

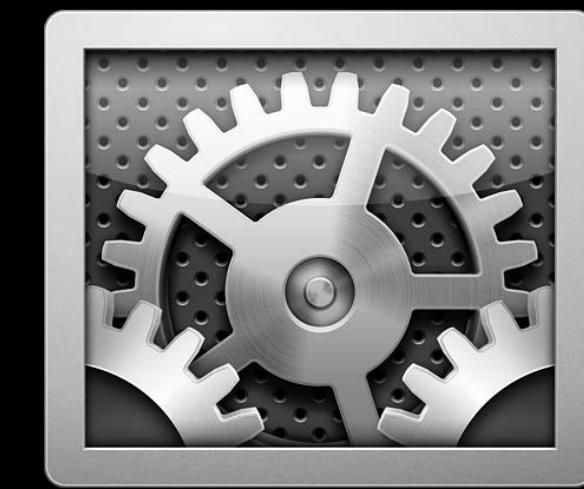
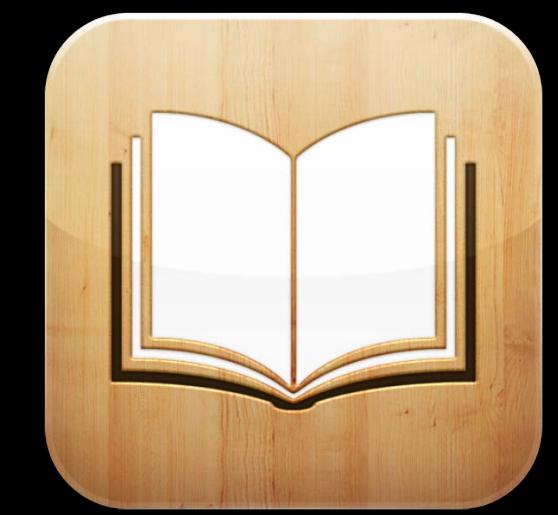
# What's New in Safari and WebKit for Web Developers

Session 600

**Beth Dakin**  
Safari and WebKit Engineer

These are confidential sessions—please refrain from streaming, blogging, or taking pictures







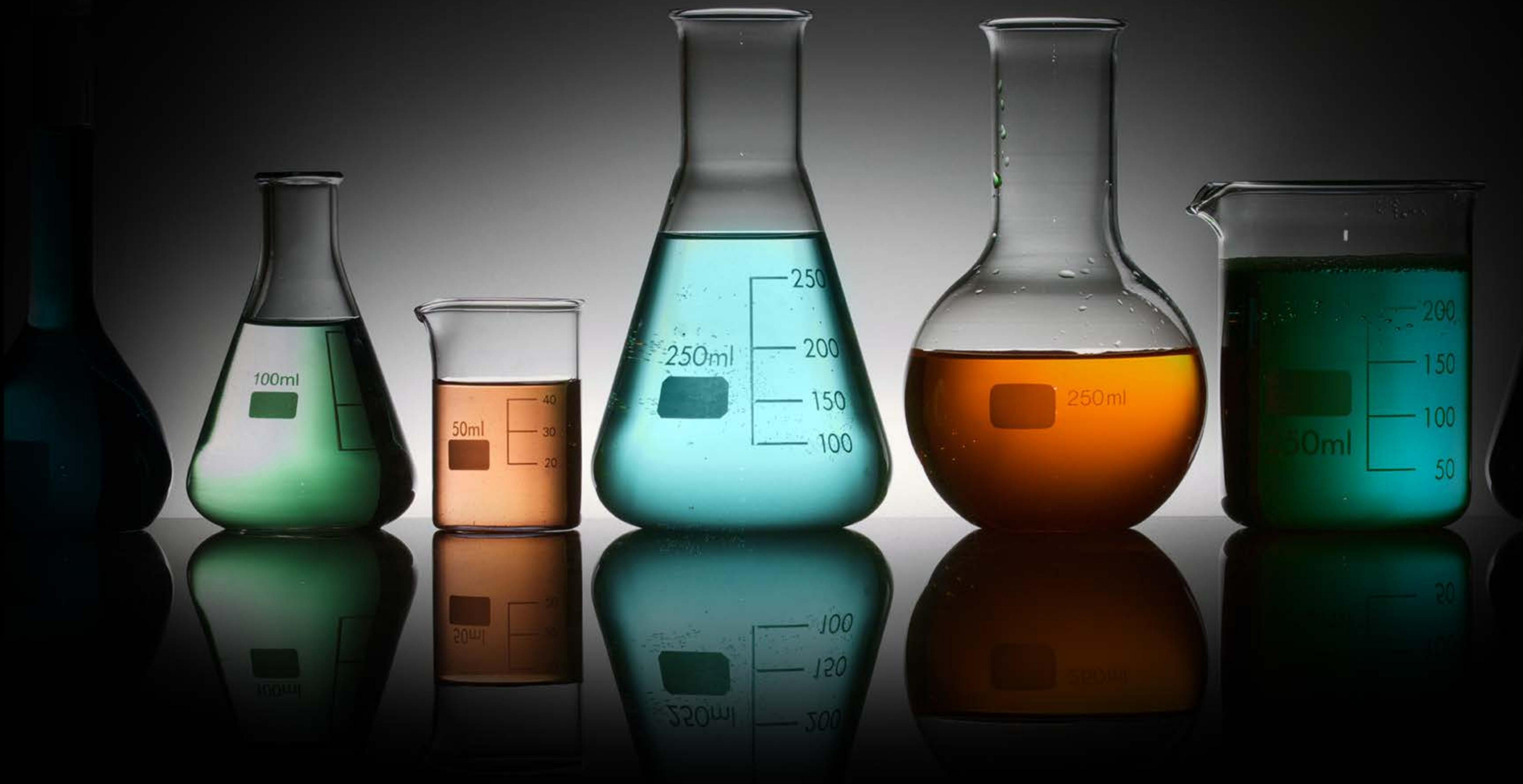


-webkit-image-set	requestAnimationFrame
Grid Layout	Web Speech API
Canvas Blending Modes	background-blend-mode
CSS calc()	CSS Regions
Page Visibility	AirPlay API
JavaScript Objective-C API	CSS Flexbox
Widows and Orphans	CSS Sticky Position
Pagination	-webkit-line-break
Canvas Path()	Web VTT
Faster Scrolling	CSS Clip Path
Mutation Observers	Push Notifications









# What You Will Learn

- New layout models
- Media features
- Enhancements

# New Layout Models

# New Layout Models



# New Layout Models

- Columns and pagination



# New Layout Models

- Columns and pagination
- CSS Regions



# New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes

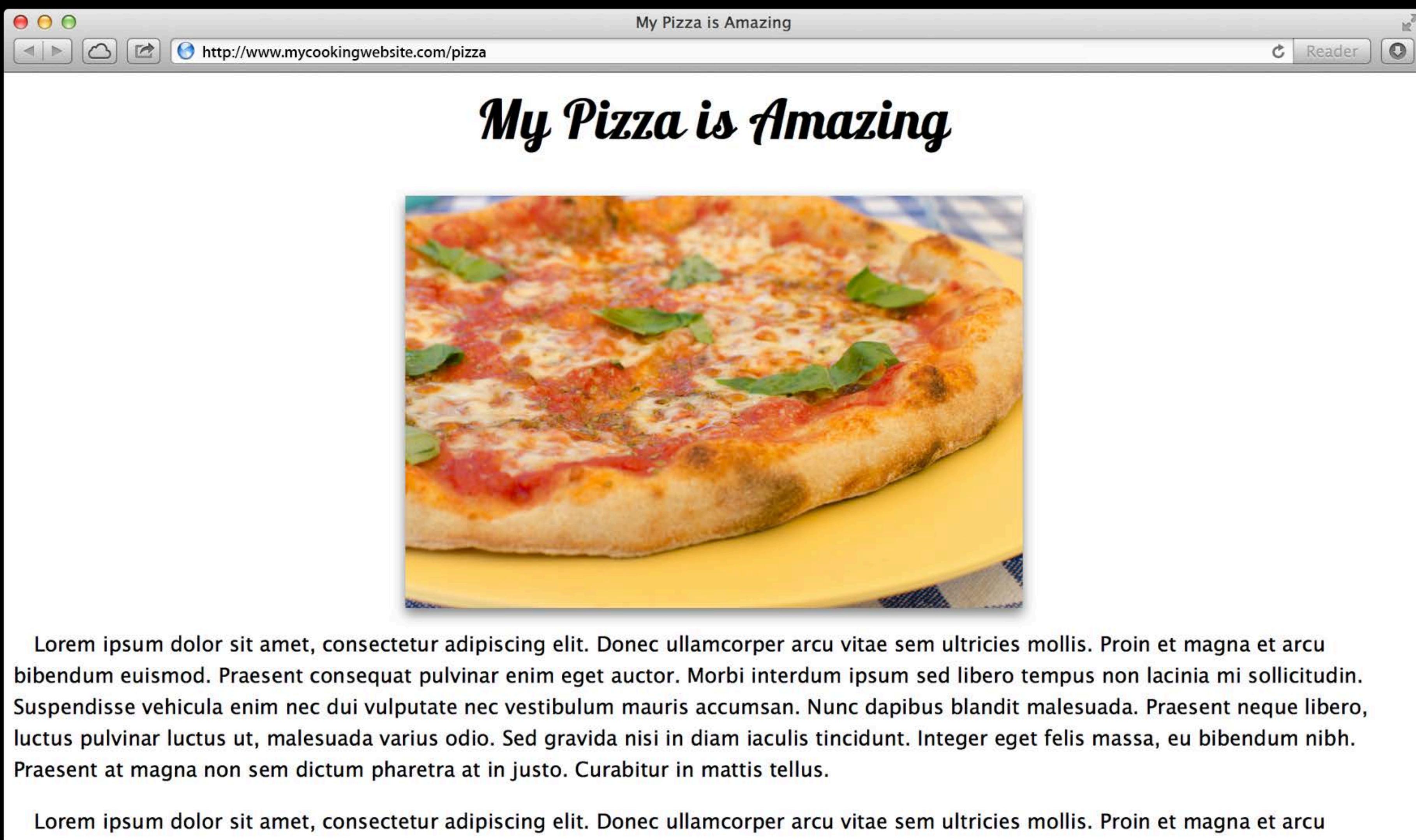


# New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes



# Columns and Pagination

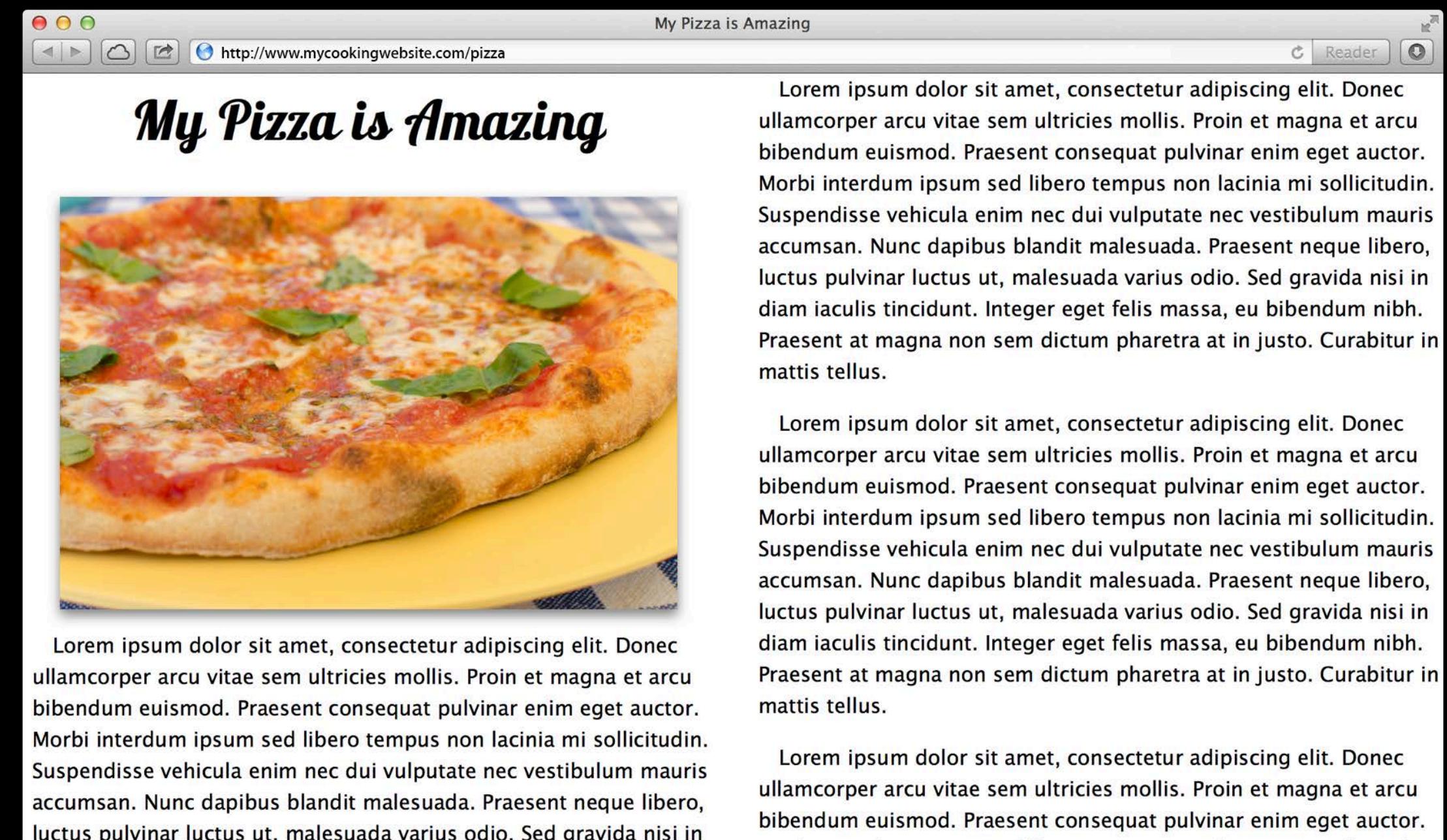


# Columns and Pagination



# Columns and Pagination

# What columns have to offer



# Columns and Pagination

## What columns have to offer

- Common design in print media



# Columns and Pagination

## What columns have to offer

- Common design in print media
- Improved readability



# Columns and Pagination

## What columns have to offer

- Common design in print media
- Improved readability
- Less wasted space



# Columns and Pagination

```
#main-content {  
    -webkit-column-width: 550px;  
}
```



# Columns and Pagination

```
#main-content {  
    -webkit-column-count: 2;  
}
```



# Columns and Pagination

CSS properties to style columns

# Columns and Pagination

## CSS properties to style columns

- webkit-column-gap
- webkit-column-rule
- webkit-column-rule-color
- webkit-column-rule-style
- webkit-column-rule-width
- webkit-column-break-after
- webkit-column-break-before
- webkit-column-break-inside
- webkit-column-span
- webkit-column-axis
- webkit-column-progression

# Columns and Pagination

The image shows an iPad displaying a digital document. The document is presented in a landscape-oriented, two-column layout. The left column contains a large red star at the top, followed by the word "CHAPTER" in a large, bold, red serif font. Below this, there is a block of text in a smaller black serif font. The right column contains a single line of text at the top, followed by a block of text in a smaller black serif font. A small, colorful illustration of a girl sleeping in a bed with three bears is positioned in the center-right area. The iPad's status bar at the top shows "iPad" with signal strength, "9:41 AM", and battery level. The top of the document has a thin gold border. The entire iPad is set against a dark background.

Apple Inc. 9:41 AM

Flowing Example 3.0

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**Header**

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10 of 17 11 of 17

# Columns and Pagination

## UIWebView with a long document



# *My Pizza is Amazing*

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*The End*

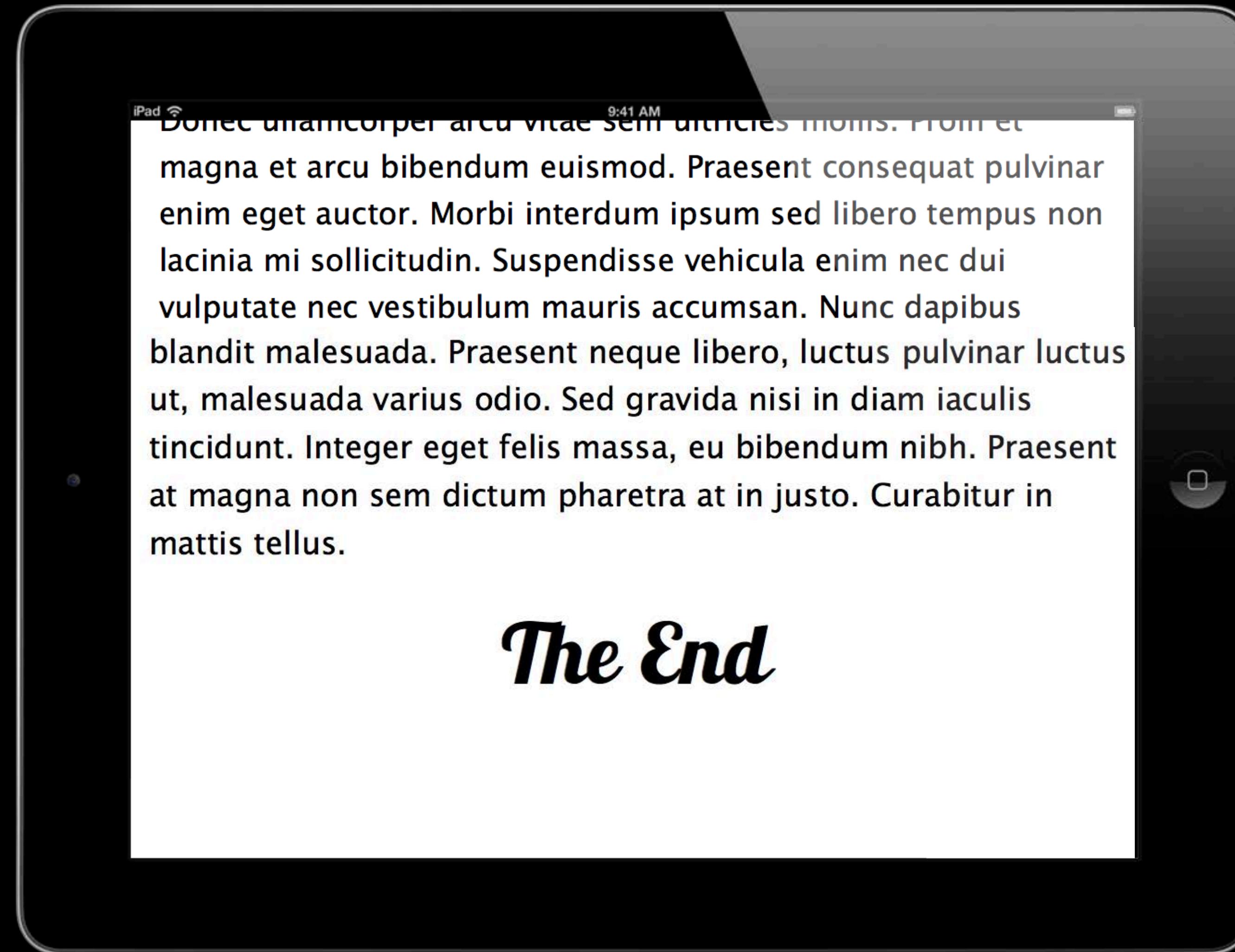
# Columns and Pagination

## UIWebView with a long document



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***The End***

# Columns and Pagination

iOS API is for you if...

- You want to paginate the entire UIWebView as a whole
- You don't control the content your app displays

# Columns and Pagination

## iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;  
myUIWebView.pageLength = 600;  
myUIWebView.pageGap = 25;  
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

***My Pizza is Amazing***



bludit malesuada. Praesent neque libero, luctus pulvinar luctus ut, malesuada varius odio. Sed gravida nisi in diam iaculis tincidunt. Integer eget felis massa, eu bibendum nibh. Praesent at magna non sem dictum pharetra at in justo. Curabitur in mattis tellus.

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pageLength

# Columns and Pagination

## iOS API



```
myUIWebView.paginationMode = UIWebPaginationModeLeftToRight;  
myUIWebView.pageLength = 600;  
myUIWebView.pageGap = 25;  
myUIWebView.paginationBreakingMode = UIWebPaginationBreakingModeColumn;
```

***My Pizza is Amazing***



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***The End***

# Columns and Pagination

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pageGap

# Columns and Pagination

## iOS API



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***My Pizza is Amazing***



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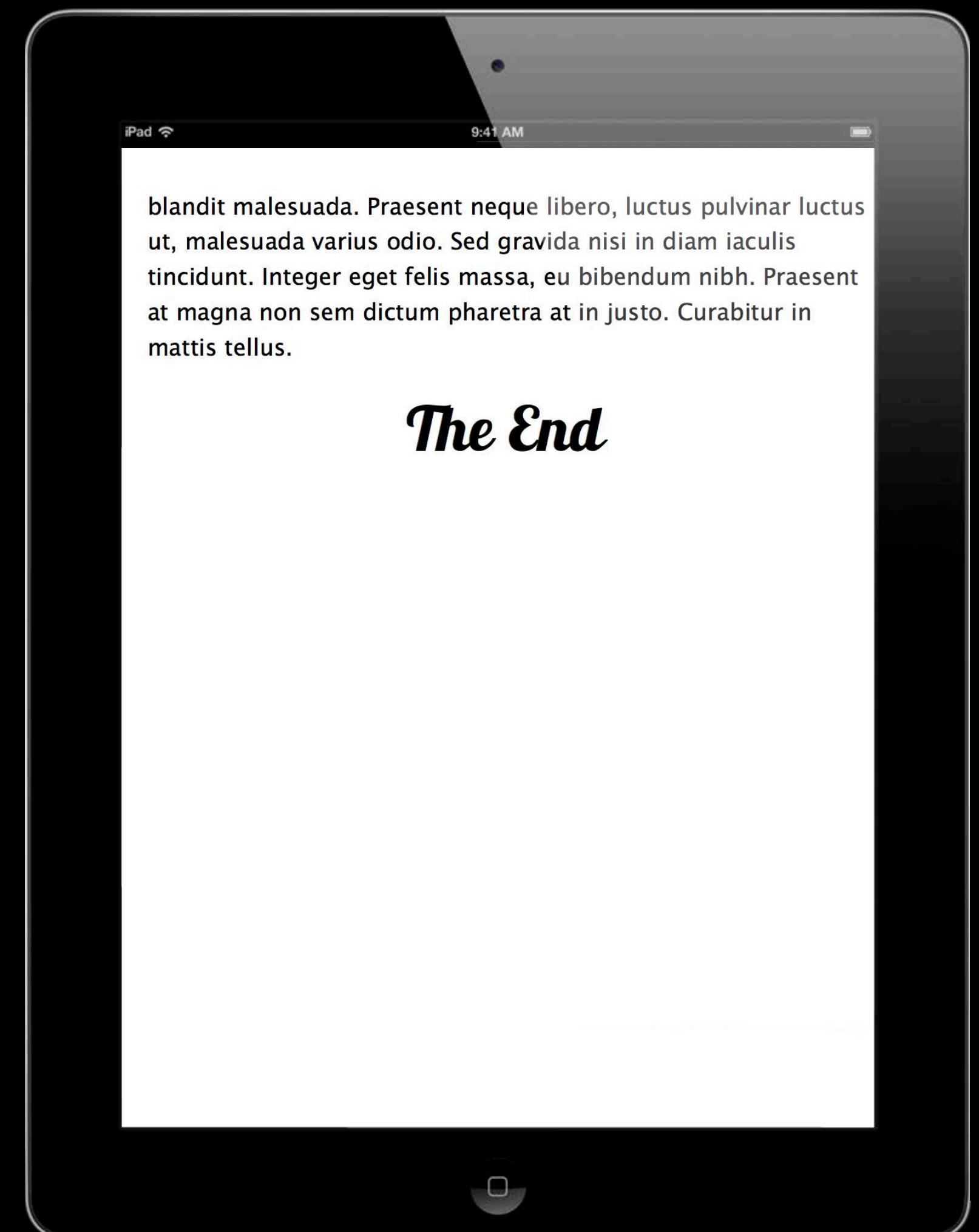
# Columns and Pagination

