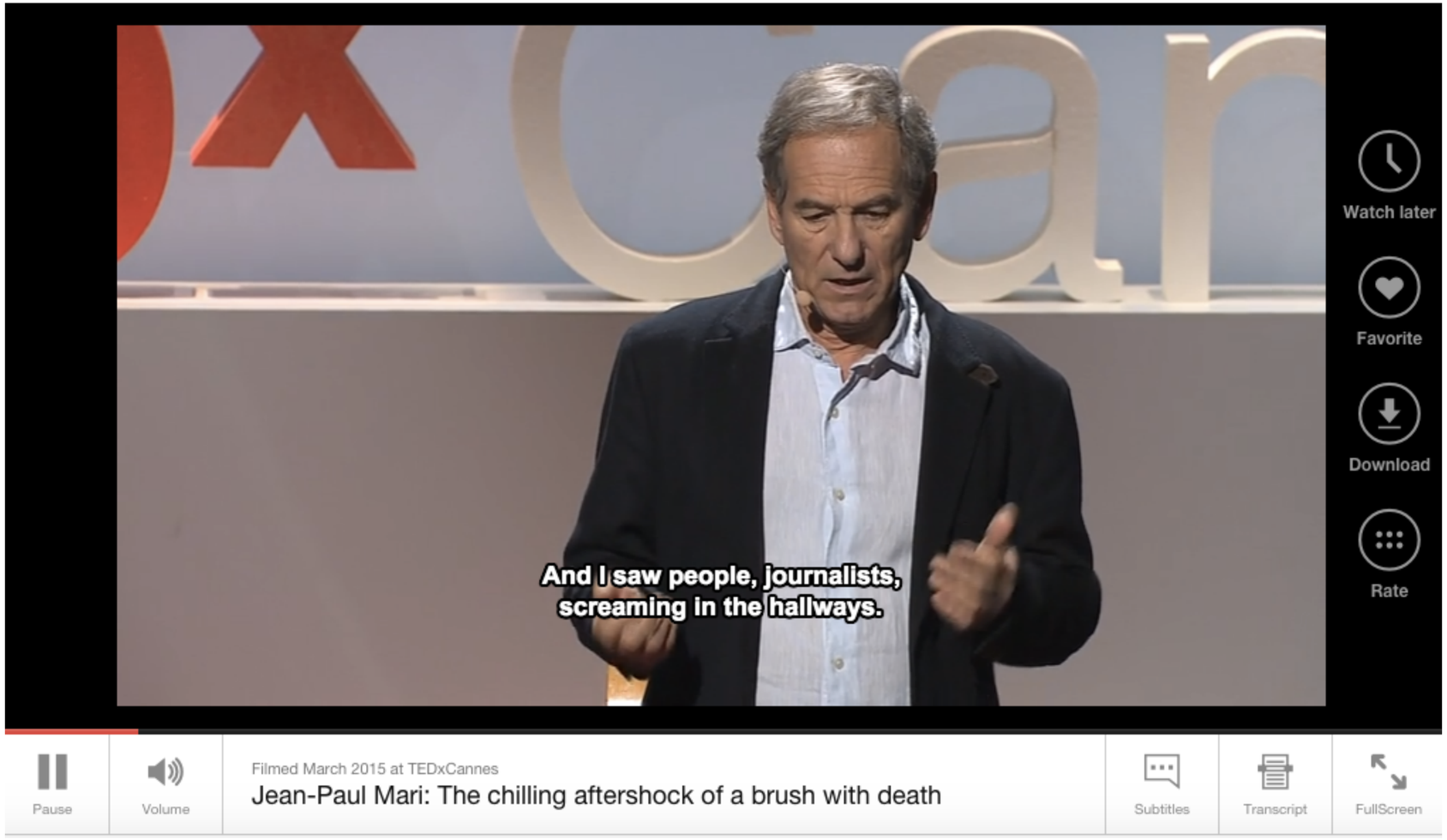
<section id=“sec1" role=“tabpanel">...</section>
<section id="sec2" role=“tabpanel">...</section>
<section id="sec3" role=“tabpanel">...</section>
```

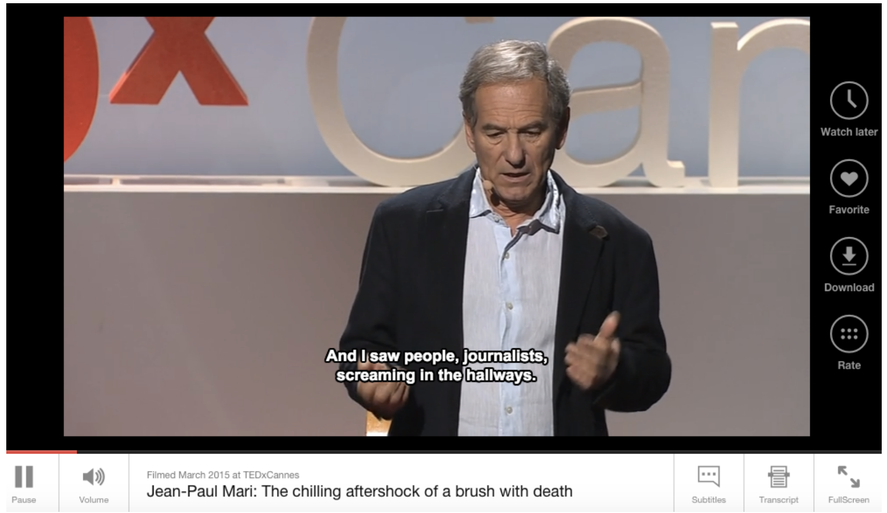


- HTML:

```
<ul role="tablist">
    <li><a role=“tab" aria-controls=“panel1”
                      aria-selected=“true”
           href="#sec1">Section 1</a></li>
    <li><a role=“tab" aria-controls=“panel2”
           href="#sec2">Section 2</a></li>
</ul>

<section id=“sec1" role=“tabpanel">...</section>
<section id="sec2" role=“tabpanel” aria-hidden=“true”>...</section>
```

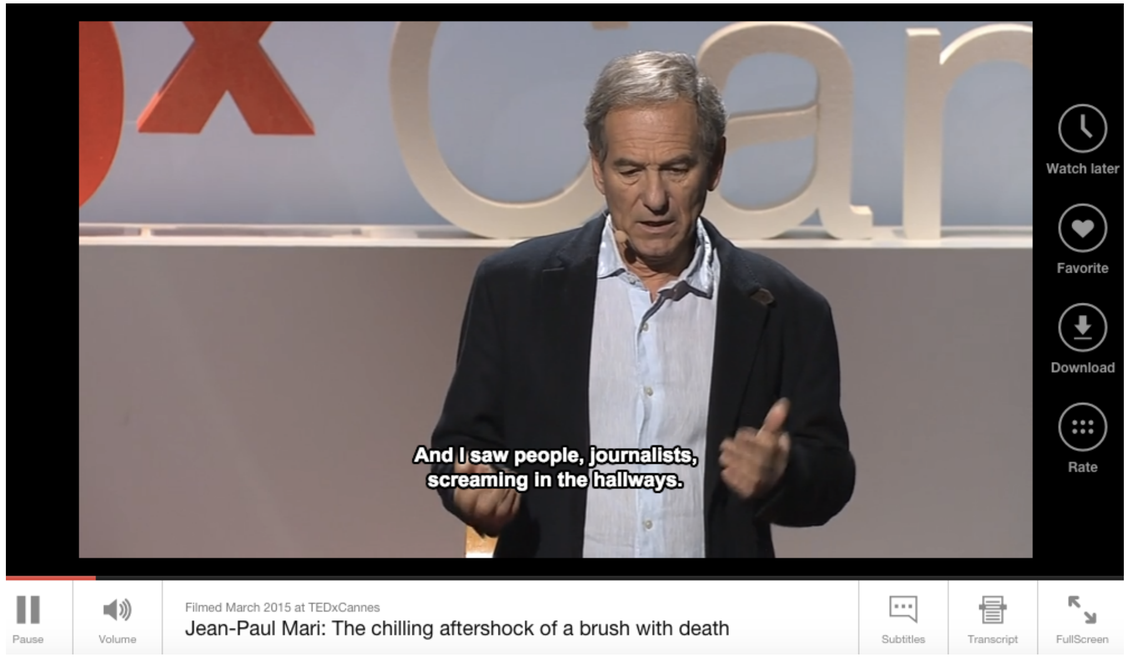

And I saw people, journalists,
screaming in the hallways.
Watch later
Favorite
Download
Rate
Pause
Volume
Filmed March 2015 at TEDxCannes
Jean-Paul Mari: The chilling aftershock of a brush with death
Subtitles
Transcript
FullScreen



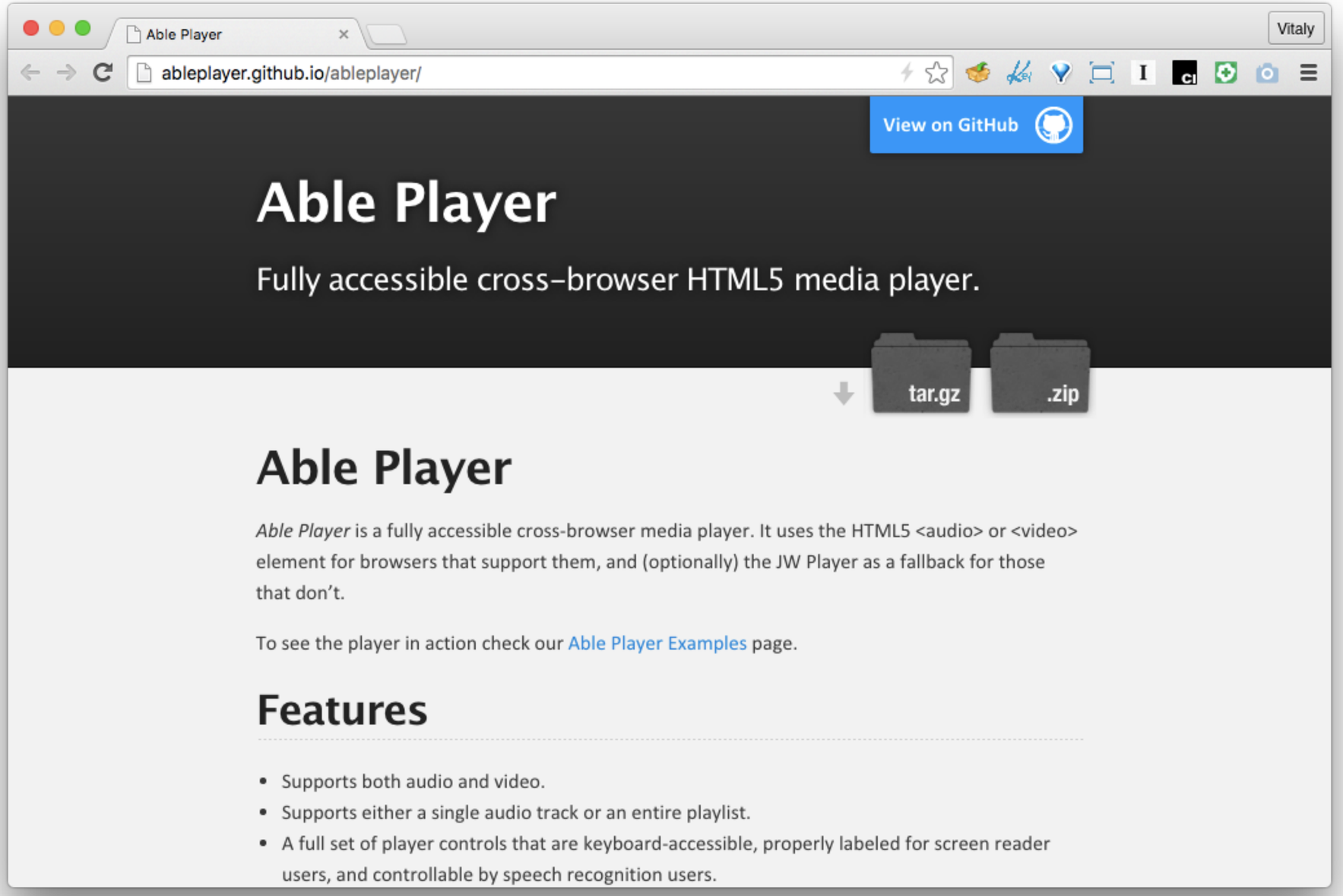
- *Accessible video* includes captions, a transcript and an audio description.

- HTML:

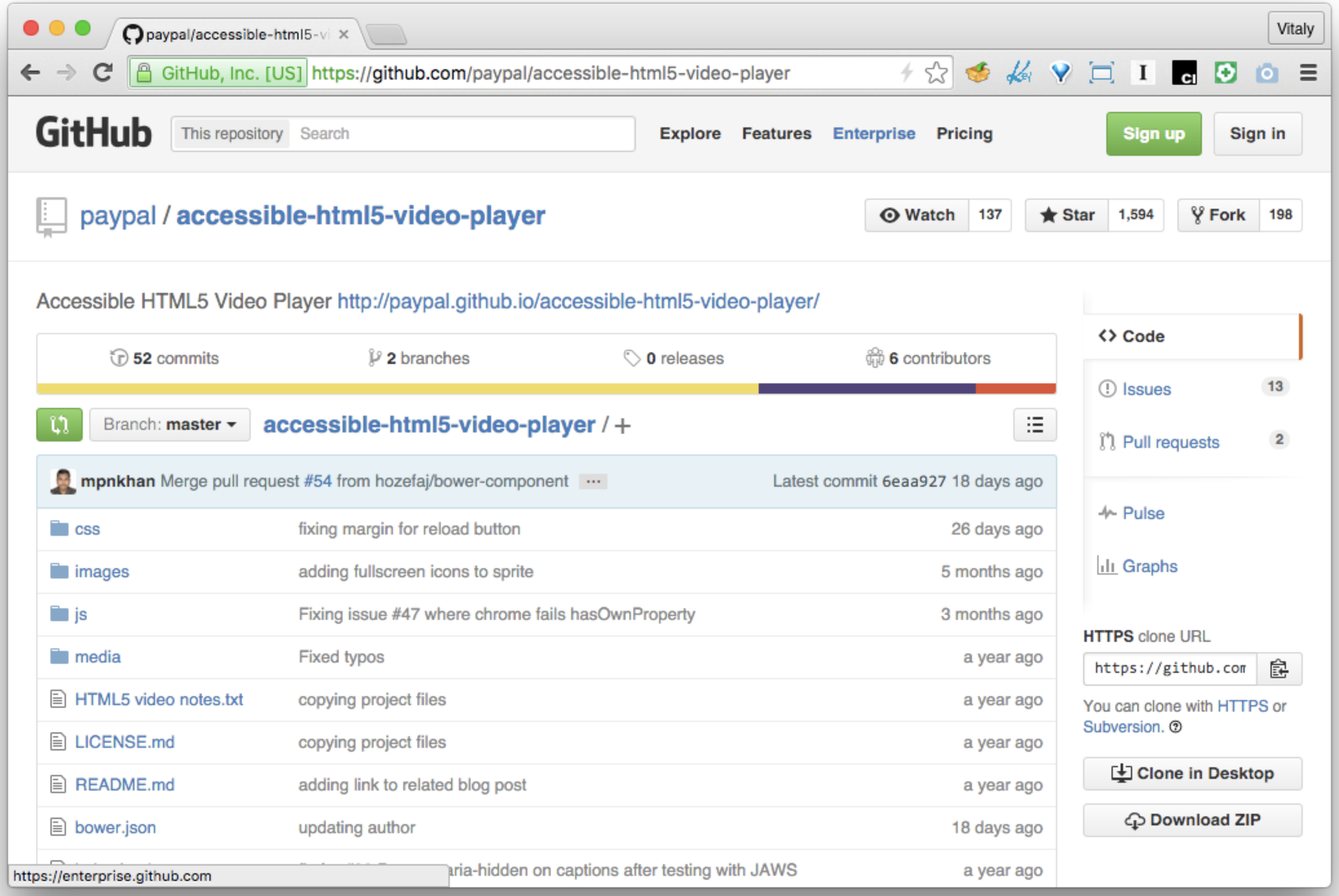
```
<video preload="auto" width="480" height="360"
poster="myvideo.jpg">
    <source type="video/mp4" src="talk.mp4" />
    <source type="video/webm" src="talk.webm" />
    <track kind="captions" src="talk.vtt" />
</video>
```



- *Accessible video* includes captions, a transcript and an audio description.
- Delivered in a fully accessible video player, incl. *accessible controls* and playback options.


Able Player
Vitaly
ableplayer.github.io/ableplayer/
View on GitHub
Able Player
Fully accessible cross-browser HTML5 media player.
tar.gz
.zip
Able Player
Able Player is a fully accessible cross-browser media player. It uses the HTML5 <audio> or <video> element for browsers that support them, and (optionally) the JW Player as a fallback for those that don't.
To see the player in action check our Able Player Examples page.
Features
Supports both audio and video.
Supports either a single audio track or an entire playlist.
A full set of player controls that are keyboard-accessible, properly labeled for screen reader users, and controllable by speech recognition users.

// Load sc


paypal/accessible-html5-v
Vitaly
GitHub, Inc. [US] https://github.com/paypal/accessible-html5-video-player
GitHub
This repository
Search
Explore
Features
Enterprise
Pricing
Sign up
Sign in
paypal / accessible-html5-video-player
Watch 137
Star 1,594
Fork 198
Accessible HTML5 Video Player http://paypal.github.io/accessible-html5-video-player/
52 commits
2 branches
0 releases
6 contributors
Branch: master
accessible-html5-video-player / +
mpnkhan Merge pull request #54 from hozefaj/bower-component
Latest commit 6eaa927 18 days ago
css fixing margin for reload button 26 days ago
images adding fullscreen icons to sprite 5 months ago
js Fixing issue #47 where chrome fails hasOwnProperty 3 months ago
media Fixed typos a year ago
HTML5 video notes.txt copying project files a year ago
LICENSE.md copying project files a year ago
README.md adding link to related blog post a year ago
bower.json updating author 18 days ago
aria-hidden on captions after testing with JAWS a year ago
Code
Issues 13
Pull requests 2
Pulse
Graphs
HTTPS clone URL
https://github.com
You can clone with HTTPS or Subversion.
Clone in Desktop
Download ZIP
https://enterprise.github.com

// Load sc

Accessibility Techniques

- Accessibility is about defining *relationships,* properties and behaviors of elements explicitly.
  - *Buttons* have different states; they control elements,
  - *Navigation* requires appropriate sectioning.
  - *Forms* require concise and appropriate feedback,
  - *Widgets* have complex properties and behaviors,
- *Problem:* misconceptions about how users use screen readers/keyboards—and *browser support.*

Accessible SPAs

- In SPAs, where *subviews* are split into separate component files, landmarks chunk nicely into various includes and templates.

- Each *view* returns a landmark with `tabIndex="-1"` to make it a focus management target.

- Each *view* returns a landmark with `tabIndex="-1"` to make it a focus management target.

```
// component-main.js
export default function MainView (props) {
  const { view, className } = props
  return main({ className, tabIndex: -1 },
    h1({}, i18n`My Single Page App`),
    subnavView(view)({
      ...props, className: 'panel-subnav'
    }),
    contentView(view)({
      ...props, className: 'panel-main'
    })
  )
}
```

```
// component-main.js
export default function MainView (props) {
  const { view, className } = props
  return main({ className, tabIndex: -1 },
    h1({}, i18n`My Single Page App`),
    subnavView(view)({
      ...props, className: 'panel-subnav'
    }),
    contentView(view)({
      ...props, className: 'panel-main'
    })
  )
}
```

- *MainView* returns a `main` landmark with `tabIndex="-1"` to make it a focus management target.

```
// component-main.js
export default function MainView (props) {
  const { view, className } = props
  return main({ className, tabIndex: -1 },
    h1({}, i18n`My Single Page App`),
    subnavView(view)({
      ...props, className: 'panel-subnav'
    }),
    contentView(view)({
      ...props, className: 'panel-main'
    })
  )
}
```

- Inside *main* is an `h1` heading and a few subviews, pulled in as child components, each with their own logical landmarks and `h2`-`h6` headings.