## iOS API



# Columns and Pagination

## iOS API



# New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes

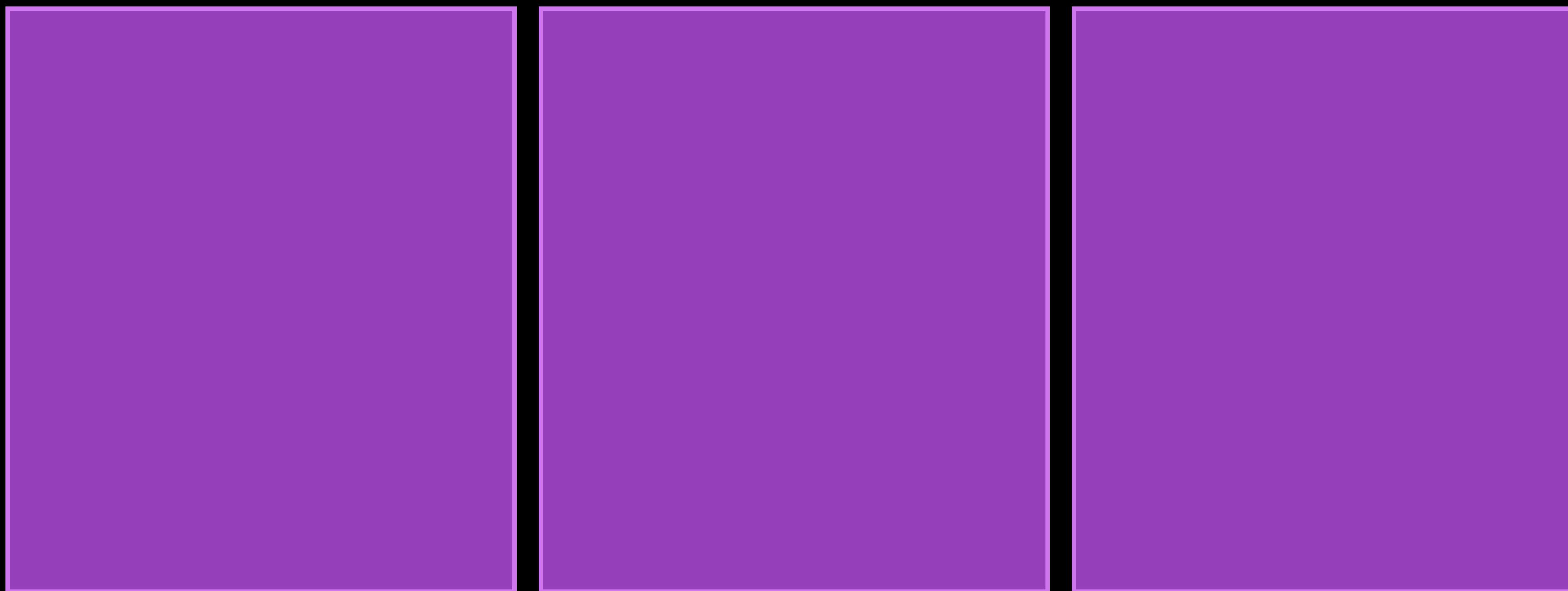


# New Layout Models

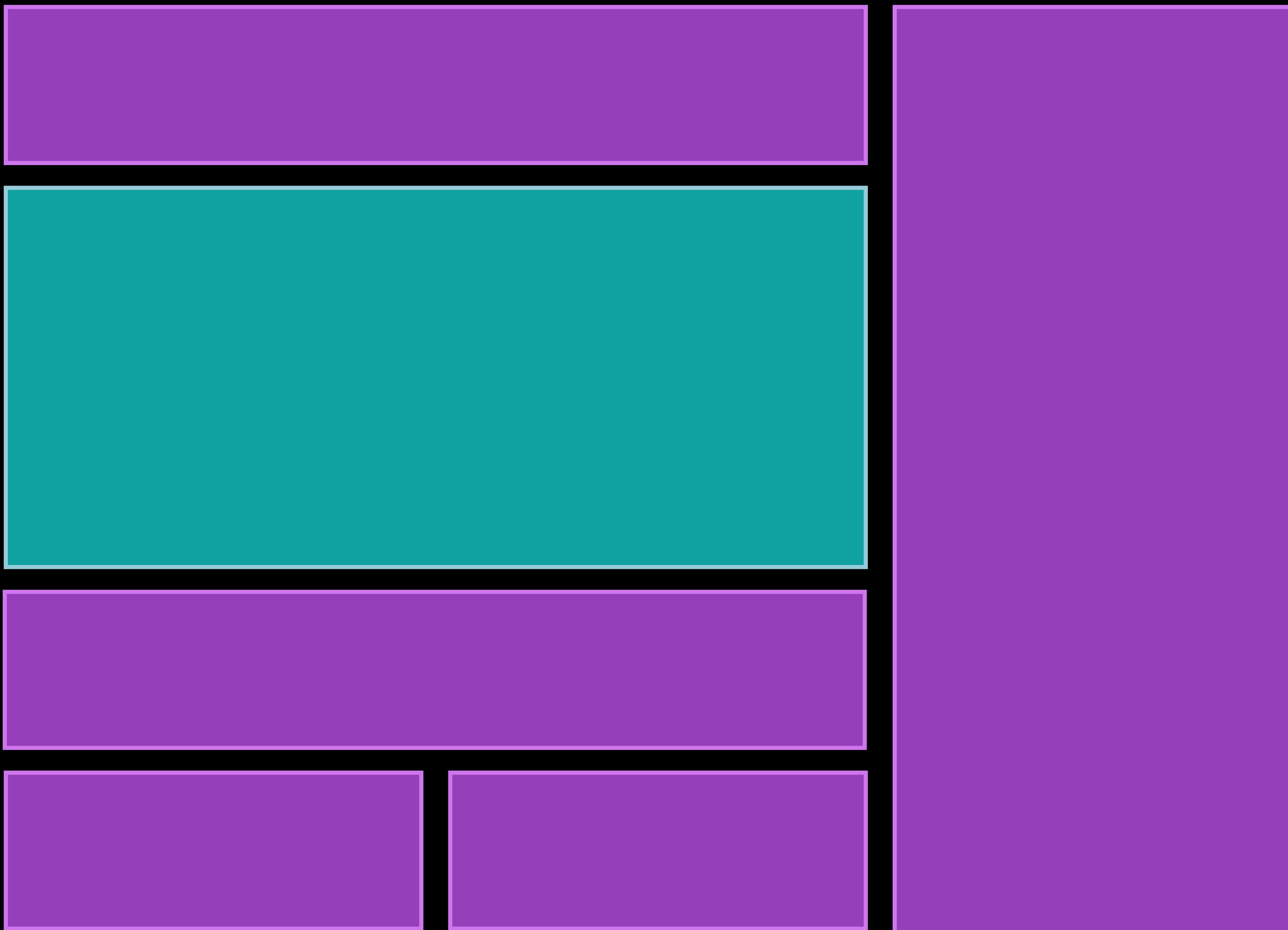
- Columns and pagination
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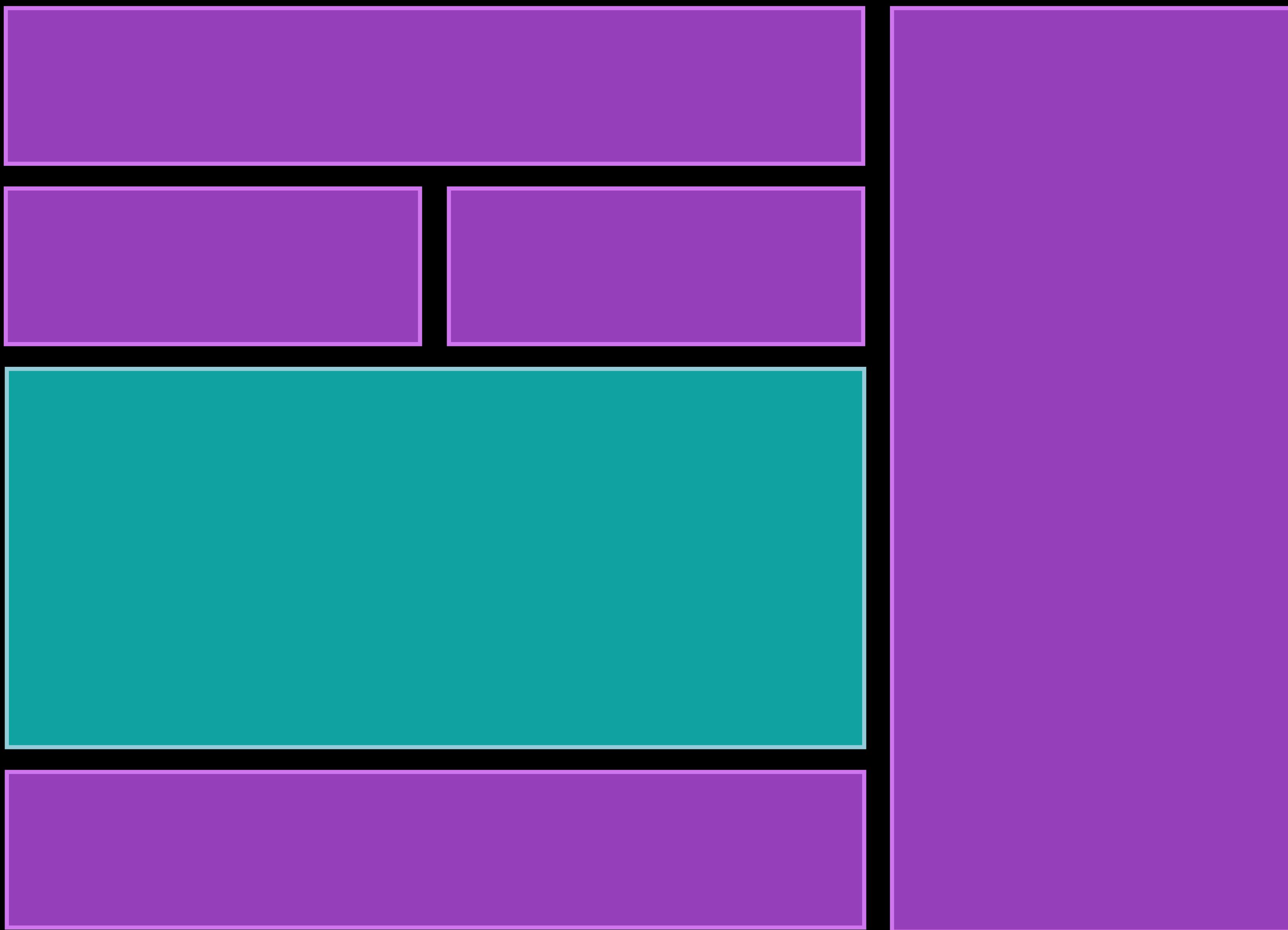
# CSS Regions



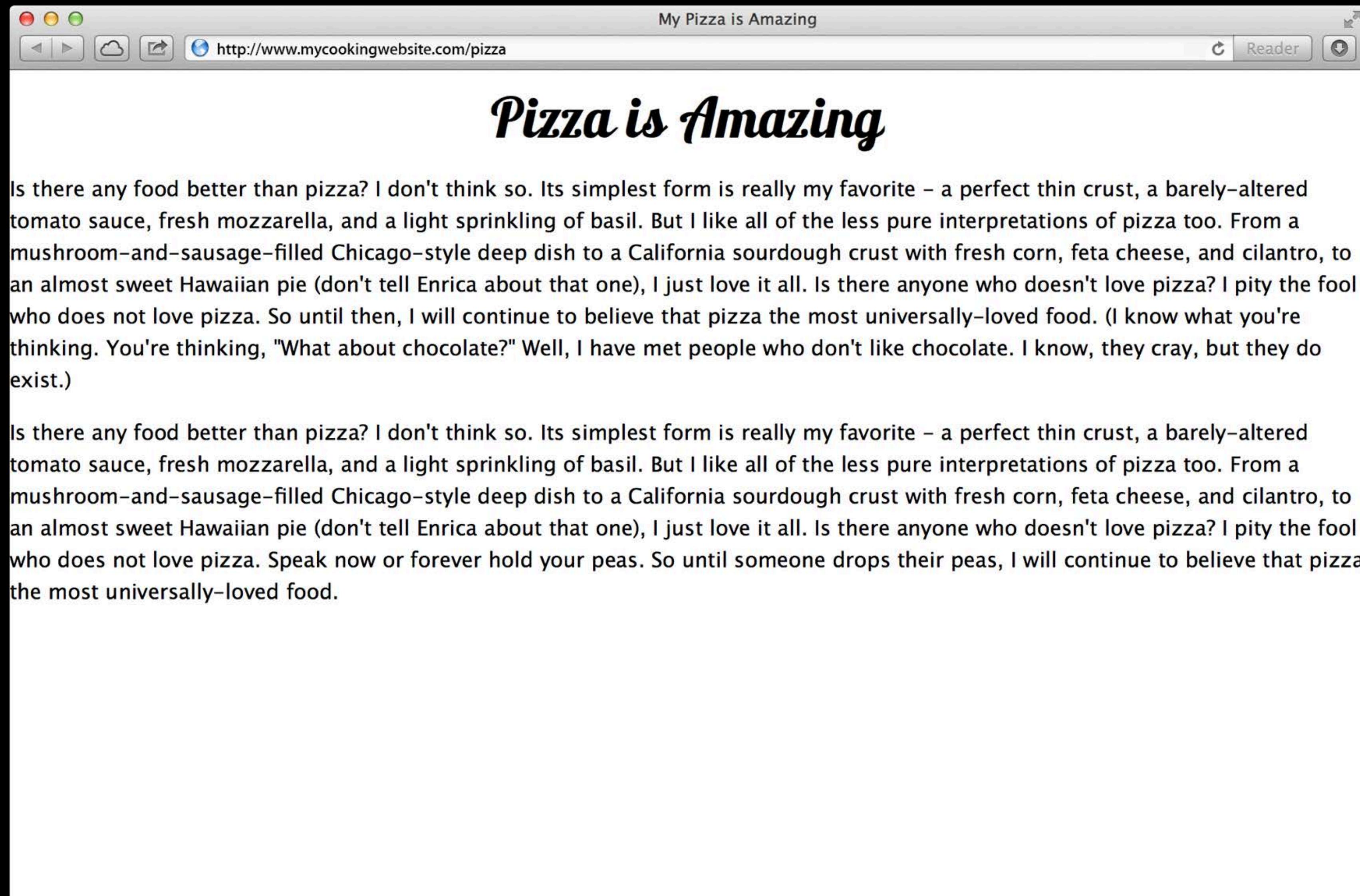
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# CSS Regions



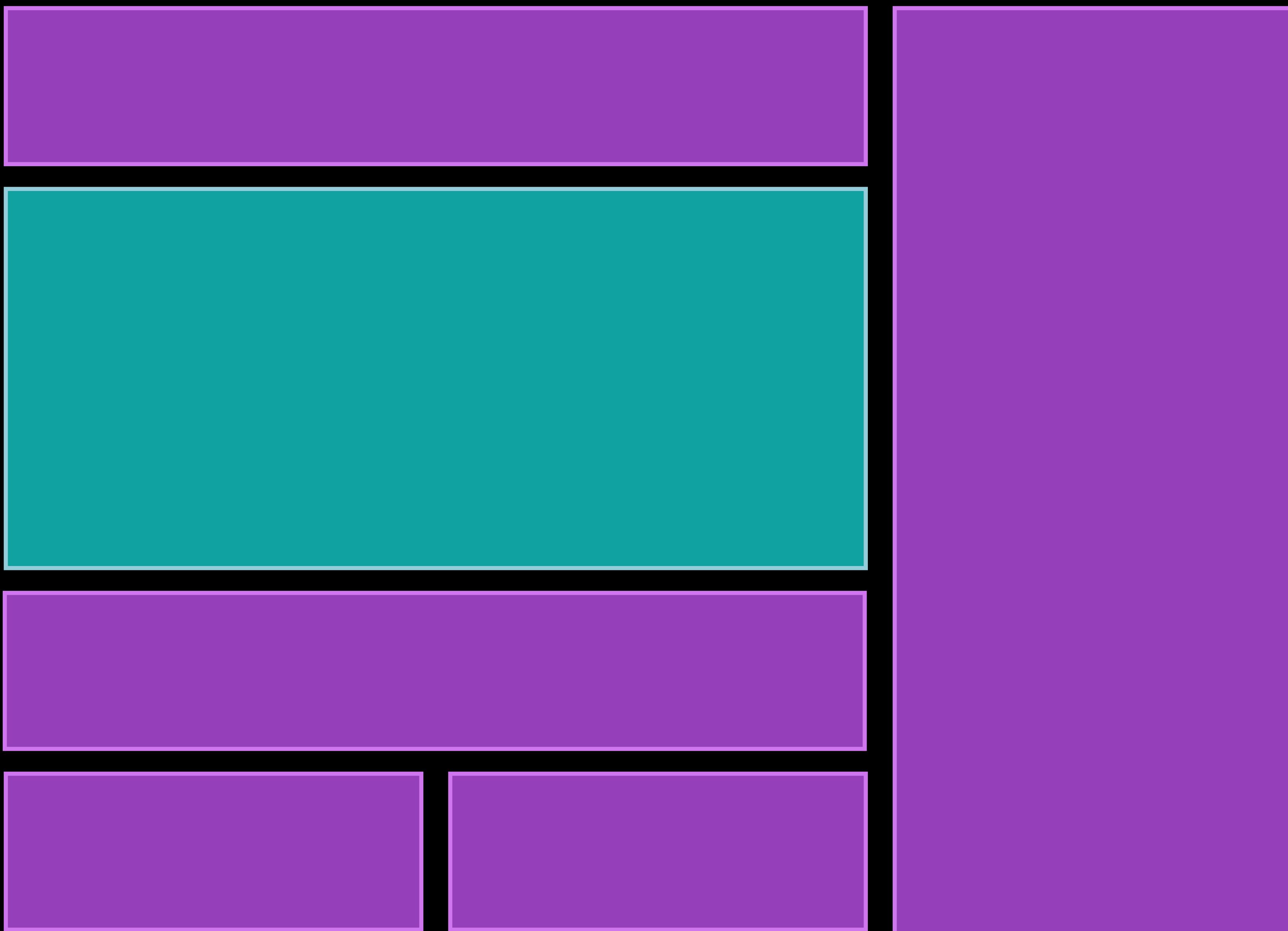
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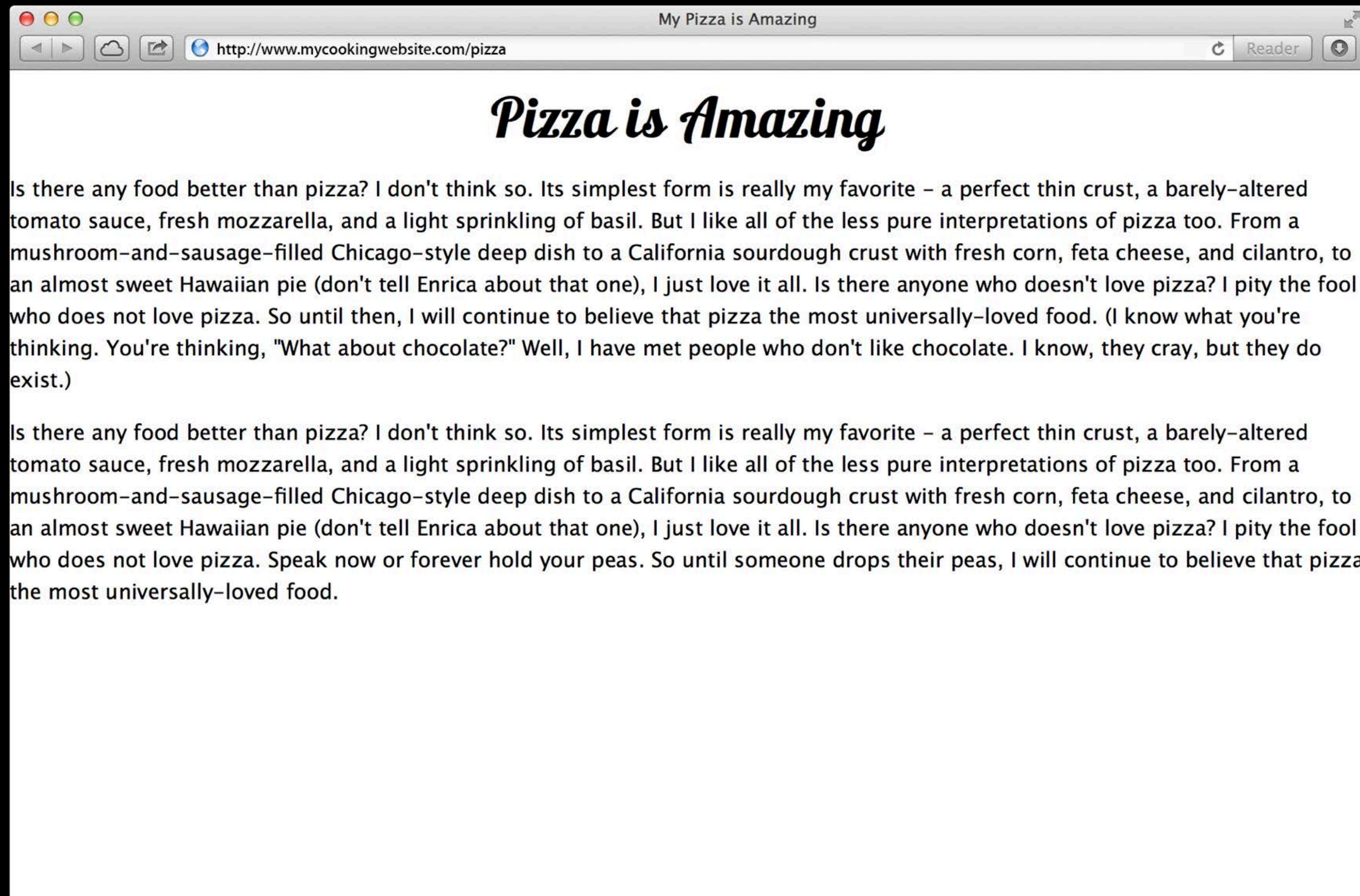
Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

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# CSS Regions



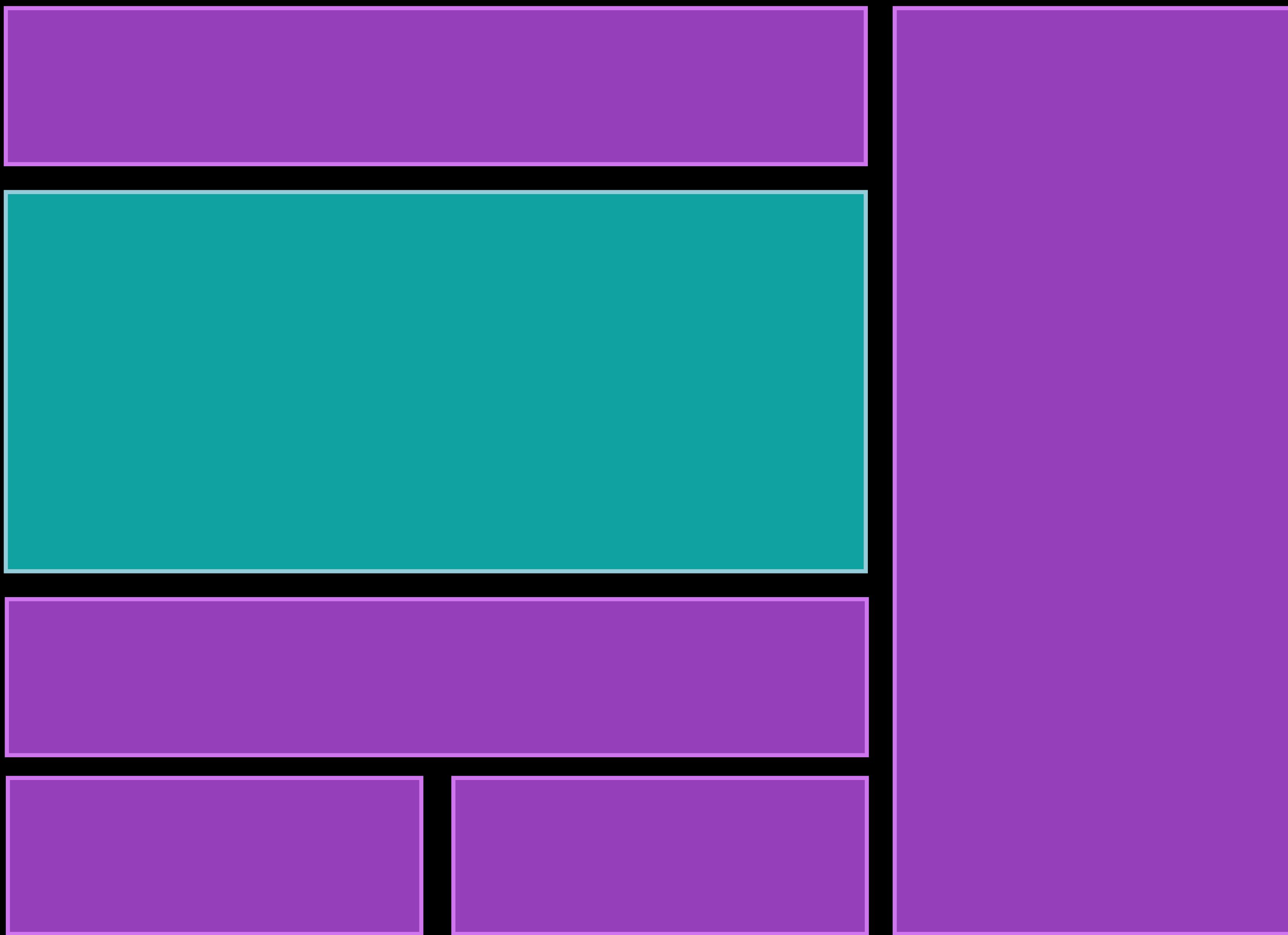
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# CSS Regions



# CSS Regions

## *Pizza is Amazing*

Is there any food better than pizza? I don't think so. Its simplest form is

really my favorite - a perfect thin

crust, a barely-altered tomato

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# CSS Regions

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>

<div class="region" id="region-1"></div>

<div class="region" id="region-2"></div>
<div class="region" id="region-3"></div>
<div class="region" id="region-4"></div>
<div class="region" id="region-5"></div>
```

# CSS Regions

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<div class="region" id="region-4"></div>
<div class="region" id="region-5"></div>
```

# CSS Regions



```
<style>
.region {
  -webkit-flow-from: pizza-manifesto;
}
</style>
```

```
<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>
```

```
<div class="region" id="region-1"></div>
...
<div class="region" id="region-5"></div>
```

# CSS Regions



```
<style>
#flow-content {
    -webkit-flow-into: pizza-manifesto;
}

.region {
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<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>

<div class="region" id="region-1"></div>
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# CSS Regions



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}

.region {
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</style>

<div id="flow-content"> <h1>Pizza is Amazing</h1> ... </div>

<div class="region" id="region-1"></div>
...
<div class="region" id="region-5"></div>
```

# CSS Regions

My Pizza is Amazing  
http://www.mycookingwebsite.com/pizza

## Pizza is Amazing



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

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# CSS Regions

My Pizza is Amazing  
http://www.mycookingwebsite.com/pizza

## Pizza is Amazing



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

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# CSS Regions



```
<style>
@-webkit-region #region-2 {
    p {
        color: green;
    }
}
</style>

<div class="region" id="region-1"></div>

<div class="region" id="region-2"></div>
<div class="region" id="region-3"></div>
<div class="region" id="region-4"></div>
<div class="region" id="region-5"></div>
```

# *Demo*

**Enrica Casucci**  
Safari and WebKit Engineer

# New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes

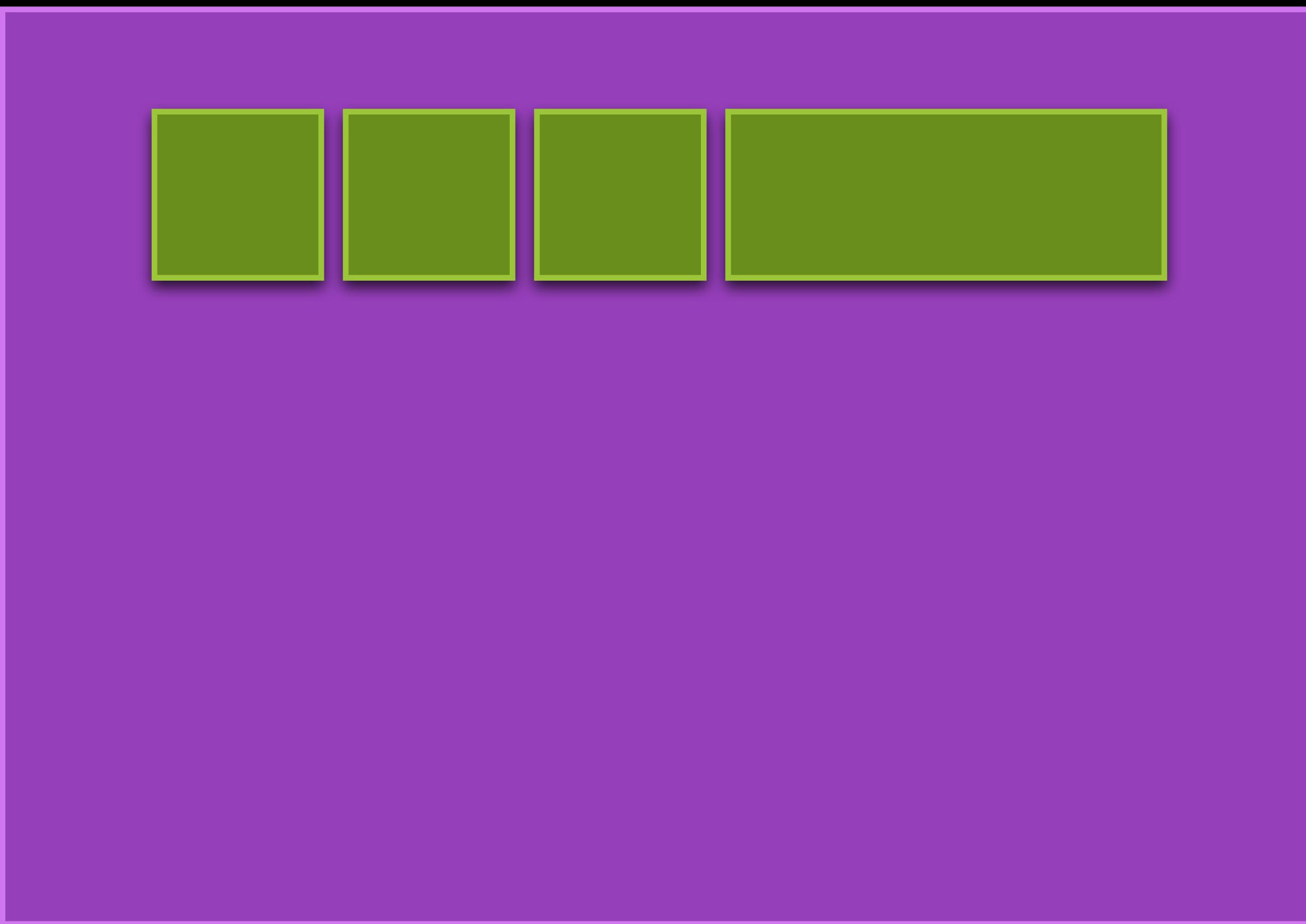


# New Layout Models

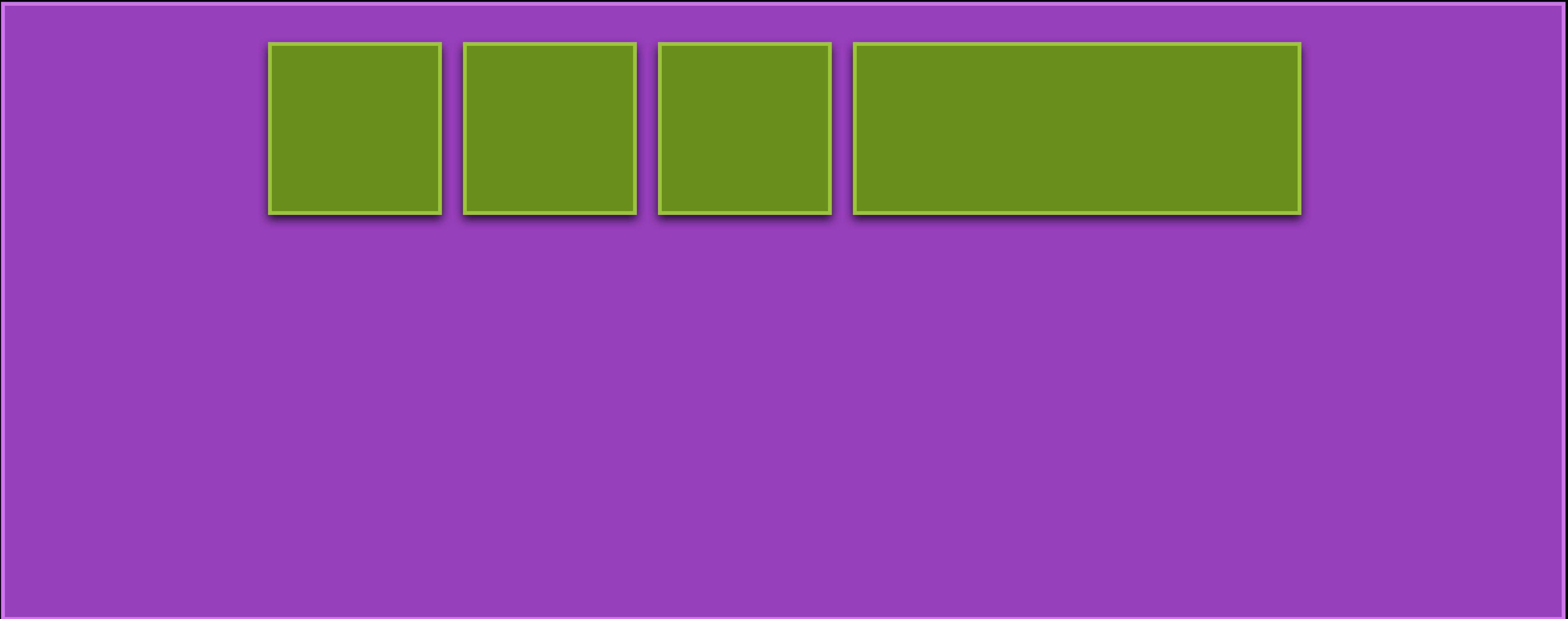
- Columns and pagination
- CSS Regions
- Flexible boxes



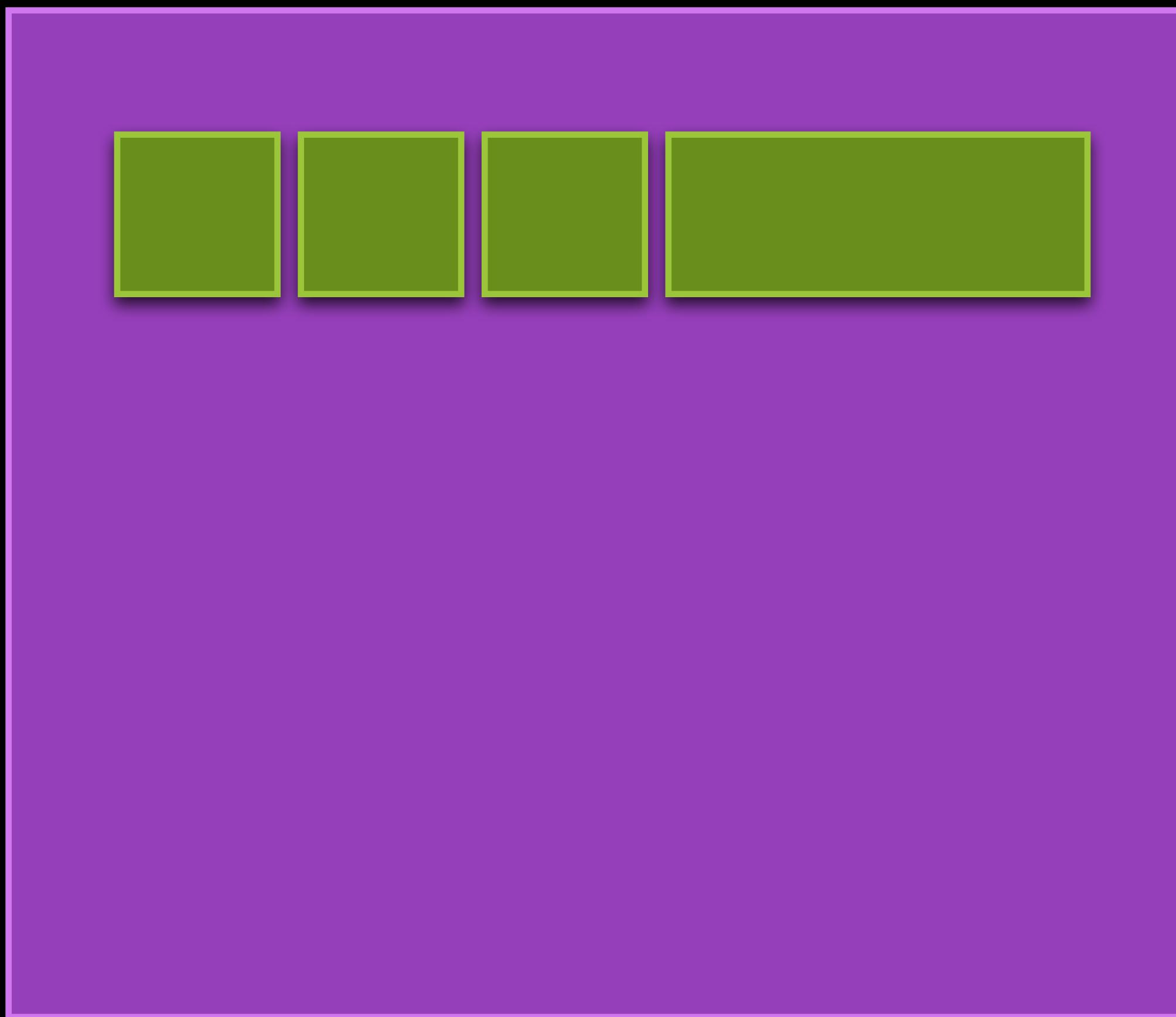
# Flexbox



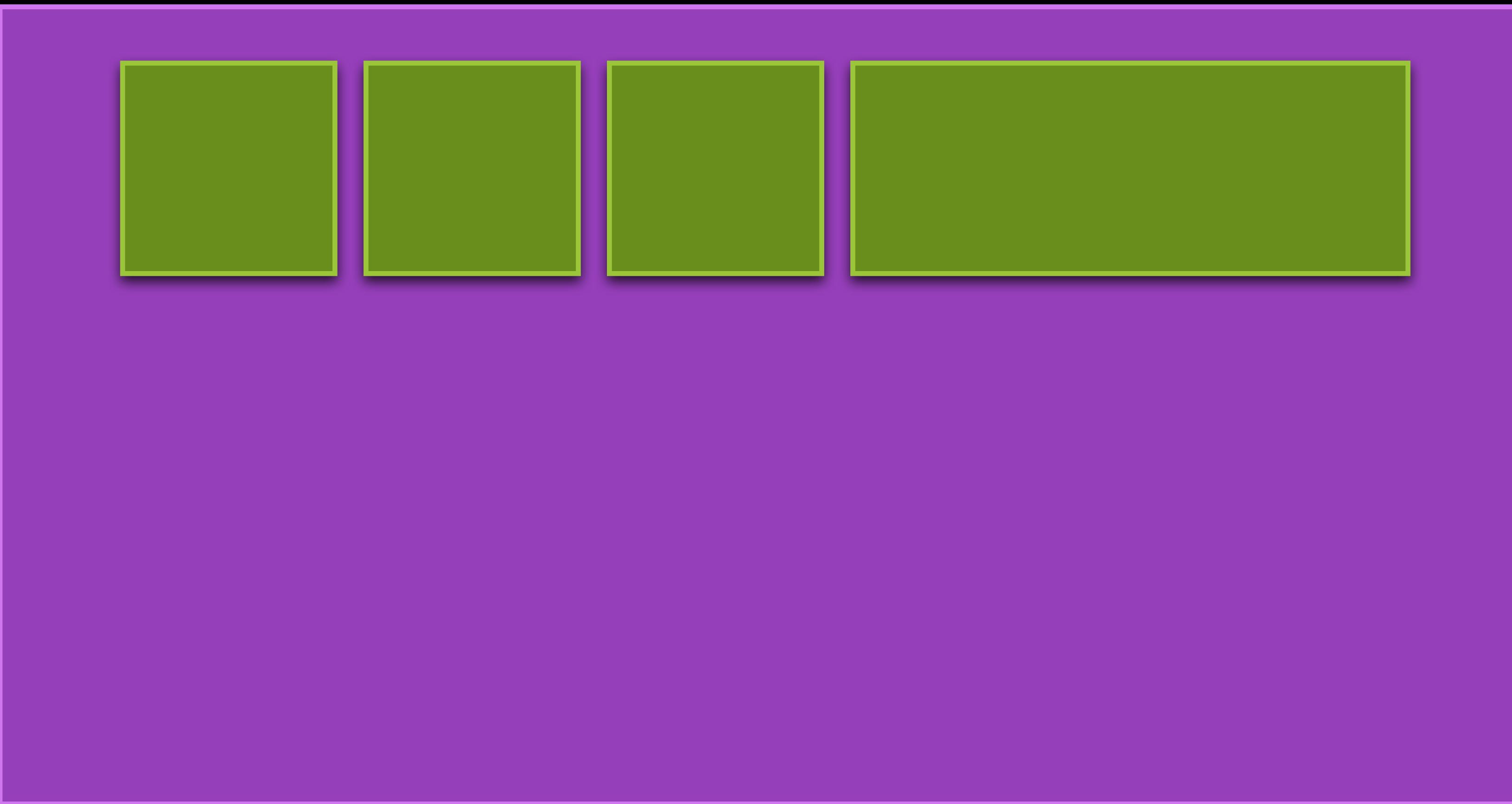
# Flexbox



# Flexbox



# Flexbox



# Flexbox

## Old syntax

```
.flex-container {  
    display: -webkit-box;  
}
```

```
.flex-child {  
    -webkit-box-flex: 1;  
}
```