```
// component-main.js
export default function MainView (props) {
  const { view, className } = props
  return main({ className, tabIndex: -1 },
    h1({}, i18n`My Single Page App`),
    subnavView(view)({
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    }),
    contentView(view)({
      ...props, className: 'panel-main'
    })
  )
}
```

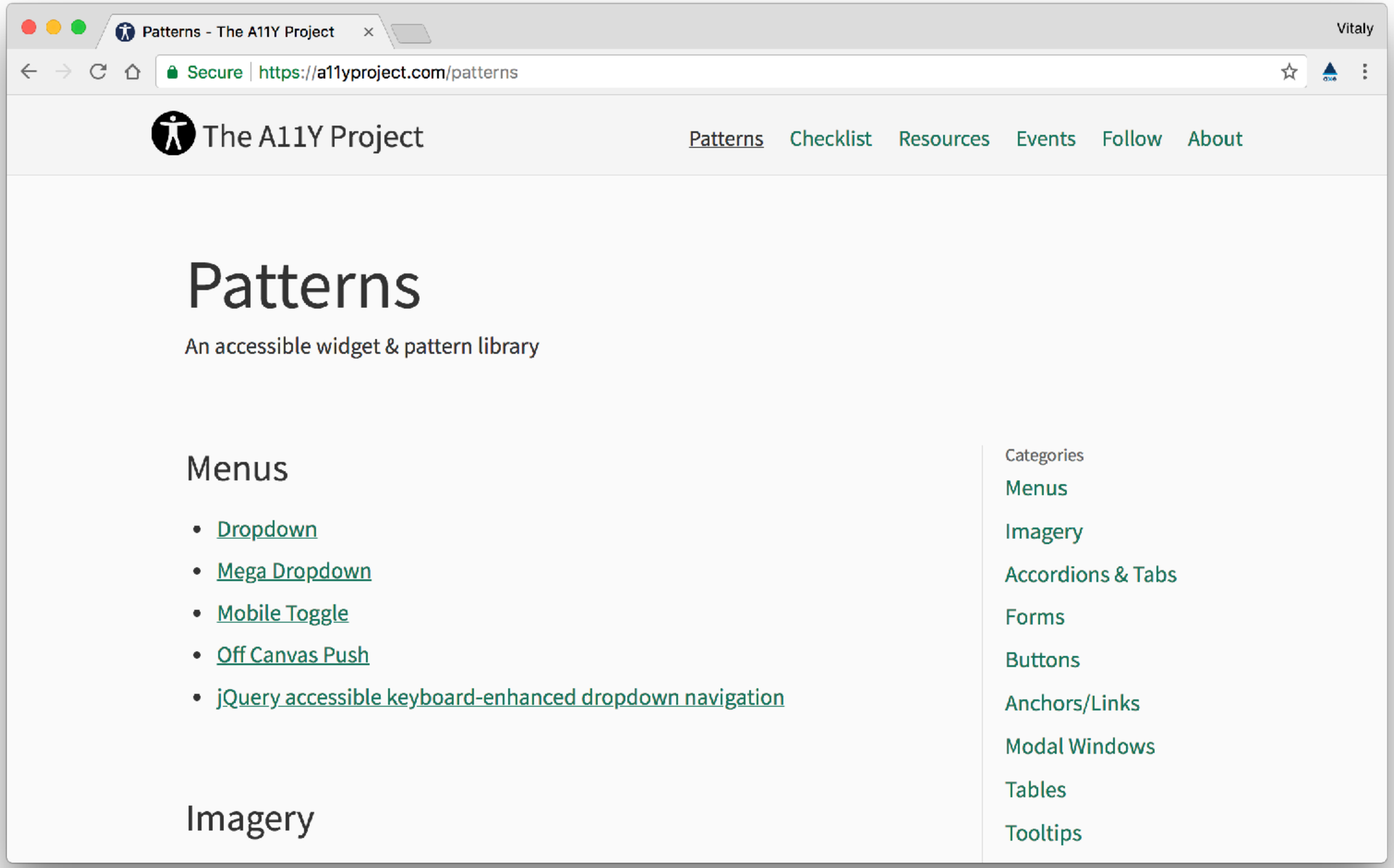
- Make heading levels *configurable*. Accessible rendered HTML has only UI controls that can be reached and operated with the keyboard.

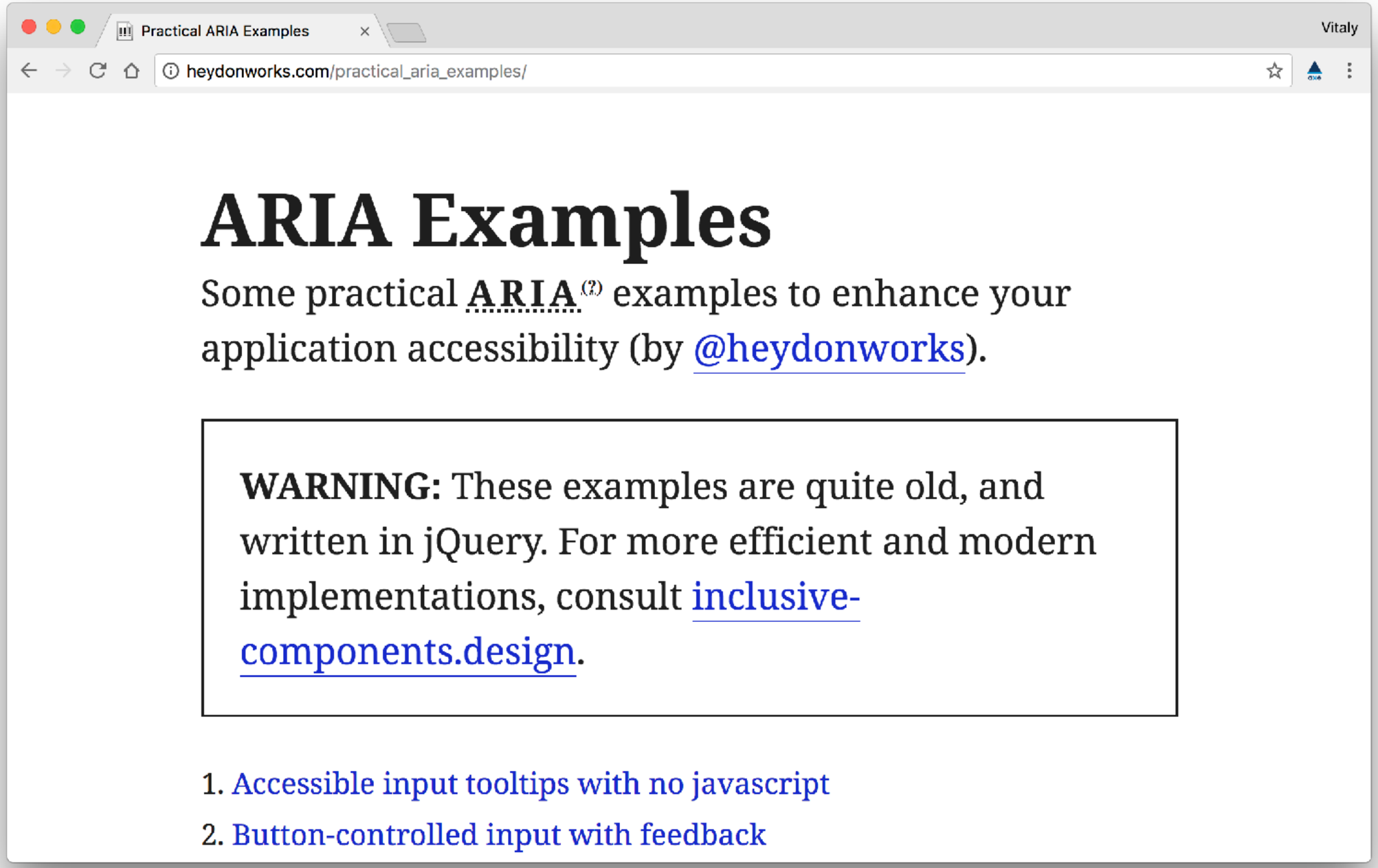
Accessible SPAs

- Accessible rendered HTML has only UI controls that can be reached and operated with the *keyboard.*
  - *Send focus* to new content when subviews are appended/removed, or dialogs/menus are opened.
  - *Don't send focus* for carousels, auto-rotating content,
  - *ARIA Live Regions* announce simple content changes which are not interactive.
  - *Use a focus trap* to keep focus inside active content control.

Accessibility Strategy

- Accessibility is about defining *relationships,* properties and behaviors of elements explicitly.
  - Writing HTML, prefer *semantically sound elements,*
  - Define *explicit relationships* (roles, properties, states),
  - Check *global properties first*, then local properties.
  - Test *keyboard and screen readers* use.
  - Refine *accessibility enhancements.*


Patterns - The A11Y Project
Vitaly
Secure
https://a11yproject.com/patterns
The A11Y Project
Patterns
Checklist
Resources
Events
Follow
About
Patterns
An accessible widget & pattern library
Menus
Dropdown
Mega Dropdown
Mobile Toggle
Off Canvas Push
jQuery accessible keyboard-enhanced dropdown navigation
Imagery
Categories
Menus
Imagery
Accordions & Tabs
Forms
Buttons
Anchors/Links
Modal Windows
Tables
Tooltips


Practical ARIA Examples
Vitaly
heydonworks.com/practical_aria_examples/
ARIA Examples
Some practical ARIA(?) examples to enhance your application accessibility (by @heydonworks).
WARNING: These examples are quite old, and written in jQuery. For more efficient and modern implementations, consult inclusive-components.design.
1. Accessible input tooltips with no javascript
2. Button-controlled input with feedback

Inclusive Components

Vitaly

Secure | https://inclusive-components.design

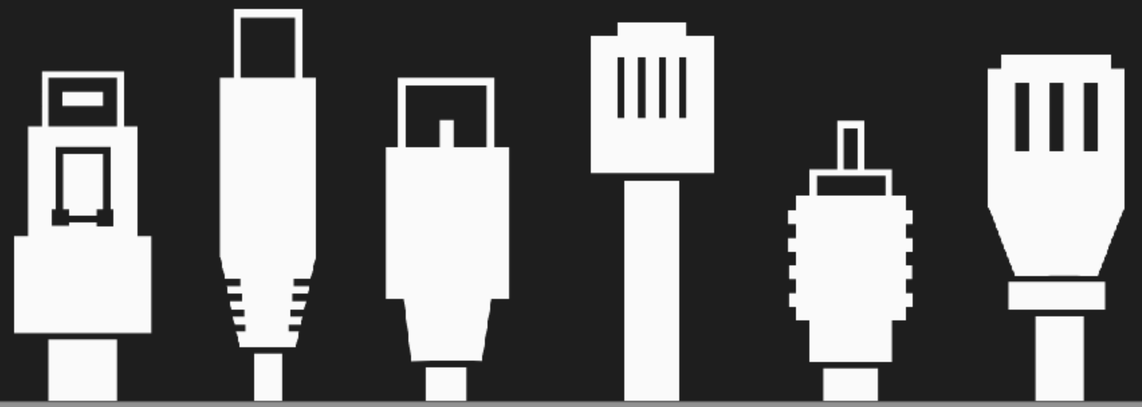
Inclusive Components

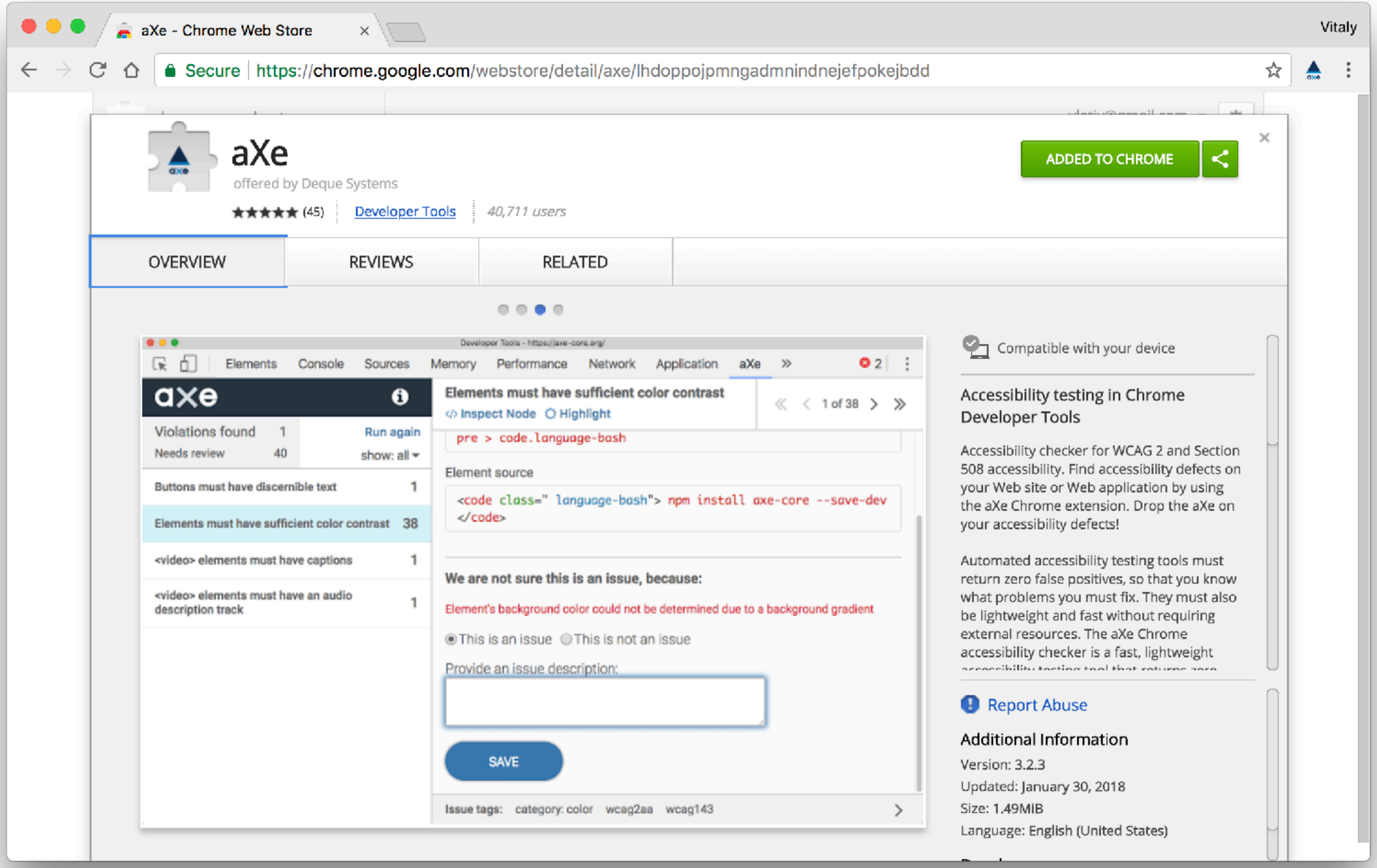
The components

About the project

Inclusive Components

A blog trying to be a pattern library. All about designing inclusive web interfaces, piece by piece.



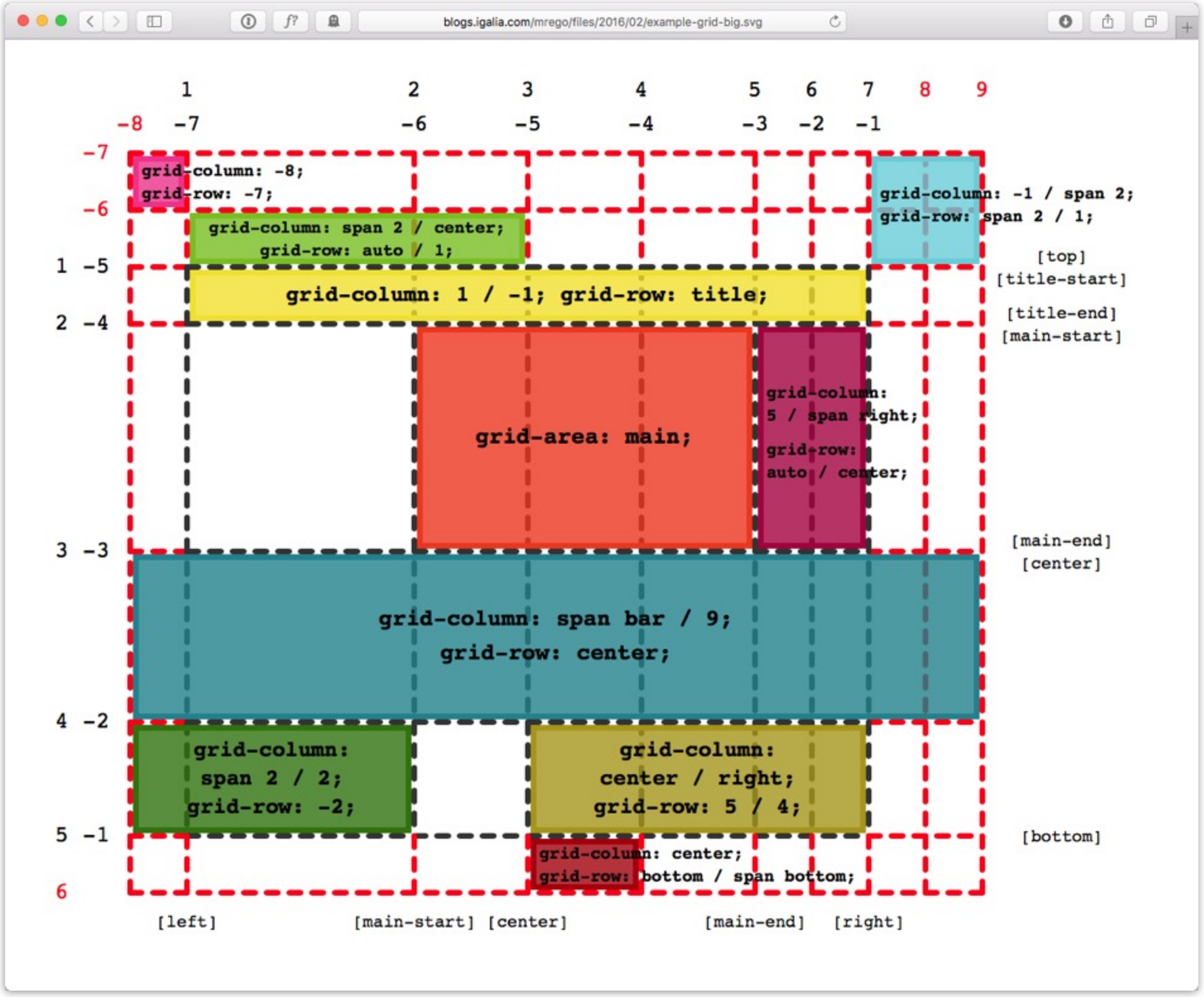

aXe - Chrome Web Store
Vitaly
Secure https://chrome.google.com/webstore/detail/axe/lhdoppojpmngadmnindnejefpokejbdd
aXe
offered by Deque Systems
ADDED TO CHROME
(45)
Developer Tools
40,711 users
OVERVIEW
REVIEWS
RELATED
Elements Console Sources Memory Performance Network Application aXe
axe
Violations found 1
Needs review 40
Run again
show: all
Buttons must have discernible text 1
Elements must have sufficient color contrast 38
<video> elements must have captions 1
<video> elements must have an audio description track 1
Elements must have sufficient color contrast
Inspect Node Highlight
1 of 38
pre > code.language-bash
Element source
<code class=" language-bash"> npm install axe-core --save-dev
</code>
We are not sure this is an issue, because:
Element's background color could not be determined due to a background gradient
This is an issue
This is not an issue
Provide an issue description:
SAVE
Issue tags: category: color wcag2aa wcag143
Compatible with your device
Accessibility testing in Chrome Developer Tools
Accessibility checker for WCAG 2 and Section 508 accessibility. Find accessibility defects on your Web site or Web application by using the aXe Chrome extension. Drop the aXe on your accessibility defects!
Automated accessibility testing tools must return zero false positives, so that you know what problems you must fix. They must also be lightweight and fast without requiring external resources. The aXe Chrome accessibility checker is a fast, lightweight
Report Abuse
Additional Information
Version: 3.2.3
Updated: January 30, 2018
Size: 1.49MiB
Language: English (United States)

Summary

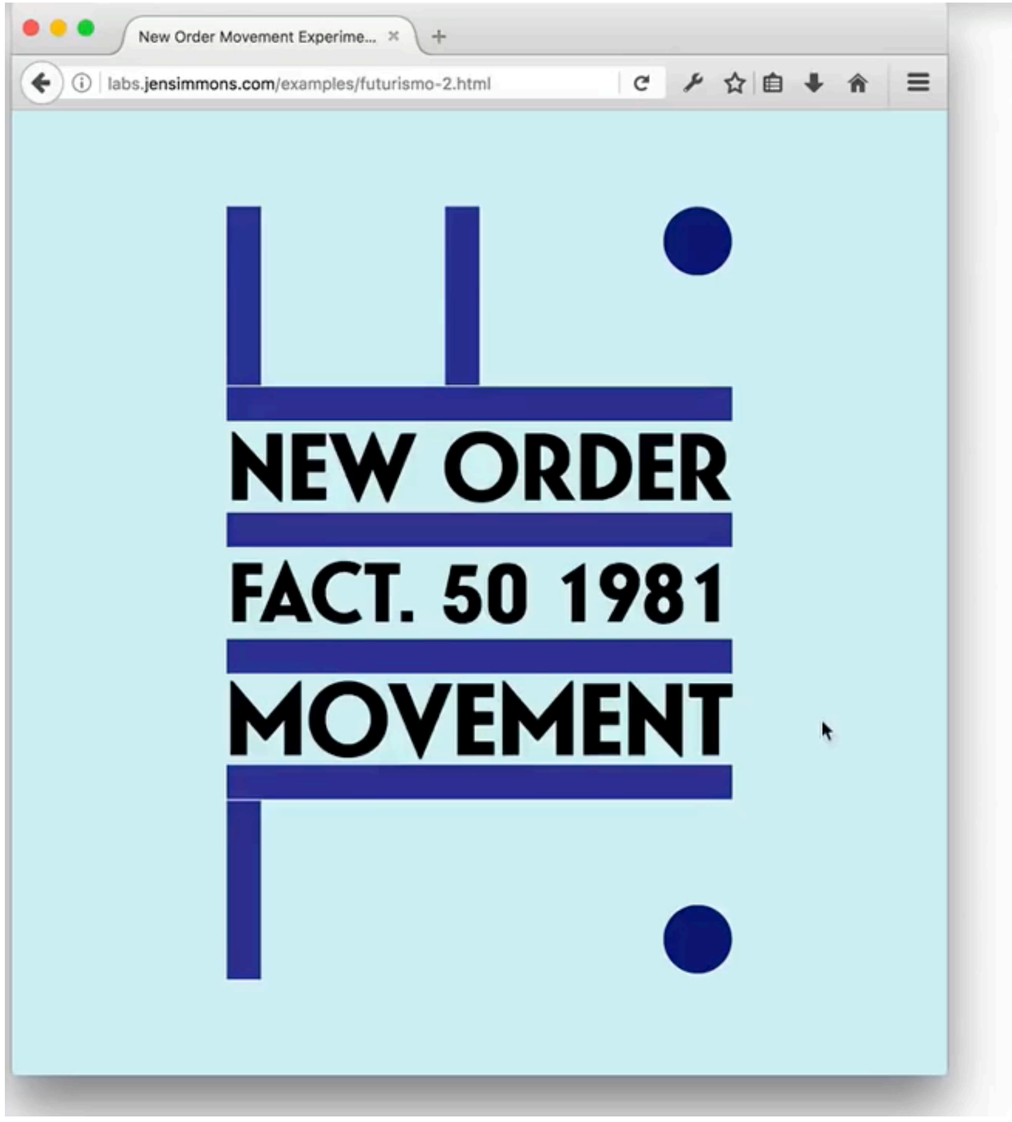
— screen readers have good JS support
— keep interactive elements (button) focusable
— ARIA-roles as gap-filler for HTML semantics
— legacy code can be augmented with ARIA
— sectioning creates a structural map of the page
— forms require appropriate feedback
— easy to find fully accessible components

FLEXING BOXES

Sometimes laying out boxes is annoying and hacky. **Grid** helps us resolve most of the issues for simple modules, but how to *wrap your head around it?*



by Manuel Rego Casasnovas
http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/


New Order Movement Experime...
labs.jensimmons.com/examples/futurismo-2.html
NEW ORDER
FACT. 50 1981
MOVEMENT

CSS Grid Layout - CR

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.

Global 69.57% + 5.77% = 75.34%

unprefixed: 69.57%

Current aligned | Usage relative | Date relative | Show all

IE	Edge *	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
			1 49						
		4 52	60			10.2			
	2 15	55	61	10.1		10.3		4.4	
2 11	16	56	62	11	48	11	all	56	61
	17	57	63	TP	49				
		58	64		50				
		59	65						

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

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

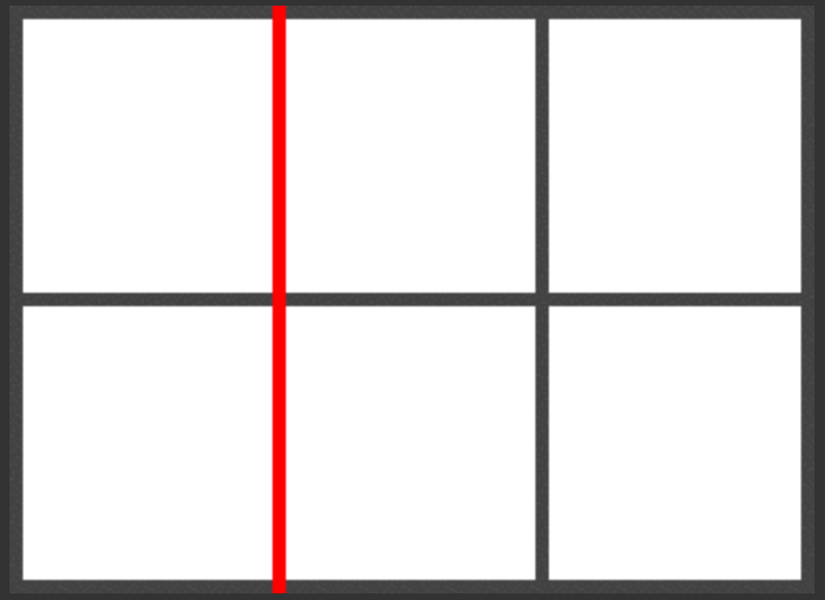
2 Partial support in IE refers to supporting an older version of the specification.

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

Grid Lines

Lines can be horizontal or vertical. They are referred to by number and can be named.

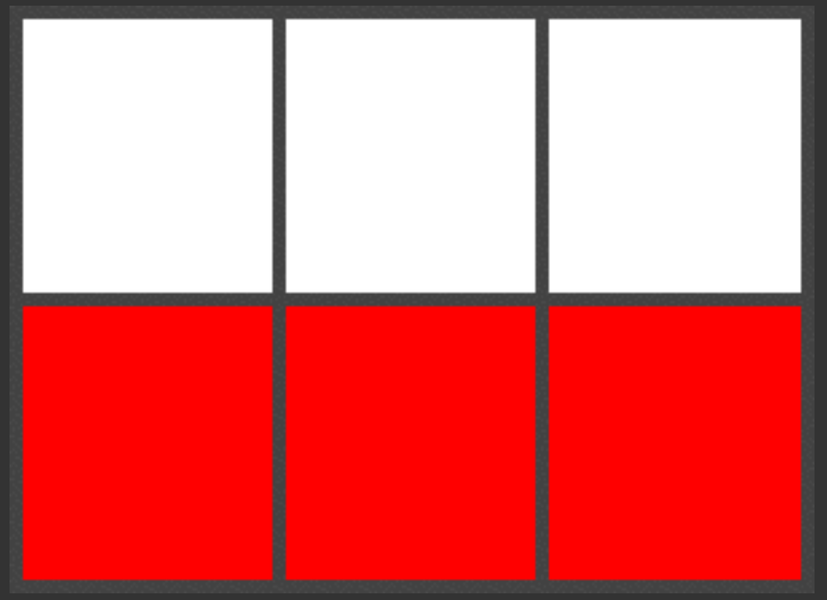
Highlighted is Column Line 2.



Grid Track

A Grid Track is the space between two Grid Lines. Tracks can be horizontal or vertical (rows or columns).

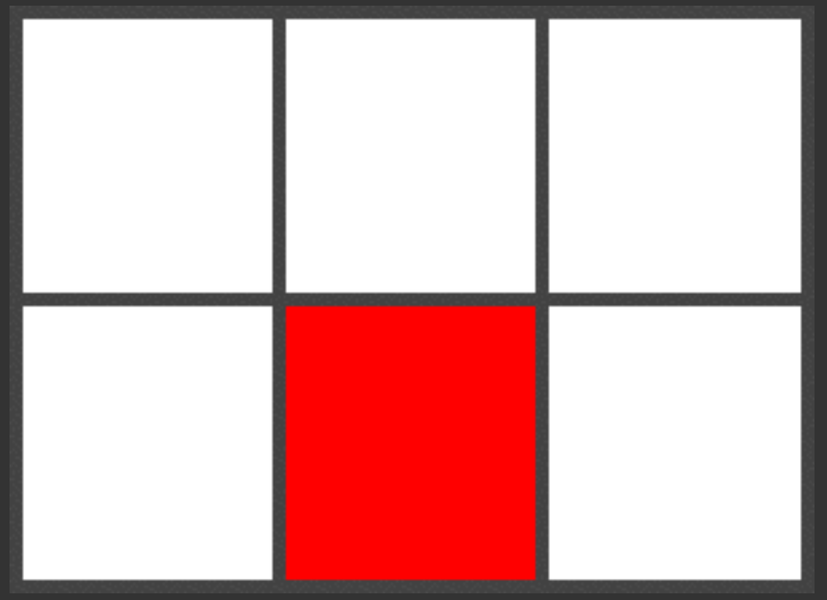
The highlighted Grid Track is between Row Lines 2 and 3.



Grid Cell

The smallest unit on our grid, a Grid Cell is the space between four Grid Lines. It’s just like a table cell.

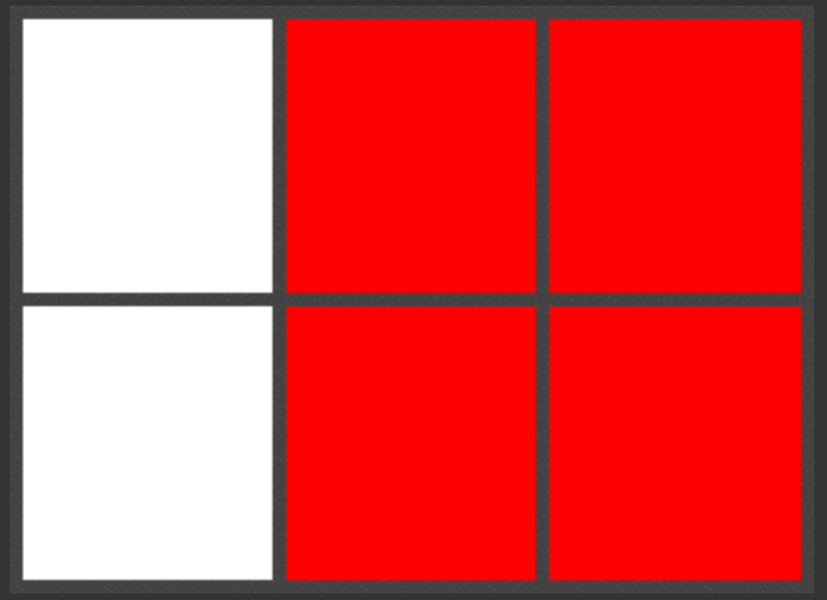
The highlighted Grid Cell is between row lines 2 and 3 and column lines 2 and 3.



Grid Area

Any area of the Grid bound by 4 Grid Lines. It can contain many Grid Cells.

The highlighted Grid Area is between row lines 1 and 3, column lines 2 and 4.



— *grid-template-columns* declares the number of columns and the size of each column.

```
grid-template-columns: 250px 250px 250px 250px;
```

— *repeat* keyword allows to avoid repetition.

```
grid-template-columns: repeat(4, 250px);
grid-template-columns: repeat(5, 1fr 2fr);
grid-template-columns: 20px repeat(6, 1fr) 20px;
```

— *grid-auto-rows* and *grid-auto-columns* define set size of tracks within implicit grid.

```
grid-auto-rows: minmax(100px, auto);
```

— *1fr,* a *fraction unit*, takes up a share of available space, accounting for *grid-gap*.