# Flexbox

## Old syntax

```
.flex-container {  
    display: -webkit-box;  
}
```

```
.flex-child {  
    -webkit-box-flex: 1;  
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```



# Flexbox

The screenshot shows the Mac App Store interface, illustrating the use of Flexbox for layout management. The top navigation bar includes links for Featured, Top Charts, Categories, Purchases, and Updates, along with a search bar. The main content area features a large "Editors' Choice" section for the game "Blast-A-Way", followed by a grid of "New and Noteworthy" apps and a sidebar with "Quick Links" and "Top Paid" sections.

**Editors' Choice**

**Blast-A-Way**  
An incredibly unique physics puzzler that had us delightfully riddled by 80 clever 3D stages.

**New and Noteworthy See All ▾**

App	Category	Ratings	Price
Blast-A-Way	Games	★★★★★ 11 Ratings	\$4.99
MacFamilyTree 7	Productivity	★★★★★ 14 Ratings	\$29.99
Gears	Games	★★★★★ 5 Ratings	\$4.99
Human Japanese In...	Education	★★★★★ 7 Ratings	\$9.99
Clear Day - (Form...	Weather	★★★★★ 266 Ratings	\$3.99
Tweetbot for Twitter	Social Networking	★★★★★ 15 Ratings	\$19.99
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DocWallet	Productivity	★★★★★ 6 Ratings	FREE
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Fire & Forget The F...	Games	★★★★★ 6 Ratings	\$9.99
Desert Stormfront	Games	★★★★★ 6 Ratings	\$9.99
Supreme Ruler Col...	Games	★★★★★ 6 Ratings	\$19.99
Secret of the Magic...	Games	★★★★★ 6 Ratings	\$2.99

**Quick Links**

- Welcome Beth
- Account
- Redeem
- Support

**All Categories**

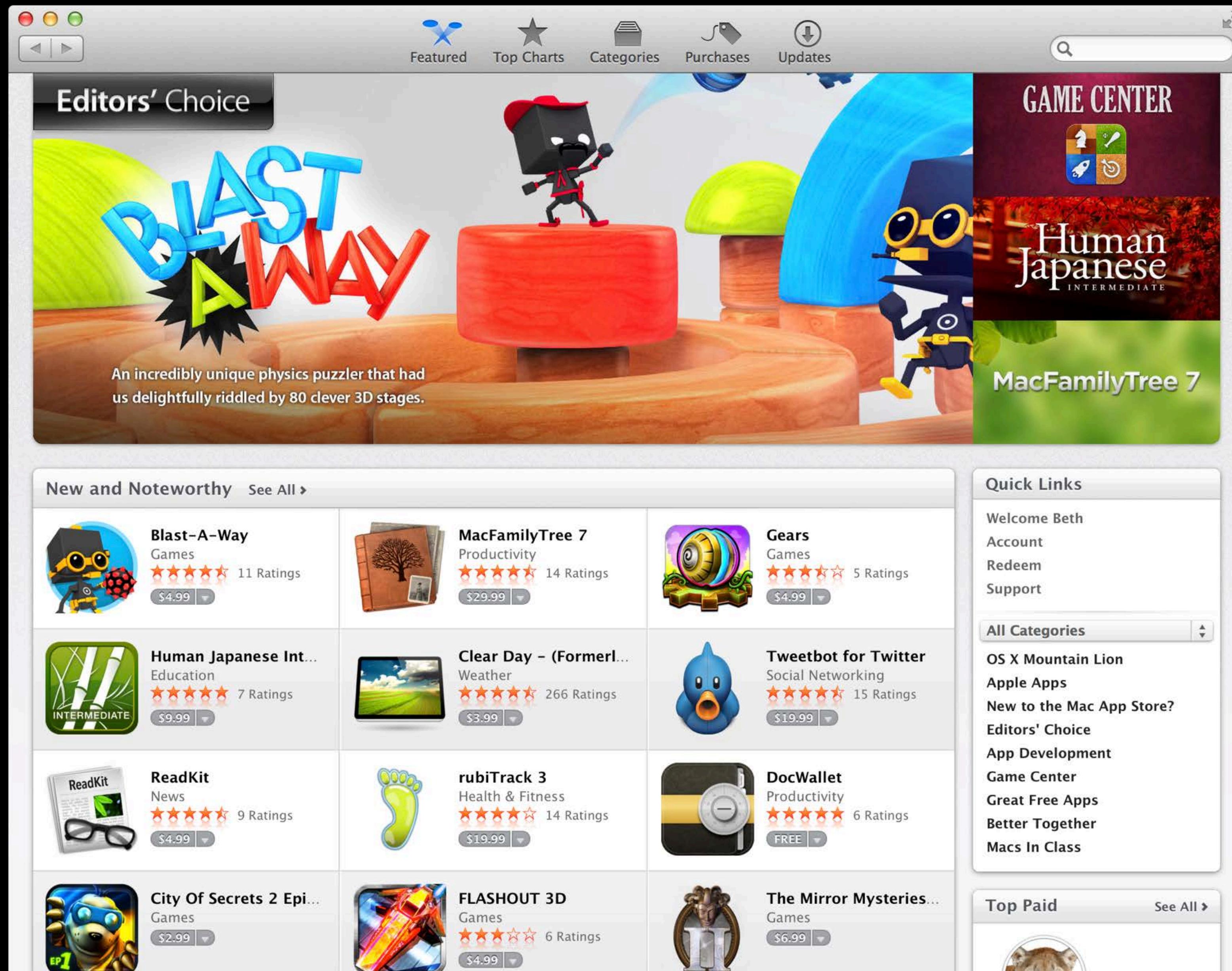
- OS X Mountain Lion
- Apple Apps
- New to the Mac App Store?
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- Game Center
- Great Free Apps
- Better Together
- Macs In Class

**Top Paid** See All ▾

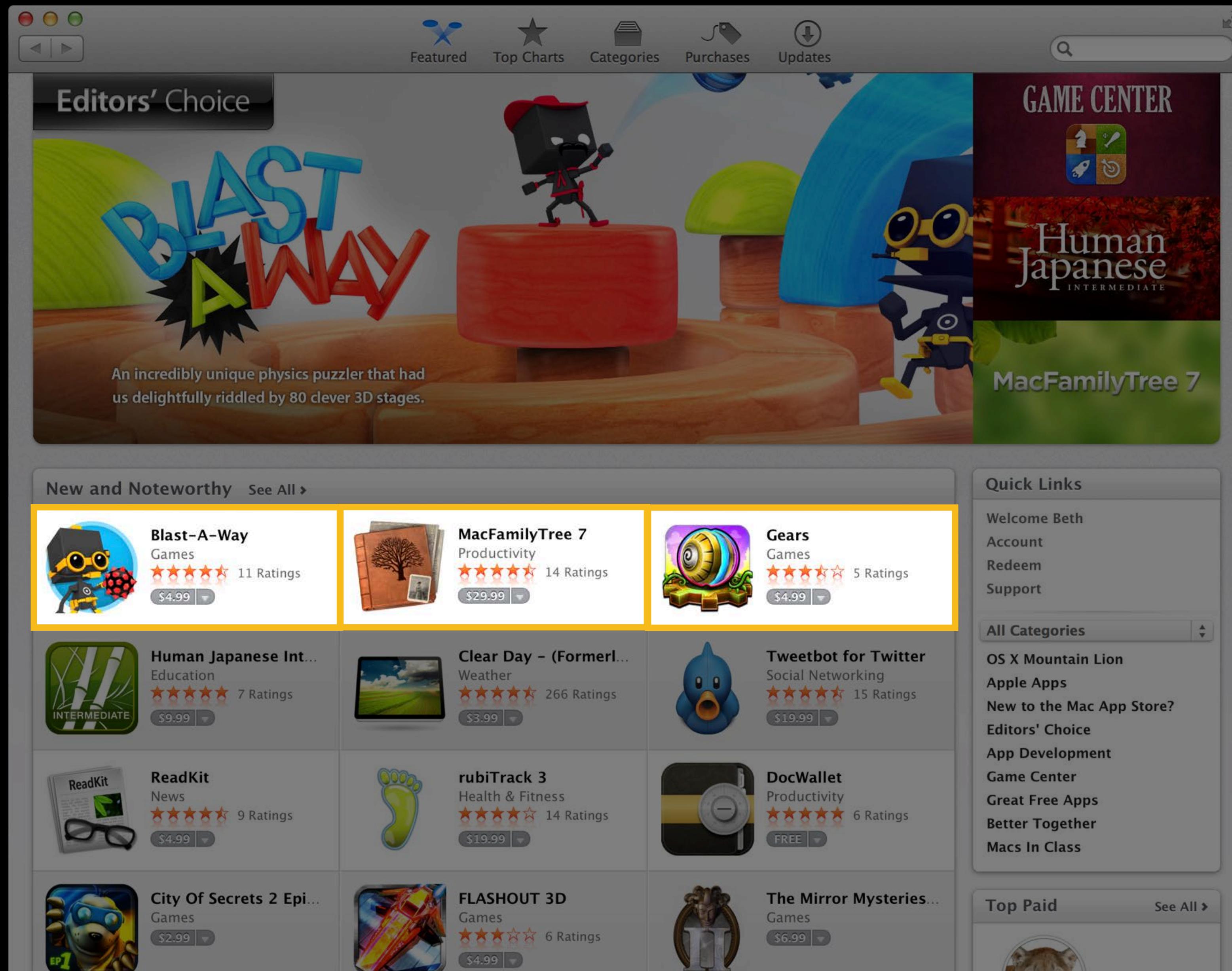
Rank	App	Category
1.	OS X Mountain Lion	Productivity
2.	Pages	Productivity

**GAMES** New to the Mac App Store? New to the Mac App Store? Great Free Apps @WORK APPS FOR BUSINESS Quick-Fix Games

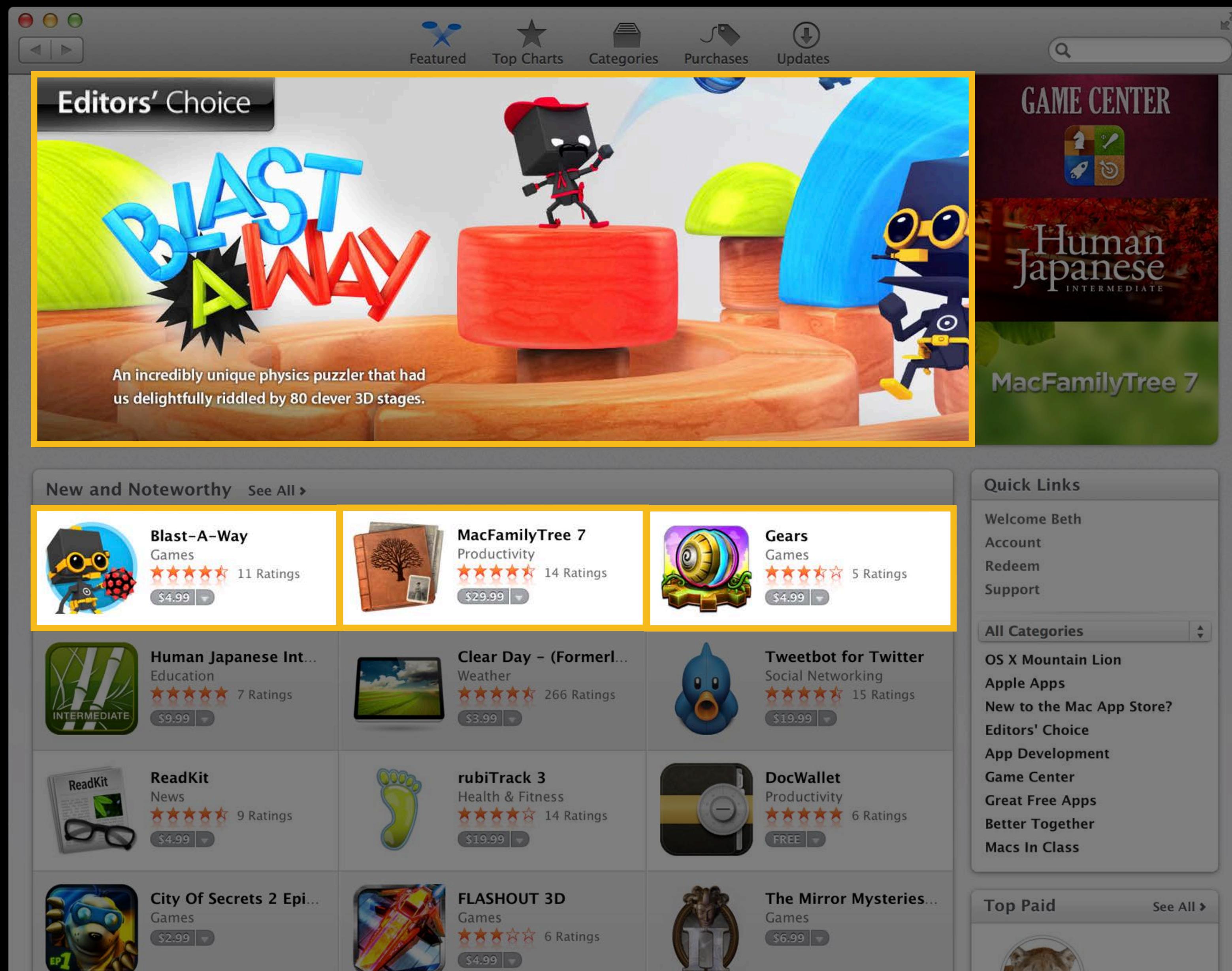
# Flexbox



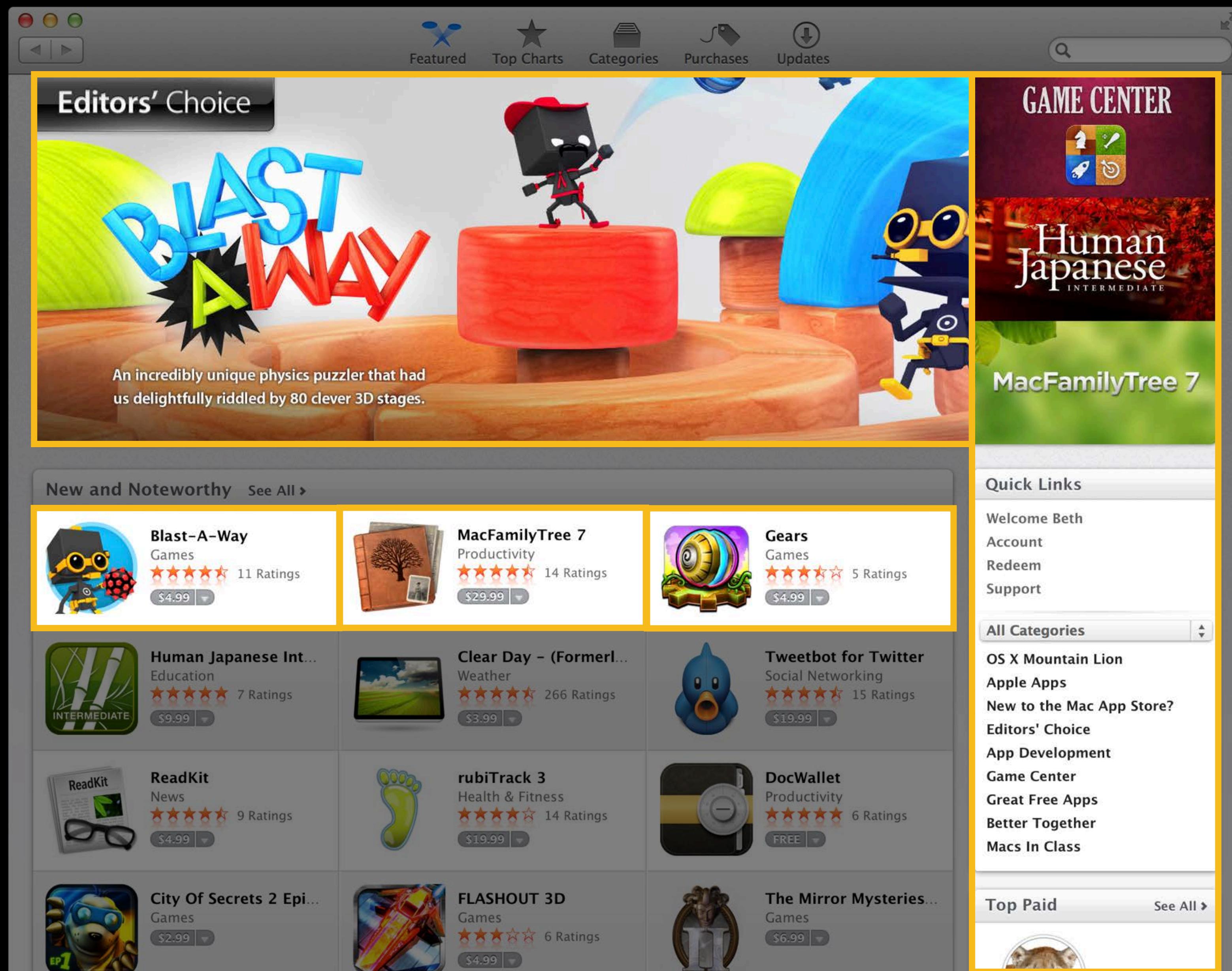
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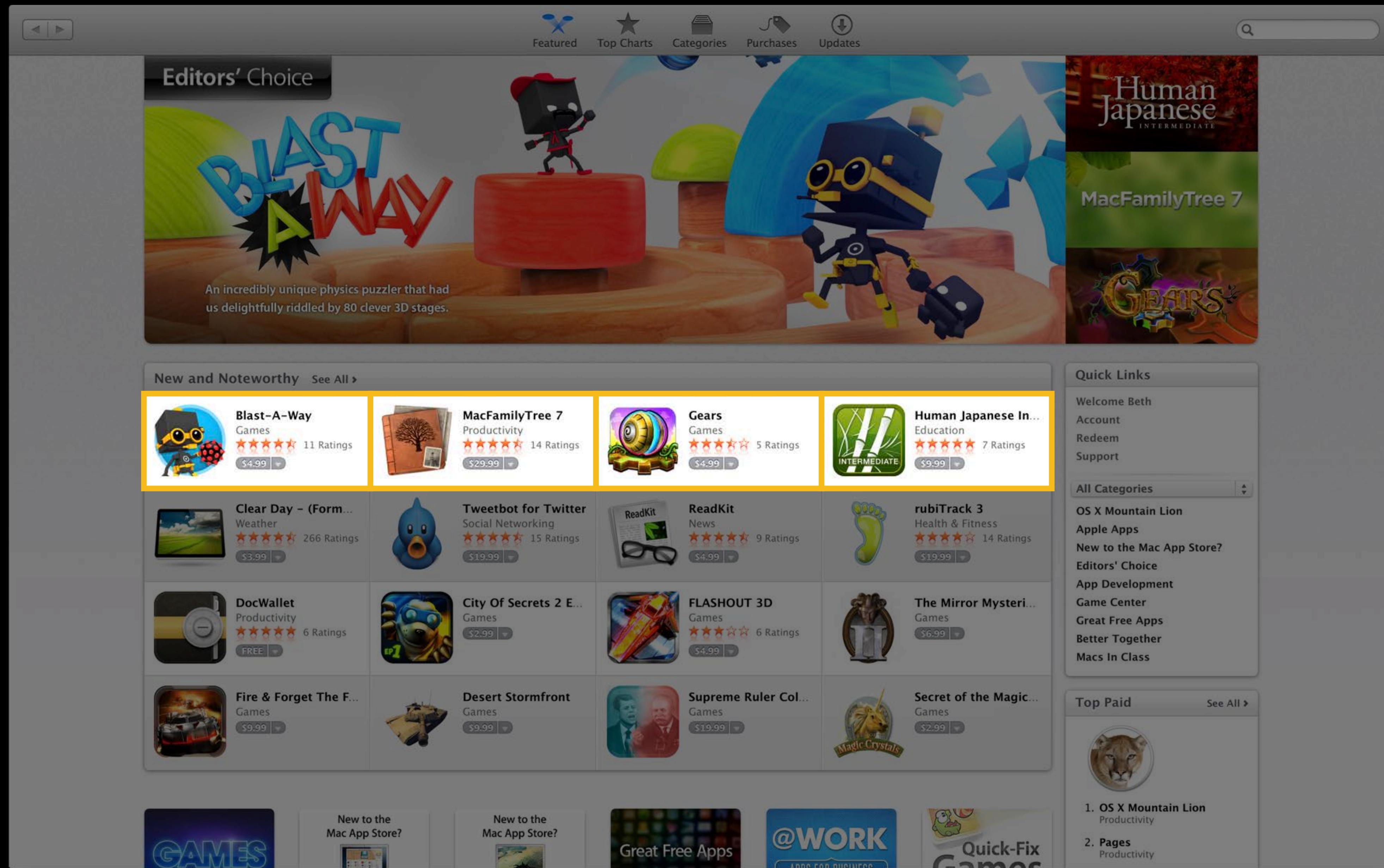
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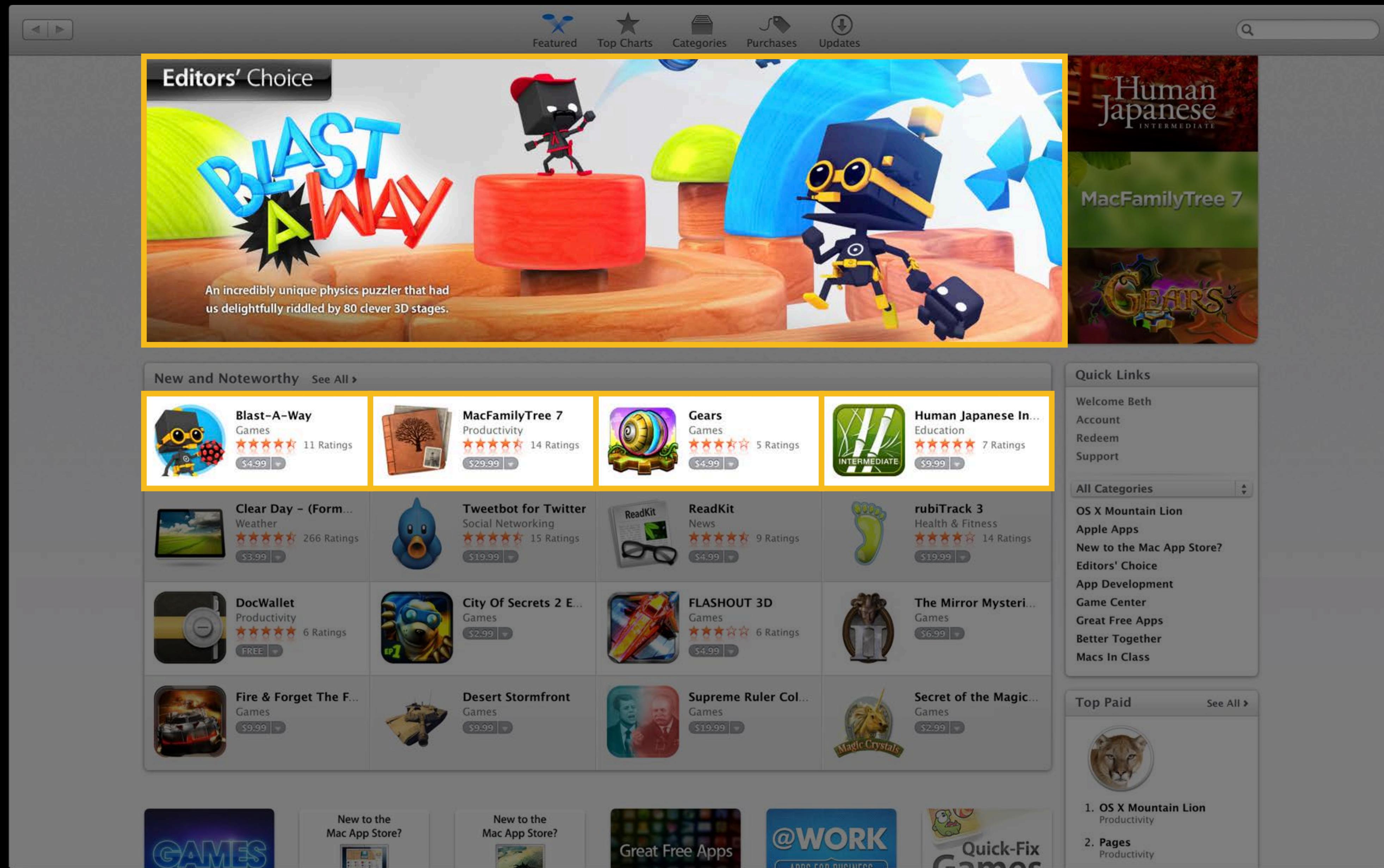
1. OS X Mountain Lion Productivity
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**GAMES** New to the Mac App Store? New to the Mac App Store? Great Free Apps @WORK APPS FOR BUSINESS Quick-Fix Games

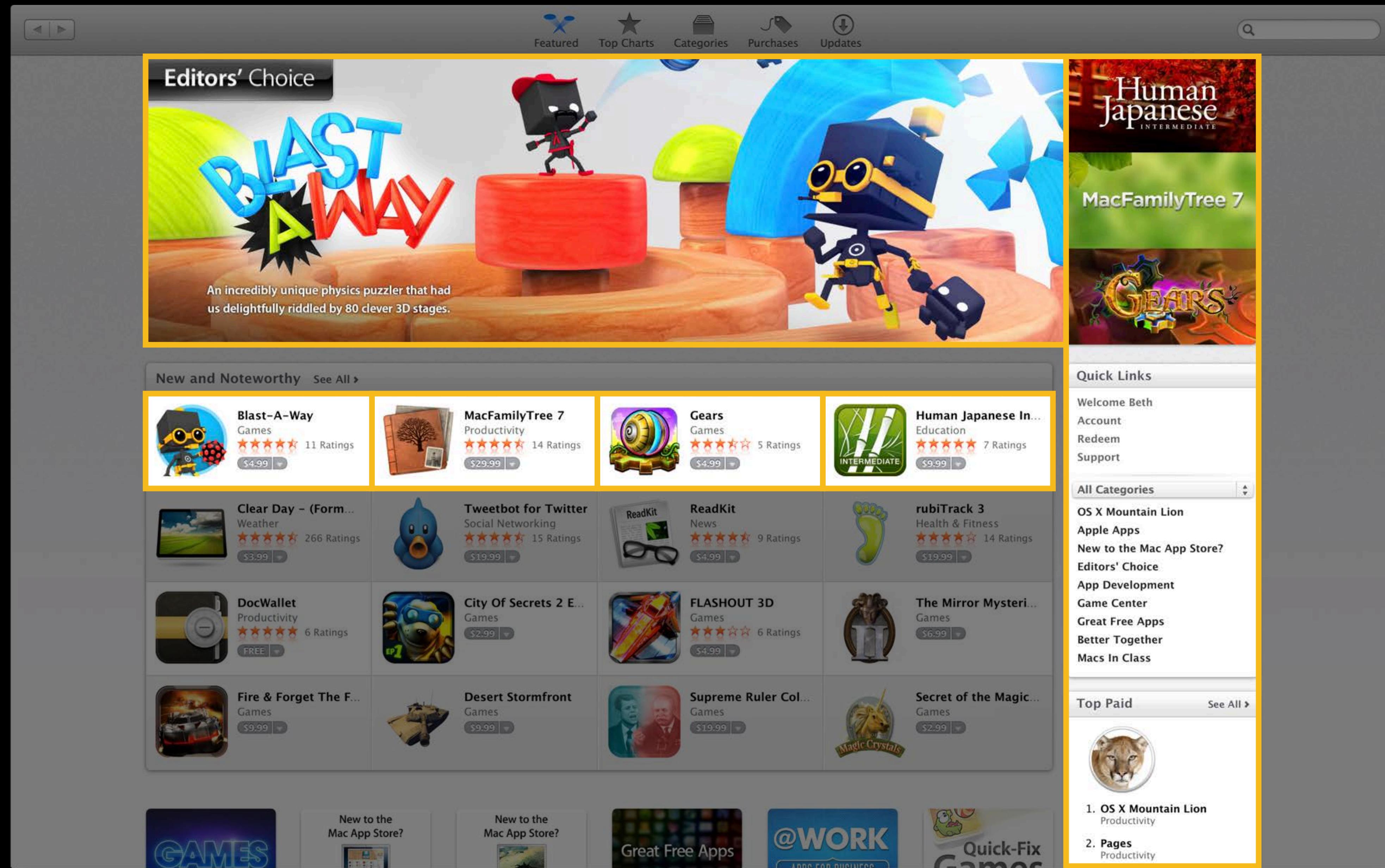
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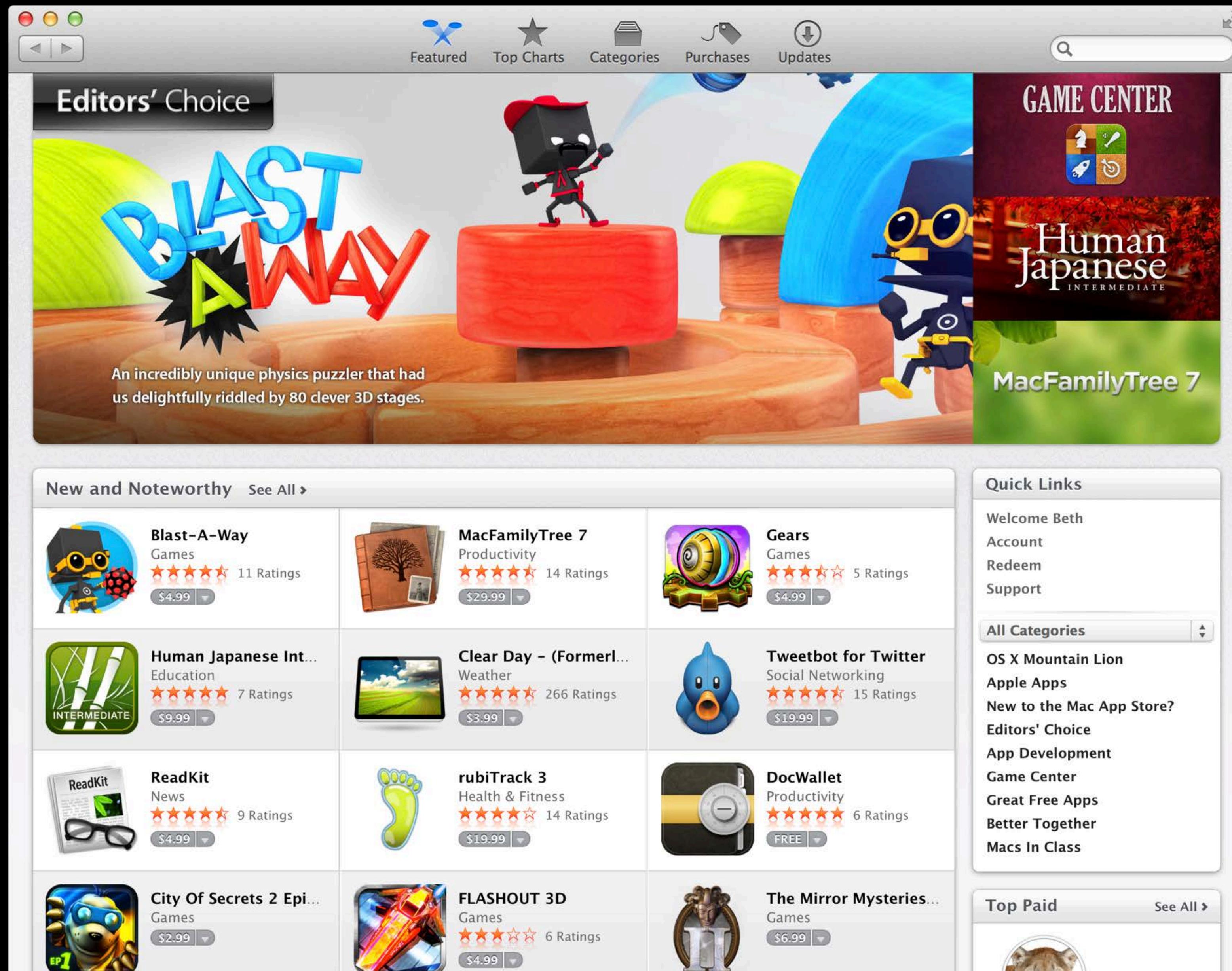
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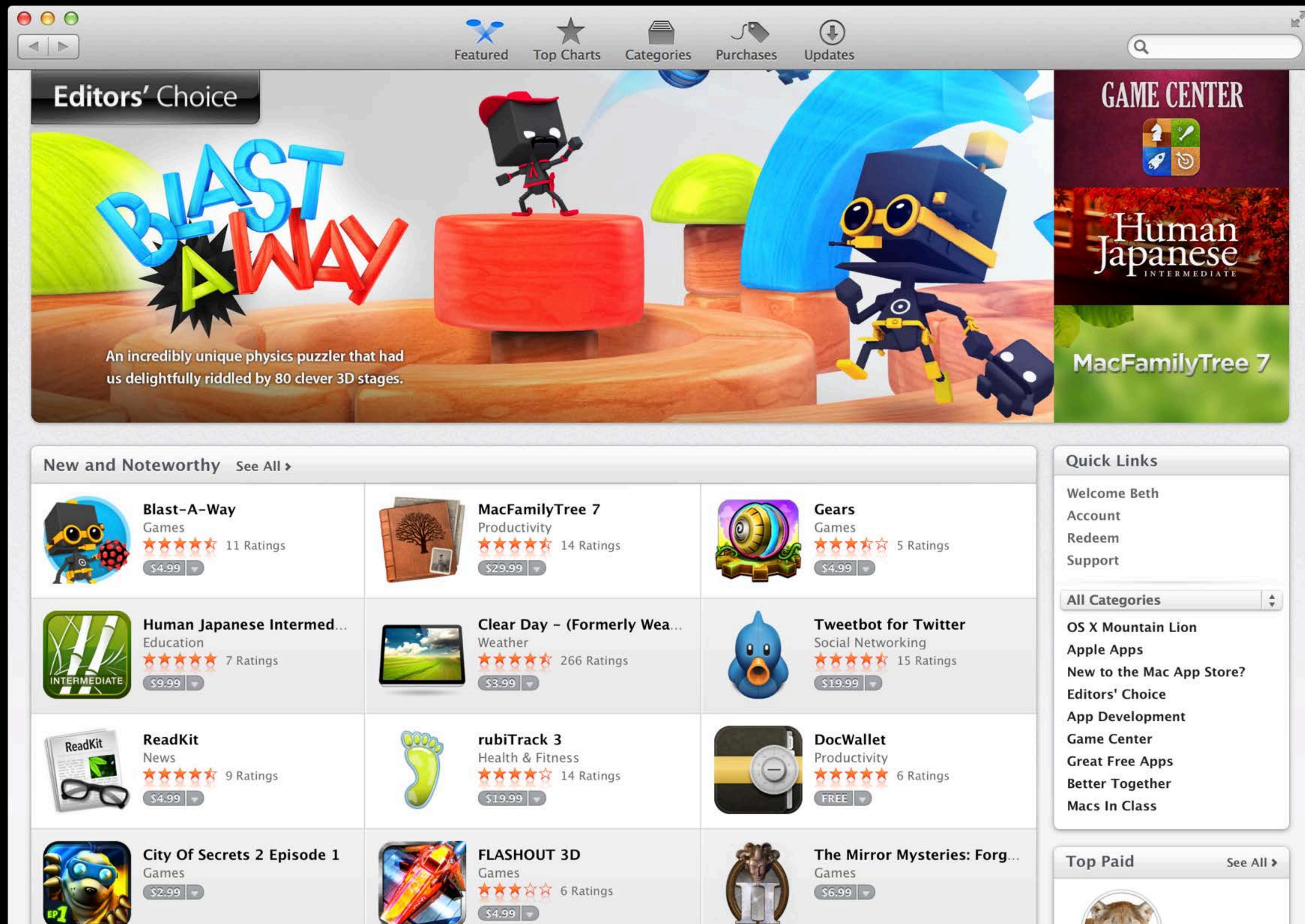
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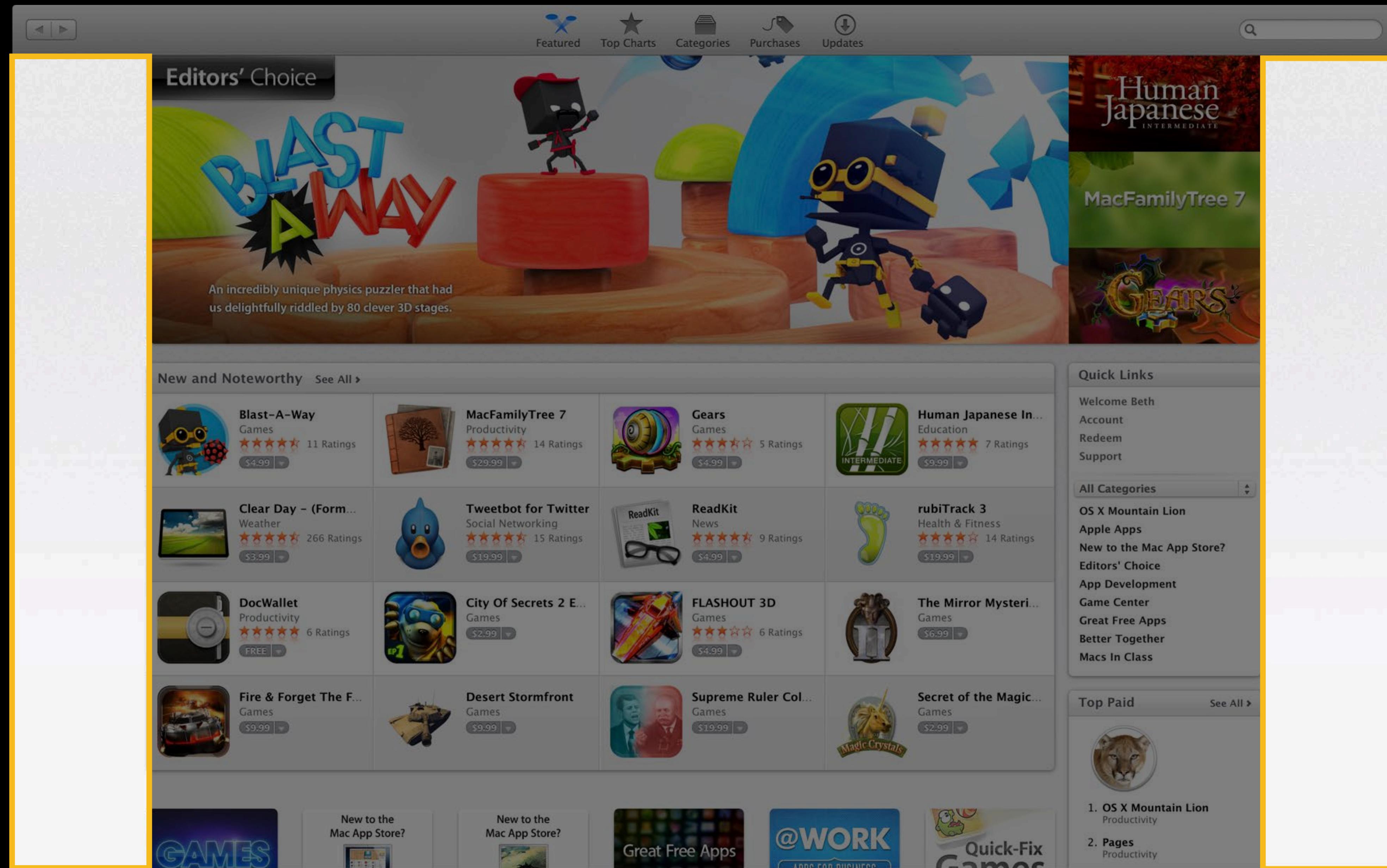
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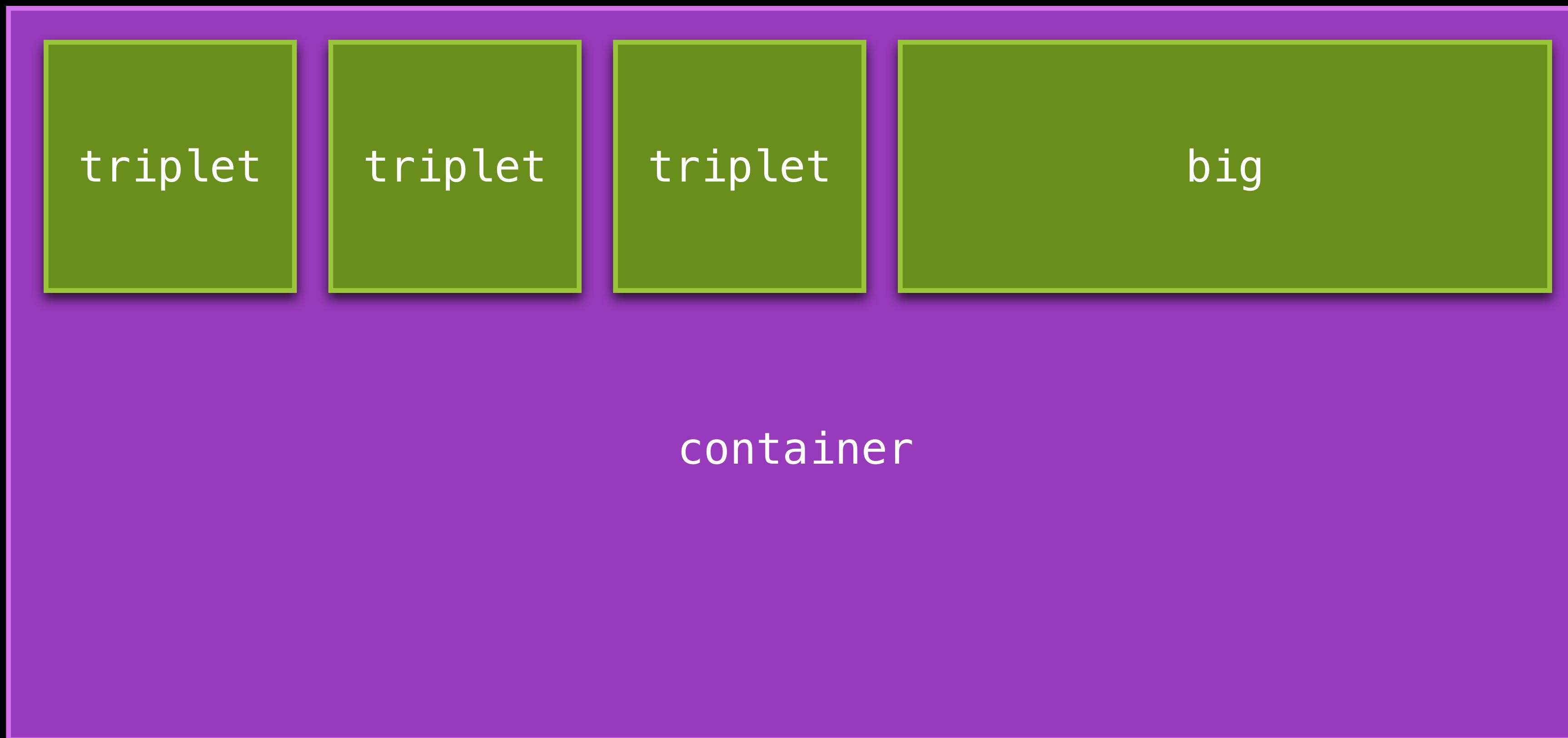
**Top Paid See All ▾**

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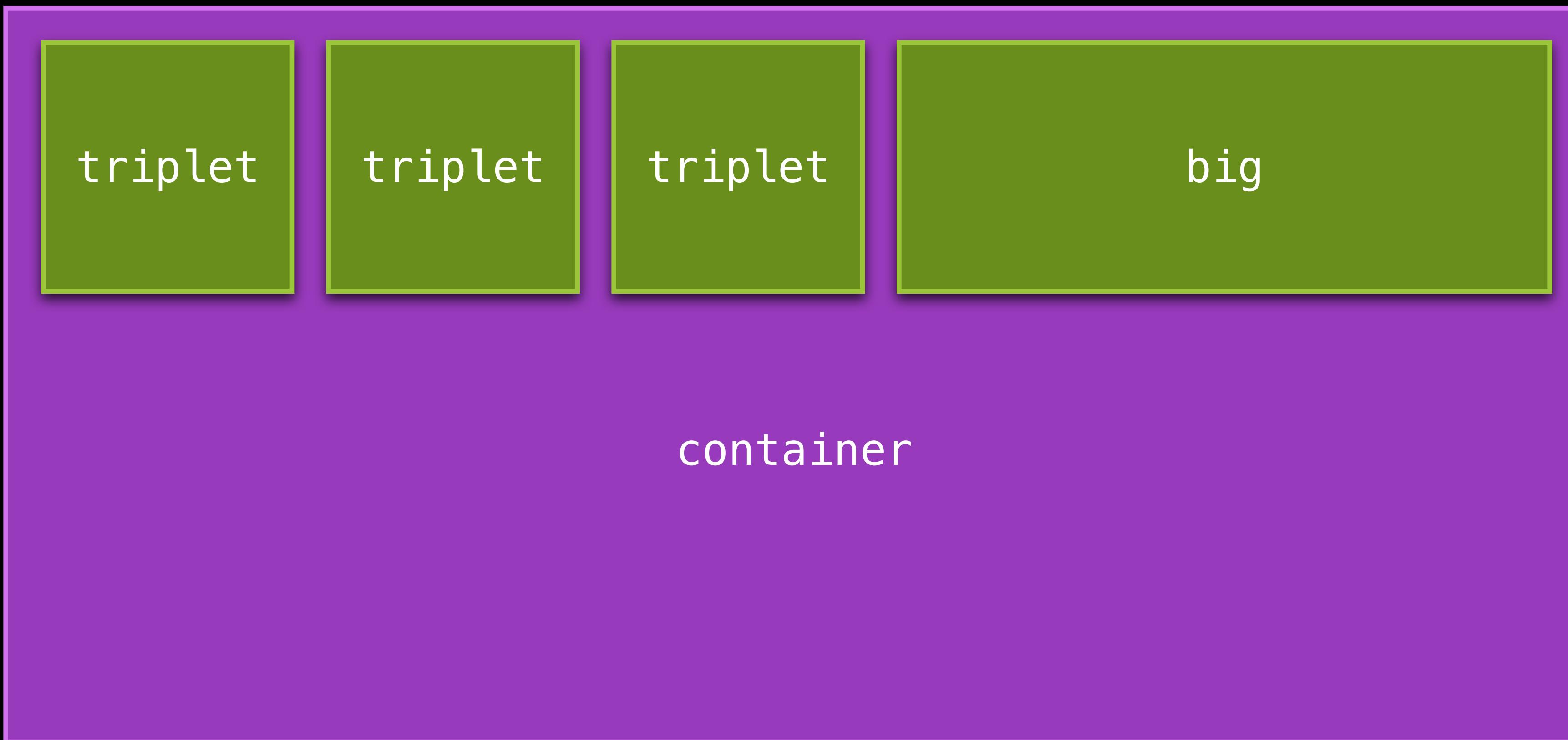
# Flexbox

```
#container {  
    display: -webkit-flex;  
    -webkit-flex-direction: row;  
}
```



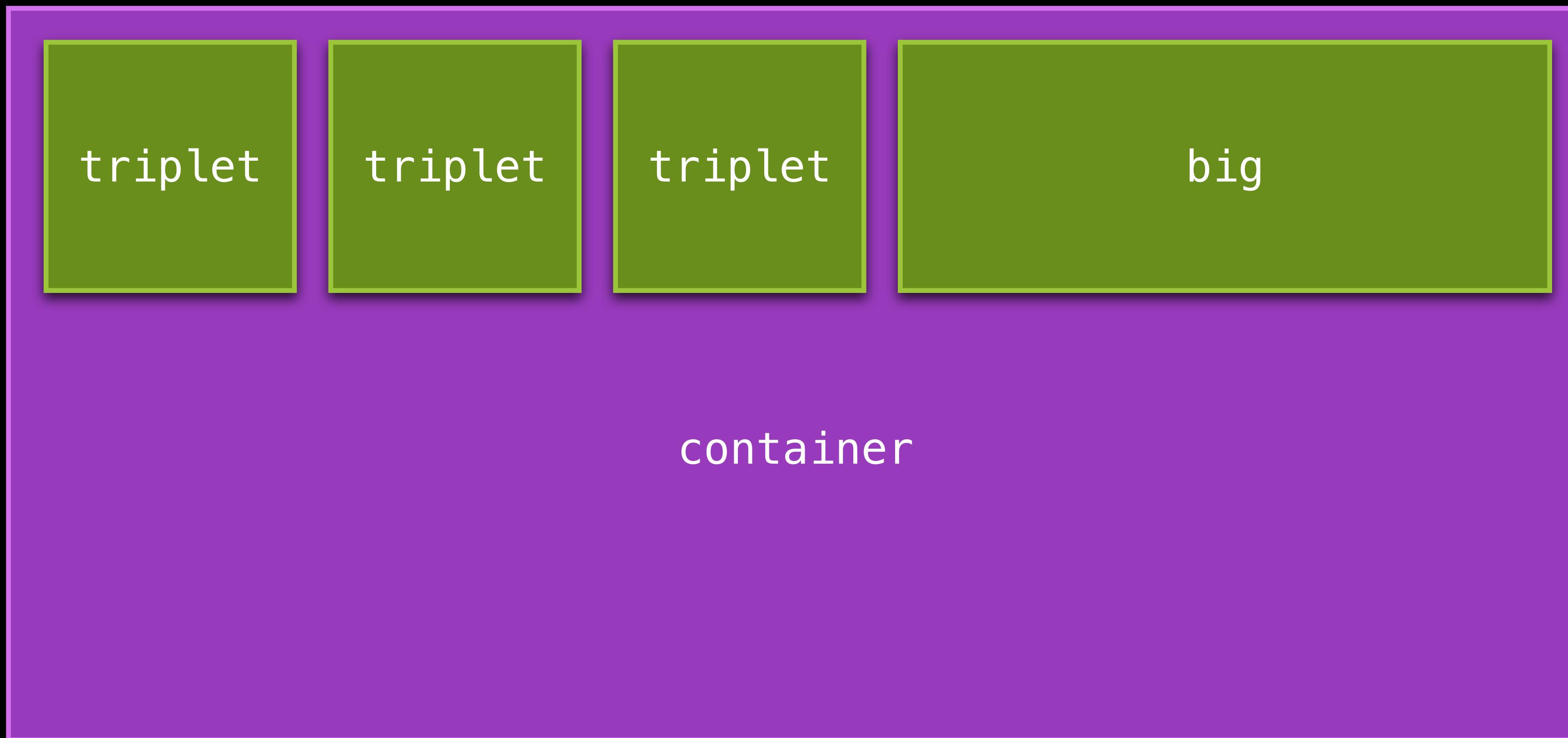
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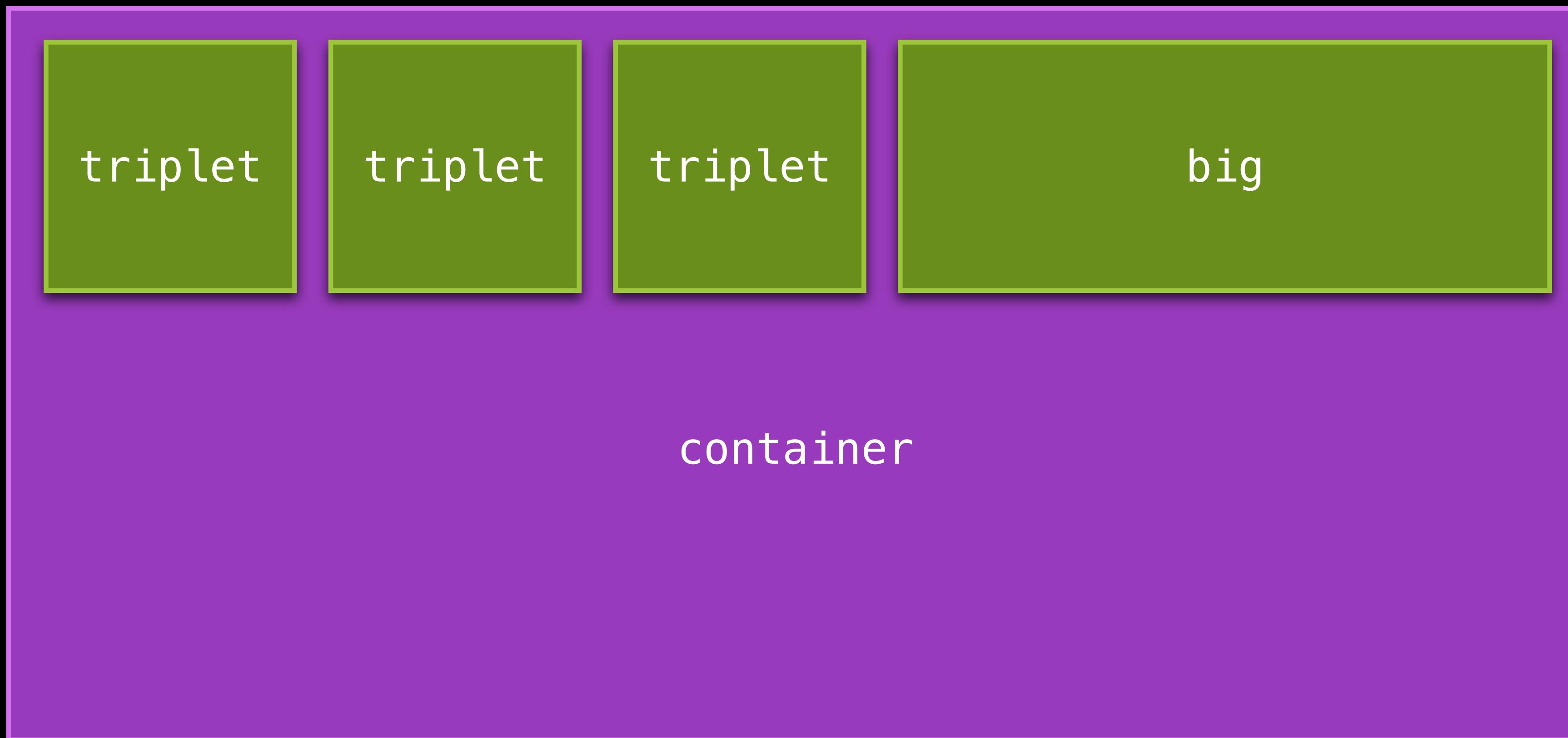
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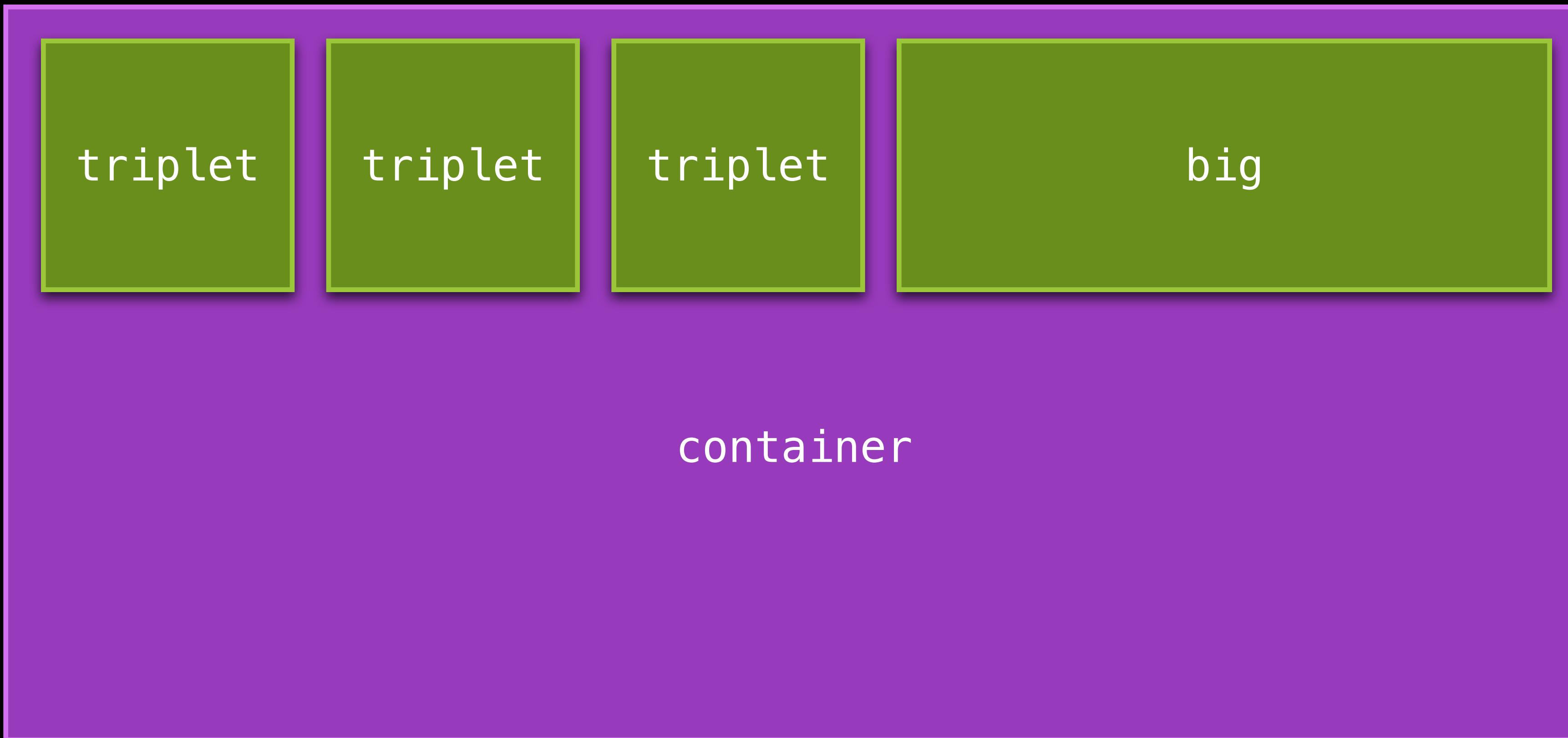
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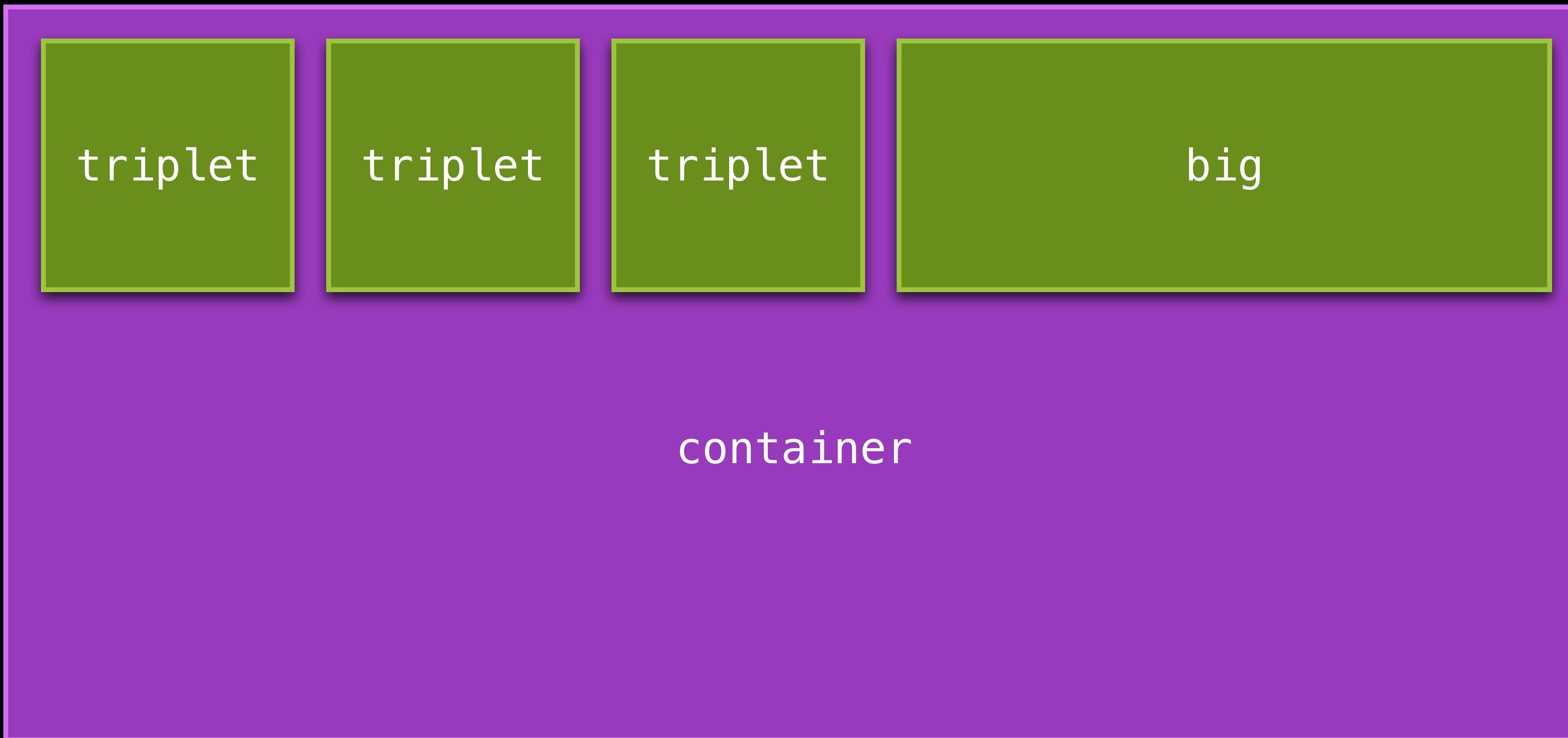
# Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1; }  
.big { -webkit-flex-basis: 225px;  
        -webkit-flex-grow: 1;  
        -webkit-flex-shrink: 0; }
```