```
grid-template-columns: repeat(4, 250px 1fr);
```

— *minmax* specifies a range of the largest and smallest values a row or column could be:

```
grid-template-columns: repeat(4, minmax(250px, 1fr);
```

— *alignment* is achieved as in Flexbox. *stretch* pulls an element from start to end of a track.

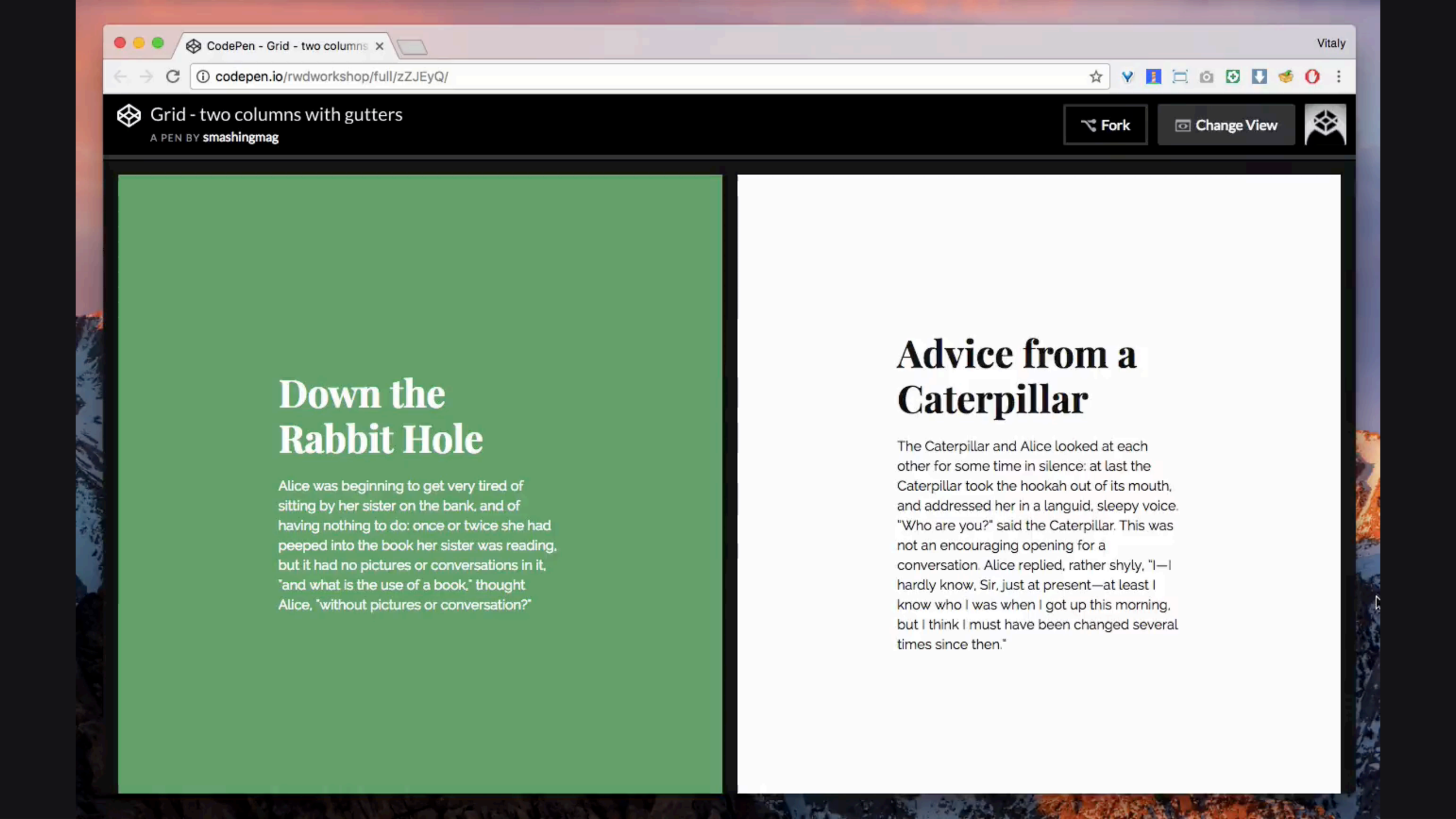
```
align-items: center; justify-content: center;
```

Down the Rabbit Hole

Alice was beginning to get very tired of sitting by her sister on the bank, and of having nothing to do: once or twice she had peeped into the book her sister was reading, but it had no pictures or conversations in it, "and what is the use of a book," thought Alice, "without pictures or conversation?"

Advice from a Caterpillar

The Caterpillar and Alice looked at each other for some time in silence: at last the Caterpillar took the hookah out of its mouth, and addressed her in a languid, sleepy voice. "Who are you?" said the Caterpillar. This was not an encouraging opening for a conversation. Alice replied, rather shyly, "I—I hardly know, Sir, just at present—at least I know who I was when I got up this morning, but I think I must have been changed several times since then."


CodePen - Grid - two columns
Vitaly
codepen.io/rwdworkshop/full/zZJEyQ/
Grid - two columns with gutters
A PEN BY smashingmag
Fork
Change View
Down the Rabbit Hole
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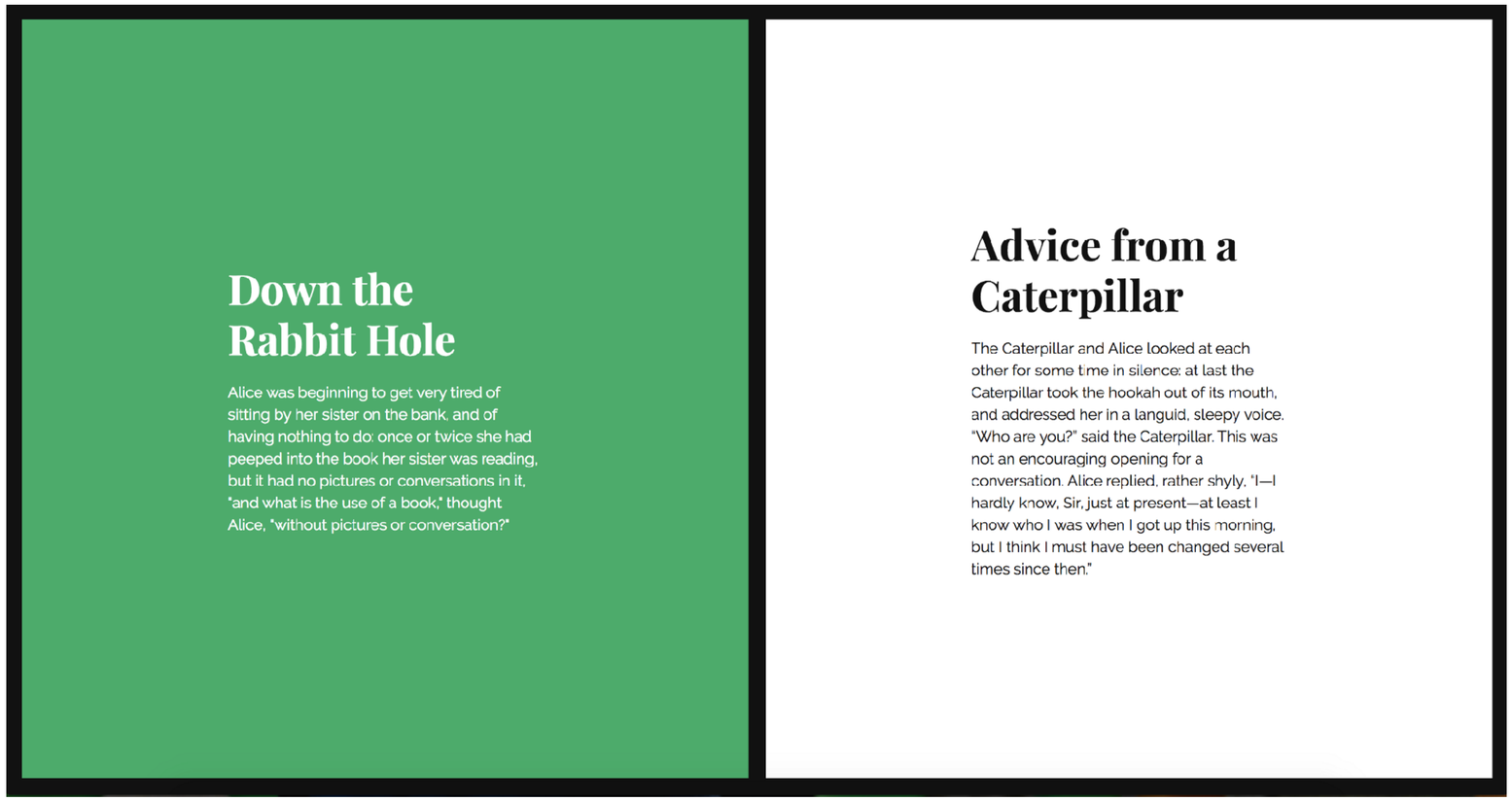
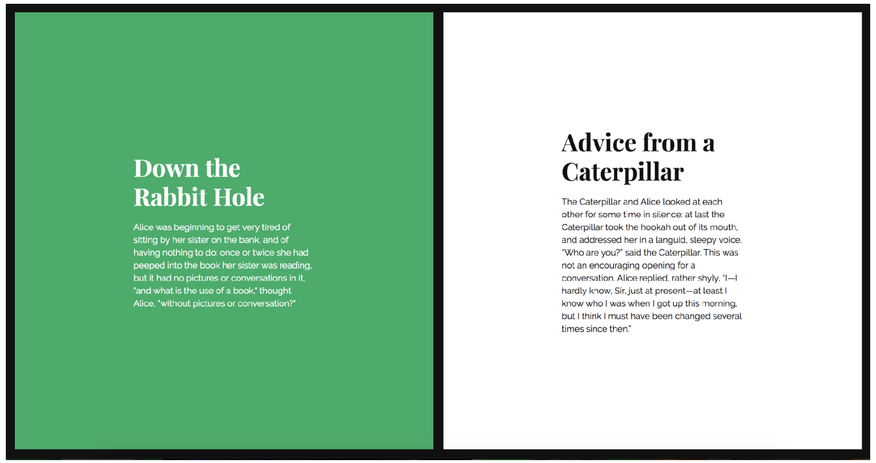


- CSS:

```
@supports (display: flex) {
    .container { display: flex; }
}
```



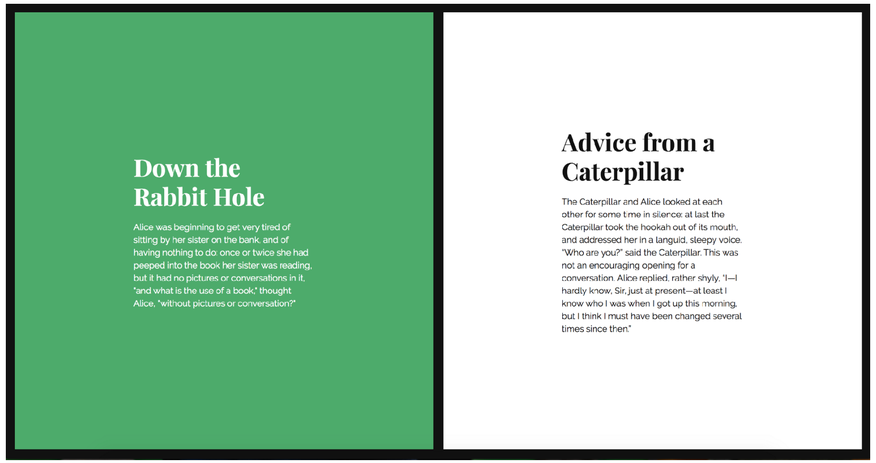
- CSS:

```
@supports (display: flex) {
    .l-grid {
        display: flex;
        min-height: 100vh;
    }

    .l-grid--half-half > .l-grid__item {
        flex: 1 1 auto;
    }
}
```

- CSS:

```
@supports (display: flex) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
}
.l-content {
    max-width: 300px;
}
```



- CSS:

```
@supports (display: grid) {
    .l-grid--half-half {
        display: grid;
        grid-template-columns: 50vw 50vw;
        grid-gap: 1rem;
        min-height: 100vh;
    }
}
```

- CSS:

```
.l-center-center {
    align-items: center;
    justify-content: center;
}

.l-content {
    max-width: 300px;
}
```



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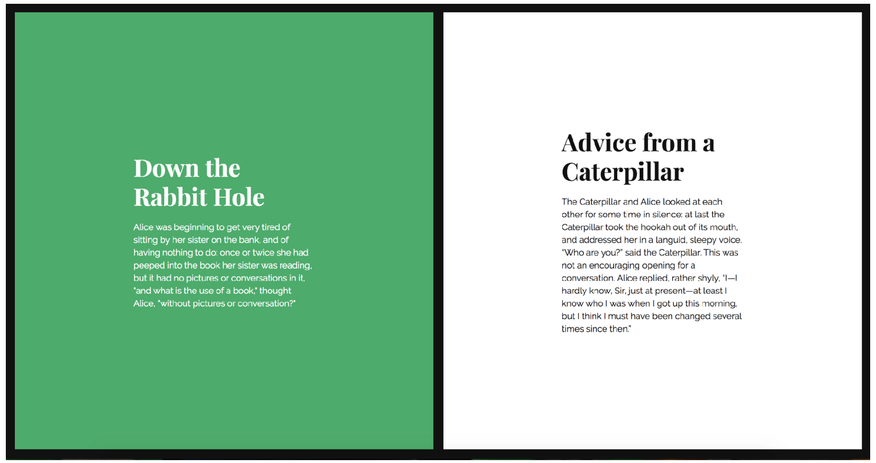

- CSS:

```
@supports (display: grid) {
    .l-grid--half-half {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-gap: 1rem;
        min-height: 100vh;
    }
}
```

- CSS:

```
.l-center-center {
    align-items: center;
    justify-content: center;
}

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    max-width: 300px;
}
```

The Horror In Clay

Of such great powers or beings there may be conceivably a survival… a survival of a hugely remote period when… consciousness was manifested, perhaps, in shapes and forms long since withdrawn before the tide of advancing humanity… forms of which poetry and legend alone have caught a flying memory and called them gods, monsters, mythical beings of all sorts and kinds…

The most merciful thing in the world

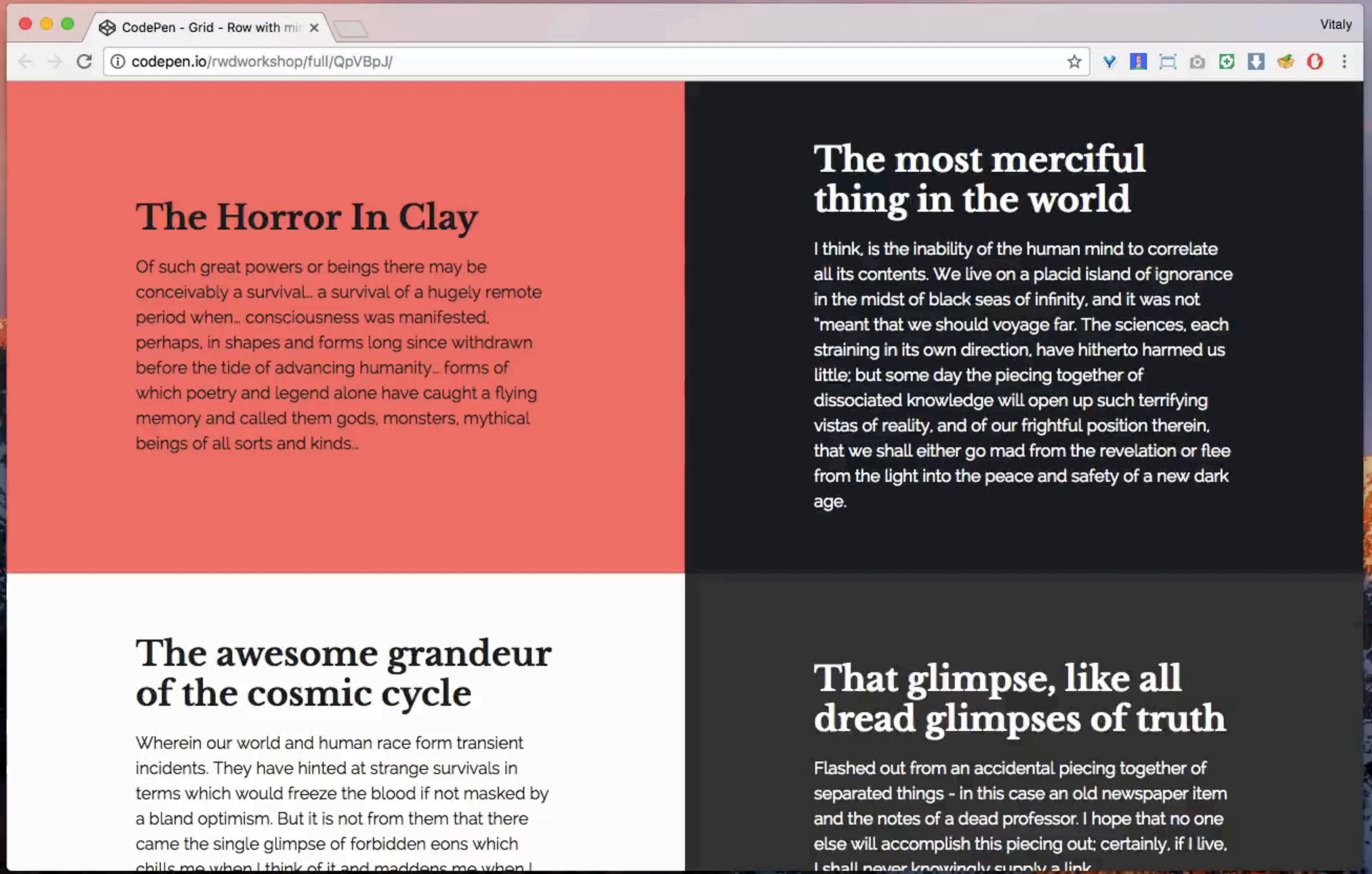
I think, is the inability of the human mind to correlate all its contents. We live on a placid island of ignorance in the midst of black seas of infinity, and it was not "meant that we should voyage far. The sciences, each straining in its own direction, have hitherto harmed us little; but some day the piecing together of dissociated knowledge will open up such terrifying vistas of reality, and of our frightful position therein, that we shall either go mad from the revelation or flee from the light into the peace and safety of a new dark age.

The awesome grandeur of the cosmic cycle

Wherein our world and human race form transient incidents. They have hinted at strange survivals in terms which would freeze the blood if not masked by a bland optimism. But it is not from them that there came the single glimpse of forbidden eons which chills me when I think of it and maddens me when I dream of it.

That glimpse, like all dread glimpses of truth

Flashed out from an accidental piecing together of separated things - in this case an old newspaper item and the notes of a dead professor. I hope that no one else will accomplish this piecing out; certainly, if I live, I shall never knowingly supply a link


CodePen - Grid - Row with mir
Vitaly
codepen.io/rwdworkshop/full/QpVBpJ/
The Horror In Clay
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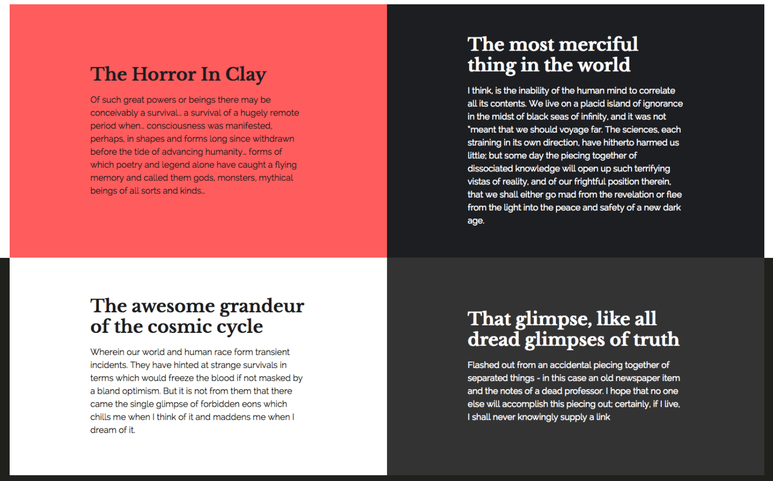
That glimpse, like all dread glimpses of truth
Flashed out from an accidental piecing together of separated things - in this case an old newspaper item and the notes of a dead professor. I hope that no one else will accomplish this piecing out; certainly, if I live,



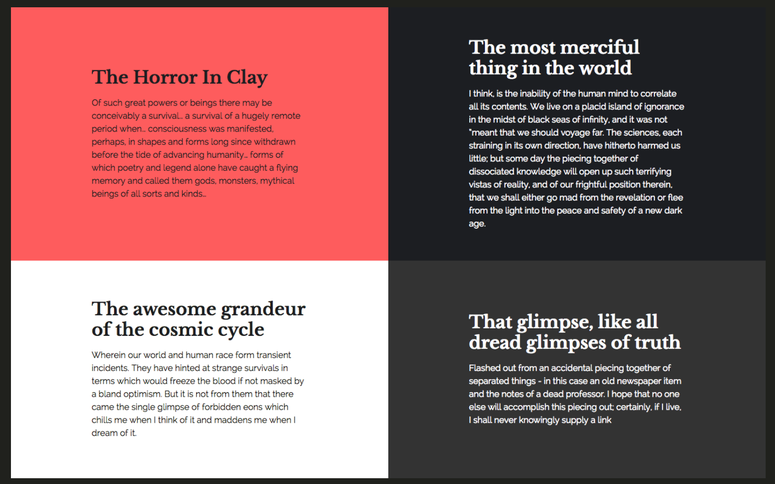
- CSS:

```
@supports (display: flex) {
    .l-grid {
        display: flex;
        flex-wrap: wrap;
    }

    .l-grid--4x4 > .l-grid__item {
        flex: 1 1 auto;
    }
}
```

- CSS:

```
@supports (display: flex) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
}
```



- CSS:

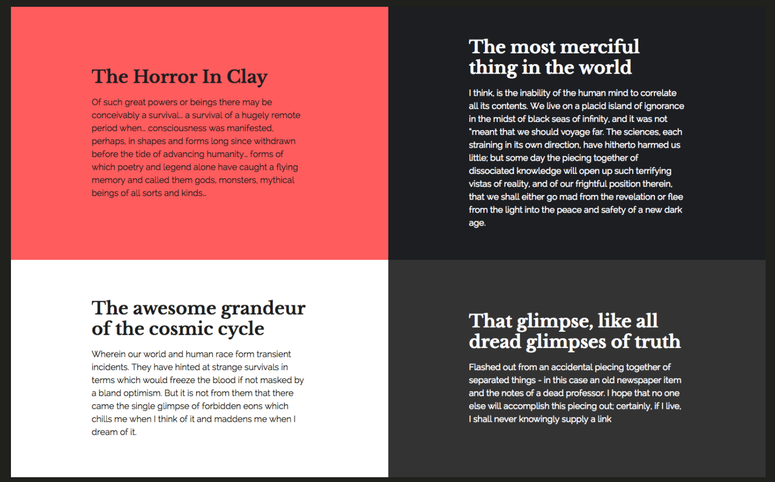
```
@supports (display: flex) {
    .l-grid {
        display: flex;
    }

    .l-grid--4x4 > .l-grid__item {
        flex: 1 1 auto;
    }
}
```

- CSS:

```
@supports (display: flex) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }

    @media screen and (min-width: 600px) {
        .l-grid {
            flex-wrap: wrap;
        }
    }
}
```



- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-template-rows: 250px 250px;
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
```

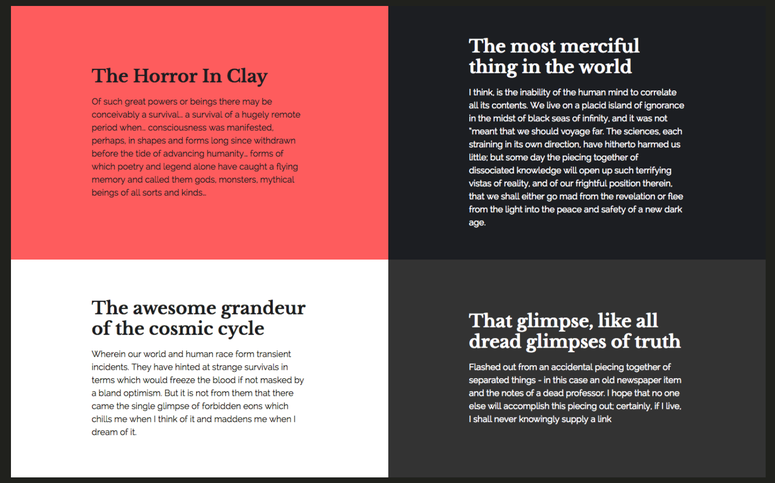


- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-template-rows: 250px 250px;
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
```



- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-template-columns: 1fr 1fr;
        grid-template-rows:
            repeat(auto-fit, minmax(50vh, auto)
                             minmax(50vh, auto));
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-center-center {
        align-items: center;
        justify-content: center;
    }
```

— *grid-gap* specifies the row and the column's gutter sizes:

```
grid-column-gap: 1rem; grid-row-gap: 1rem;
grid-gap: 1rem;
```

— *grid-column-start* defines where the content should start displaying.

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

.child { grid-column-start: 2; }
```

The Valley of Fear

When McMurdo awoke next morning he had good reason to remember his initiation into the lodge. His head ached with the effect of the drink, and his arm, where he had been branded, was hot and swollen. Having his own peculiar source of income, he was irregular in his attendance at his work; so he had a late breakfast, and remained at home for the morning writing a long letter to a friend.

It was a short account of the facts with which he was himself more familiar than the writer could have been. It ended with the statement: "The matter is now in the hands of the police; but it can hardly be hoped that their exertions will be attended by any better results than in the past. Some of the men were recognized, and there is hope that a conviction may be obtained. The source of the outrage was, it need hardly be said, that infamous society which has held this community in bondage for so long a period, and against which the Herald has taken so uncompromising a stand.

Below it stated that a guard of police, armed with Winchester rifles, had been requisitioned for the defense of the office. McMurdo had laid down the paper, and was lighting his pipe with a hand which was shaky from the excesses of the previous

McMurdo read the note twice with the utmost surprise; for he could not imagine what it meant or who was the author of it. Had it been in a feminine hand, he might have imagined that it was the beginning of one of those adventures which had been

- CSS:

```
@supports (display: flex) {
    .l-grid {
        display: flex;
        flex-wrap: wrap;
    }

    .l-grid > .l-grid__item {
        flex: 1 1 auto;
        width: 50%;
        margin-bottom: 4em;
    }
}
```

- CSS:

```
@supports (display: grid) {
    .l-grid {
        display: grid;
        grid-gap: 2rem;
        grid-template-columns: repeat(4, 1fr);
        grid-template-rows: 1fr;
    }
    .l-column-start-2 {
        grid-column-start: 2;
    }
    .l-column-start-3 {
        grid-column-start: 3;
    }
    .l-column-start-4 {
        grid-column-start: 4;
    }
}
```

— Content is positioned against *grid lines*, not grid columns. They can have multiple *names*.

```
grid-template-columns:
[form-start input-start] minmax(200px, 3fr)
[input-end button-start] 1fr [button-end form-end];
```

— Use *Grid* for 2-dimensional problems. If you can draw a grid over a component, consider Grid. Need items to expand within a row/col? *Flexbox.*

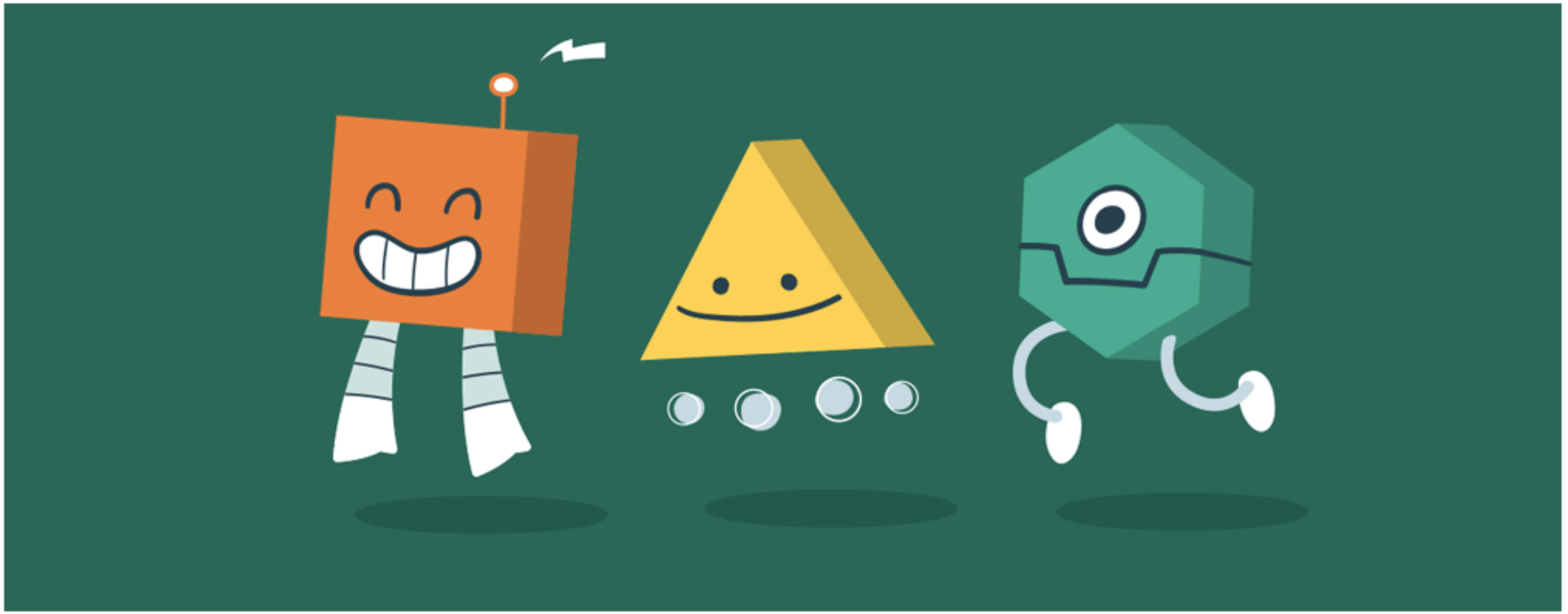
Follow the conventions of HTML as much as possible. For example, if you use an attribute for a boolean setting, its presence means `true` regardless of the value, and its absence means `false`. Do not expect things like `data-foo="true"` or `data-foo="false"` instead. Sure, ARIA does that, but if ARIA jumped off a cliff, would you do it, too?

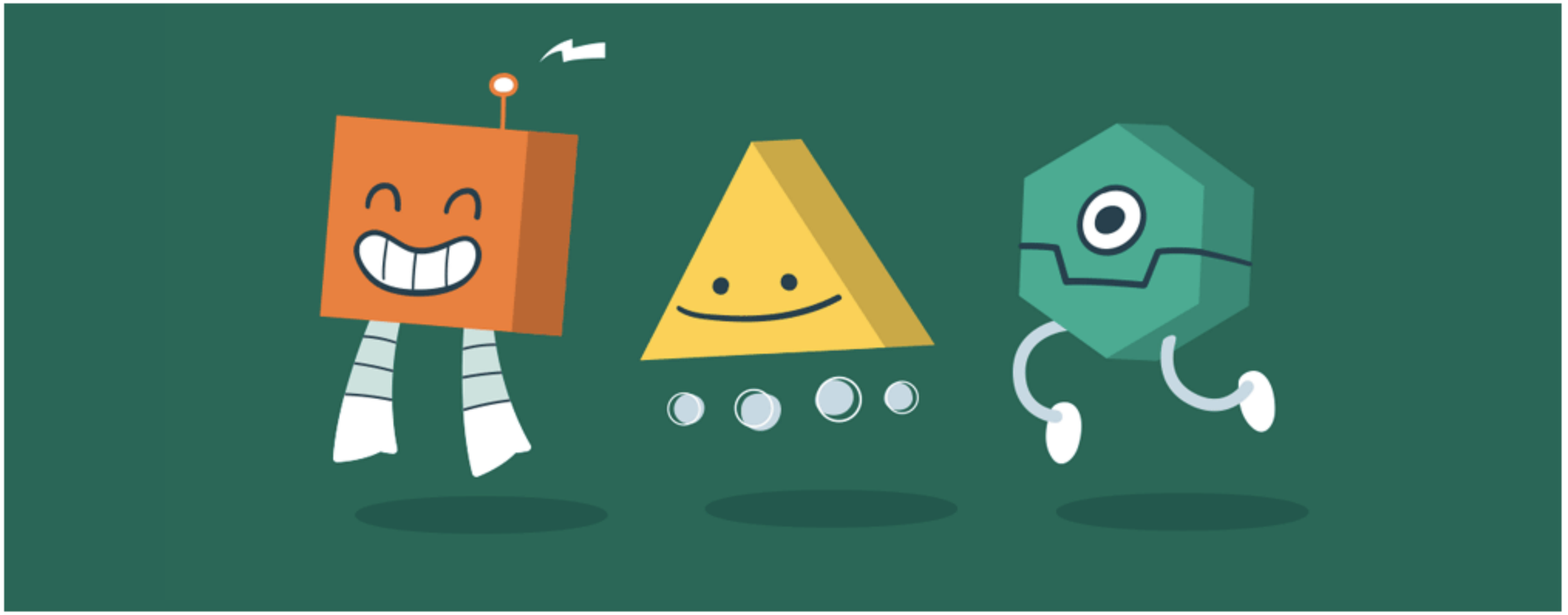
Want to better understand the topic? Our pal *Yoav Weiss* wrote a fully fledged chapter about the ins and outs of responsive images in a Hollywood blockbuster **Smashing Book 5**. *Just sayin'.*

Table of Contents →



When the setting is a **boolean**, you could also use classes. Typically, their semantics are similar to boolean attributes: The presence of the class means `true`, and the absence means `false`. If you want the opposite, you can use a `no-` prefix (for example, `no-line-numbers`). Keep in mind that class names are used more than `data-*` attributes, so there is a greater possibility of collision with the user's existing class names.





- HTML:

```
<div class="u-containProse">
    <p>...</p>
    <p>...</p>
</div>
```

- CSS:

```
.u-containProse {
    margin: 0 auto;
    max-width: 40em;
}
```

- HTML:

```
<div class="u-containProse">
    <p>...</p>
</div>

<img src="..." alt="..." />

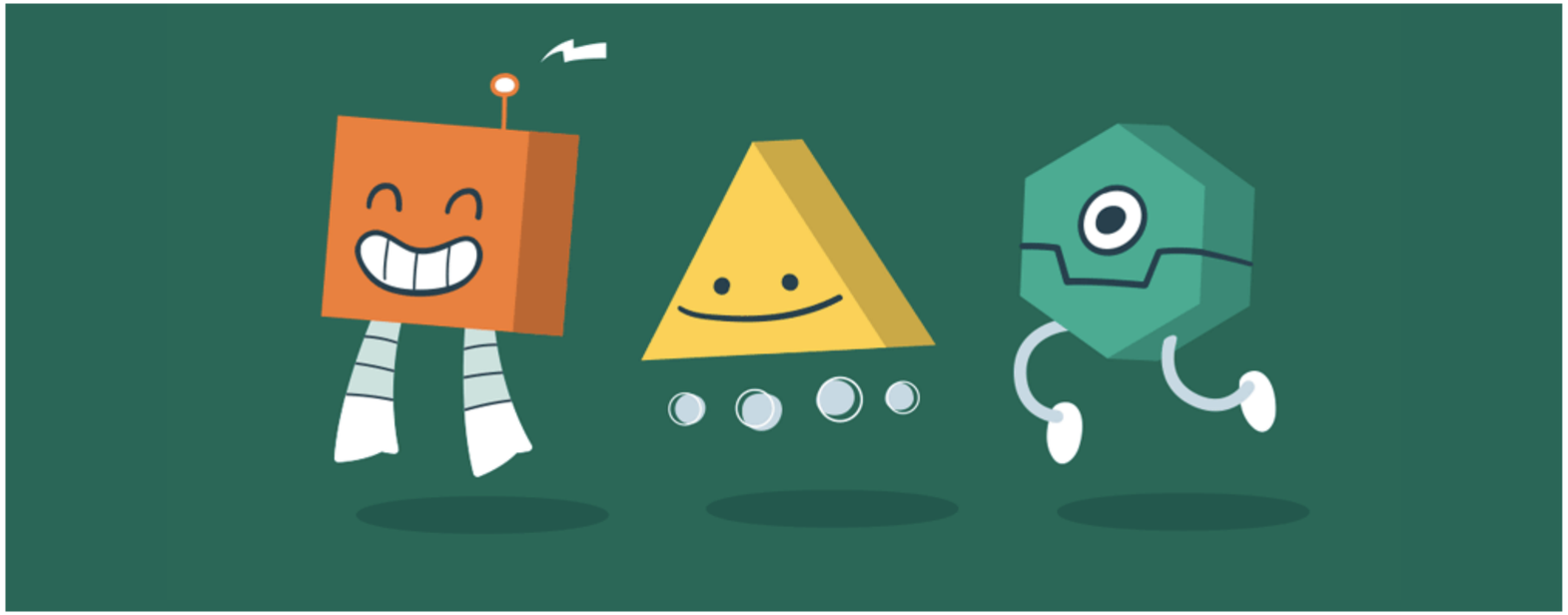
<div class="u-containProse">
    <p>...</p>
</div>
```

- CSS:

```
.u-containProse {
    margin: 0 auto;
    max-width: 40em;
}
```

To *release* our child element from its container, we need to know *how much space* there is between the container edge and the viewport edge.

What's this space exactly? Well, we just need to subtract *half the container width* from *half the viewport width*. *calc()* to the rescue!

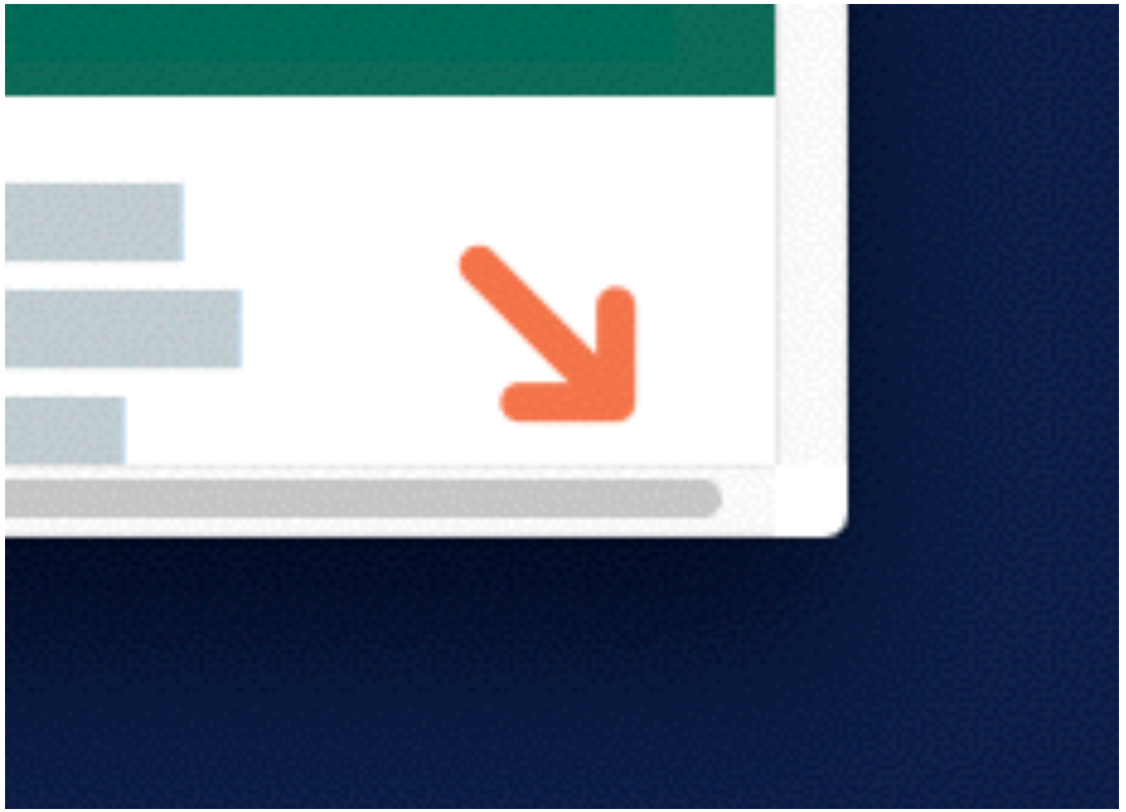


- HTML:

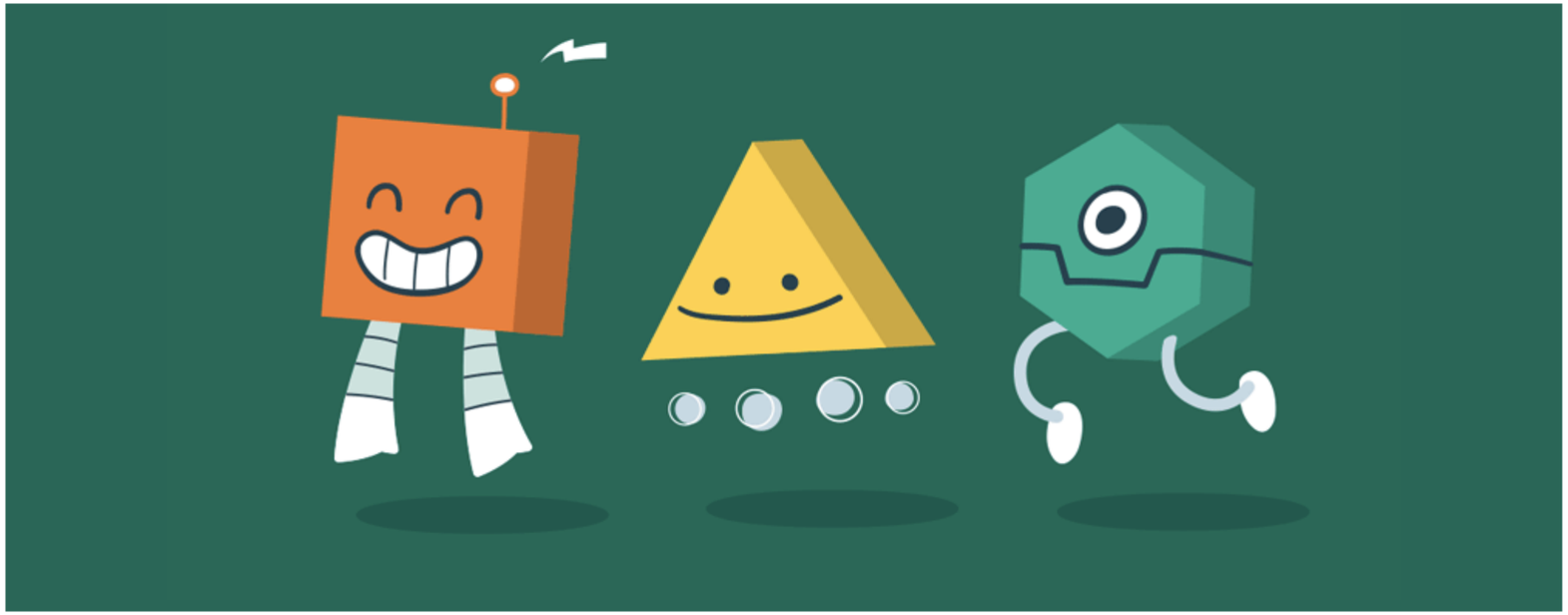
```
<div class="u-containProse">
    <p>...</p>
    <img class="u-release" src="..." />
    <p>...</p>
</div>
```

- CSS:

```
.u-release {
    margin-left: calc(-50vw + 50%);
    margin-right: calc(-50vw + 50%);
}
```



When the height or width of the initial containing block is changed, they are *scaled* accordingly. Note that the initial containing block's size is *affected* by the presence of scrollbars on the viewport.

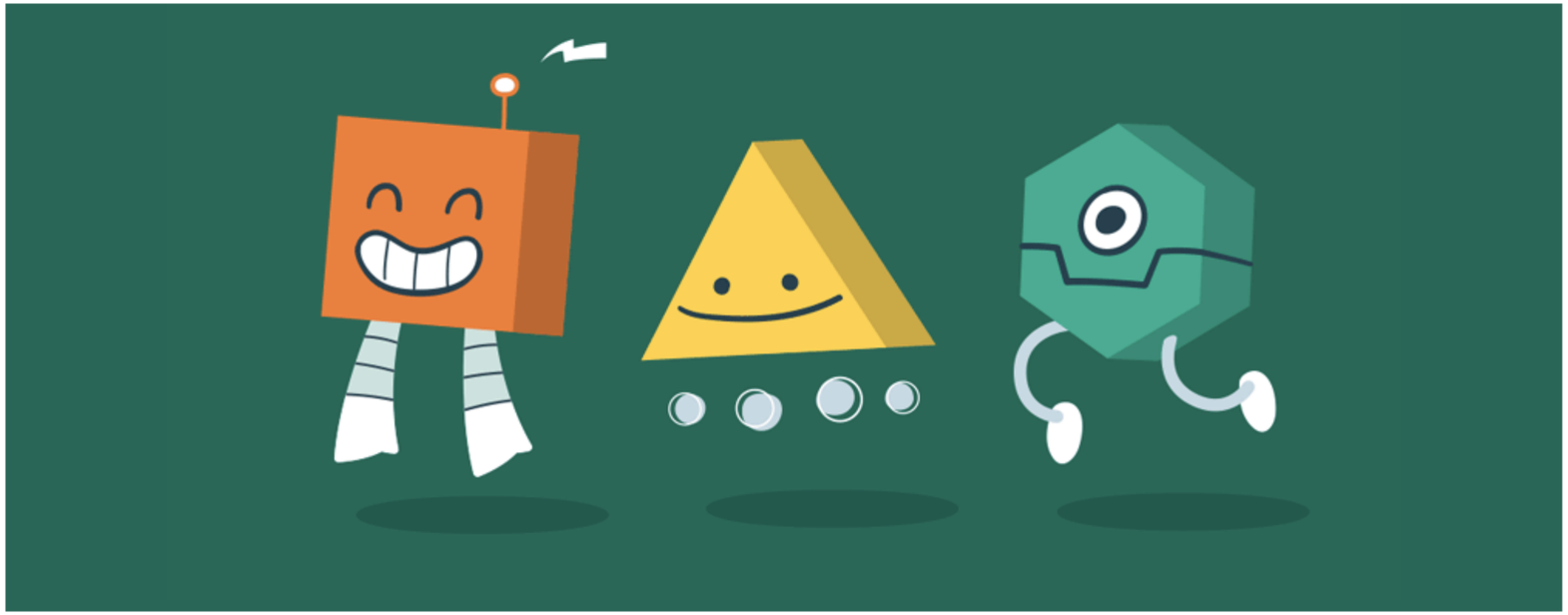


- HTML:

```
<div class="u-containProse">
    <p>...</p>
    <img class="u-release" src="..." />
    <p>...</p>
</div>
```

- CSS:

```
.u-release {
    margin-left: calc(-50vw + 50%);
    margin-right: calc(-50vw + 50%);
}
```



- HTML:

```
<div class="u-containProse">
    <p>...</p>
    <img class="u-release" src="..." />
    <p>...</p>
</div>
```

- CSS:

```
.u-release {
    margin-left: calc(-50vw + 50%);
    margin-right: calc(-50vw + 50%);
}

html, body {
    overflow-x: hidden;
}
```

Full-width element in fixed-wic

Vitaly

codepen.io/tylersticka/pen/XdvBXm

Full-width element in fixed-width container example

A PEN BY Tyler Sticka

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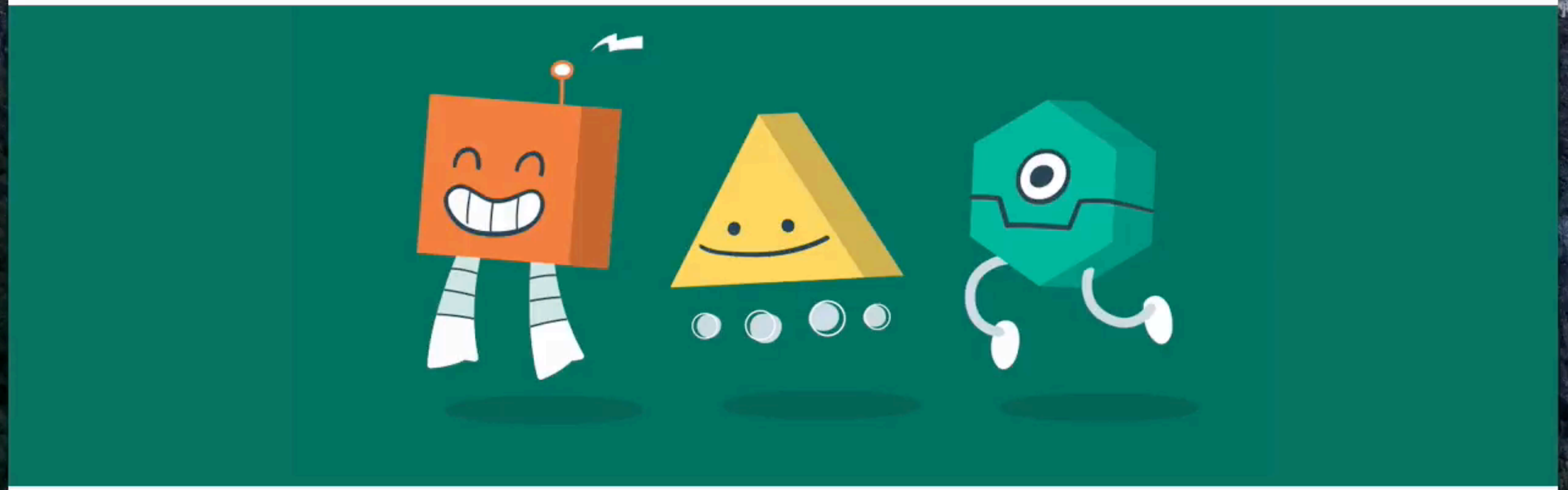
HTML

```
<div class="u-containProse">
  <p>Lorem ipsum dolor sit amet,
consectetur adipiscing elit. Donec
lobortis enim sit amet metus laoreet, ut
```

CSS

```
html,
body {
  overflow-x: hidden;
}
```

JS (Babel)



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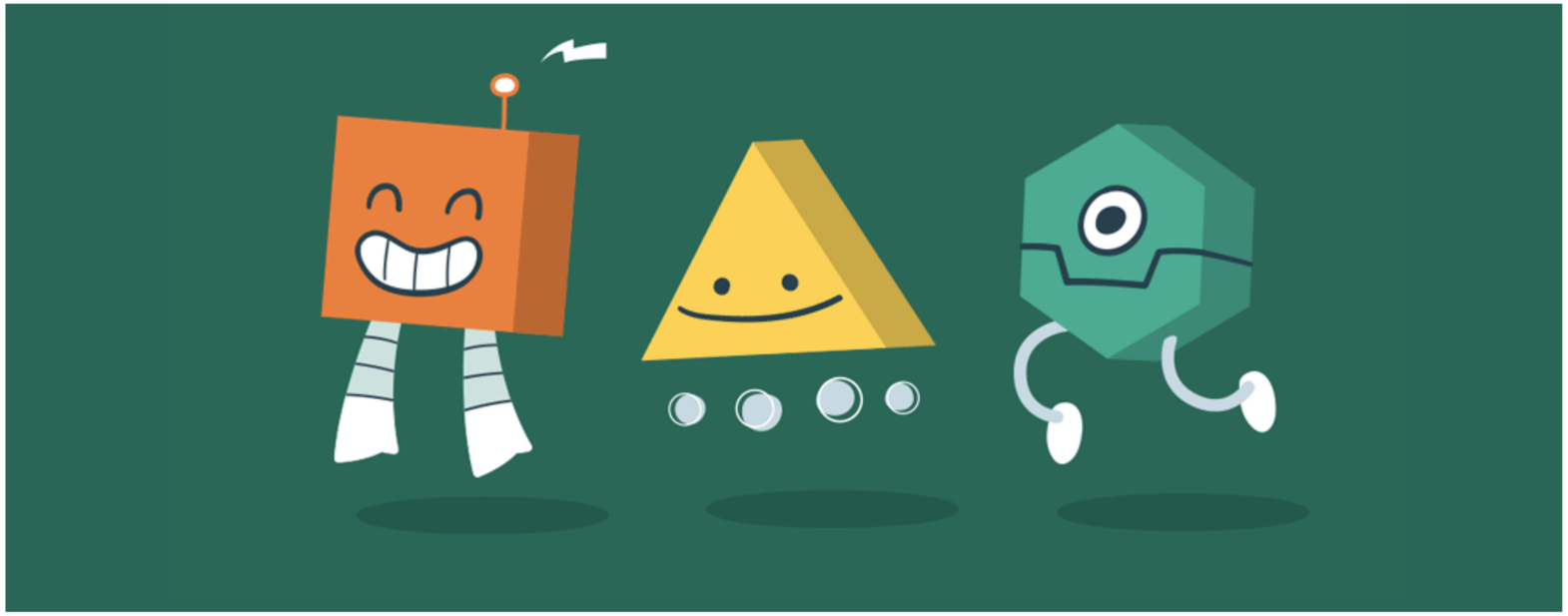
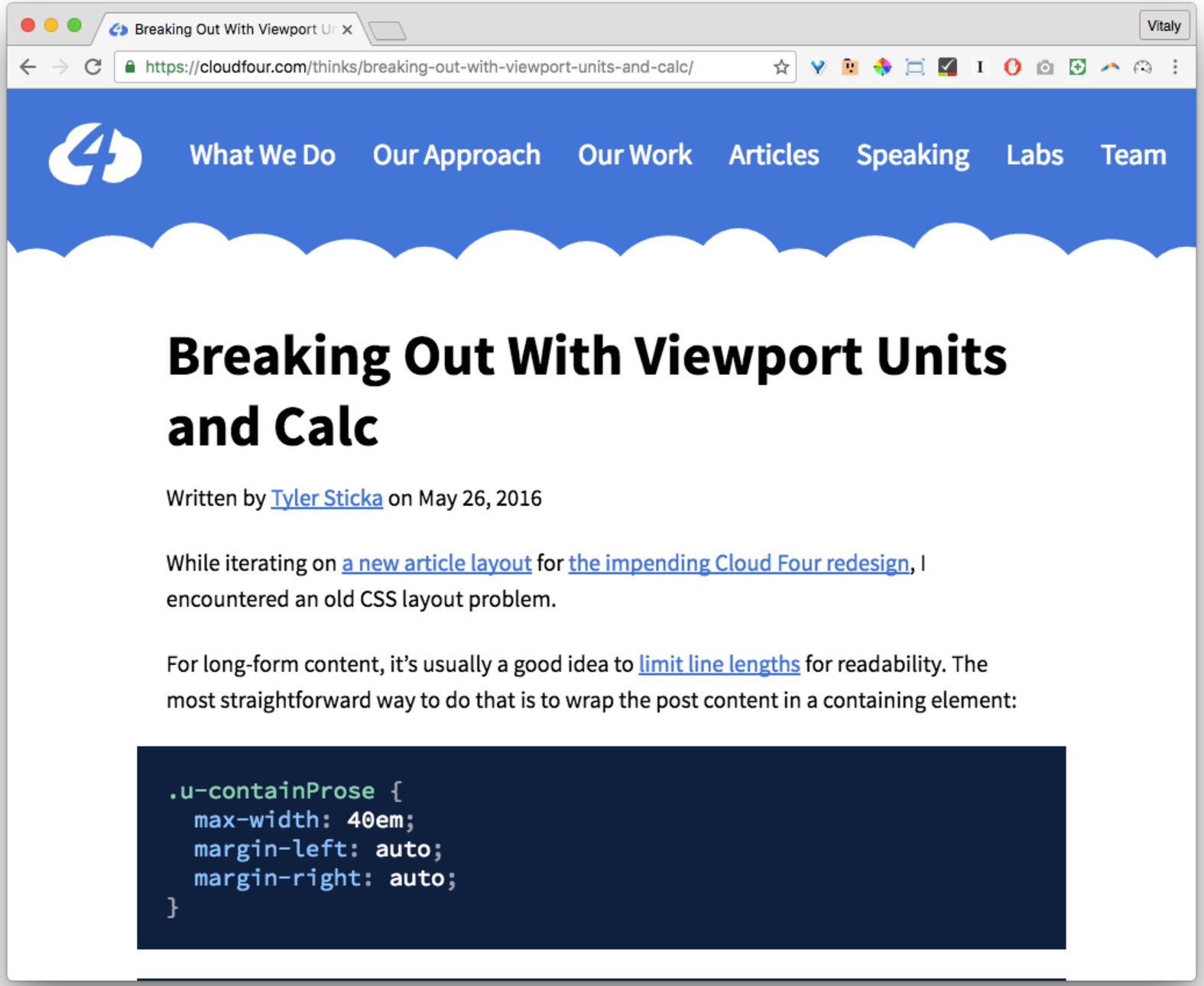
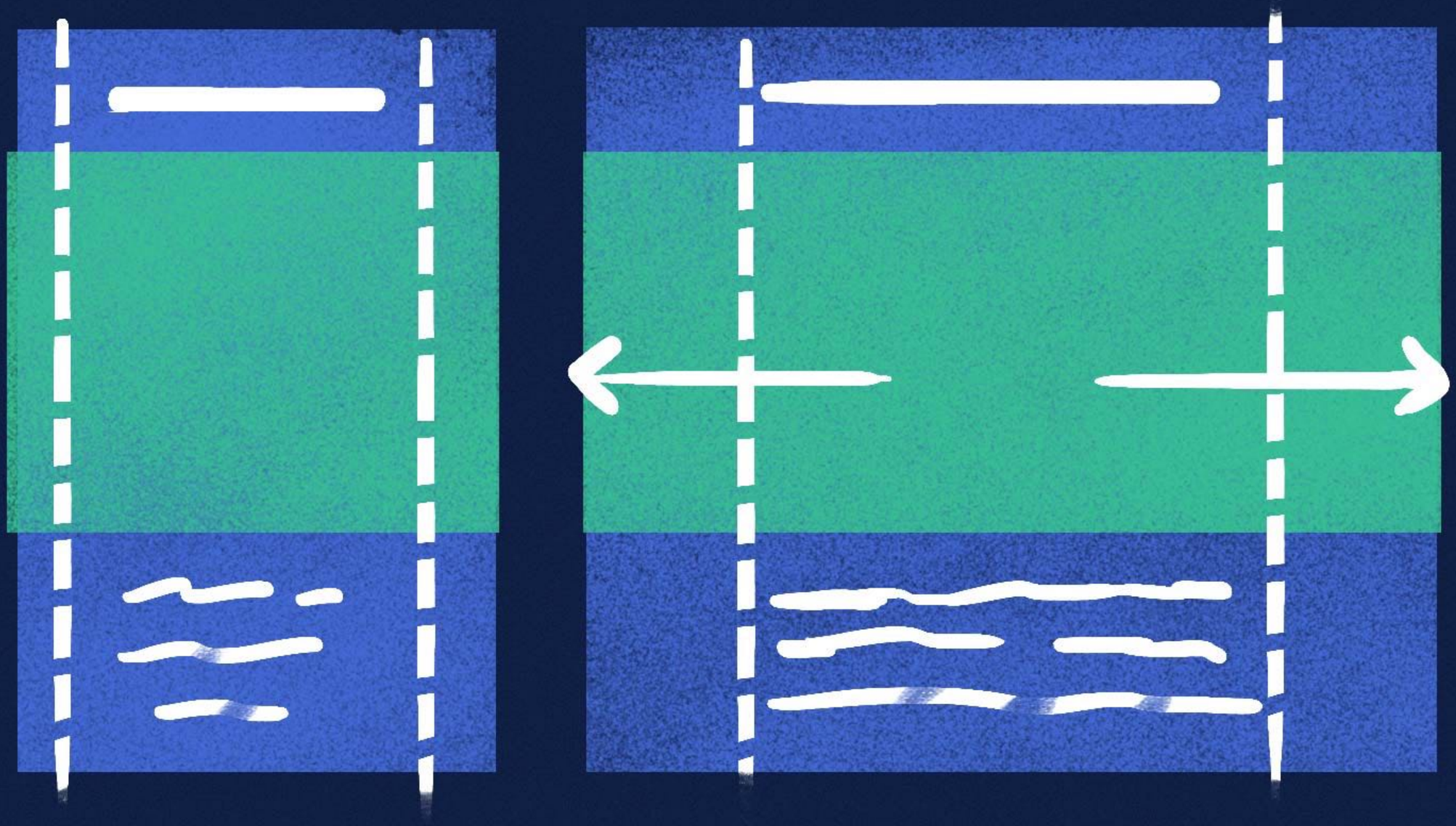


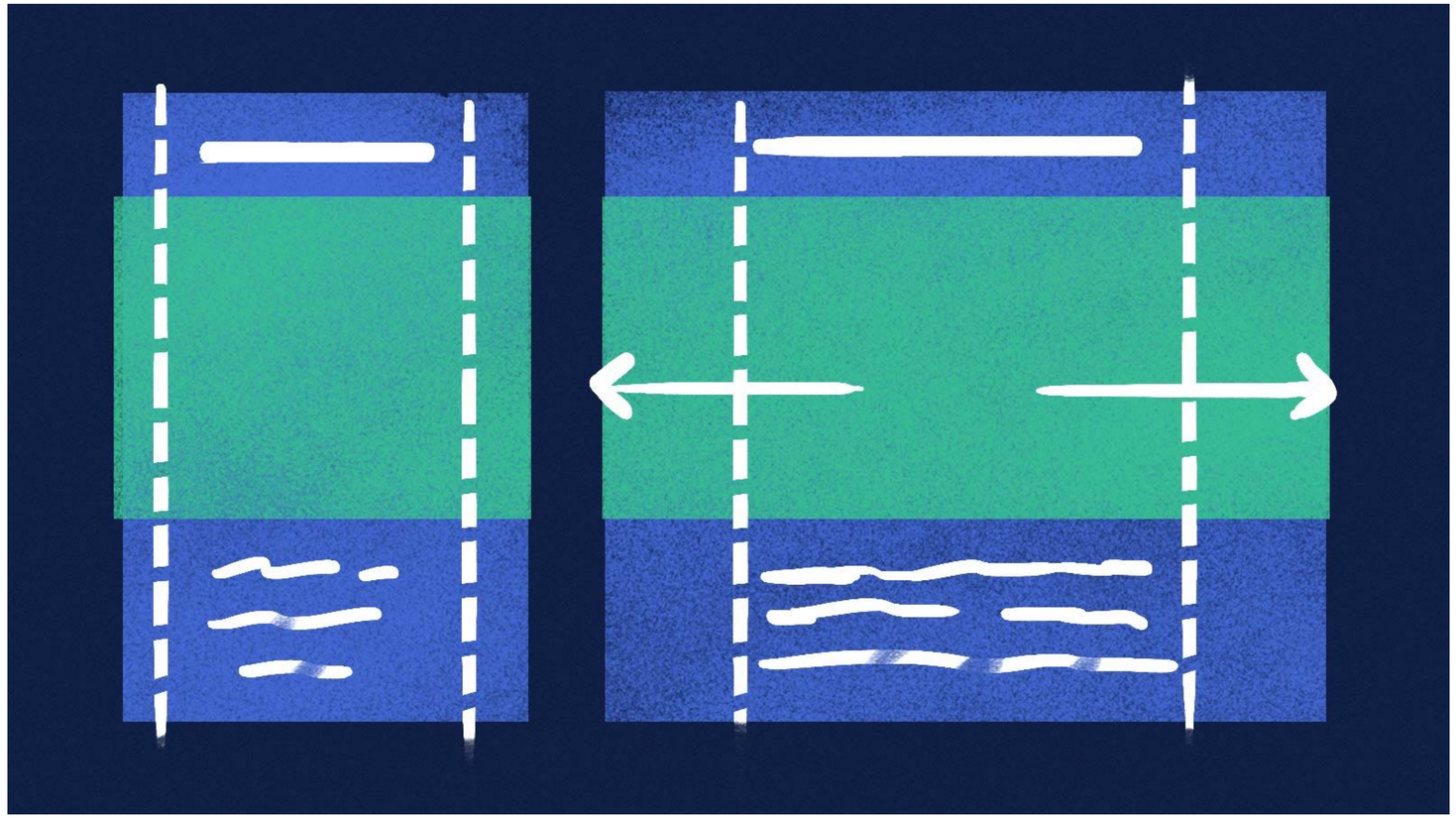
We push the container to the exact *middle* of the browser window with *left: 50%,* then pull it back to the left edge with *-50vw* margin (h/t Sven Wolfermann).

- CSS:

```
.u-release {
    width: 100vw;
    position: relative;
    left: 50%;
    right: 50%;
    margin-left: -50vw;
    margin-right: -50vw;
}
```

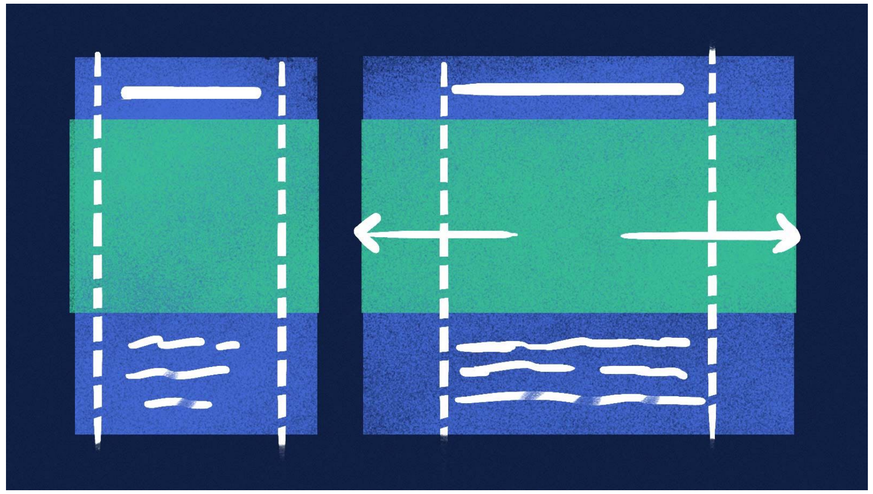

Breaking Out With Viewport U
Vitaly
https://cloudfour.com/thinks/breaking-out-with-viewport-units-and-calc/
What We Do
Our Approach
Our Work
Articles
Speaking
Labs
Team
Breaking Out With Viewport Units and Calc
Written by Tyler Sticka on May 26, 2016
While iterating on a new article layout for the impending Cloud Four redesign, I encountered an old CSS layout problem.
For long-form content, it's usually a good idea to limit line lengths for readability. The most straightforward way to do that is to wrap the post content in a containing element:
.u-containProse {
max-width: 40em;
margin-left: auto;
margin-right: auto;
}





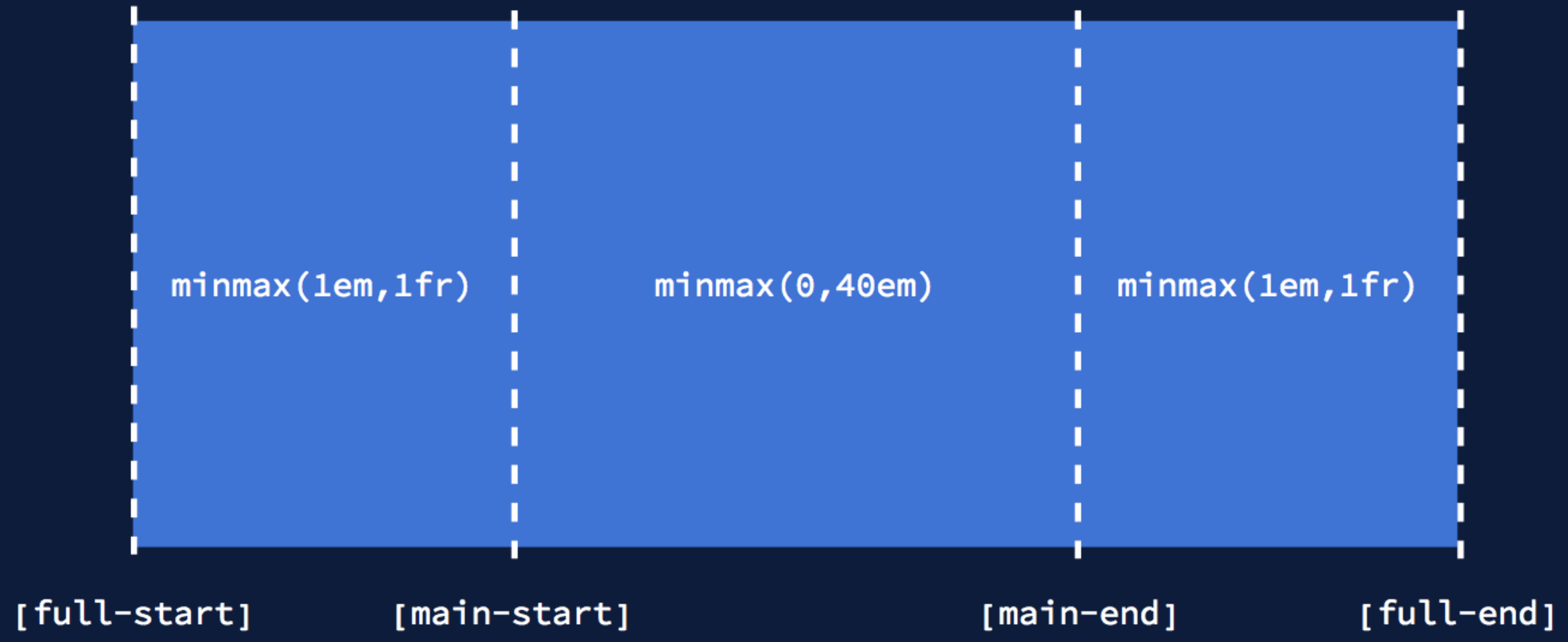
- CSS:

```
@supports (display: grid) {
    .u-container { display: grid; }
}
```



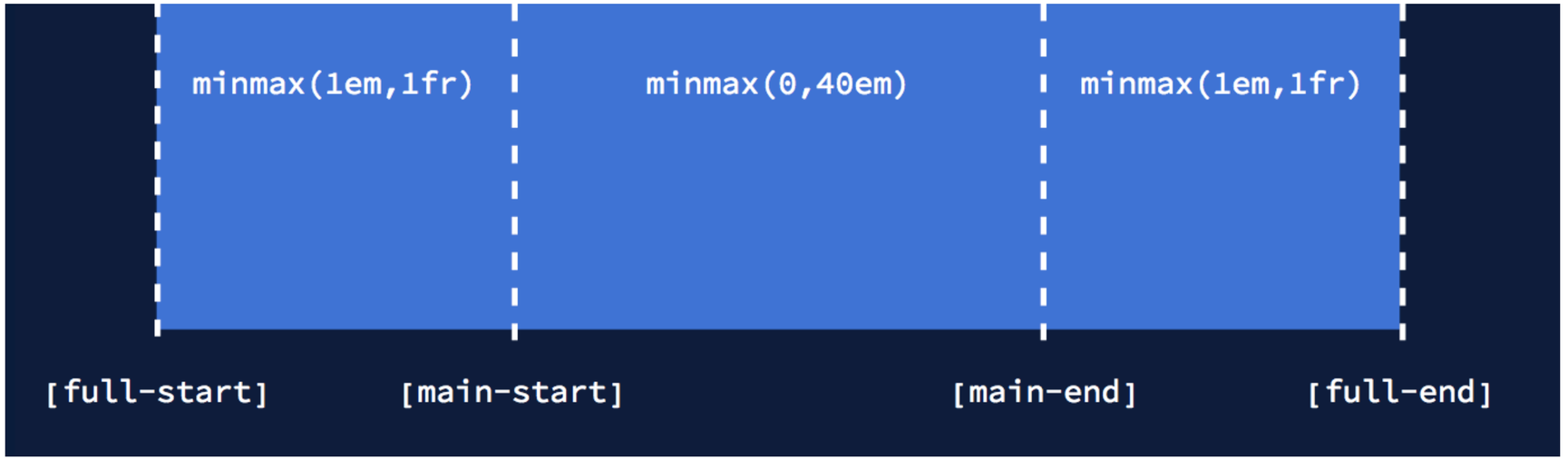
- CSS:

```
@supports (display: grid) {
    .u-container {
        display: grid;
        grid-template-columns:
            [full-start] minmax(1em, 1fr)
            [main-start] minmax(0, 40em) [main-end]
            minmax(1em, 1fr) [full-end];
    }
}
```


minmax(1em,1fr)
minmax(0,40em)
minmax(1em,1fr)
[full-start]
[main-start]
[main-end]
[full-end]




```
.u-container {
    display: grid;
    grid-template-columns:
        [full-start] minmax(1em, 1fr)
        [main-start] minmax(0, 40em) [main-end]
        minmax(1em, 1fr) [full-end];
}
```



- CSS:

```
@supports (display: grid) {
    .u-container {
        display: grid;
        grid-template-columns:
            [full-start] minmax(1em, 1fr)
            [main-start] minmax(0, 40em)
            [main-end] minmax(1em, 1fr)
            [full-end];
    }
}
```

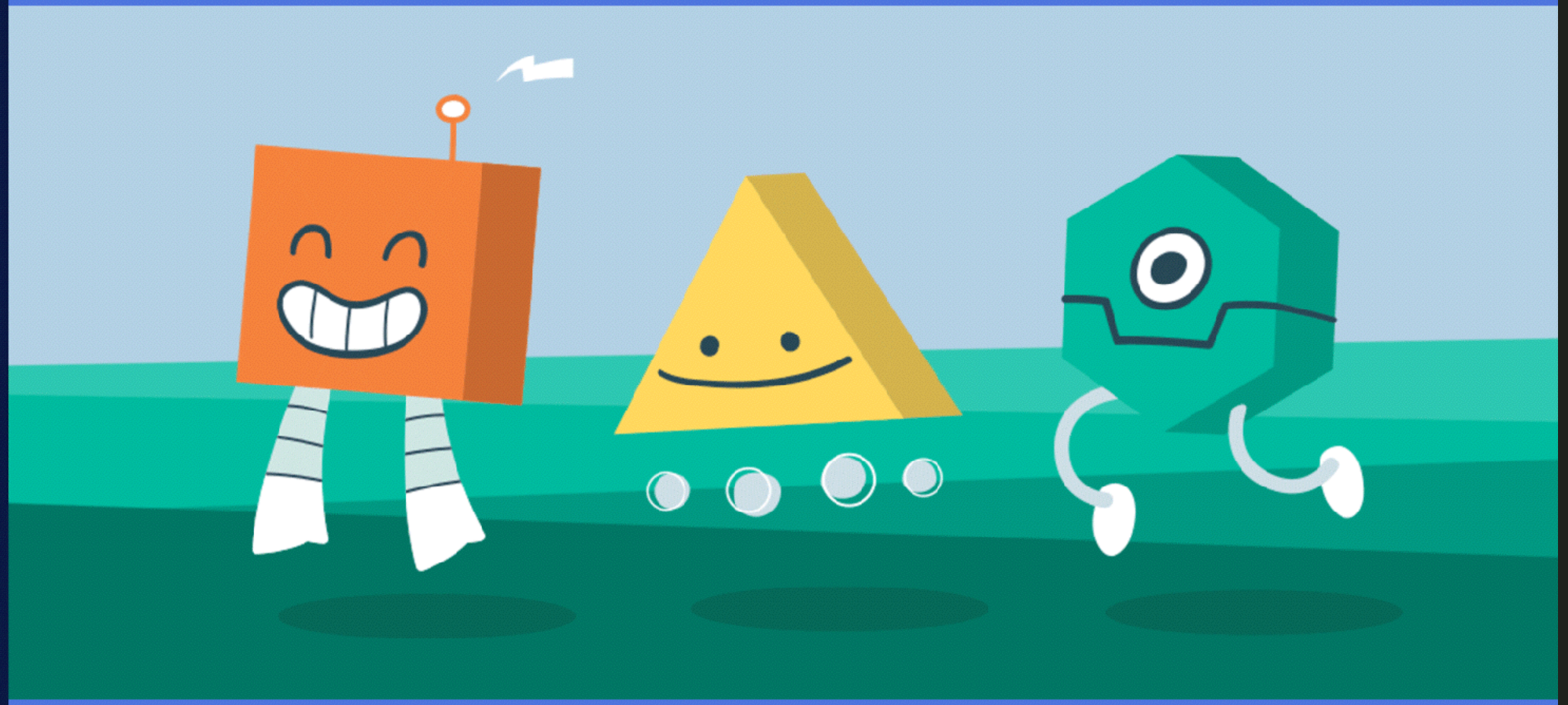
```
@supports (display: grid) {
    .u-container > * {
        grid-column: main;
    }

    .u-release {
        grid-column: full;
    }
}
```



Demo

- First Item
- Second Item
- Third Item

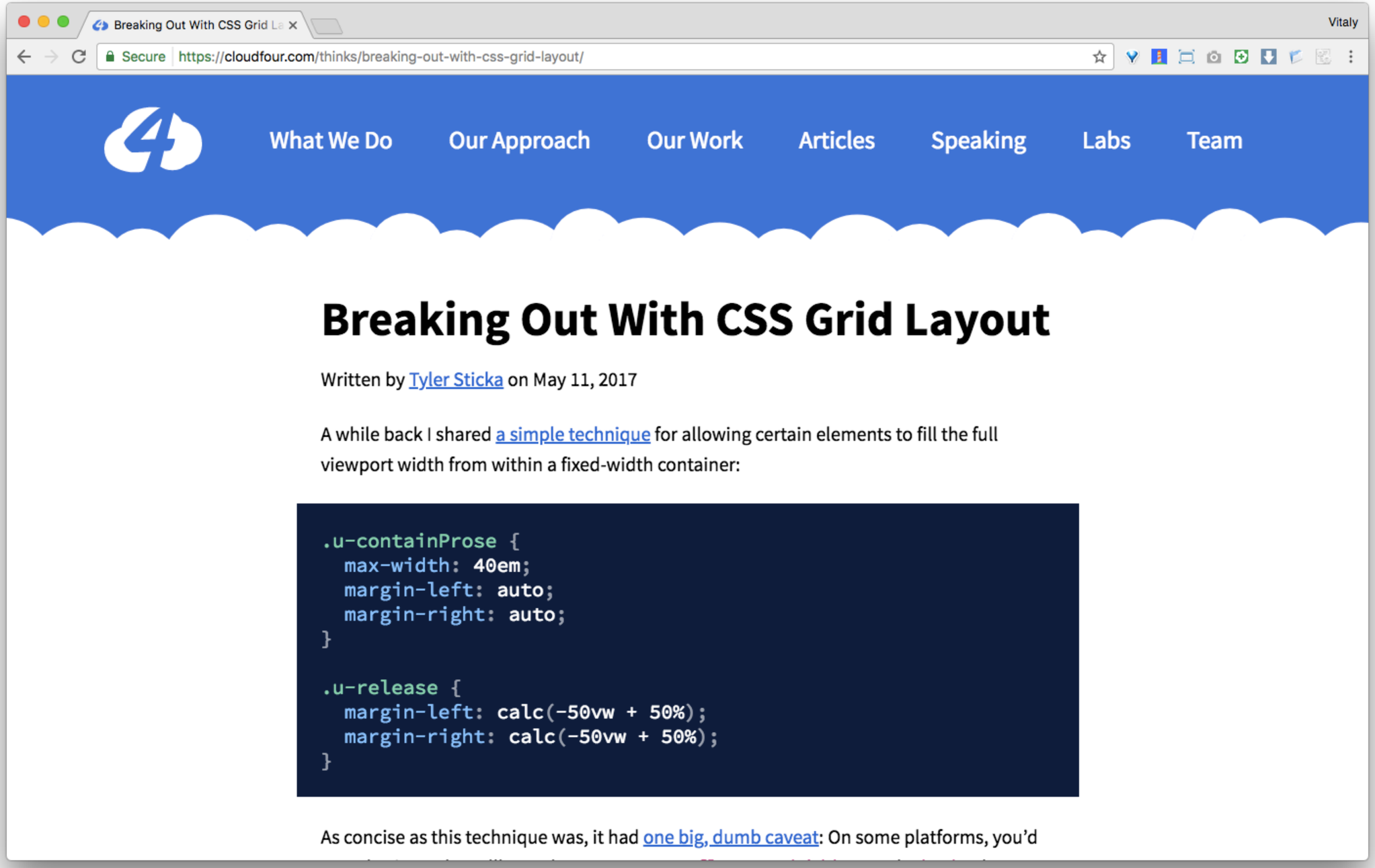


```
var demo = true;
console.log('Hello world!');
```



Jason conducts a panel discussion with Sophie Shepherd, Val Head and Brad Frost at Responsive Field Day.

Downsides: You can't *float* immediate children of an element with *display: grid*. Plus, you'll need to use other techniques as fallback for browsers not supporting CSS Grid.


Breaking Out With CSS Grid La
Vitaly
Secure
https://cloudfour.com/thinks/breaking-out-with-css-grid-layout/
What We Do
Our Approach
Our Work
Articles
Speaking
Labs
Team
Breaking Out With CSS Grid Layout
Written by Tyler Sticka on May 11, 2017
A while back I shared a simple technique for allowing certain elements to fill the full viewport width from within a fixed-width container:
.u-containProse {
max-width: 40em;
margin-left: auto;
margin-right: auto;
}
.u-release {
margin-left: calc(-50vw + 50%);
margin-right: calc(-50vw + 50%);
}
As concise as this technique was, it had one big, dumb caveat: On some platforms, you'd

— Content is positioned against *grid lines*, not grid columns. They can have multiple *names*.

```
grid-template-columns:
[form-start input-start] minmax(200px, 3fr)
[input-end button-start] 1fr [button-end form-end];
```

— Use *Grid* for 2-dimensional problems. If you can draw a grid over a component, consider Grid. Need items to expand within a row/col? *Flexbox.*

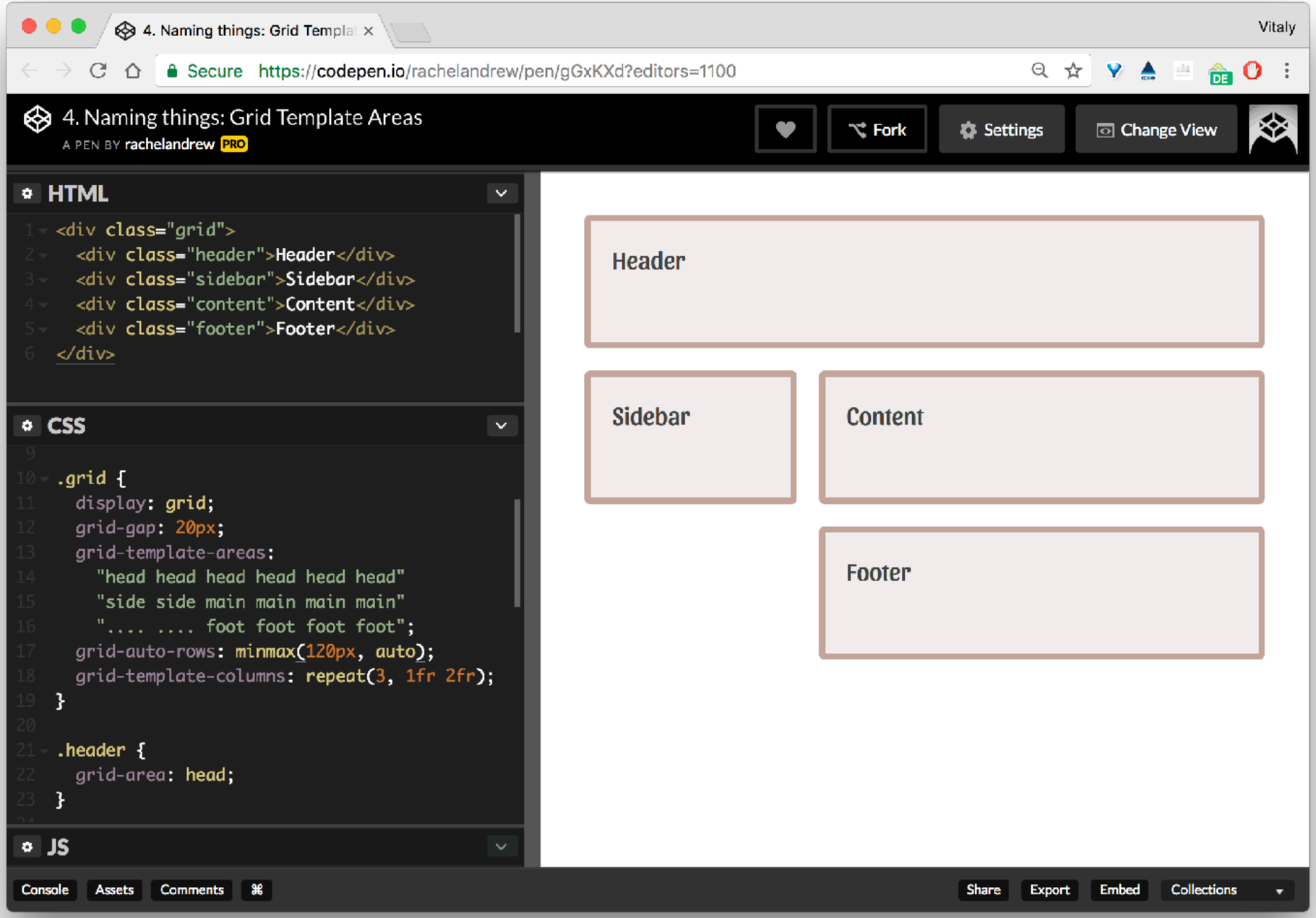
— We don’t have to explicitly label *grid lines*.
We can use ASCII-syntax on *grid-template-areas*.

```
grid-template-areas:
    "head head head head head head"
    "side side main main main main"
    ".... .... foot foot foot foot";

grid-auto-rows: minmax(120px, auto);
grid-template-columns: repeat(3, 1fr 2fr);
```

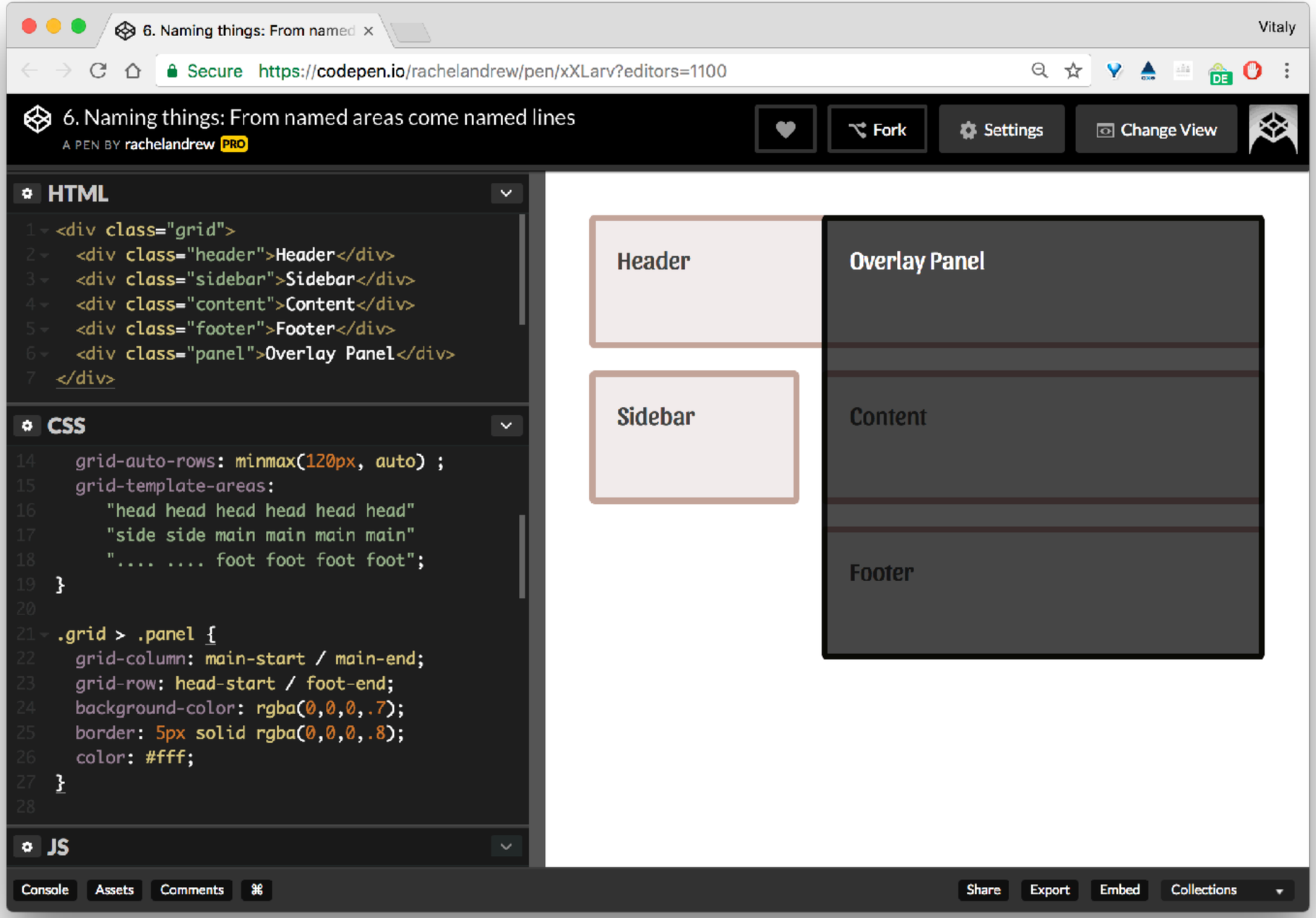
— Content can then *flow* into these areas:

```
.header { grid-area: head; }
.sidebar { grid-area: side; }
.content { grid-area: main; }
.footer { grid-area: foot; }
```


4. Naming things: Grid Templa
Vitaly
Secure https://codepen.io/rachelandrew/pen/gGxKXd?editors=1100
4. Naming things: Grid Template Areas
A PEN BY rachelandrew PRO
Fork
Settings
Change View
HTML

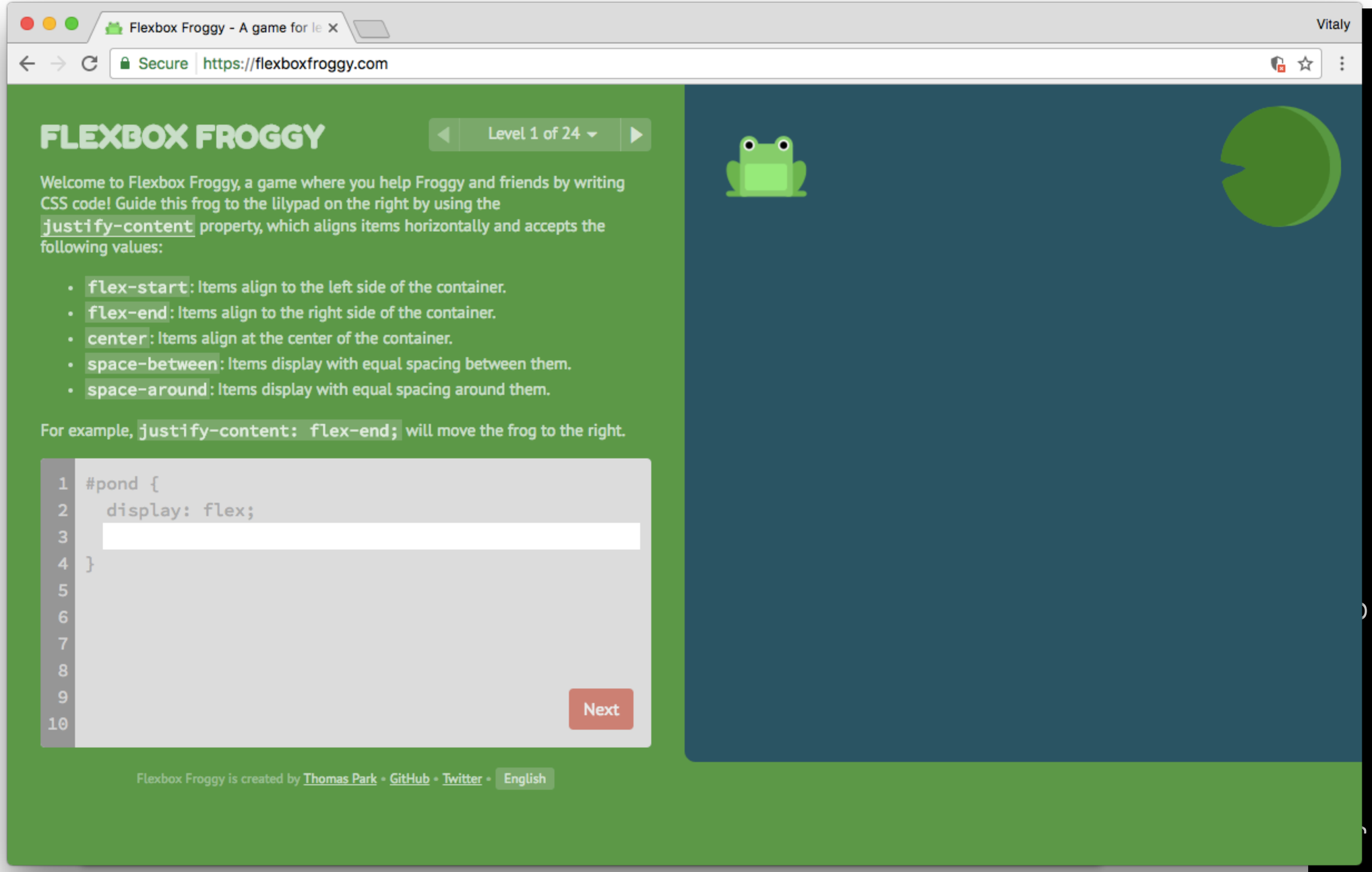
Header
Sidebar
Content
Footer

CSS
.grid {
display: grid;
grid-gap: 20px;
grid-template-areas:
"head head head head head head"
"side side main main main main"
".... .... foot foot foot foot";
grid-auto-rows: minmax(120px, auto);
grid-template-columns: repeat(3, 1fr 2fr);
}
.header {
grid-area: head;
}
JS
Header
Sidebar
Content
Footer
Console
Assets
Comments
⌘
Share
Export
Embed
Collections

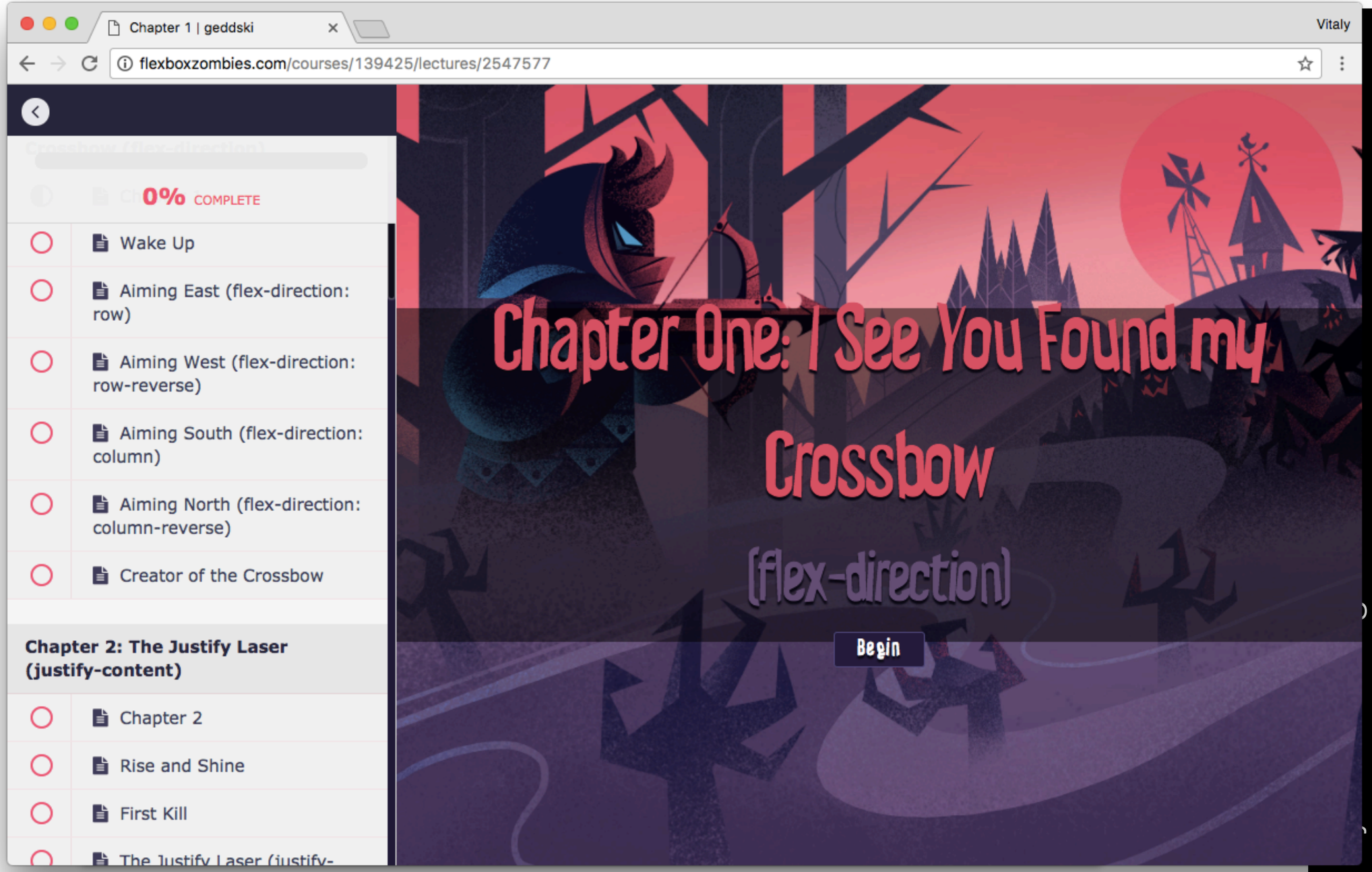

6. Naming things: From named
Vitaly
Secure https://codepen.io/rachelandrew/pen/xXLarv?editors=1100
6. Naming things: From named areas come named lines
A PEN BY rachelandrew PRO
Fork
Settings
Change View
HTML

Header
Sidebar
Content
Footer
Overlay Panel

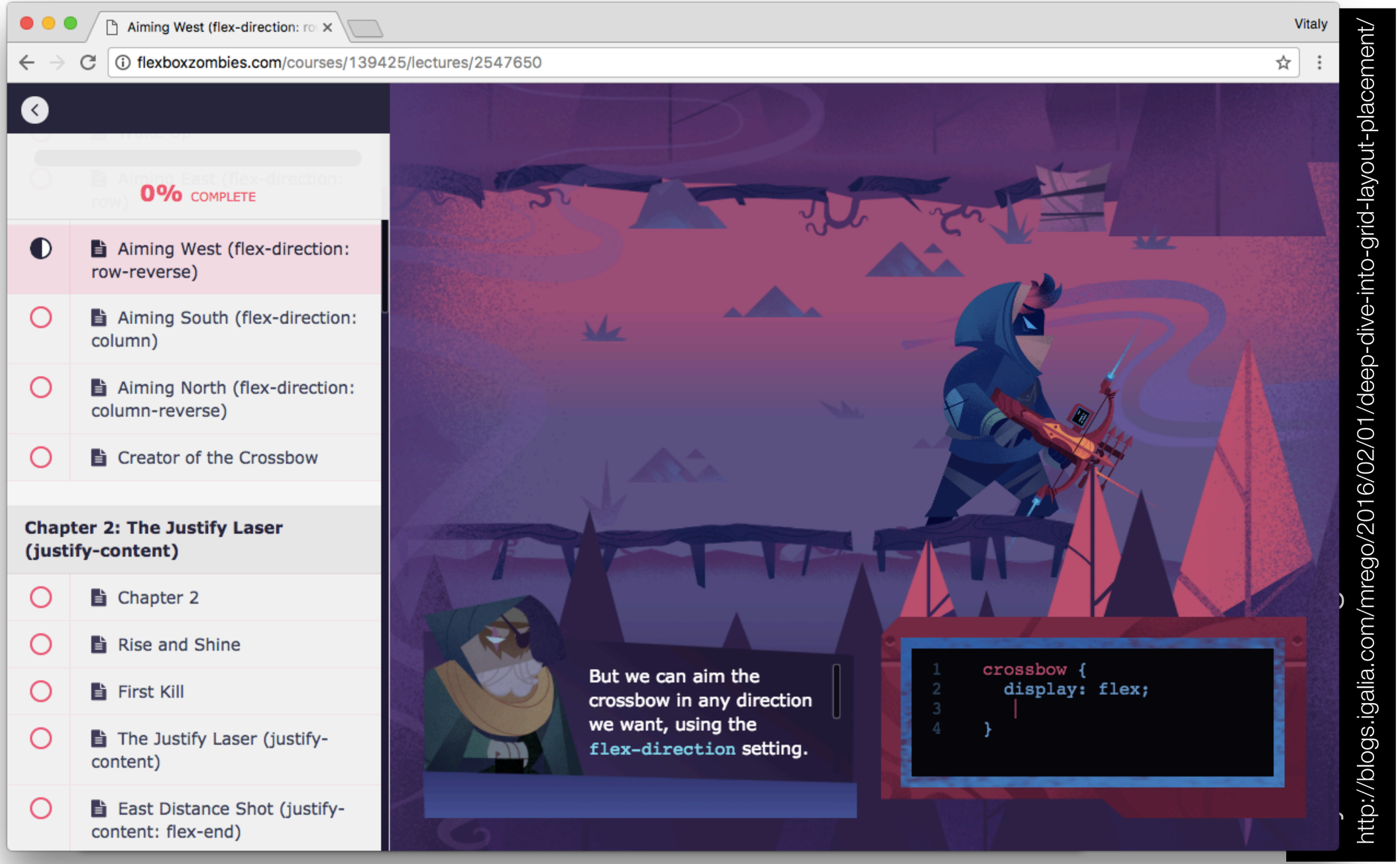
CSS
grid-auto-rows: minmax(120px, auto) ;
grid-template-areas:
"head head head head head head"
"side side main main main main"
".... .... foot foot foot foot";
}
.grid > .panel {
grid-column: main-start / main-end;
grid-row: head-start / foot-end;
background-color: rgba(0,0,0,.7);
border: 5px solid rgba(0,0,0,.8);
color: #fff;
}
JS
Header
Overlay Panel
Sidebar
Content
Footer
Console
Assets
Comments
⌘
Share
Export
Embed
Collections



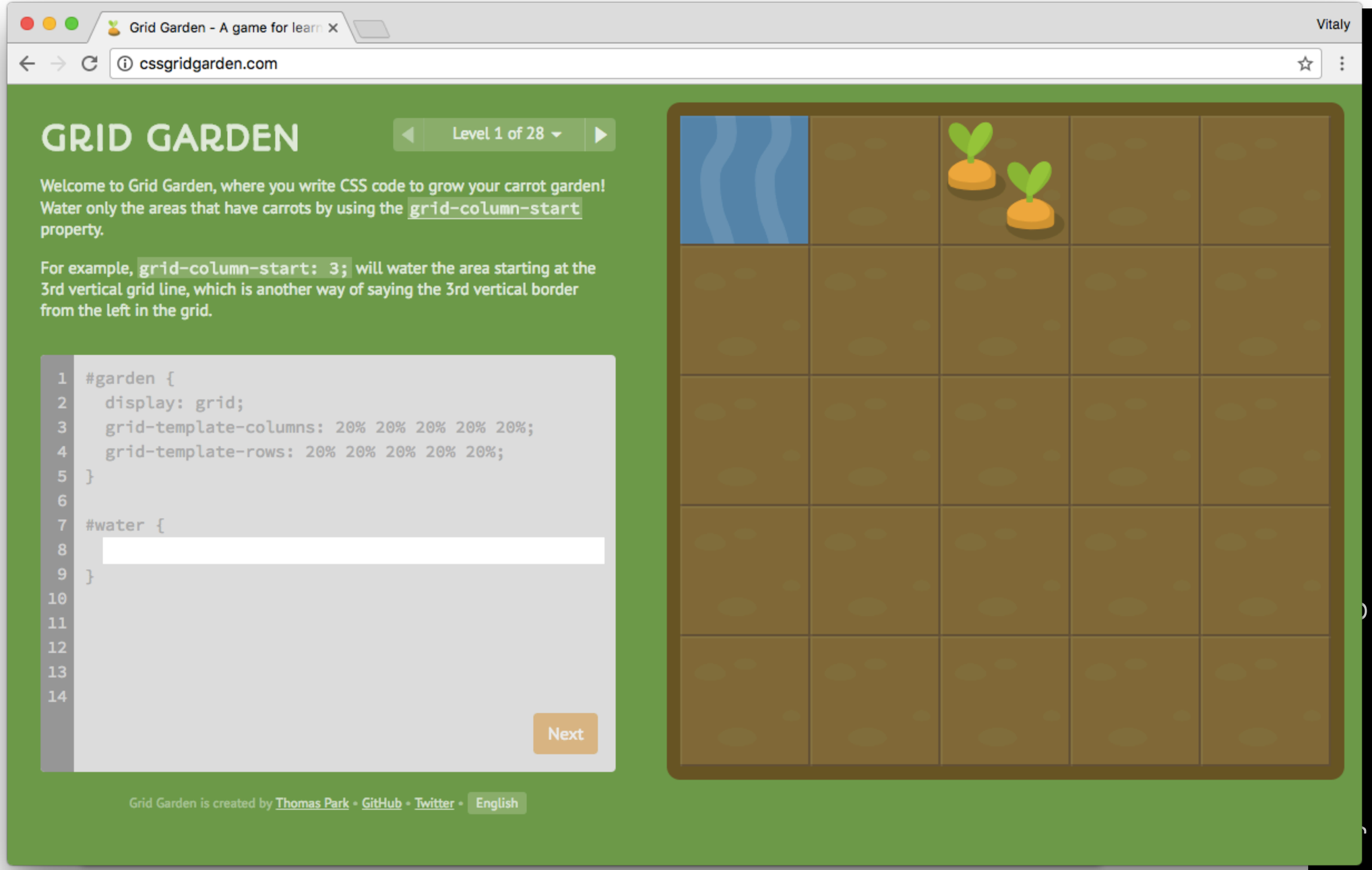
http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/



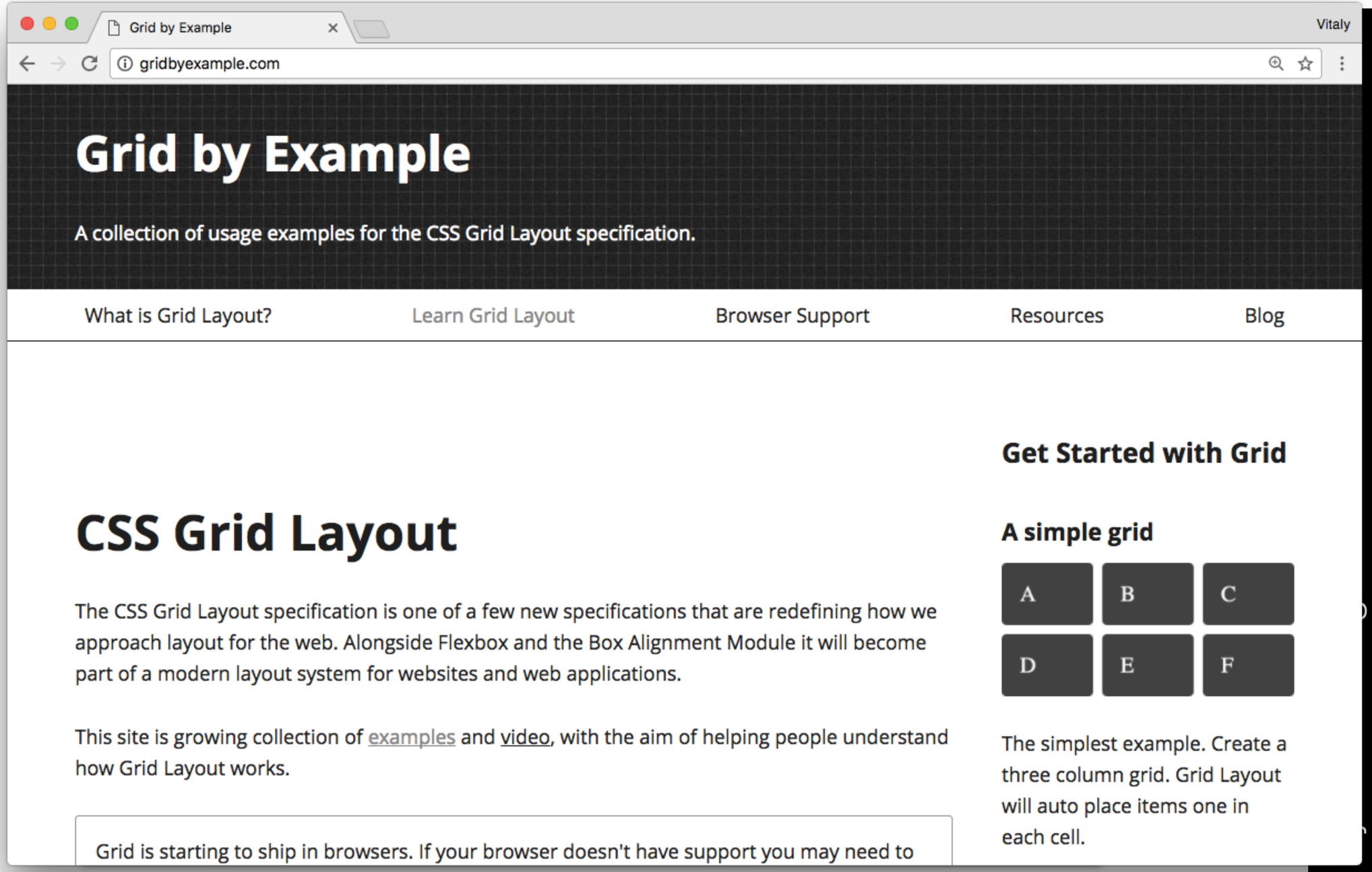
http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/



http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/



http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/



http://blogs.igalia.com/mrego/2016/02/01/deep-dive-into-grid-layout-placement/


LEVEL5
SELECTORS



Often we want to target **specific children** in the DOM, but the parent might have unknown number of children. So usually we would style all children first and then *overwrite the styles.*

```
...
// instead of putting it on
border-right:1px solid #424242;
&:last-child {
  border-right: 0; // and then taking it off
}
// use CSS not() to only apply to the elements you want
&:not(:last-child) {
  border-right:1px solid #424242;
}
...
```



Wes Bos
@wesbos

Follow

🔥Protip: Use CSS :not() instead of applying and unapplying borders on navigations. Supported wherever last-child is

7:04 PM - 3 Jun 2015

638 1,056

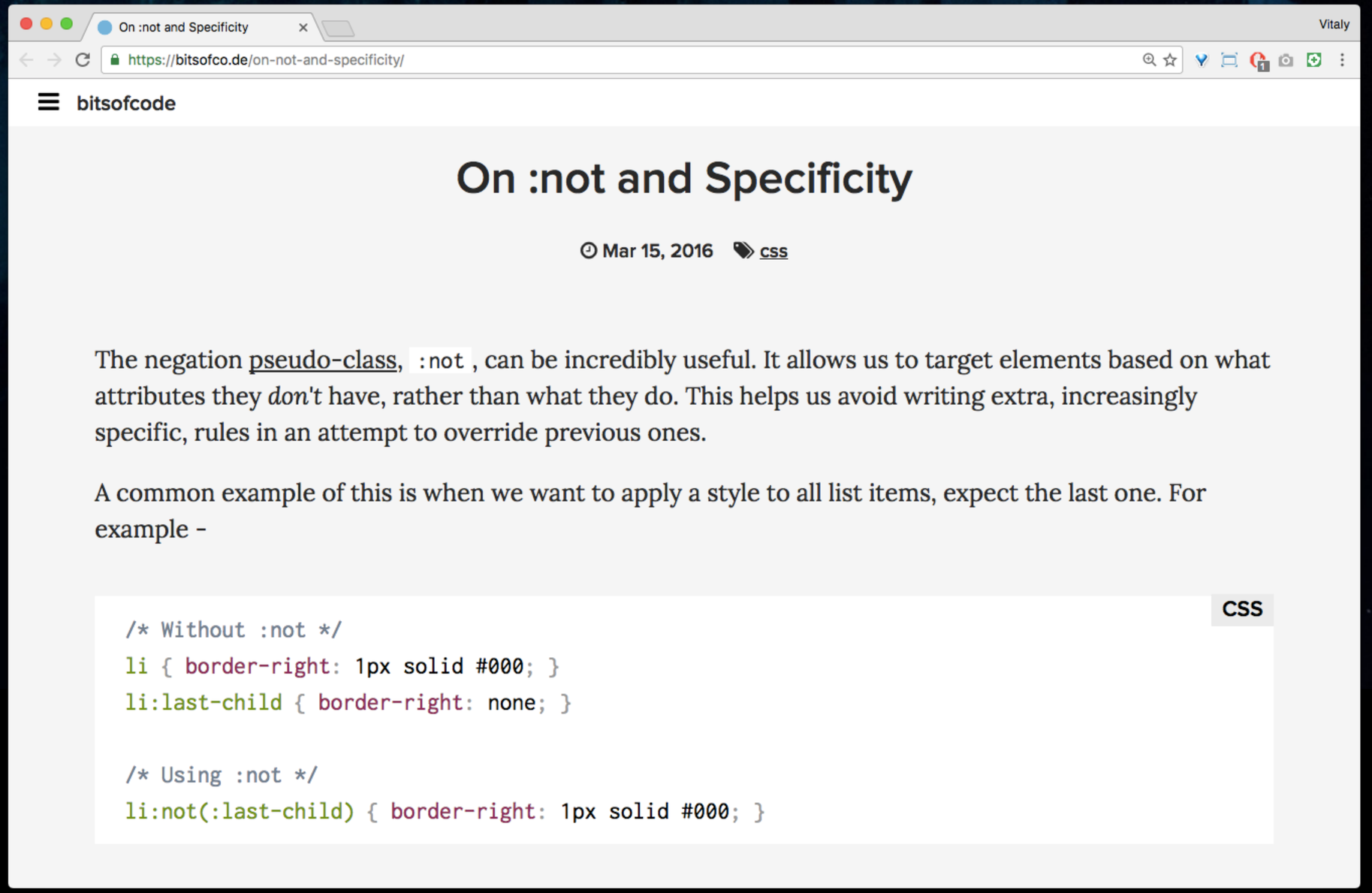
> What if you want all links to have an underline except the ones you specify? Or you want all *<li>*'s in the navigation to have a right border, *except the last one*. Normally you would use *:last-child* (or extra class) to overwrite a default CSS rule.
>
> — *Ire Aderinokun*

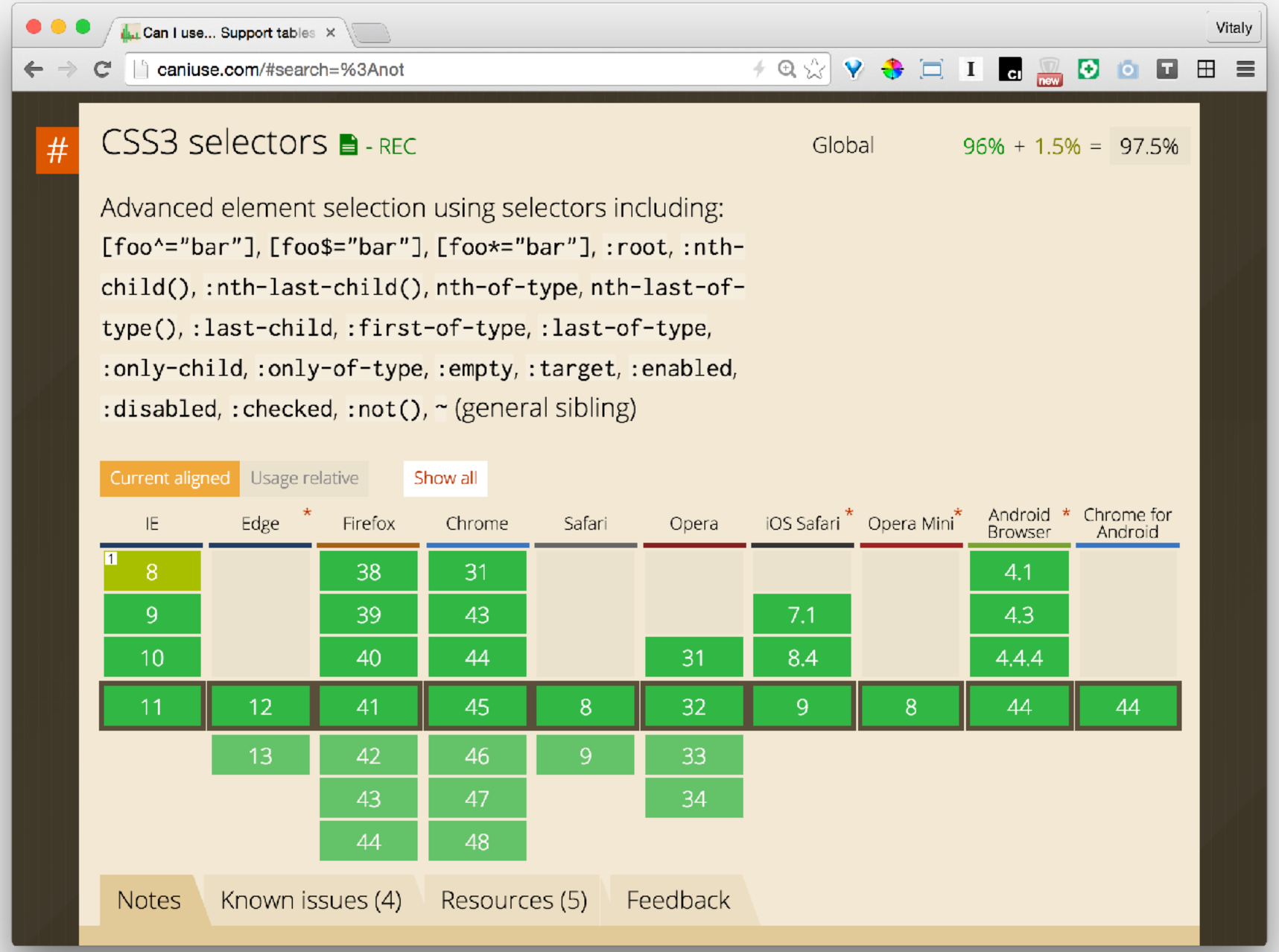
For example, I may want all links on my site to have an underline, except ones which I specify. Normally, I would write -