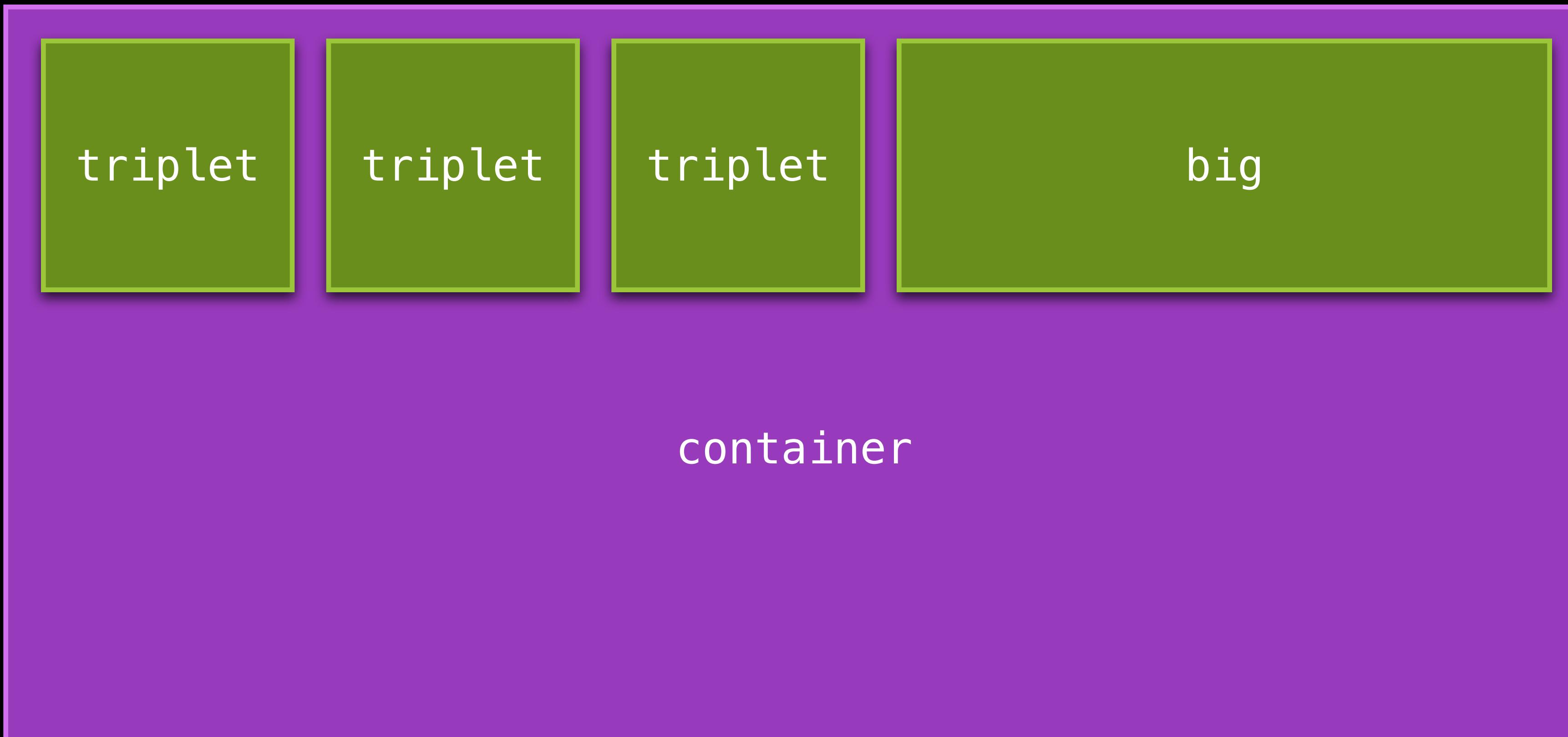
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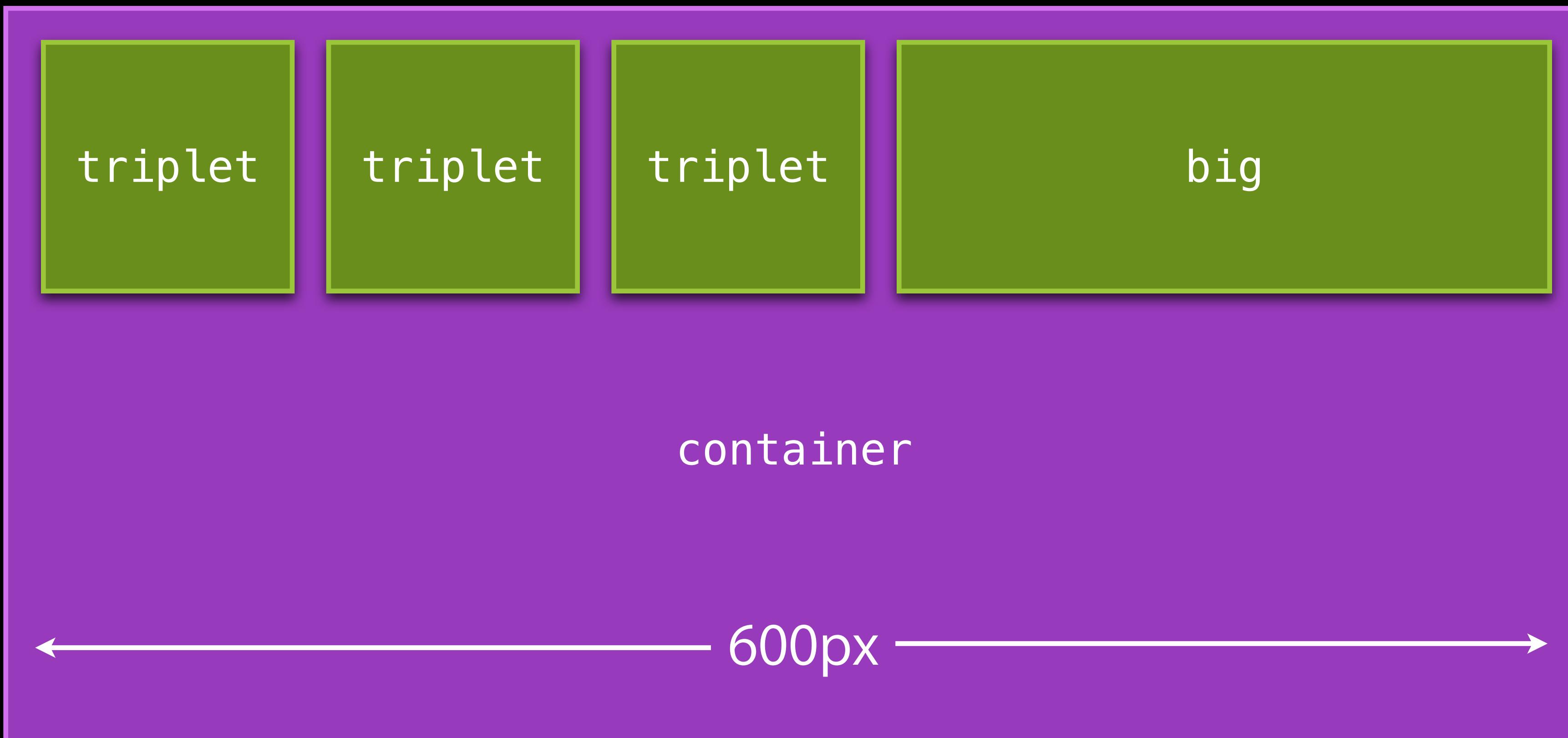
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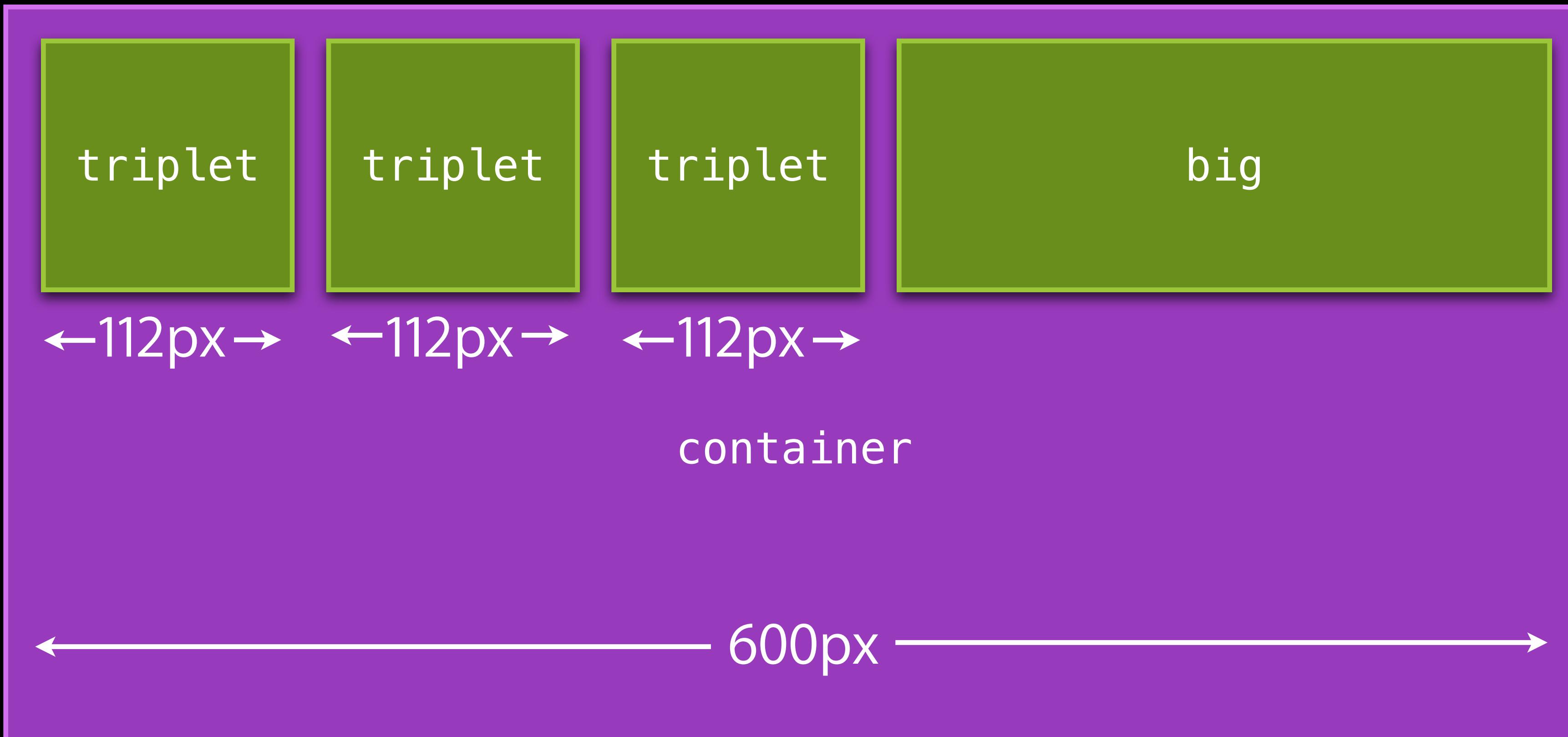
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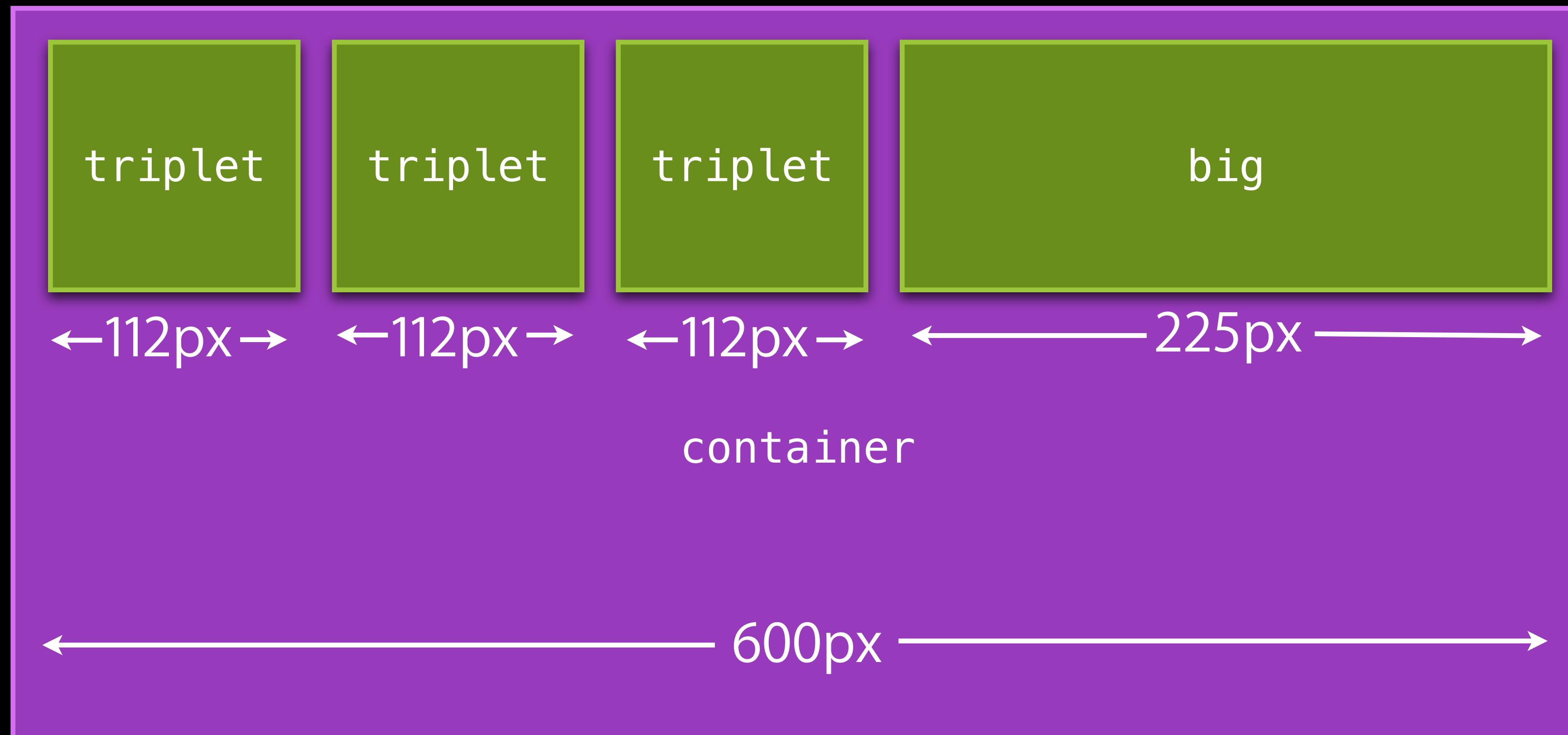
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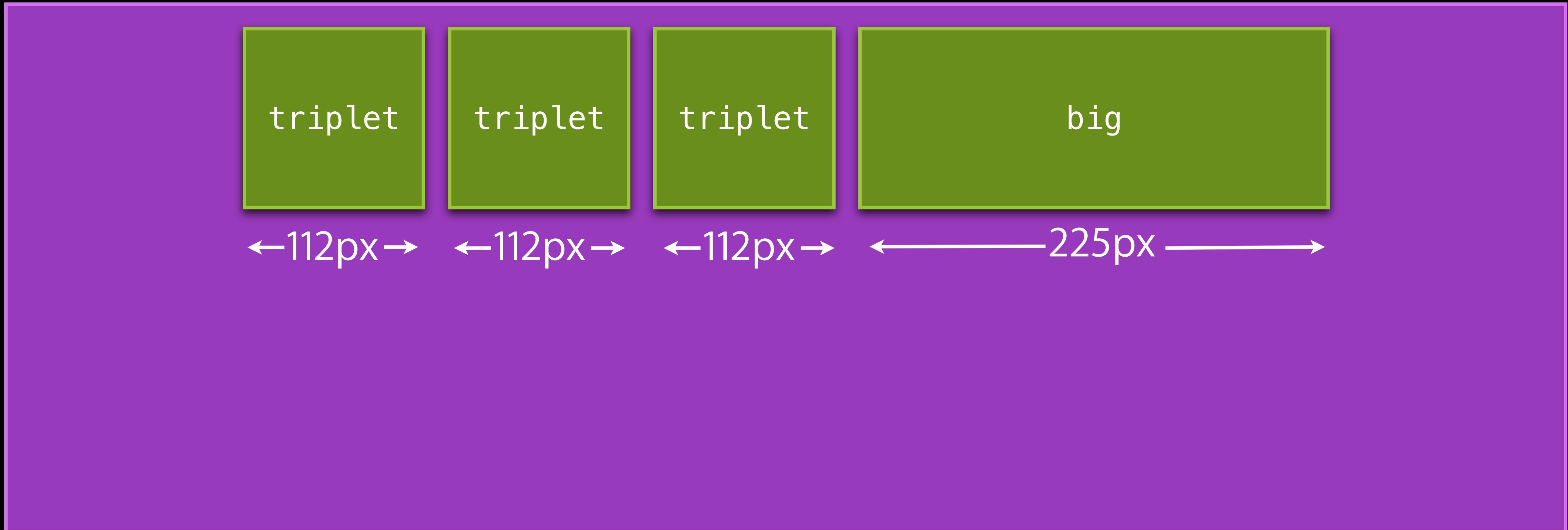
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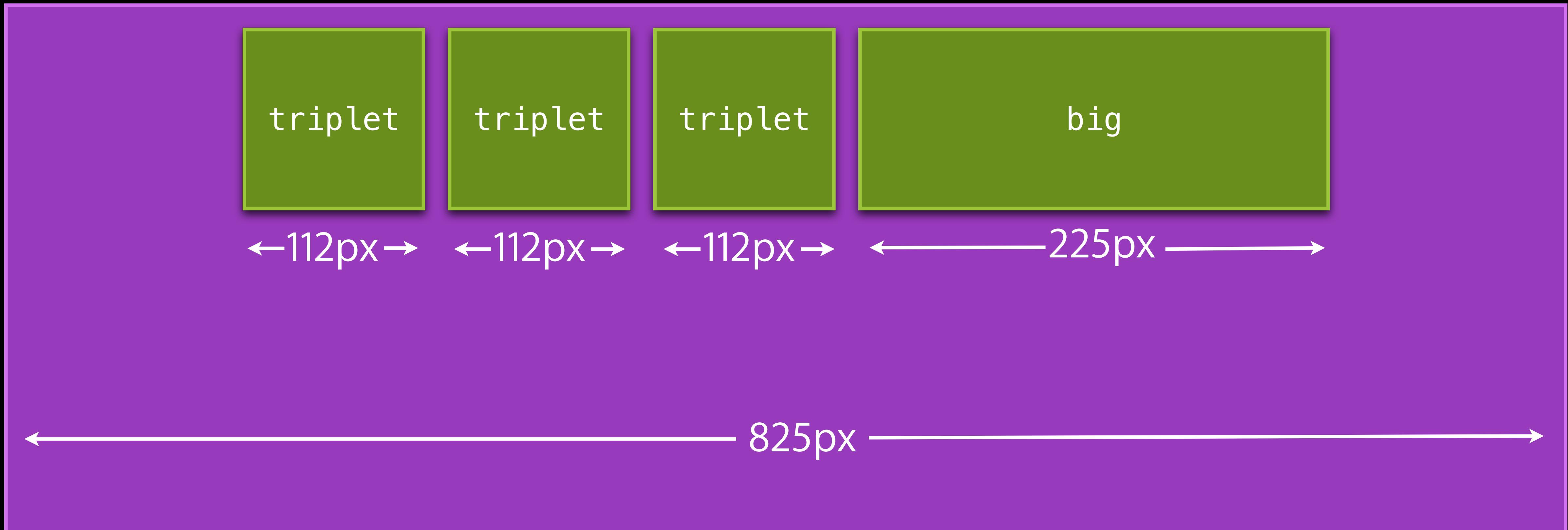
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          -webkit-flex-shrink: 0; }
```



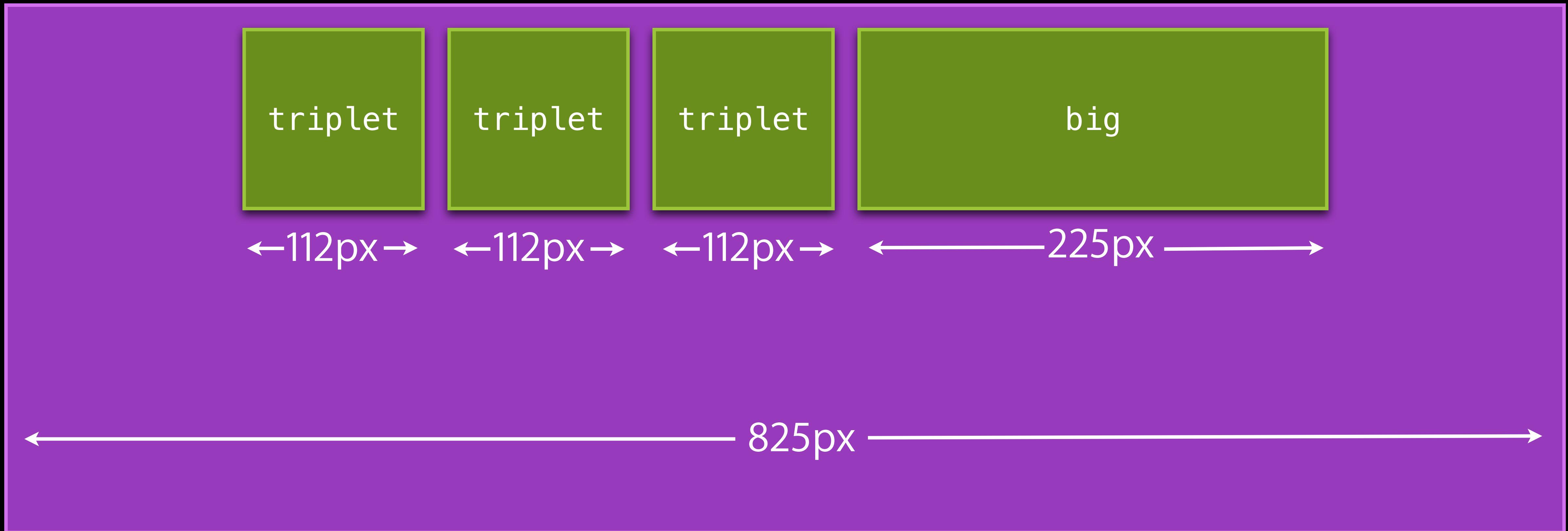
# Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1; }  
.big { -webkit-flex-basis: 225px;  
        -webkit-flex-grow: 1;  
        -webkit-flex-shrink: 0; }
```



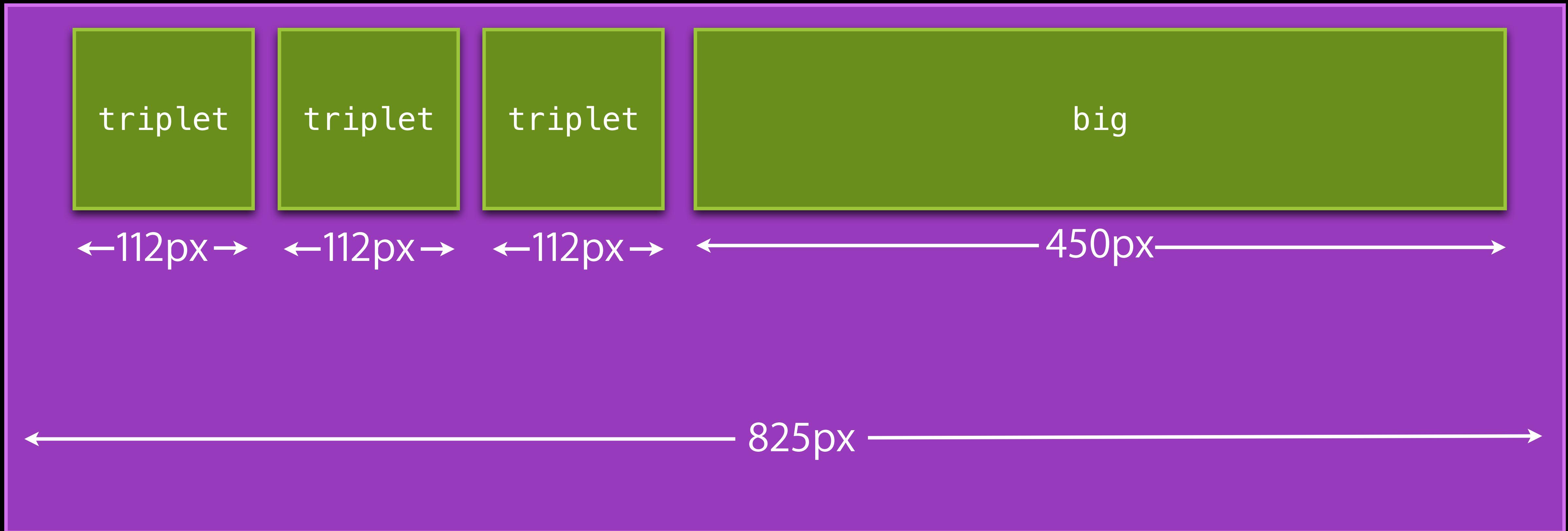
# Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1; }  
.big { -webkit-flex-basis: 225px;  
        -webkit-flex-grow: 1;  
        -webkit-flex-shrink: 0; }
```



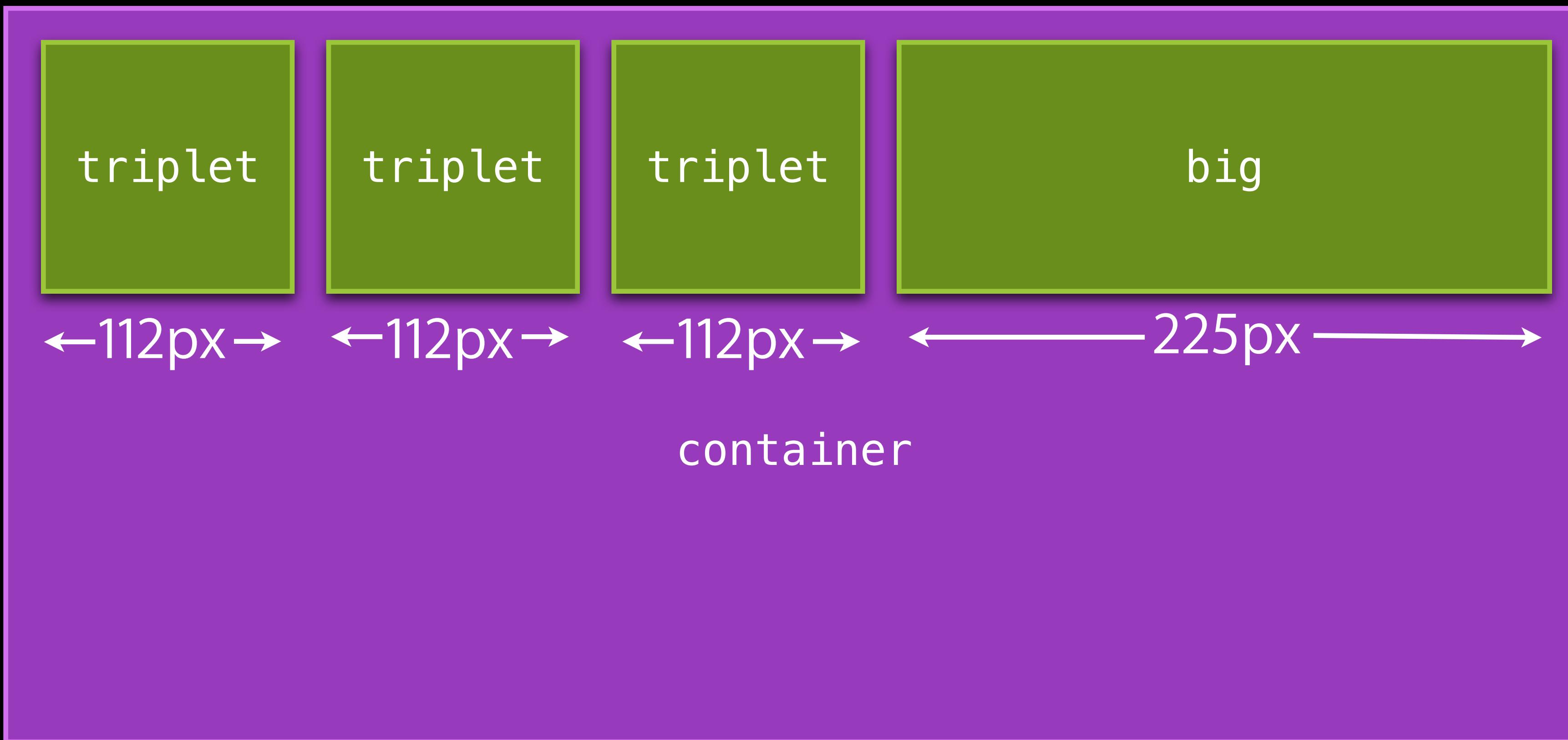
# Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1; }  
.big { -webkit-flex-basis: 225px;  
        -webkit-flex-grow: 1;  
        -webkit-flex-shrink: 0; }
```



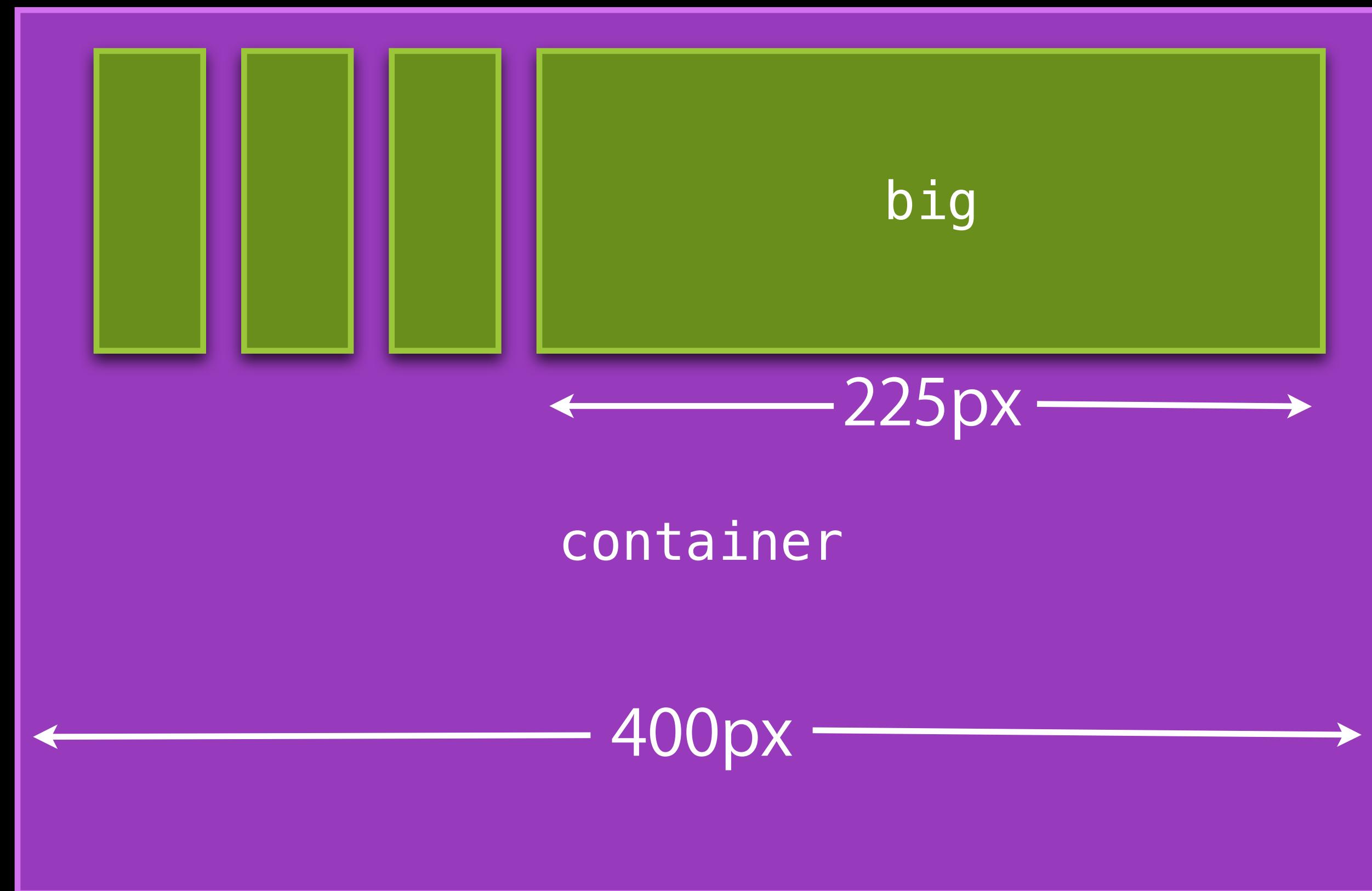
# Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1; }  
.big { -webkit-flex-basis: 225px;  
        -webkit-flex-grow: 1;  
        -webkit-flex-shrink: 0; }
```



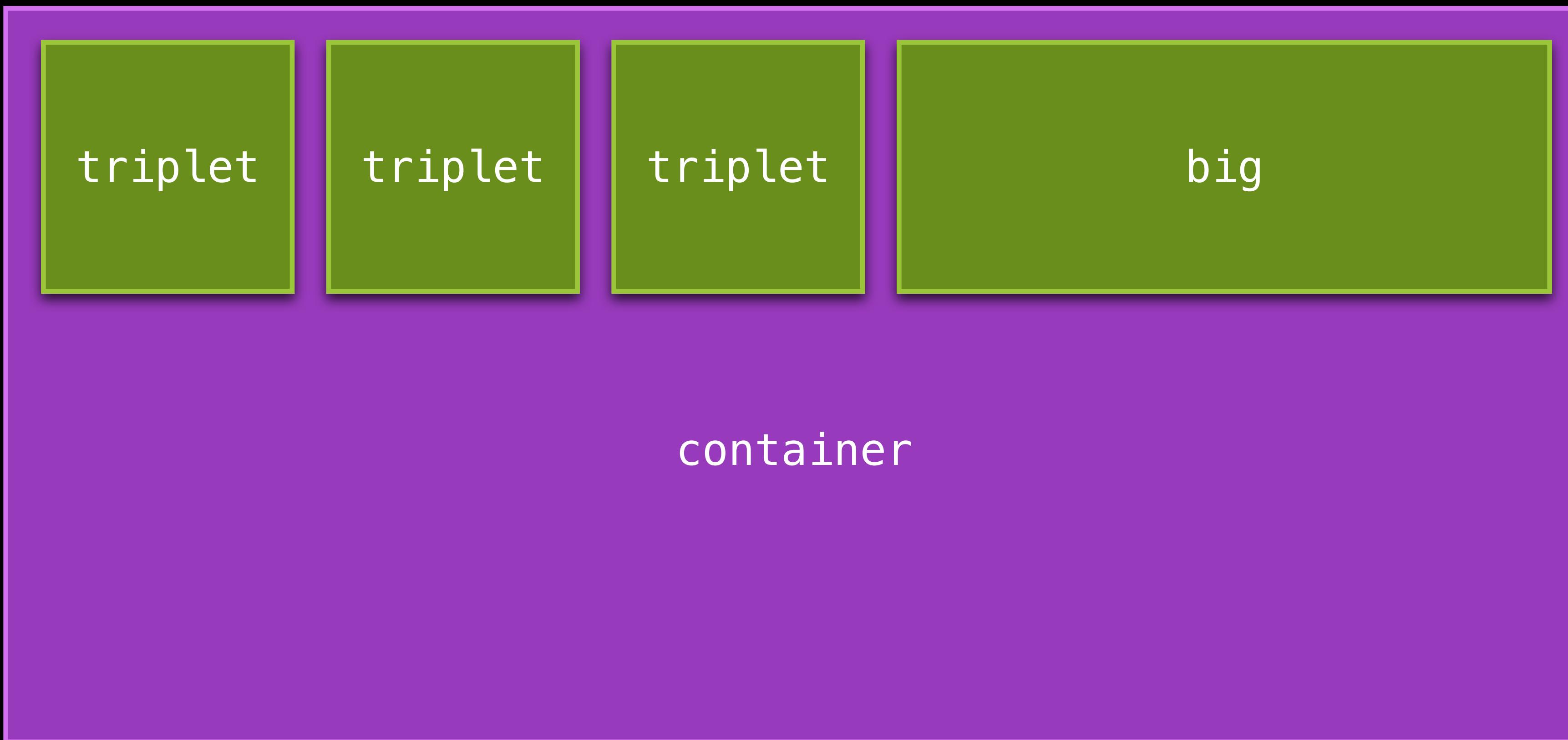
# Flexbox

```
.triplet { -webkit-flex-basis: 112px;  
          -webkit-flex-grow: 0;  
          -webkit-flex-shrink: 1; }  
.big { -webkit-flex-basis: 225px;  
          -webkit-flex-grow: 1;  
          -webkit-flex-shrink: 0; }
```



# Flexbox

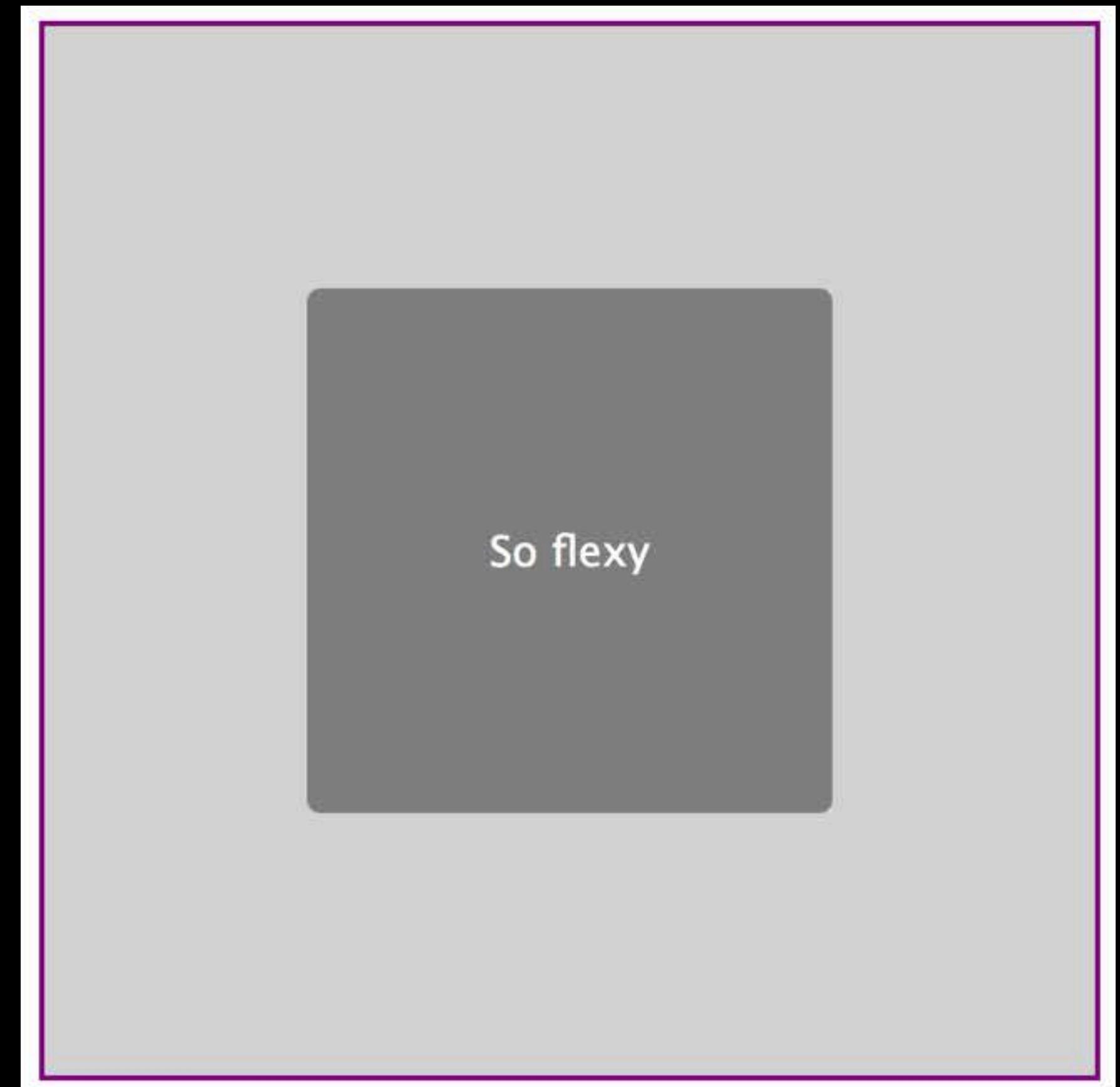
```
.triplet {  
    -webkit-flex: 0 1 112px;  
}  
.big {  
    -webkit-flex: 1 0 225px;  
}
```



# Flexbox

## Centering!