```
a {
  text-decoration: underline;
}
a.no-underline {
  text-decoration: none;
}
```

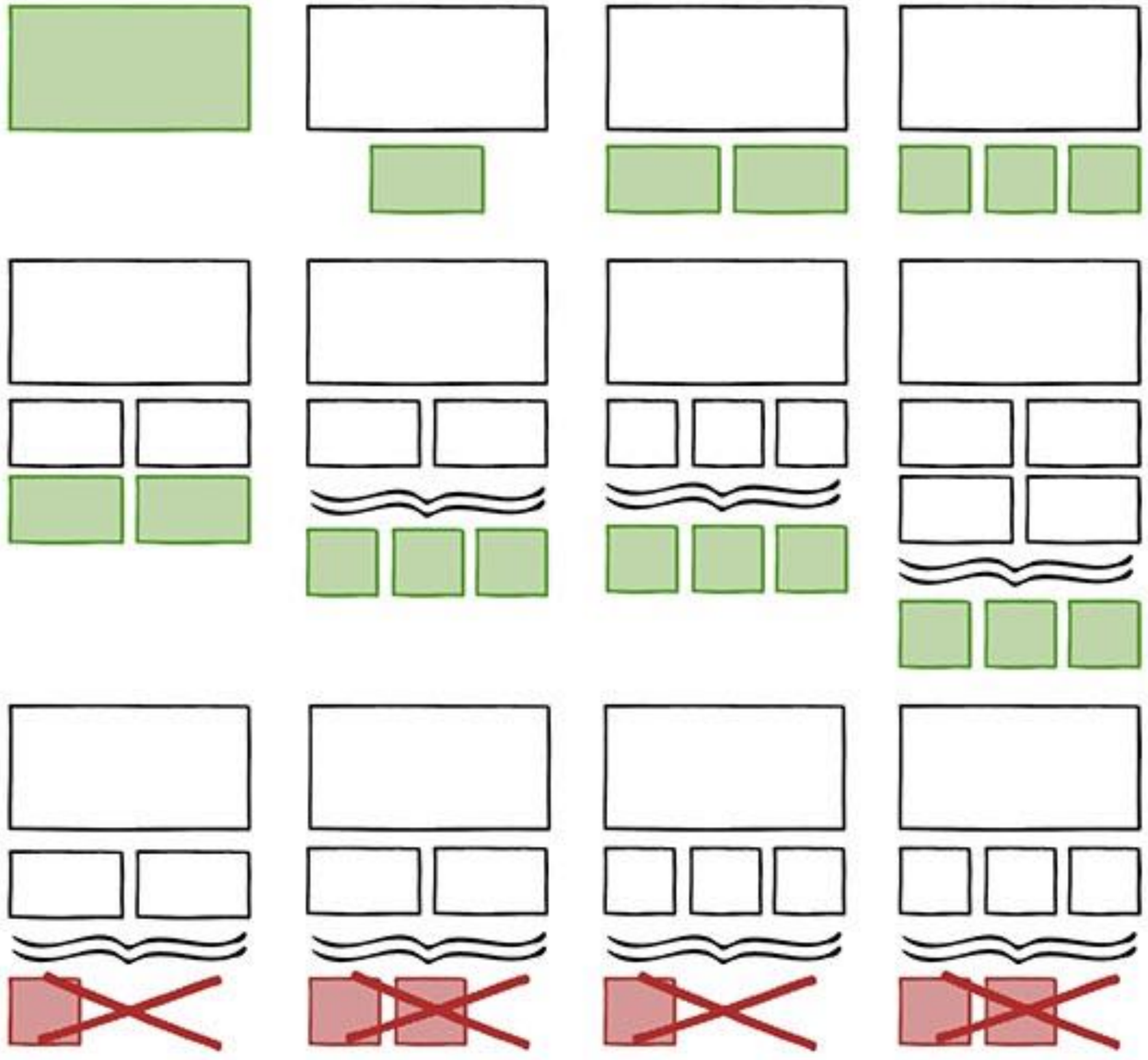
Doing this means that the links with the class .no-underline have the default styling unnecessarily applied to them. Using the :not selector, I can avoid this extra declaration -

```
a:not(.no-underline) {
  text-decoration: underline;
}
a.no-underline {
  text-decoration: none;
}
```


On :not and Specificity
Vitaly
https://bitsofco.de/on-not-and-specificity/
bitsofcode
On :not and Specificity
Mar 15, 2016
css
The negation pseudo-class, :not , can be incredibly useful. It allows us to target elements based on what attributes they don't have, rather than what they do. This helps us avoid writing extra, increasingly specific, rules in an attempt to override previous ones.
A common example of this is when we want to apply a style to all list items, expect the last one. For example -
CSS
/* Without :not */
li { border-right: 1px solid #000; }
li:last-child { border-right: none; }
/* Using :not */
li:not(:last-child) { border-right: 1px solid #000; }


Can I use... Support tables
Vitaly
caniuse.com/#search=%3Anot
#
CSS3 selectors - REC
Global
96% + 1.5% = 97.5%
Advanced element selection using selectors including: [foo^="bar"], [foo$="bar"], [foo*="bar"], :root, :nth-child(), :nth-last-child(), nth-of-type, nth-last-of-type(), :last-child, :first-of-type, :last-of-type, :only-child, :only-of-type, :empty, :target, :enabled, :disabled, :checked, :not(), ~ (general sibling)
Current aligned
Usage relative
Show all
IE
Edge *
Firefox
Chrome
Safari
Opera
iOS Safari *
Opera Mini *
Android Browser *
Chrome for Android
1
8
9
10
11
12
13
38
39
40
41
42
43
44
31
43
44
45
46
47
48
8
9
31
32
33
34
7.1
8.4
9
8
4.1
4.3
4.4.4
44
44
Notes
Known issues (4)
Resources (5)
Feedback

> What if you want a *tidy grid* with fine and consistent *line endings?* Sometimes you might end up with *not enough space* to display all content blocks in a row, or *not enough items* to properly fill a row.
>
> — *Patrick Clancey*



CodePen - Using CSS Mod Qu

Vitaly

https://codepen.io/clanceyp/full/ONdNoy/

Using CSS Mod Queries with Range Selectors. fig 4

A PEN BY Patrick

Fork | Change View

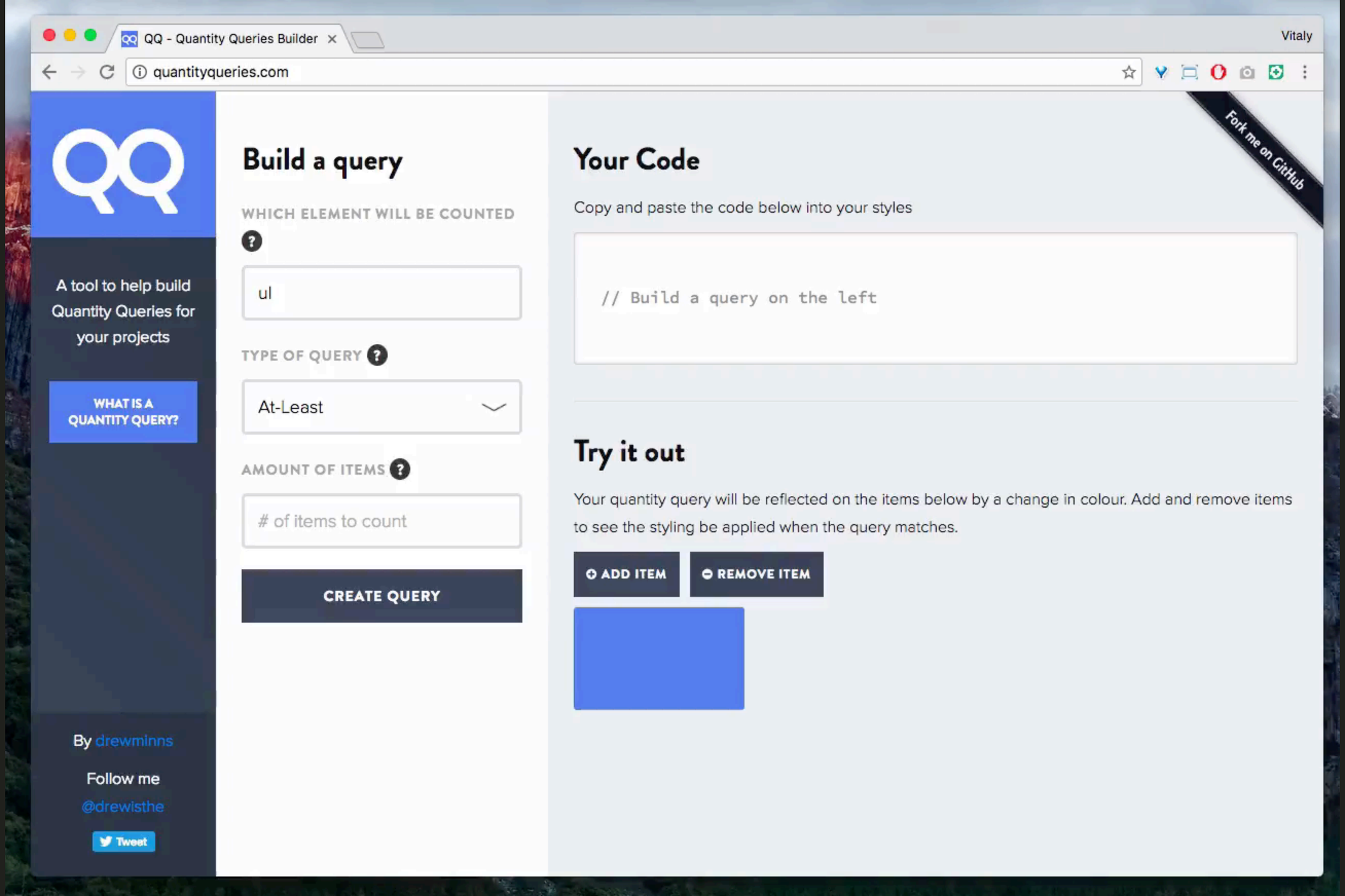


Product title | Product title | Product title | Product title | Product title

Product title | Product title | Product title | Product title | Product title

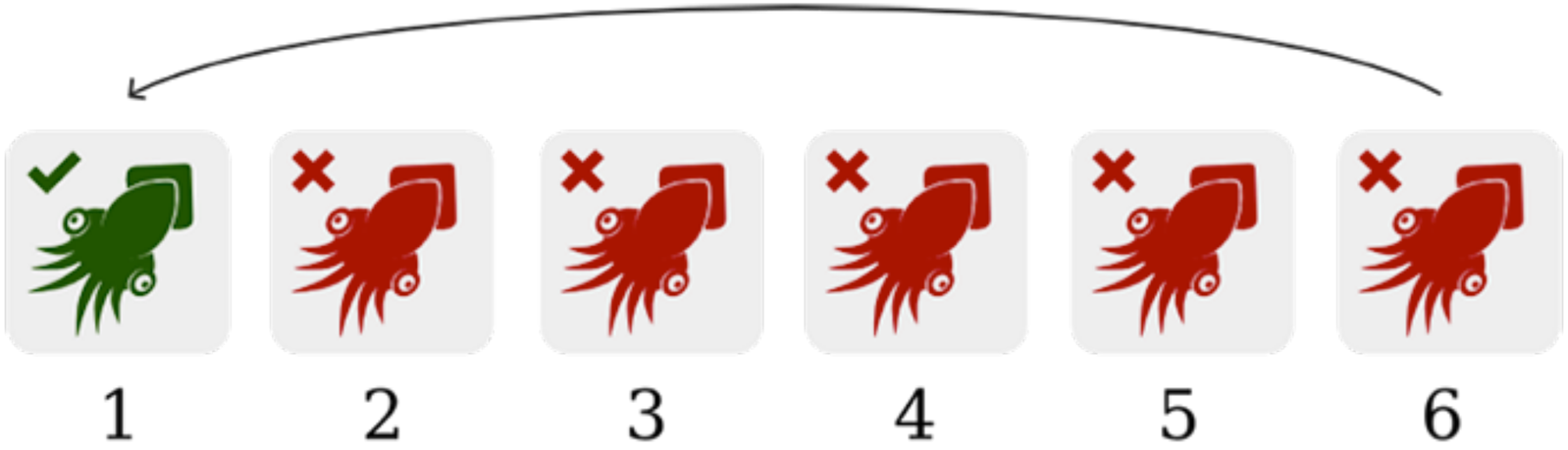
Product title	Product detail text
Product title	Product detail text

A **quantity selector** is a CSS selector that allows styles to be applied to elements based on the *number of siblings.*

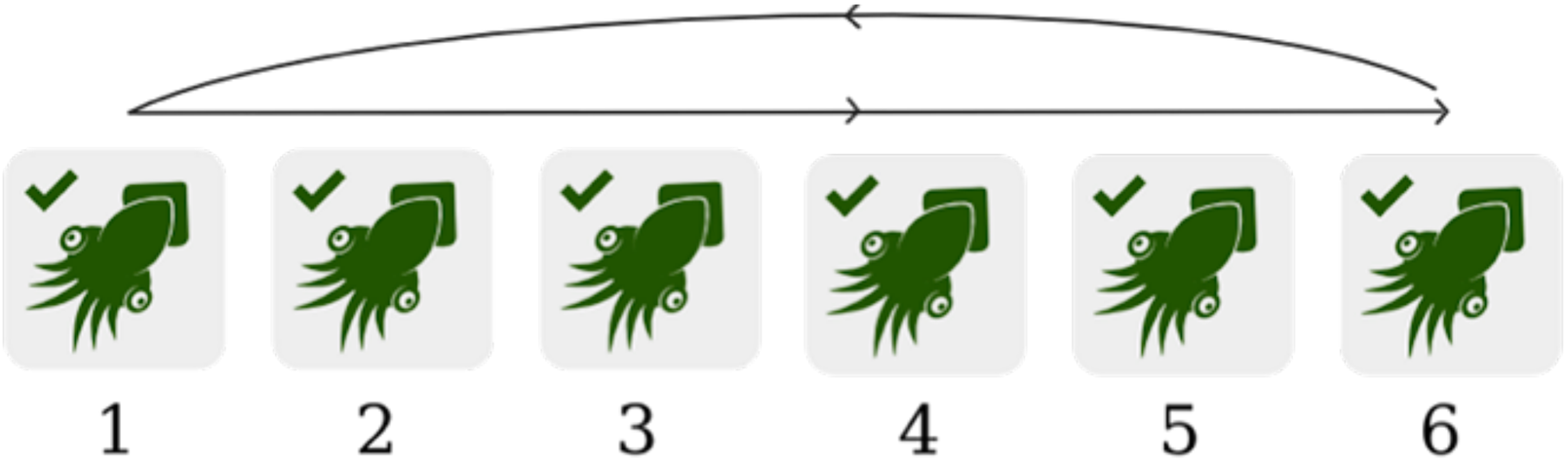

QQ - Quantity Queries Builder
Vitaly
quantityqueries.com
Fork me on GitHub
A tool to help build Quantity Queries for your projects
WHAT IS A QUANTITY QUERY?
By drewminns
Follow me
@drewisthe
Tweet
Build a query
WHICH ELEMENT WILL BE COUNTED
ul
TYPE OF QUERY
At-Least
AMOUNT OF ITEMS
# of items to count
CREATE QUERY
Your Code
Copy and paste the code below into your styles
// Build a query on the left
Try it out
Your quantity query will be reflected on the items below by a change in colour. Add and remove items to see the styling be applied when the query matches.
ADD ITEM
REMOVE ITEM

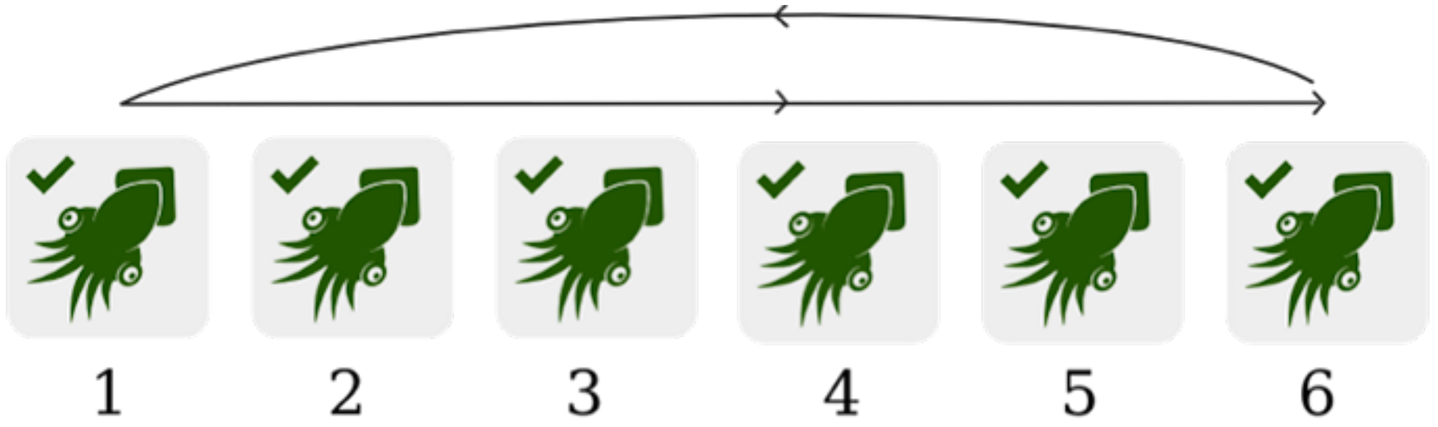
General sibling selector ~

separates two selectors and matches the second element only if it is preceded by the first, and both *share a common parent.*



li:nth-last-child(6):first-child


1
2
3
4
5
6



- CSS:

```
li:nth-last-child(6):first-child,
li:nth-last-child(6):first-child ~ li {
    color: green;
}
```



- CSS:

```
li:nth-child(n+6) {
    color: green;
}
```



7 items

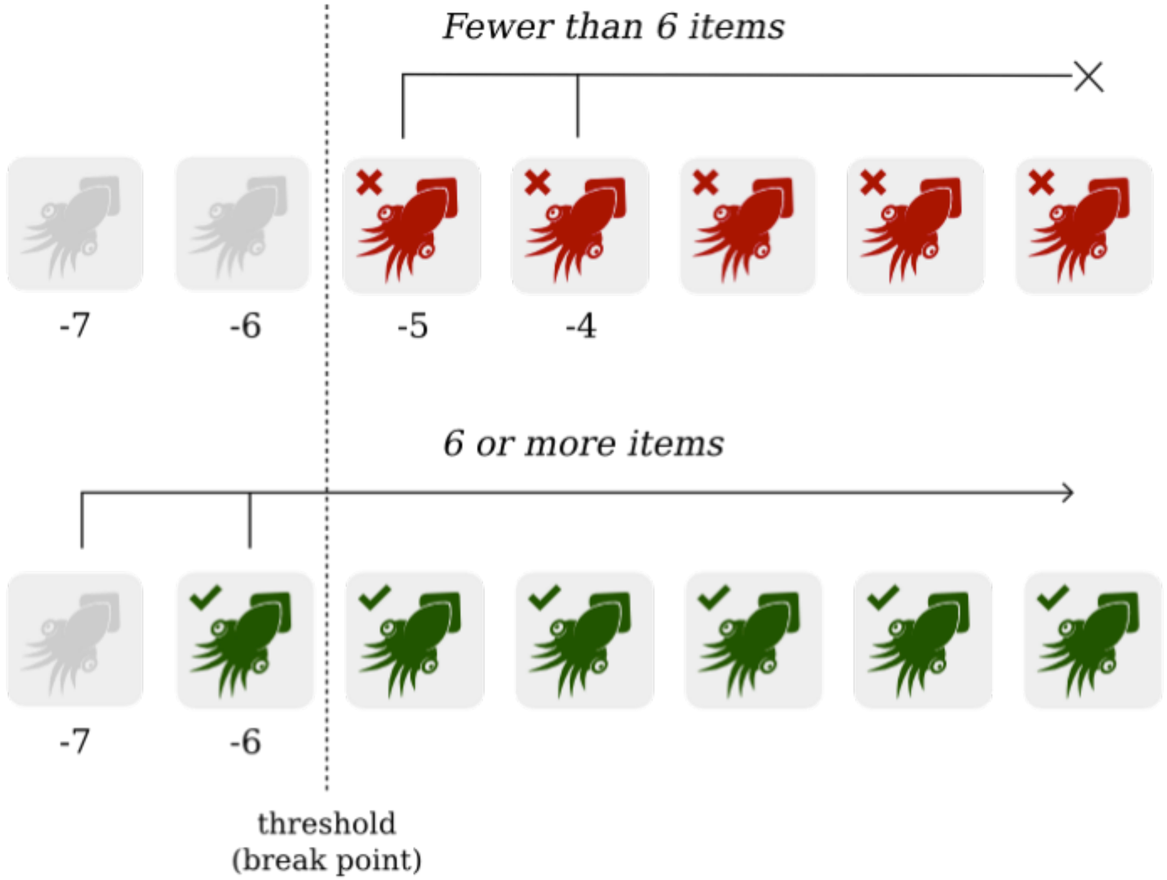


6 items

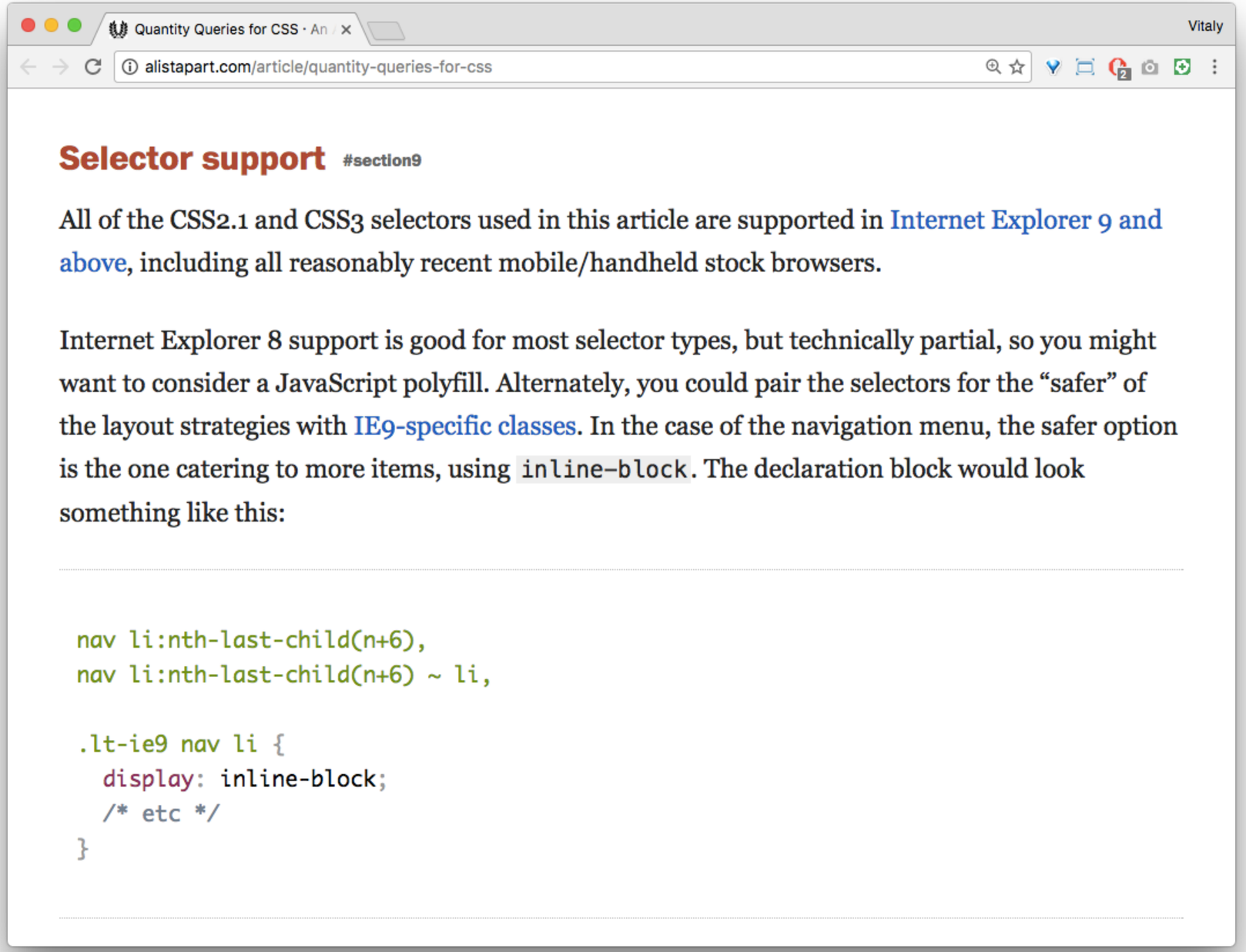


5 items