```
#container {  
    display: -webkit-flex;  
}  
  
.flex-child {  
    -webkit-flex: 1 1 200;  
    margin: auto;  
}
```



# New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes



# New Layout Models

- Columns and pagination
- CSS Regions
- Flexible boxes



# Media Features

# Media Features



# Media Features

- iOS AirPlay API



# Media Features

- iOS AirPlay API
- Styling captions for <video>

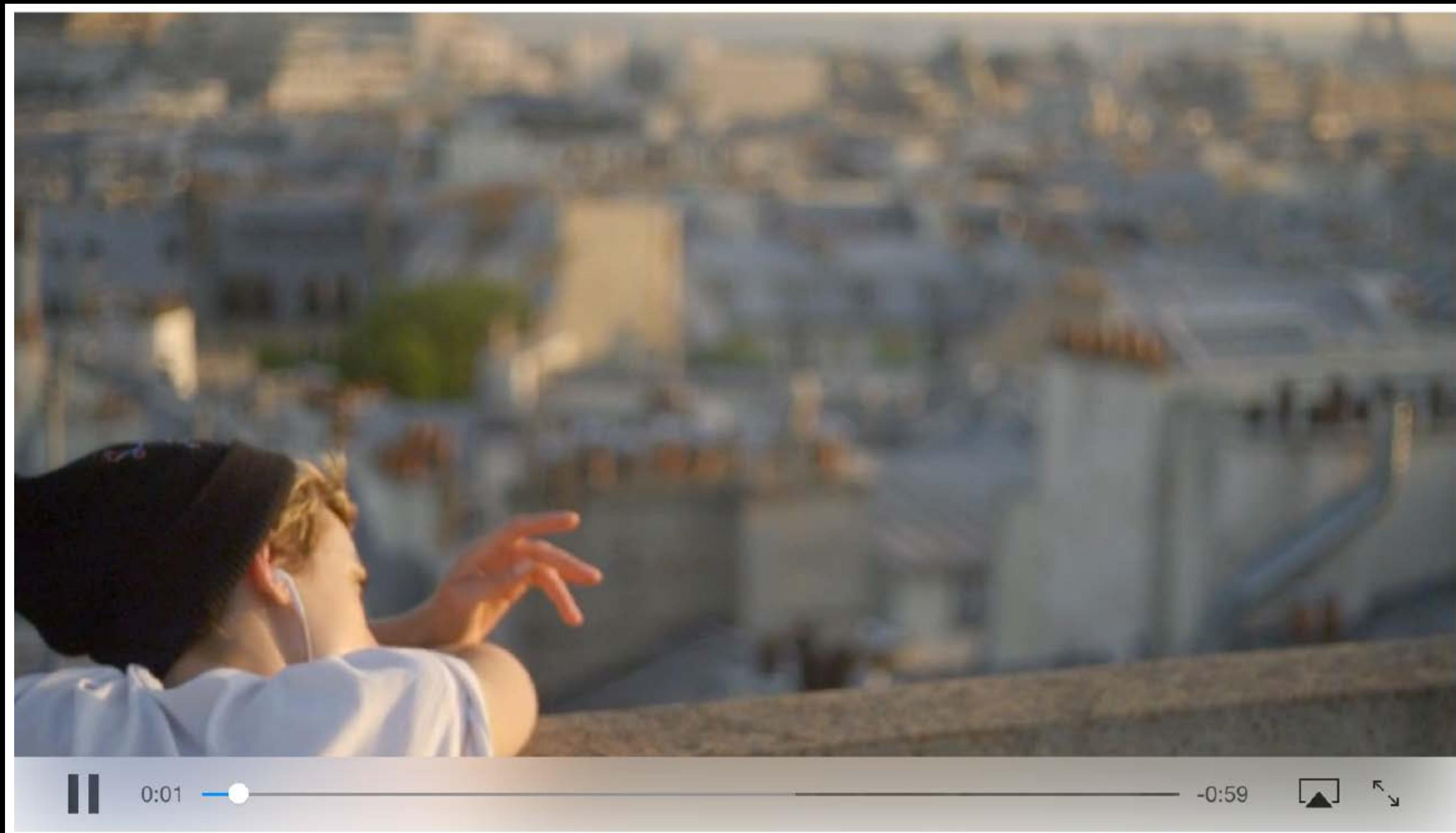


# Media Features

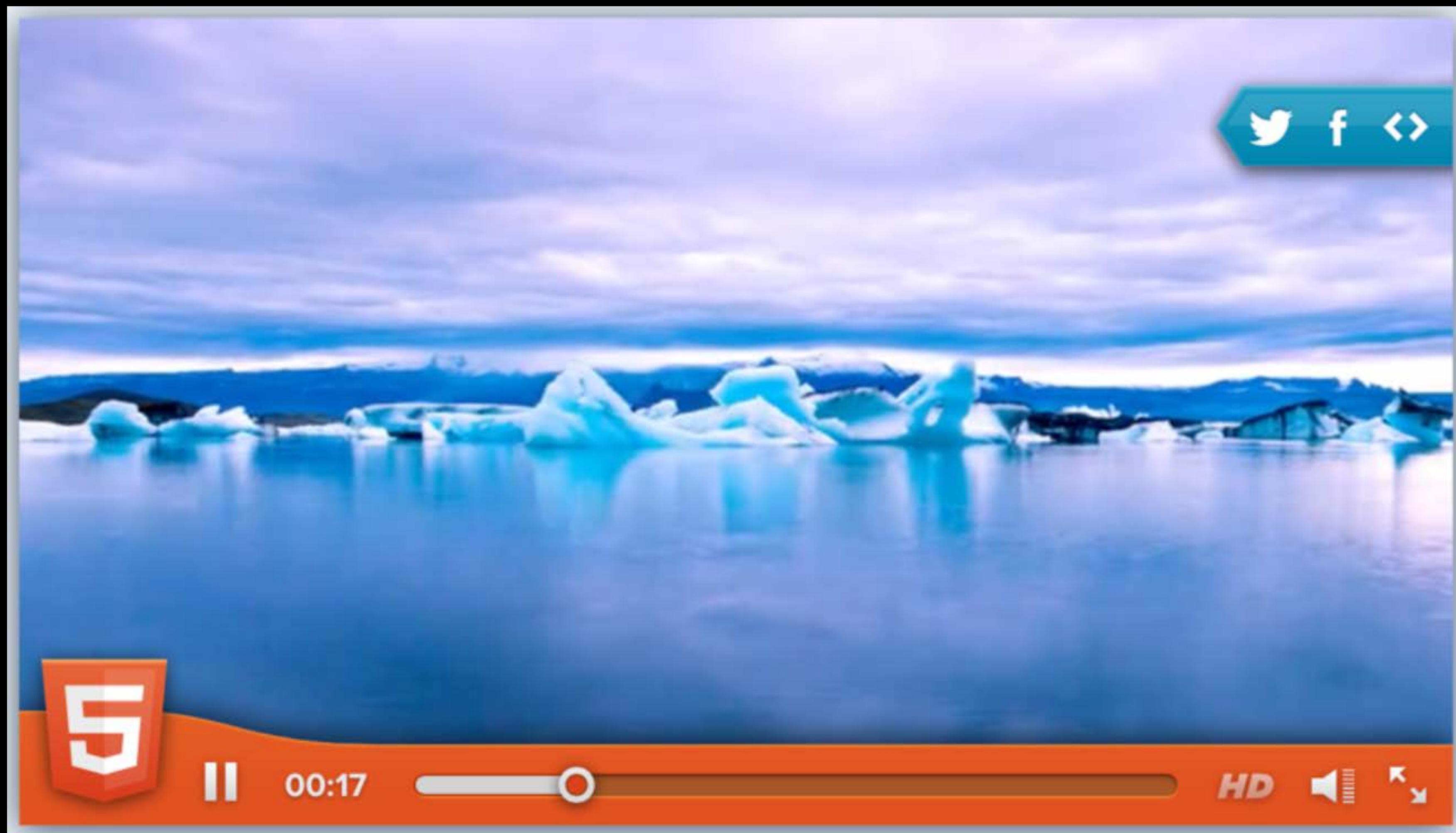
- iOS AirPlay API
- Styling captions for <video>



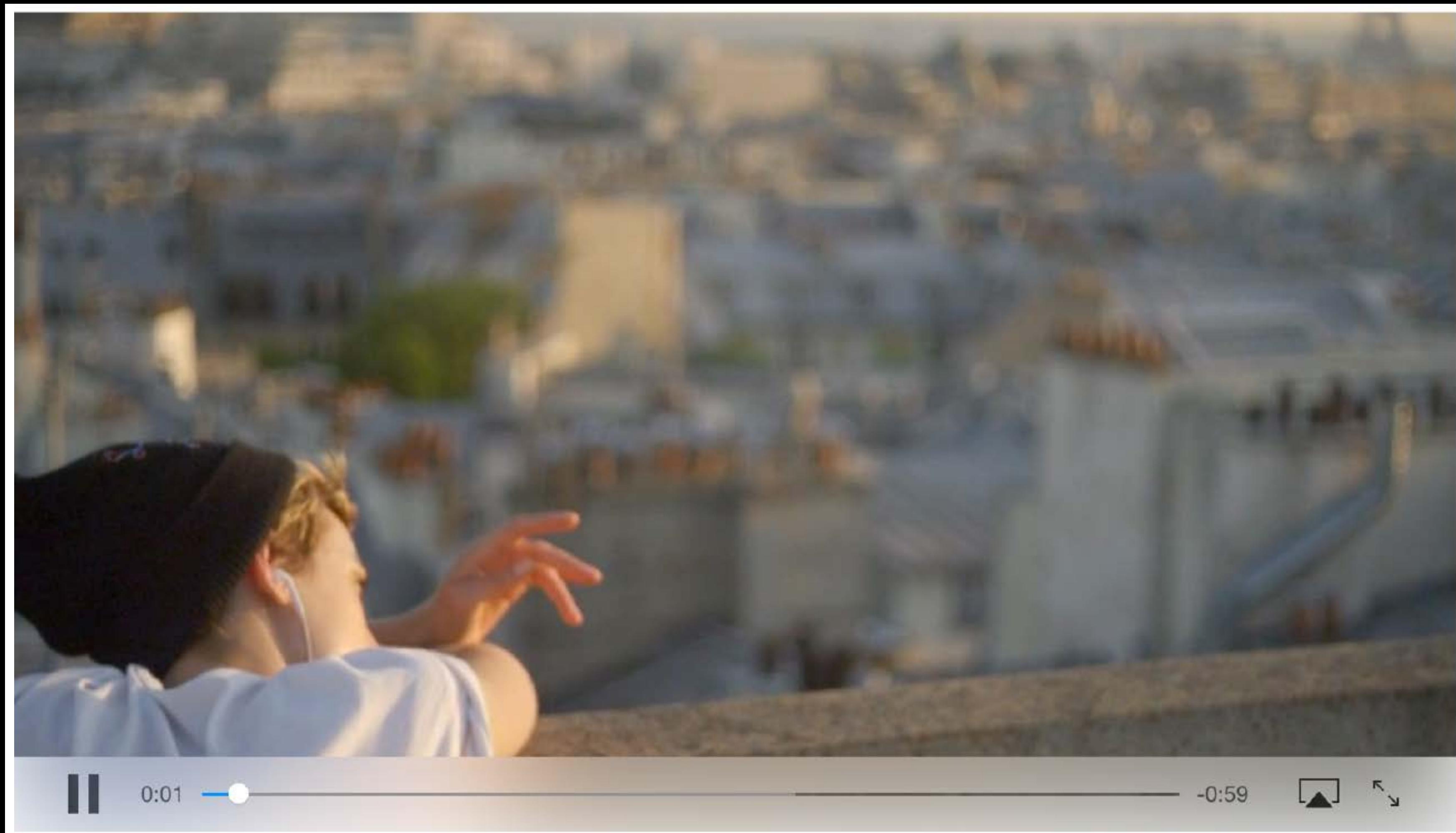
# iOS AirPlay API



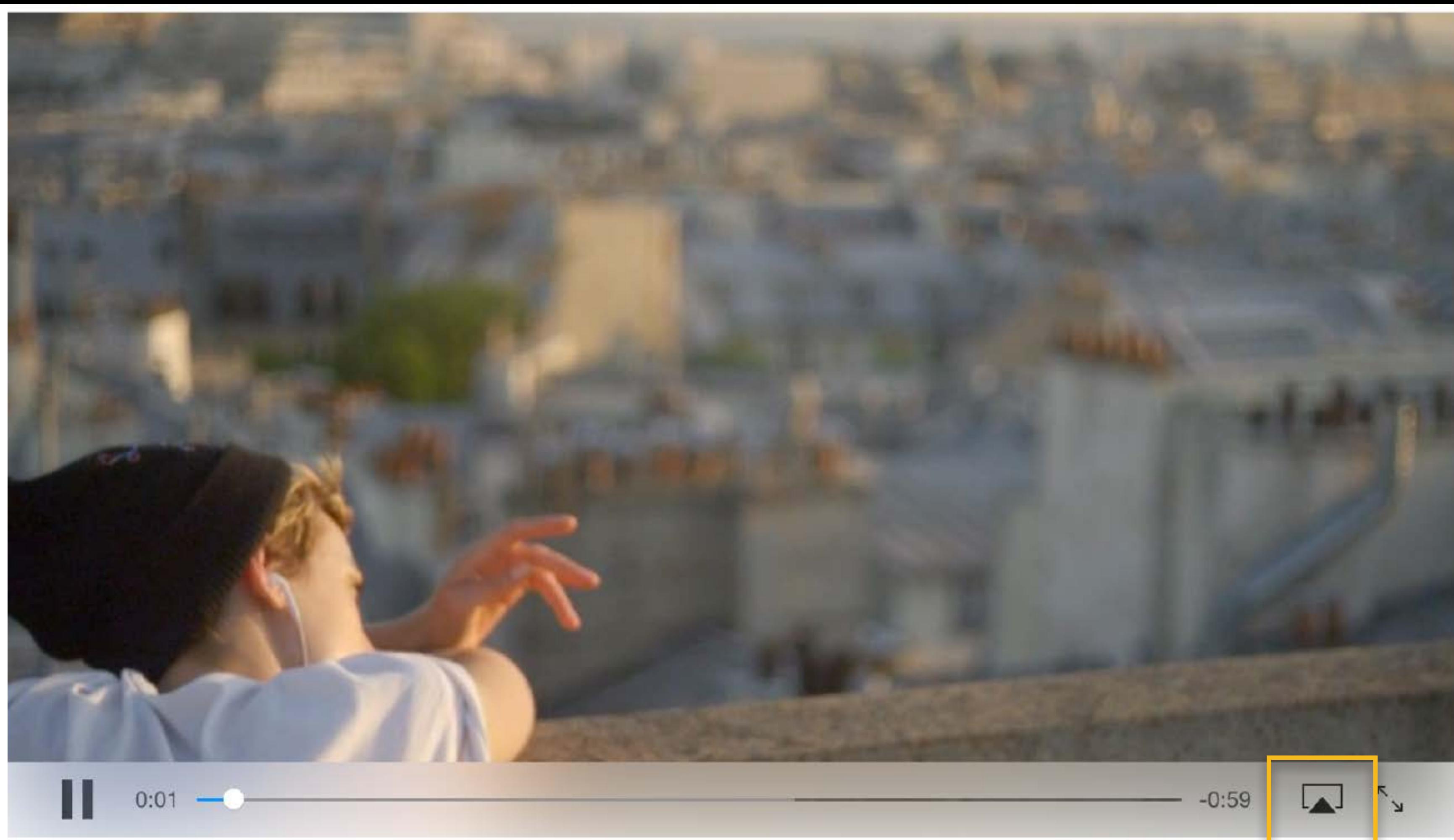
# iOS AirPlay API



# iOS AirPlay API



# iOS AirPlay API



# iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>
<div id="controls">
    <button id="playButton">Play</button>
    <button id="pauseButton" hidden>Pause</button>
</div>
```

# iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>
<div id="controls">
  <button id="playButton">Play</button>
  <button id="pauseButton" hidden>Pause</button>
</div>
```

# iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>
<div id="controls">
    <button id="playButton">Play</button>
    <button id="pauseButton" hidden>Pause</button>
</div>
```

# iOS AirPlay API

```
<video id="video" src="my-video.mp4"></video>
<div id="controls">
    <button id="playButton">Play</button>
    <button id="pauseButton" hidden>Pause</button>
    <button id="airPlayButton" hidden disabled>AirPlay</button>
</div>
```

# iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
            switch (event.availability) {  
                case "available":  
                    airPlayButton.hidden = false;  
                    airPlayButton.disabled = false;  
                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        }  
    );  
}
```

# iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
            switch (event.availability) {  
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                    airPlayButton.disabled = false;  
                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        } );  
}
```

# iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
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                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        } );  
}
```

# iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
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                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        } );  
}
```

# iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
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                    airPlayButton.disabled = false;  
                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        } );  
}
```

# iOS AirPlay API



```
if (window.WebKitPlaybackTargetAvailabilityEvent) {  
    video.addEventListener('webkitplaybacktargetavailabilitychanged',  
        function(event) {  
            switch (event.availability) {  
                case "available":  
                    airPlayButton.hidden = false;  
                    airPlayButton.disabled = false;  
                    break;  
                case "not-available":  
                    airPlayButton.hidden = true;  
                    airPlayButton.disabled = true;  
                    break;  
            }  
        } );  
}
```

# iOS AirPlay API



# iOS AirPlay API



# iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var airPlayButton = document.getElementById("airPlayButton");
var video = document.getElementById("video");

airPlayButton.addEventListener('click', function(event) {
    video.webkitShowPlaybackTargetPicker();
});
```

# iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;
```

```
var airPlayButton = document.getElementById("airPlayButton");
var video = document.getElementById("video");

airPlayButton.addEventListener('click', function(event) {
    video.webkitShowPlaybackTargetPicker();
});
```

# iOS AirPlay API

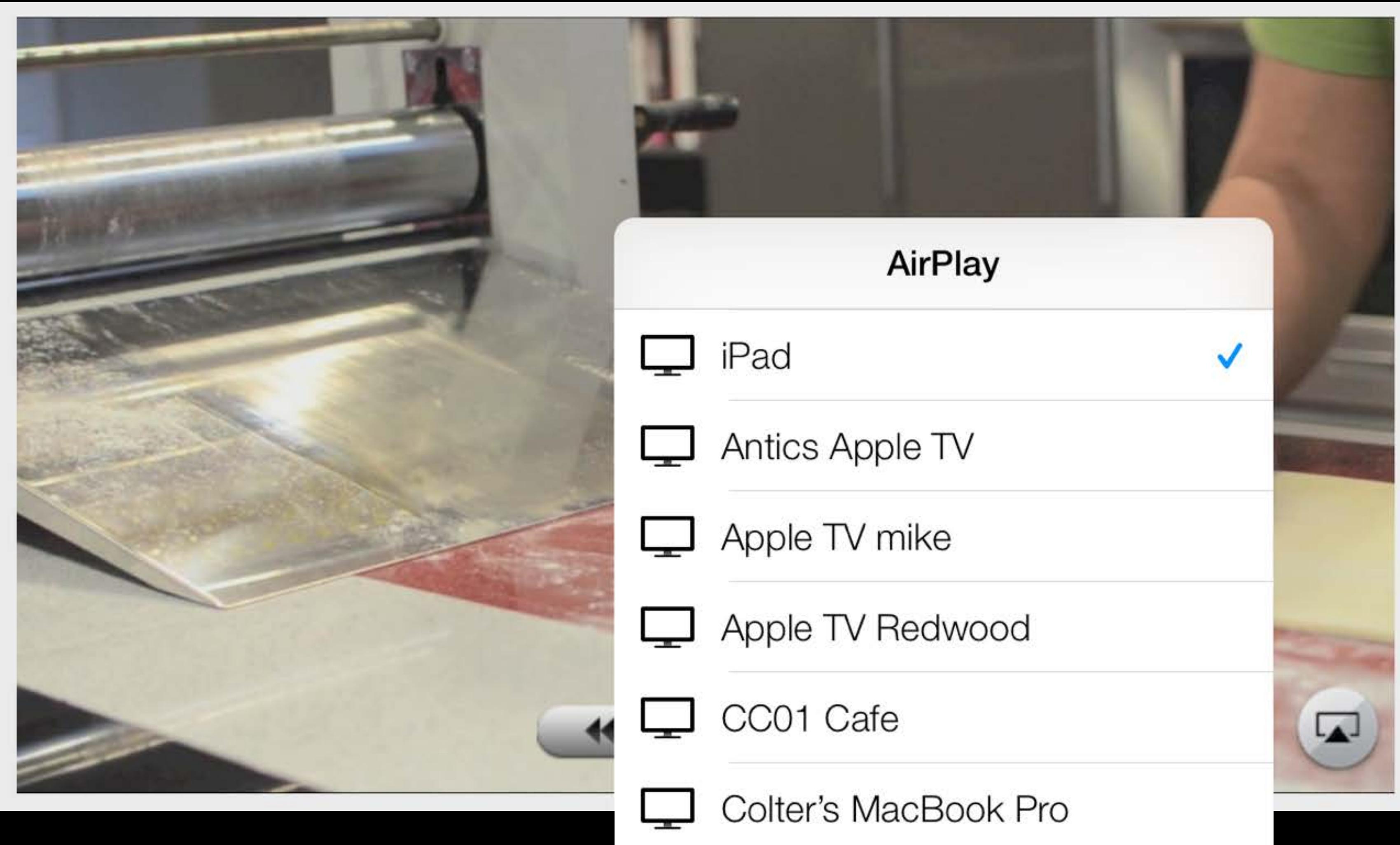


```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var airPlayButton = document.getElementById("airPlayButton");
var video = document.getElementById("video");
```

```
airPlayButton.addEventListener('click', function(event) {
    video.webkitShowPlaybackTargetPicker();
});
```

# iOS AirPlay API



# iOS AirPlay API



# iOS AirPlay API



# iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var video = document.getElementById("video");

video.addEventListener('webkitcurrentplaybacktargetiswirelesschanged',
    function(event) {
        updateAirPlayButtonWirelessStyle();
        updatePageDimmerForWirelessPlayback();
    });
}
```

# iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var video = document.getElementById("video");

video.addEventListener('webkitcurrentplaybacktargetiswirelesschanged',
    function(event) {
        updateAirPlayButtonWirelessStyle();
        updatePageDimmerForWirelessPlayback();
    });
}
```

# iOS AirPlay API