```
li:nth-last-child(n+6) {
    color: green;
}
```




```
li:nth-last-child(n+6):first-child,
li:nth-last-child(n+6):first-child ~ li {
    color: green;
}
```



Selector support #section9

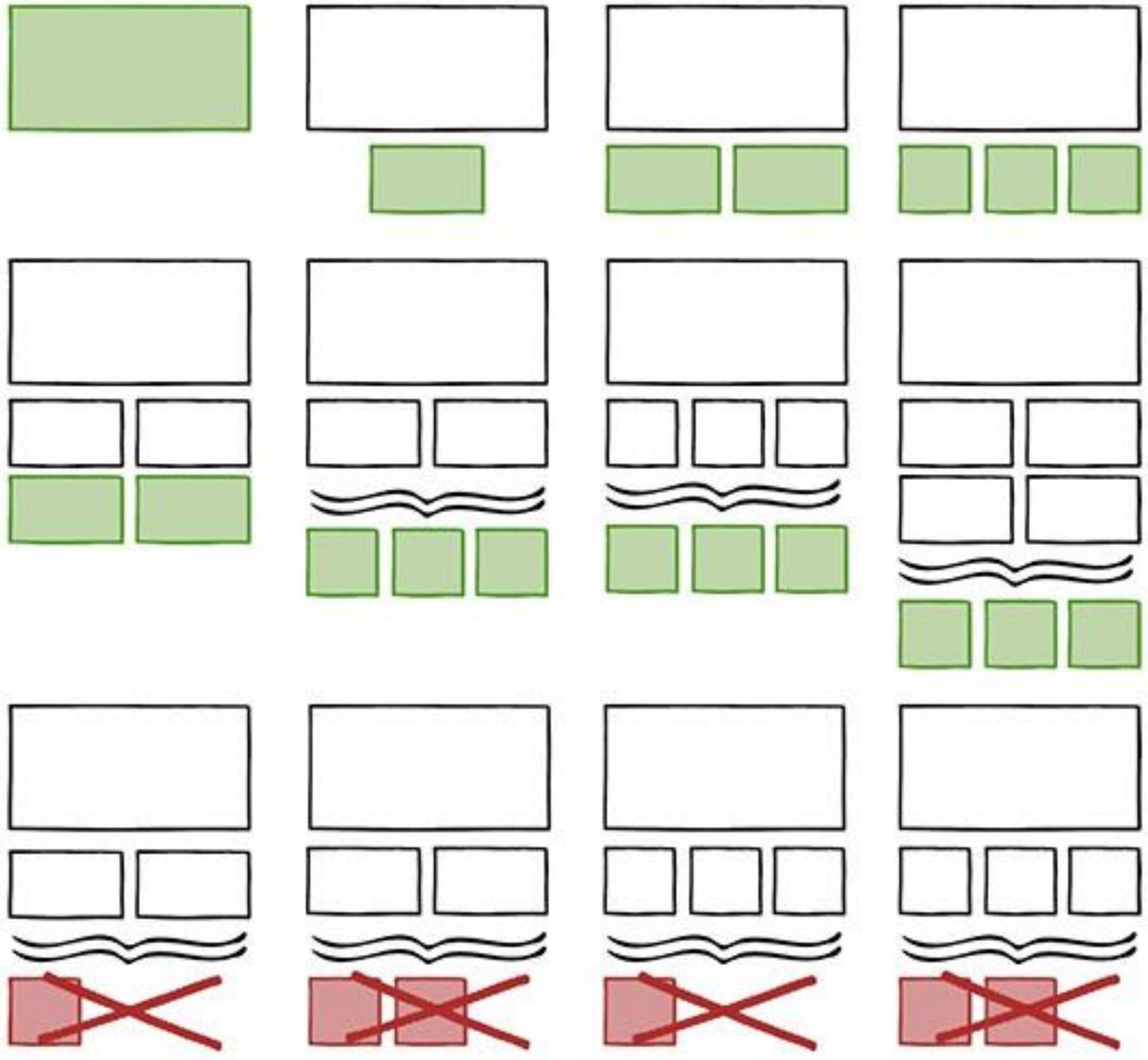
All of the CSS2.1 and CSS3 selectors used in this article are supported in Internet Explorer 9 and above, including all reasonably recent mobile/handheld stock browsers.

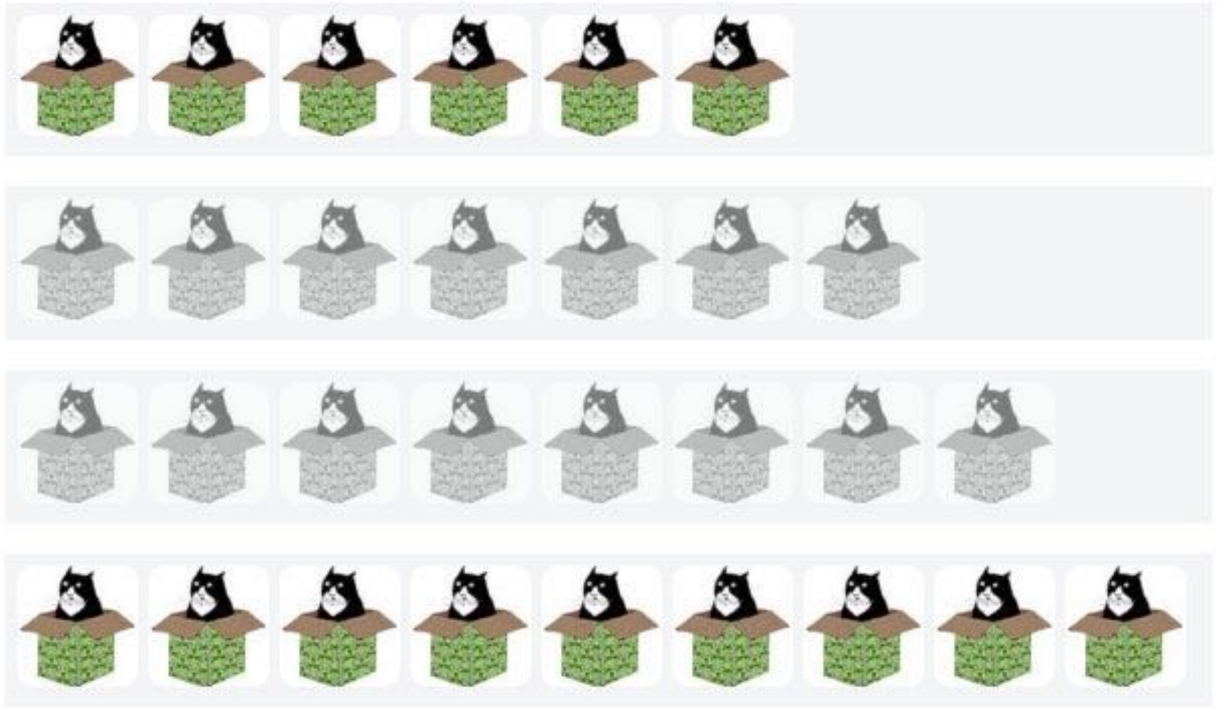
Internet Explorer 8 support is good for most selector types, but technically partial, so you might want to consider a JavaScript polyfill. Alternately, you could pair the selectors for the "safer" of the layout strategies with IE9-specific classes. In the case of the navigation menu, the safer option is the one catering to more items, using `inline-block`. The declaration block would look something like this:

```
nav li:nth-last-child(n+6),
nav li:nth-last-child(n+6) ~ li,

.lt-ie9 nav li {
  display: inline-block;
  /* etc */
}
```

To create a **perfect grid**, we'll need to define layout for *any* number of items with *specific quantity selectors* within media queries.





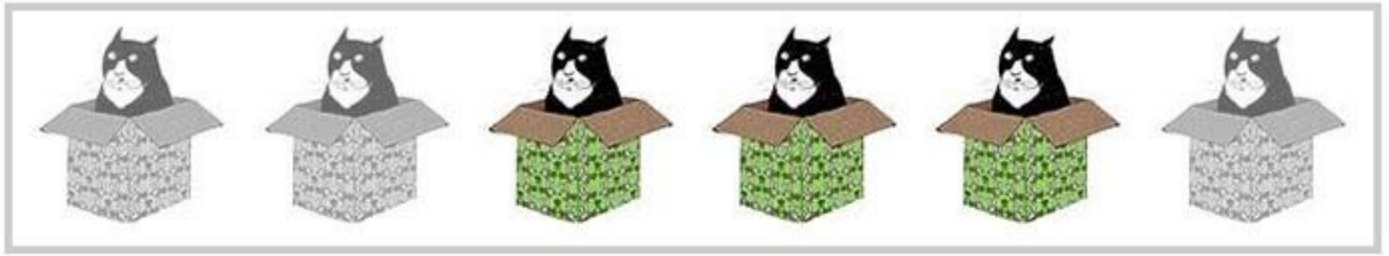
- “Mod query selector” in CSS:

```
li:nth-last-child(3n):first-child,
li:nth-last-child(3n):first-child ~ li {
    /* … styles for list items in a list divisible by 3 …  */
}
```



— *Select all following sibllings* (`~ li`) which follow after
— *The first child* (first li in the list here), (`:first-child`) that also is
— *Divisible by 3,* starting from the end (`:nth-last-child(3n)`).

```
li:nth-last-child(3n):first-child,
li:nth-last-child(3n):first-child ~ li {
    /* … styles for list items in a list divisible by 3 …  */
}
```



- “Range selector” in CSS:

```
li:nth-child(n+3):nth-child(-n+5) {
    /* … styles for list items from 3 to 5 …  */
}
```

— *Select all the items* up to and including the fifth item, then

— *Select all the items* from the third item onwards.



 **Product title**

 **Product title**

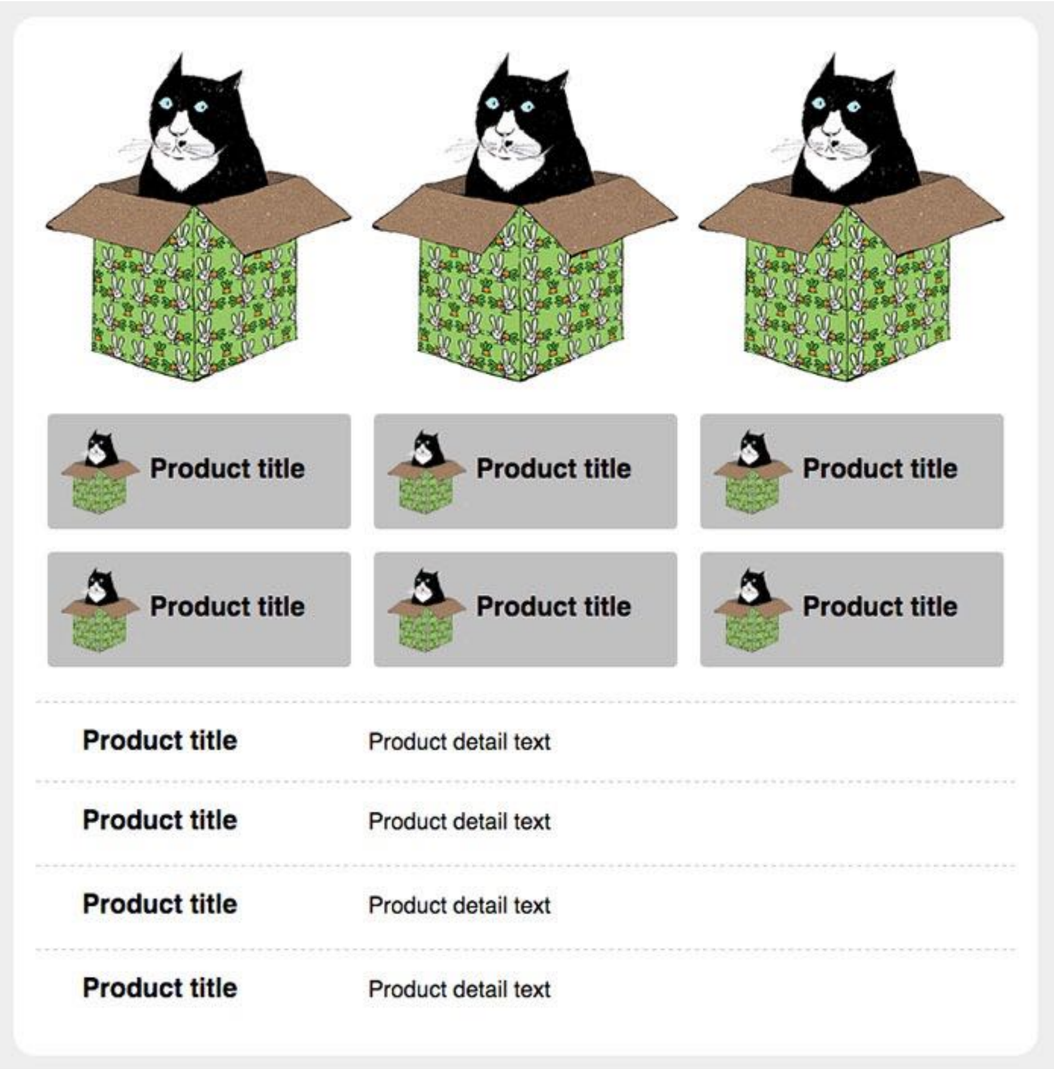
 **Product title**

 **Product title**

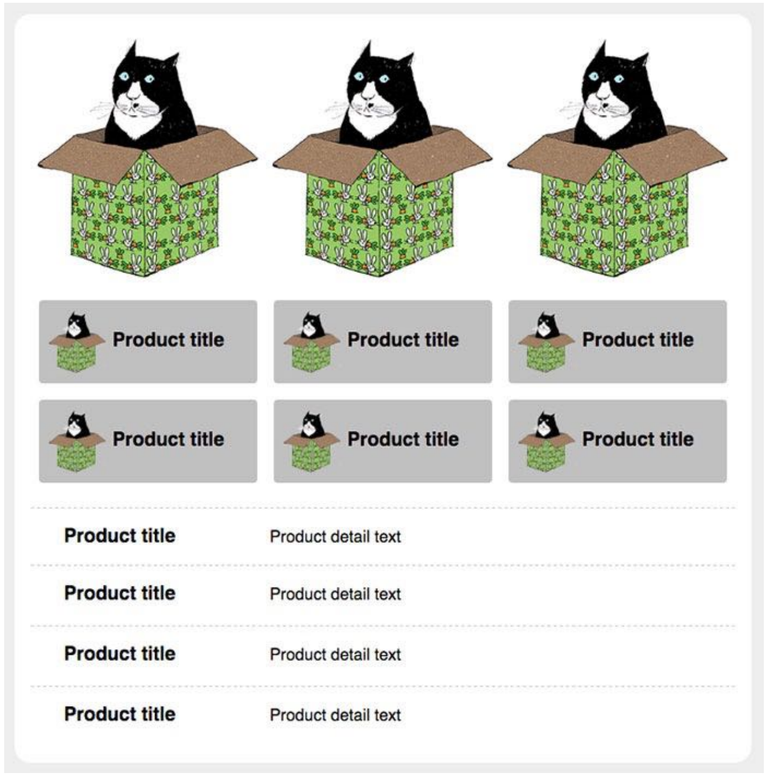
 **Product title**

 **Product title**

Product title	Product detail text
Product title	Product detail text
Product title	Product detail text
Product title	Product detail text



We use a **mod query** to check if the number of items is divisible by 3. Then we use a **range selector** to style items differently, e.g. apply one styling to *first three*, another styling to the fourth *through* ninth, and another to 10th *onwards. Voilà!*



- “Mod query selector” in CSS:

```
li:nth-last-child(3n):first-child /* mod query */
~ li:nth-child(n+4):nth-child(-n+6) { /* range selector */
    /* … styles for 4th to 6th elements, in a list divisible by 3 …  */
}
```

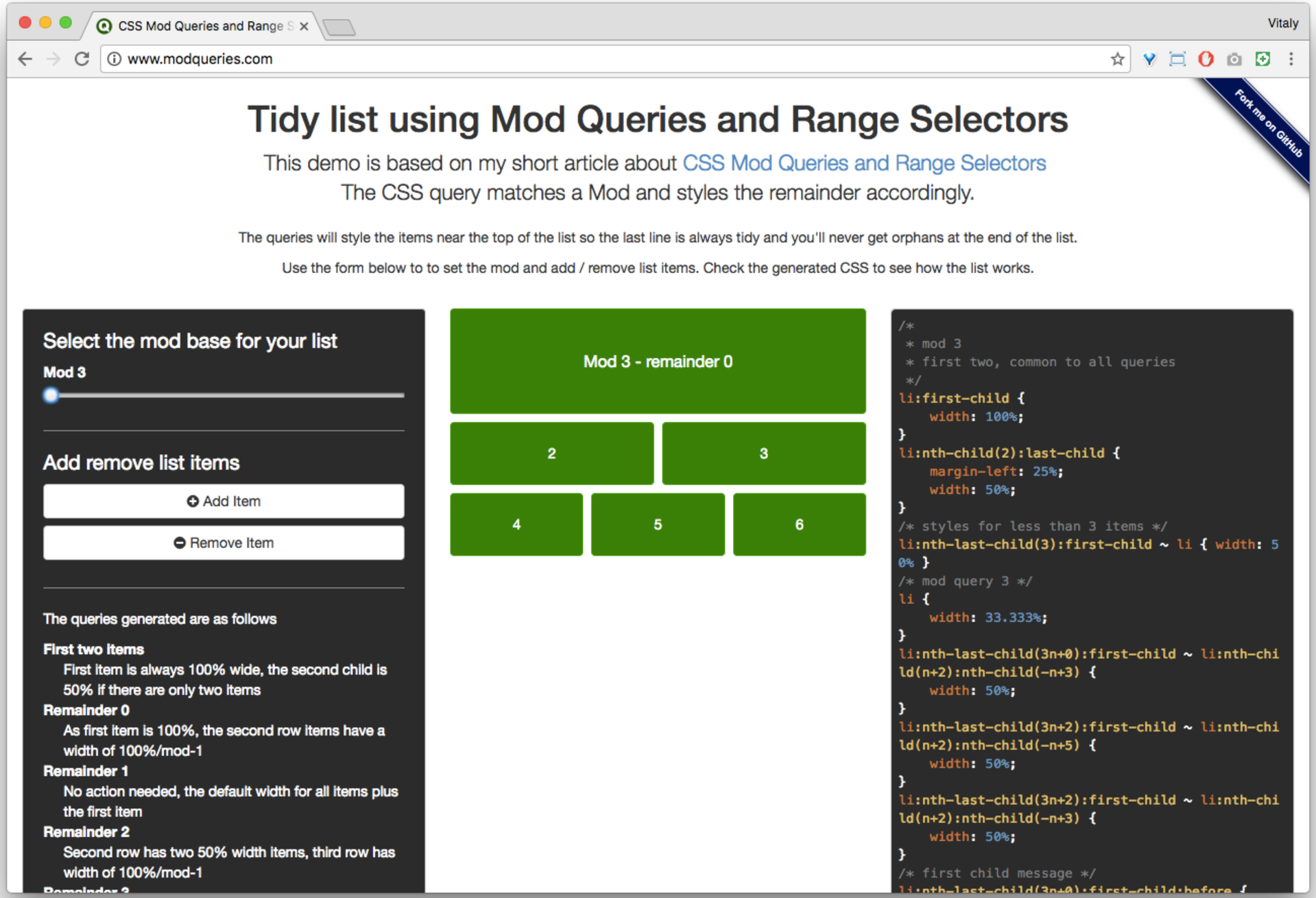

CSS Mod Queries and Range S
Vitaly
www.modqueries.com
Fork me on GitHub
Tidy list using Mod Queries and Range Selectors
This demo is based on my short article about CSS Mod Queries and Range Selectors
The CSS query matches a Mod and styles the remainder accordingly.
The queries will style the items near the top of the list so the last line is always tidy and you'll never get orphans at the end of the list.
Use the form below to to set the mod and add / remove list items. Check the generated CSS to see how the list works.
Select the mod base for your list
Mod 3
Add remove list items
Add Item
Remove Item
The queries generated are as follows
First two items
First item is always 100% wide, the second child is 50% if there are only two items
Remainder 0
As first item is 100%, the second row items have a width of 100%/mod-1
Remainder 1
No action needed, the default width for all items plus the first item
Remainder 2
Second row has two 50% width items, third row has width of 100%/mod-1
Mod 3 - remainder 0
2
3
4
5
6
/*
* mod 3
* first two, common to all queries
*/
li:first-child {
width: 100%;
}
li:nth-child(2):last-child {
margin-left: 25%;
width: 50%;
}
/* styles for less than 3 items */
li:nth-last-child(3):first-child ~ li { width: 50% }
/* mod query 3 */
li {
width: 33.333%;
}
li:nth-last-child(3n+0):first-child ~ li:nth-child(n+2):nth-child(-n+3) {
width: 50%;
}
li:nth-last-child(3n+2):first-child ~ li:nth-child(n+2):nth-child(-n+5) {
width: 50%;
}
li:nth-last-child(3n+2):first-child ~ li:nth-child(n+2):nth-child(-n+3) {
width: 50%;
}
/* first child message */



Illustration by Brad Colbow

Using CSS Mod Queries with Range Selectors

by **Patrick Clancey** · October 11, 2016

Published in CSS

Recently, I was asked to build a simple list that would display in a grid—one that could start with a single element and grow throughout the day, yet alway be tidy regardless of the length. So, as you do sometimes when you're busy with one thing and asked if you can do something completely different, I tried to think of any reason why it couldn't be done, came up blank, and distractedly said, "Yes."

JOB BOARD



DSIRF GmbH is looking for a Experienced Frontend Web Developer.

At the time, I was working on a London-based news organization's website. We'd spent the previous year migrating their CMS to the Adobe AEM platform while simultaneously implementing a responsive UI—both big improvements. Since that phase was complete, we were starting to focus on finessing the UI and building new features. The development project was divided into a number of small semiautonomous teams. My team was focusing on hub pages, and I was leading the UI effort.

Each hub page is essentially a list of lists, simply there to help readers find content that interests them. As you can imagine, a news website is almost exclusively made of content lists! A page full of generic vertical lists would be unhelpful and unappealing; we wanted readers to enjoy browsing the content related to their sphere of interest

15 comments

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Quantity Queries for CSS · An

Vitaly

alistapart.com/article/quantity-queries-for-css

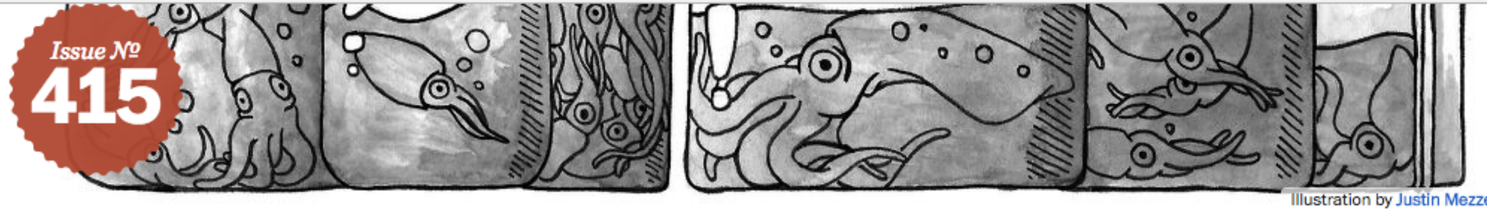


Illustration by Justin Mezzell

Quantity Queries for CSS

by **Heydon Pickering** · March 03, 2015

Published in CSS, HTML

Don't you just hate documentaries that don't deliver? They have enticing names like *In Search of the Giant Squid*, and tease you with shots of murky underwater shapes and excited scientists pointing far out to sea. You settle down to watch, eyes narrowed with suspicion, thinking, "I better see some squid or I'm writing an angry letter to the network."

JOB BOARD



Lasso Data Systems is looking for a Senior Server Side Developer.

Sure enough, 90 minutes of interviews with bored-looking fishermen later, the presenter is forced to conclude, "No… no, we didn't find any big squids. But maybe one day [majestic orchestral flourish]." Great. You wanted *Finding Nemo* and got *Not Finding Nemo* instead.

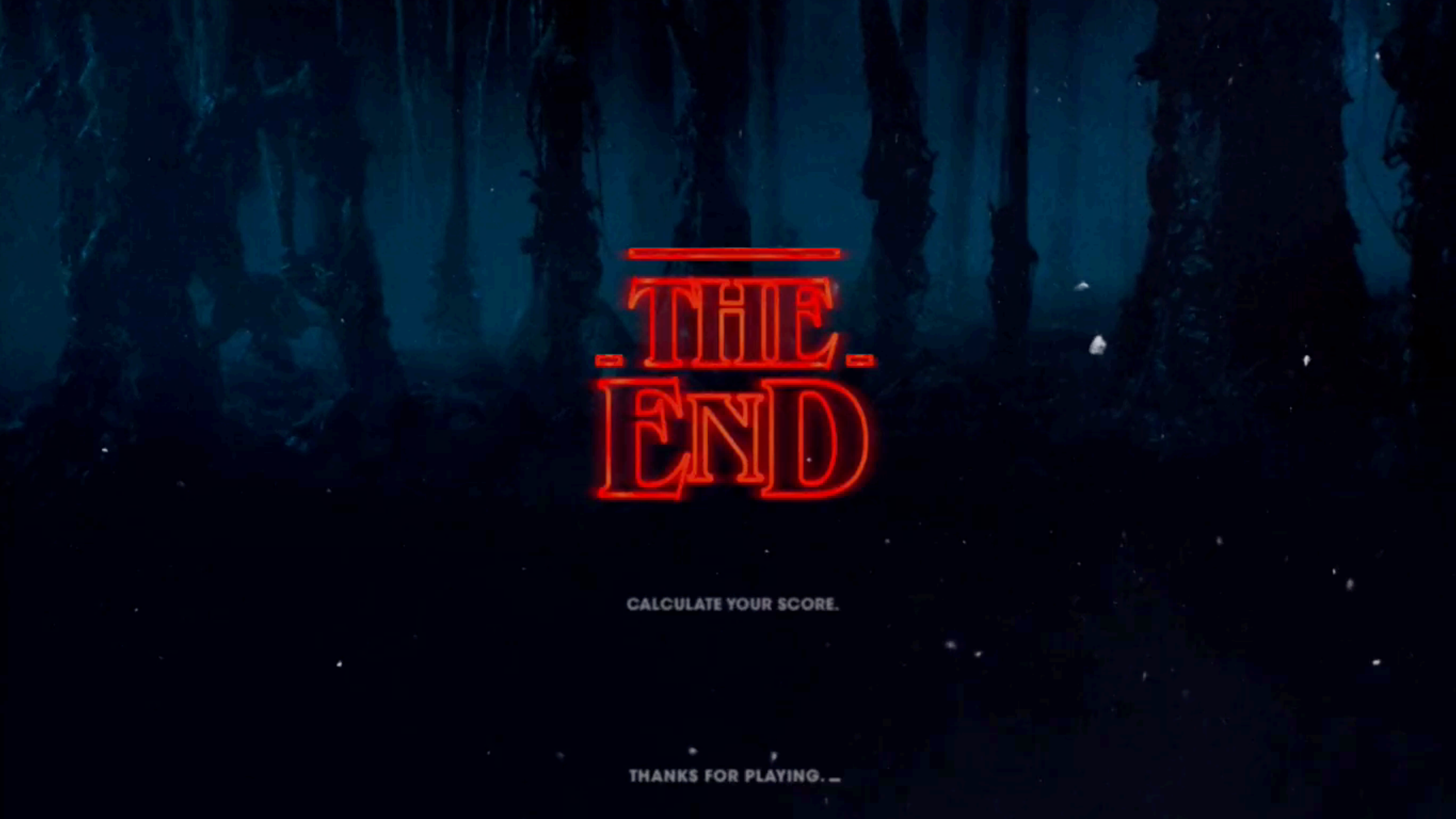
I wouldn't do that to you, friends. This is your guide to creating style breakpoints for quantities of HTML elements, much as you already do with `@media` queries for viewport dimensions. I'm not pointing at some blurry specification in the distance or a twinkle in an implementer's eye. We're going to do this *today*, with CSS that's already

53 comments

Share this on

Translations

Brazilian-Portuguese


THE END
CALCULATE YOUR SCORE.
THANKS FOR PLAYING.