```
if (!window.WebKitPlaybackTargetAvailabilityEvent)
    return;

var video = document.getElementById("video");

video.addEventListener('webkitcurrentplaybacktargetiswirelesschanged',
    function(event) {
        updateAirPlayButtonWirelessStyle();
        updatePageDimmerForWirelessPlayback();
    });
}
```

# Media Features

- iOS AirPlay API
- Styling captions for <video>



# Media Features

- iOS AirPlay API
- Styling captions for <video>



# Styling Captions for <video>



# Styling Captions for <video>

Newly supported features



# Styling Captions for <video>

## Newly supported features

- Captions inside the movie file



# Styling Captions for <video>

## Newly supported features



- Captions inside the movie file
- Styling cues

# Styling Captions for <video>

Properties you can use to style ::cue

color

opacity

visibility

text-decoration

text-outline

text-shadow

background

outline

font

white-space

# *Demo*

**Enrica Casucci**  
Safari and WebKit Engineer

# Media Features

- iOS AirPlay API
- Styling captions for <video>



# Enhancements

# Enhancements



# Enhancements

- Fonts



# Enhancements

- Fonts
- CSS



# Enhancements

- Fonts
- CSS
- Graphics



# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



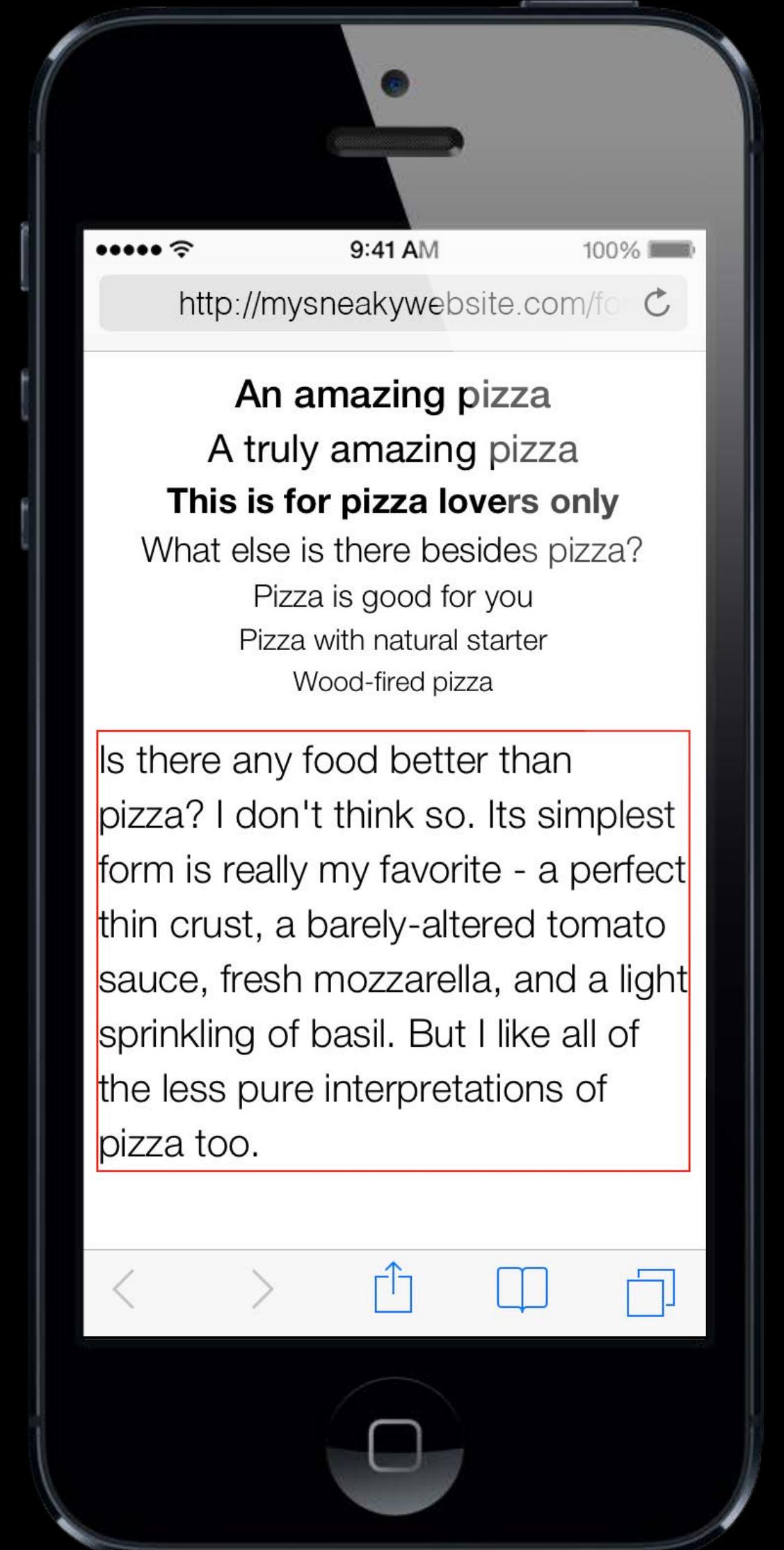
# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



# Font Enhancements

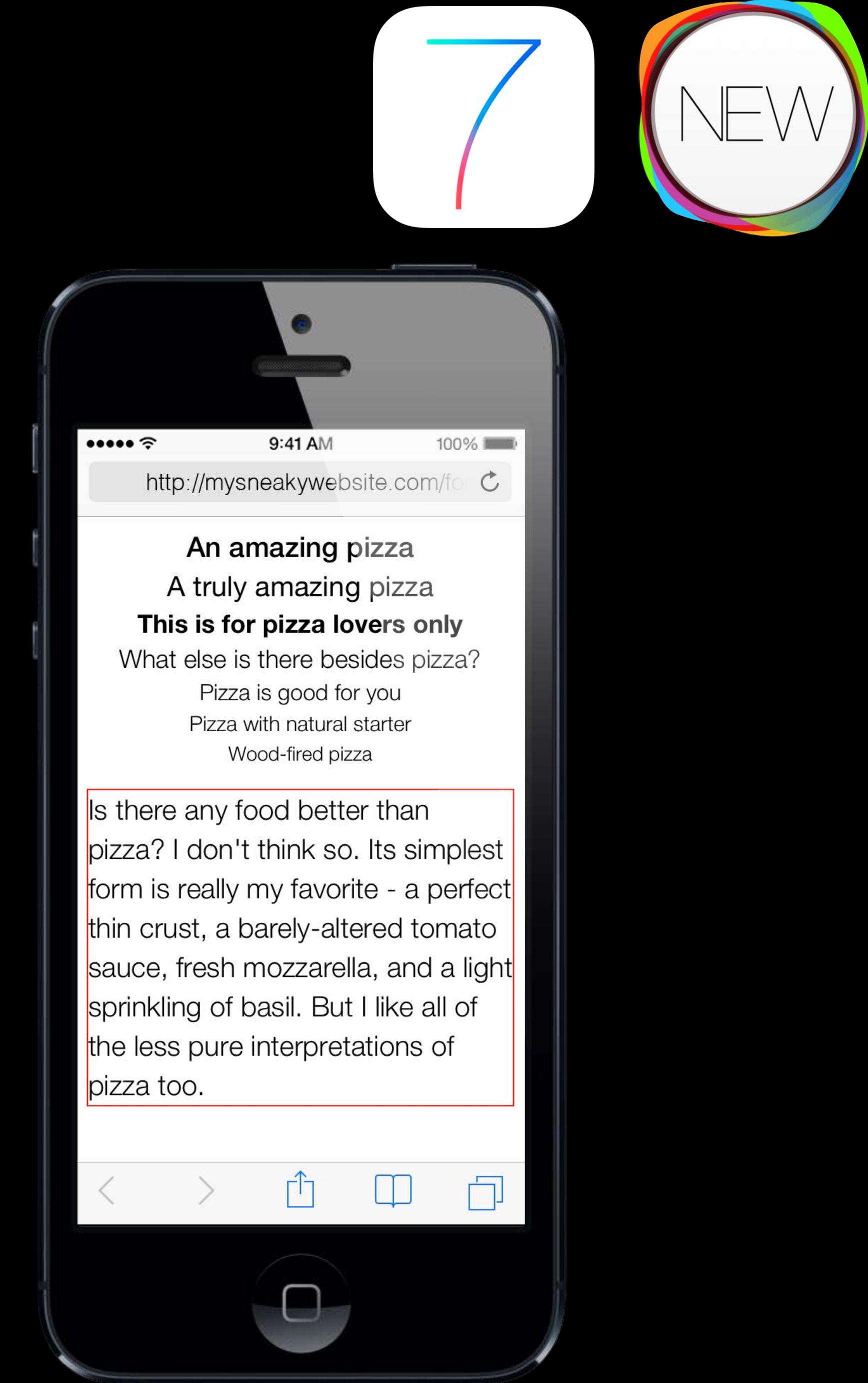
## Dynamic type



# Font Enhancements

## Dynamic type

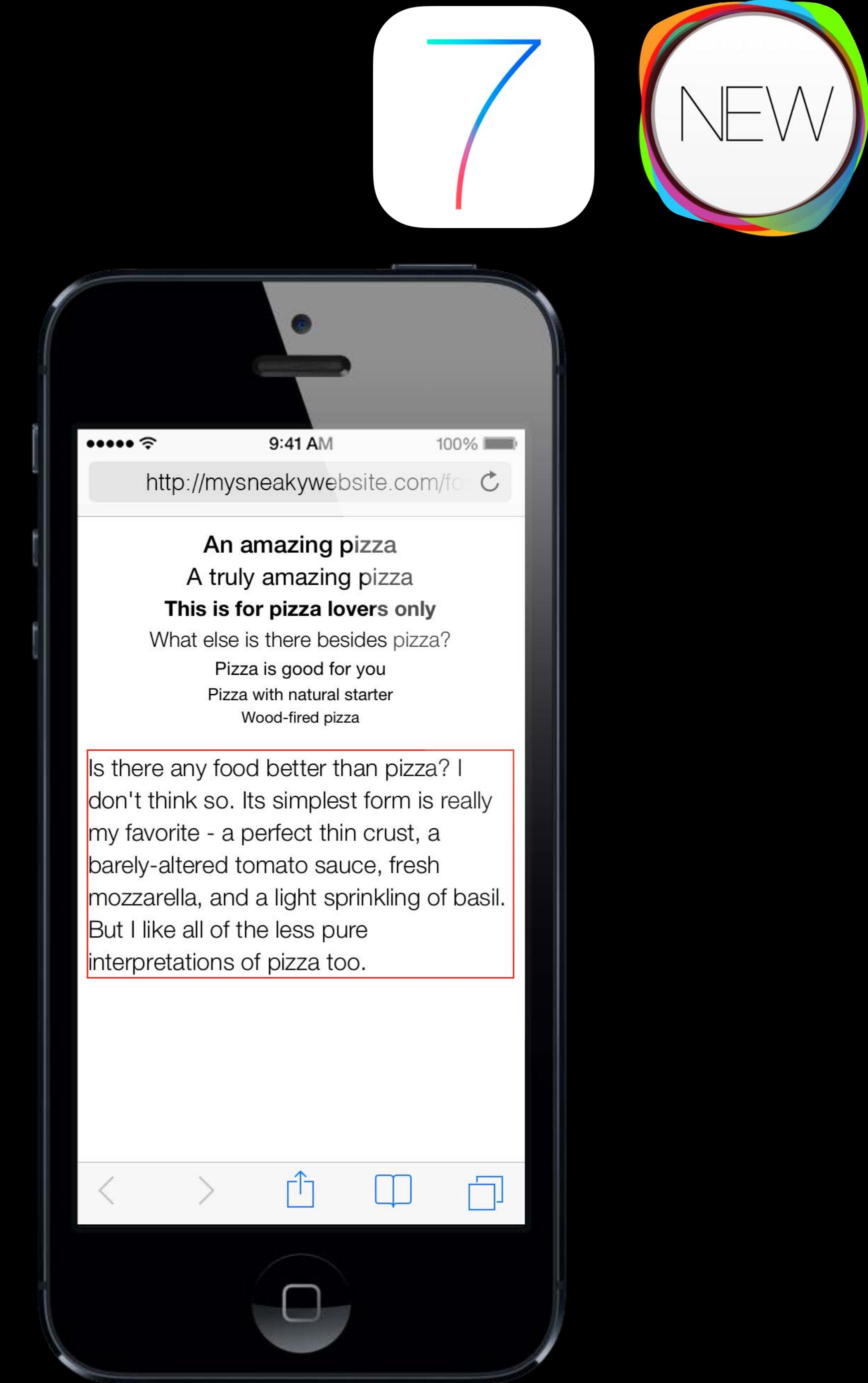
- apple-system-headline1
- apple-system-headline2
- apple-system-body
- apple-system-subheadline1
- apple-system-subheadline2
- apple-system-footnote
- apple-system-caption1
- apple-system-caption2
- apple-system-short-headline1
- apple-system-short-headline2
- apple-system-short-body
- apple-system-short-subheadline1
- apple-system-short-subheadline2
- apple-system-short-footnote
- apple-system-short-caption1
- apple-system-tall-body



# Font Enhancements

## Dynamic type

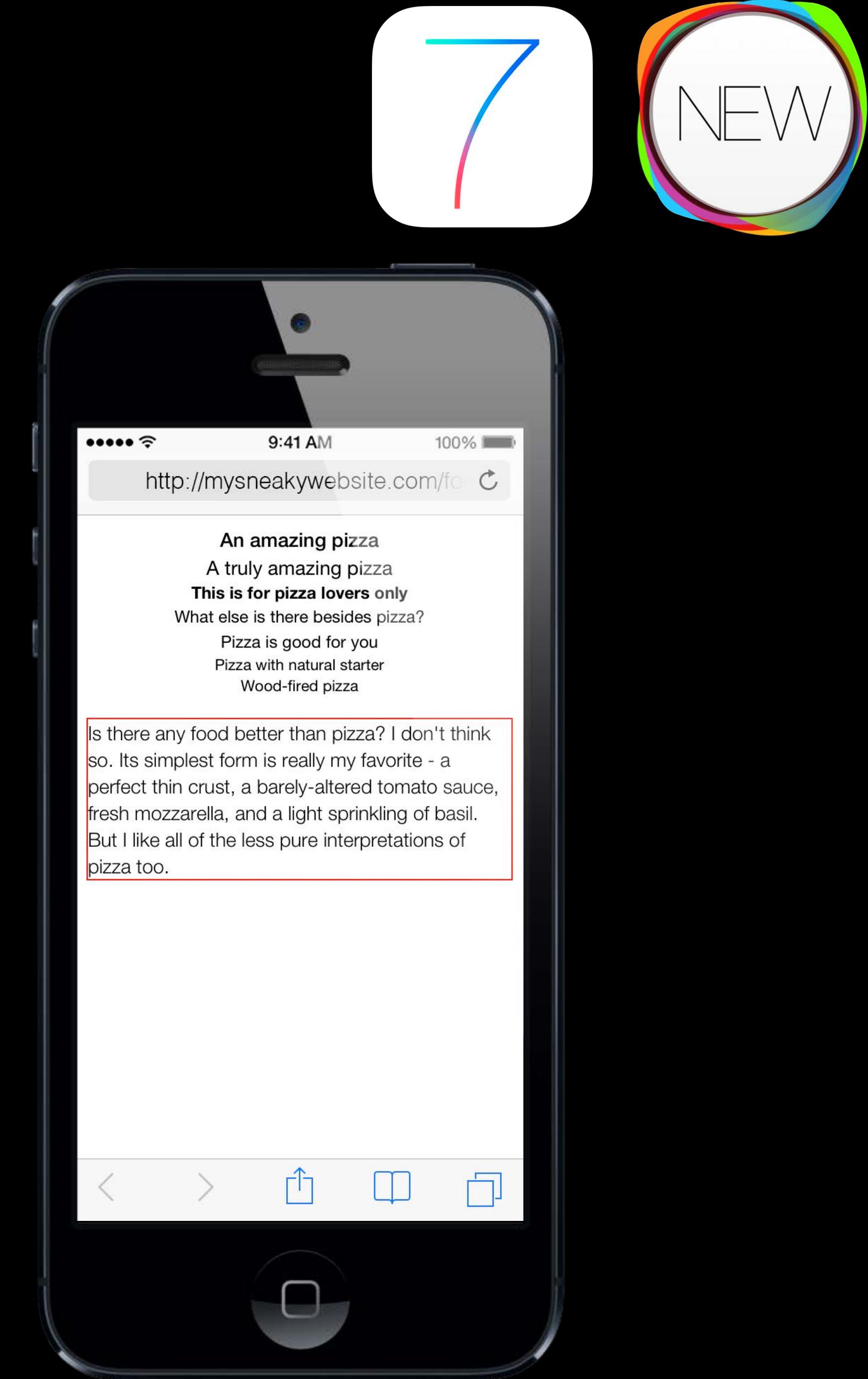
- apple-system-headline1
- apple-system-headline2
- apple-system-body
- apple-system-subheadline1
- apple-system-subheadline2
- apple-system-footnote
- apple-system-caption1
- apple-system-caption2
- apple-system-short-headline1
- apple-system-short-headline2
- apple-system-short-body
- apple-system-short-subheadline1
- apple-system-short-subheadline2
- apple-system-short-footnote
- apple-system-short-caption1
- apple-system-tall-body



# Font Enhancements

## Dynamic type

- apple-system-headline1
- apple-system-headline2
- apple-system-body
- apple-system-subheadline1
- apple-system-subheadline2
- apple-system-footnote
- apple-system-caption1
- apple-system-caption2
- apple-system-short-headline1
- apple-system-short-headline2
- apple-system-short-body
- apple-system-short-subheadline1
- apple-system-short-subheadline2
- apple-system-short-footnote
- apple-system-short-caption1
- apple-system-tall-body



# Font Enhancements

## Kerning and ligatures

My Pizza is Amazing

http://www.mycookingwebsite.com/pizza

**Pizza is Amazing**



Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who

doesn't love pizza? I pity the fool who does not love pizza. So until then, I will continue to believe that pizza the most universally-loved food. (I know what you're thinking. You're thinking, "What about chocolate?" Well, I have met people who don't like chocolate. I know, they cray, but they do exist.)

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# Font Enhancements

## Kerning and ligatures

AVAWA

# Font Enhancements

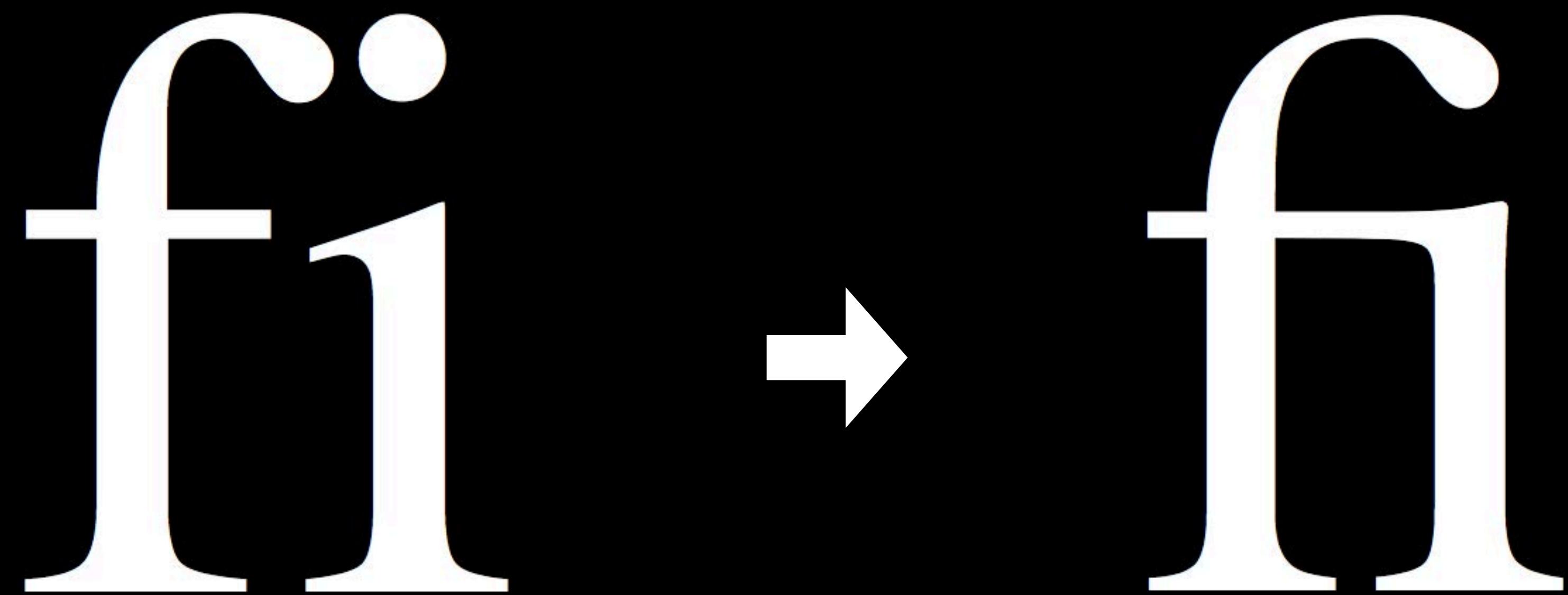
Kerning and ligatures

AVAWA

AVAWA

# Font Enhancements

## Kerning and ligatures



# Font Enhancements

## Kerning and ligatures

*fixing example for boss*

*fixing example for boss*

# Font Enhancements

## Kerning and ligatures

*fixing example for boss*

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# Font Enhancements

## Kerning and ligatures

*fixing example for boss*

*fixing example for boss*

# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



# CSS Enhancements

## CSS calc()

```
.banner {  
    height: 50px;  
    width: calc(100% - 80px);  
    min-width: 100px;  
    text-align: center;  
    border: 2px solid black;  
    margin: auto auto;  
}
```



# CSS Enhancements

## -webkit-clip-path

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Is there any food better than pizza? I don't think so. Its simplest form is really my favorite – a perfect thin crust, a barely-altered tomato sauce, fresh mozzarella, and a light sprinkling of basil. But I like all of the less pure interpretations of pizza too. From a mushroom-and-sausage-filled Chicago-style deep dish to a California sourdough crust with fresh corn, feta cheese, and cilantro, to an almost sweet Hawaiian pie (don't tell Enrica about that one), I just love it all. Is there anyone who

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# CSS Enhancements

## -webkit-clip-path

```
.clip-image {  
    -webkit-clip-path: circle(256, 180, 170);  
}
```



# CSS Enhancements

## -webkit-clip-path

- Shape values for -webkit-clip-path
  - `circle(x, y, radius)`
  - `rectangle(x, y, width, height)`
  - `ellipse(x, y, x-radius, y-radius)`
  - `polygon(fill-rule, x, y)`

# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



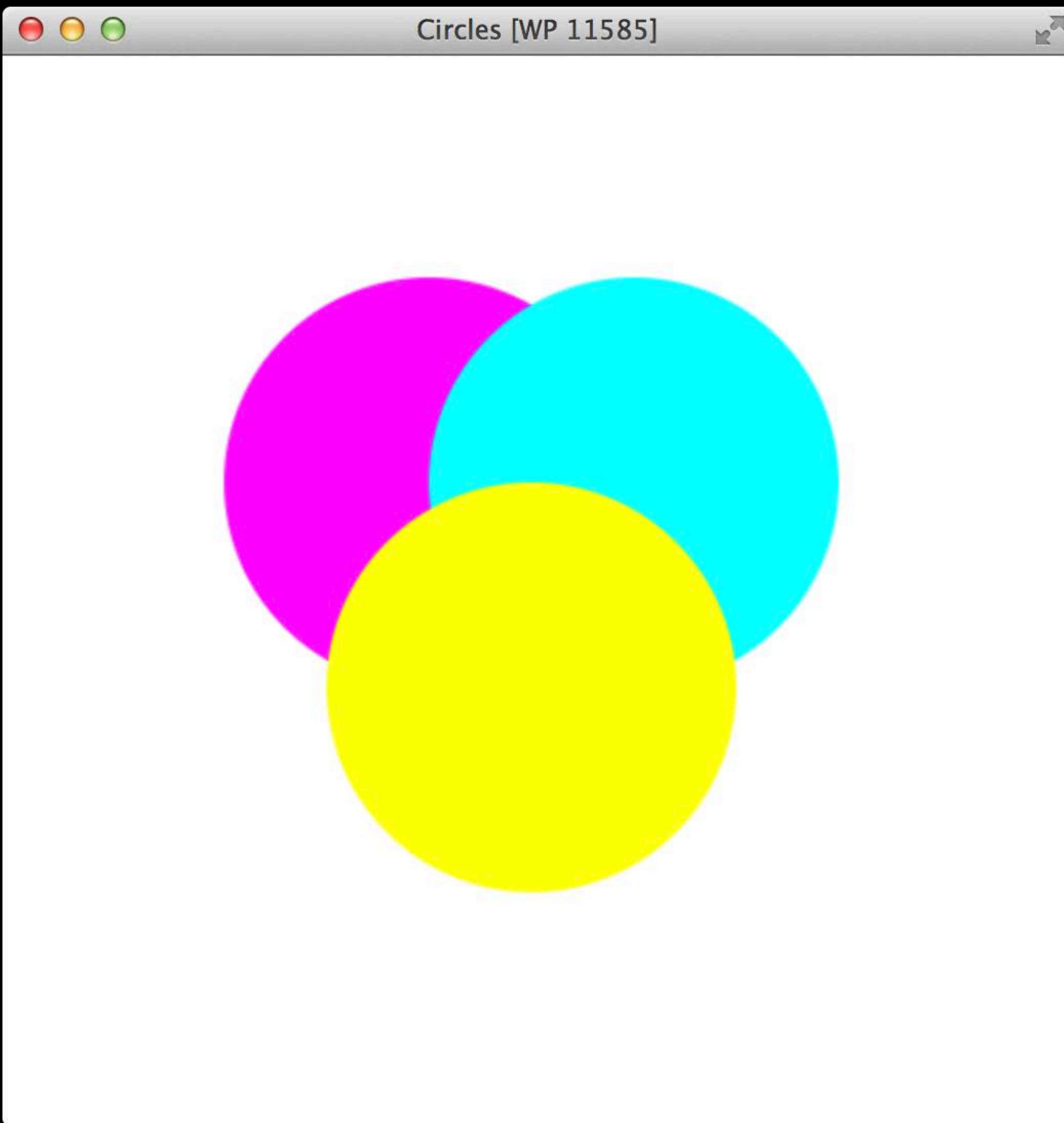
# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



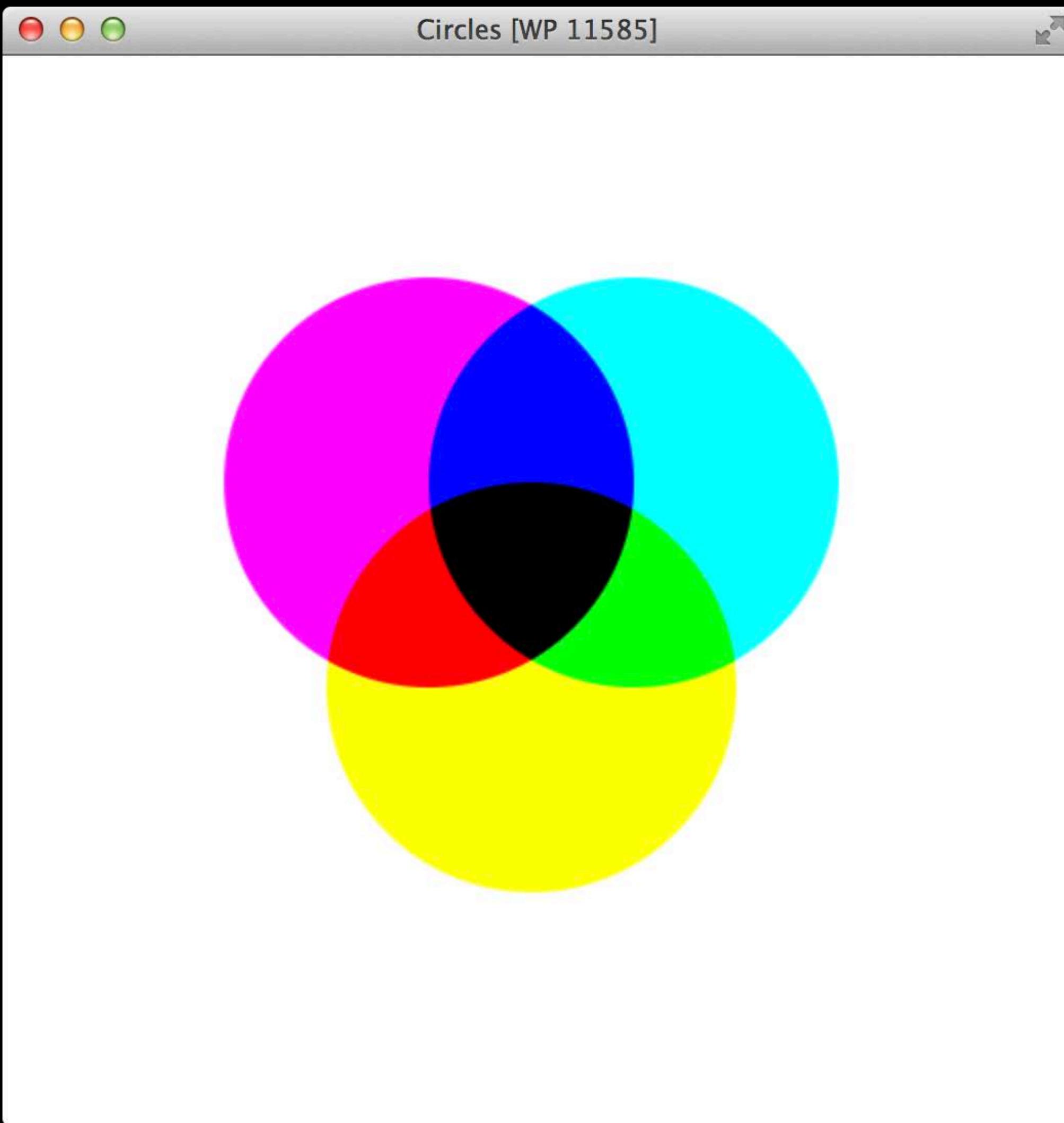
# Graphics Enhancements

## Canvas blending modes



# Graphics Enhancements

## Canvas blending modes

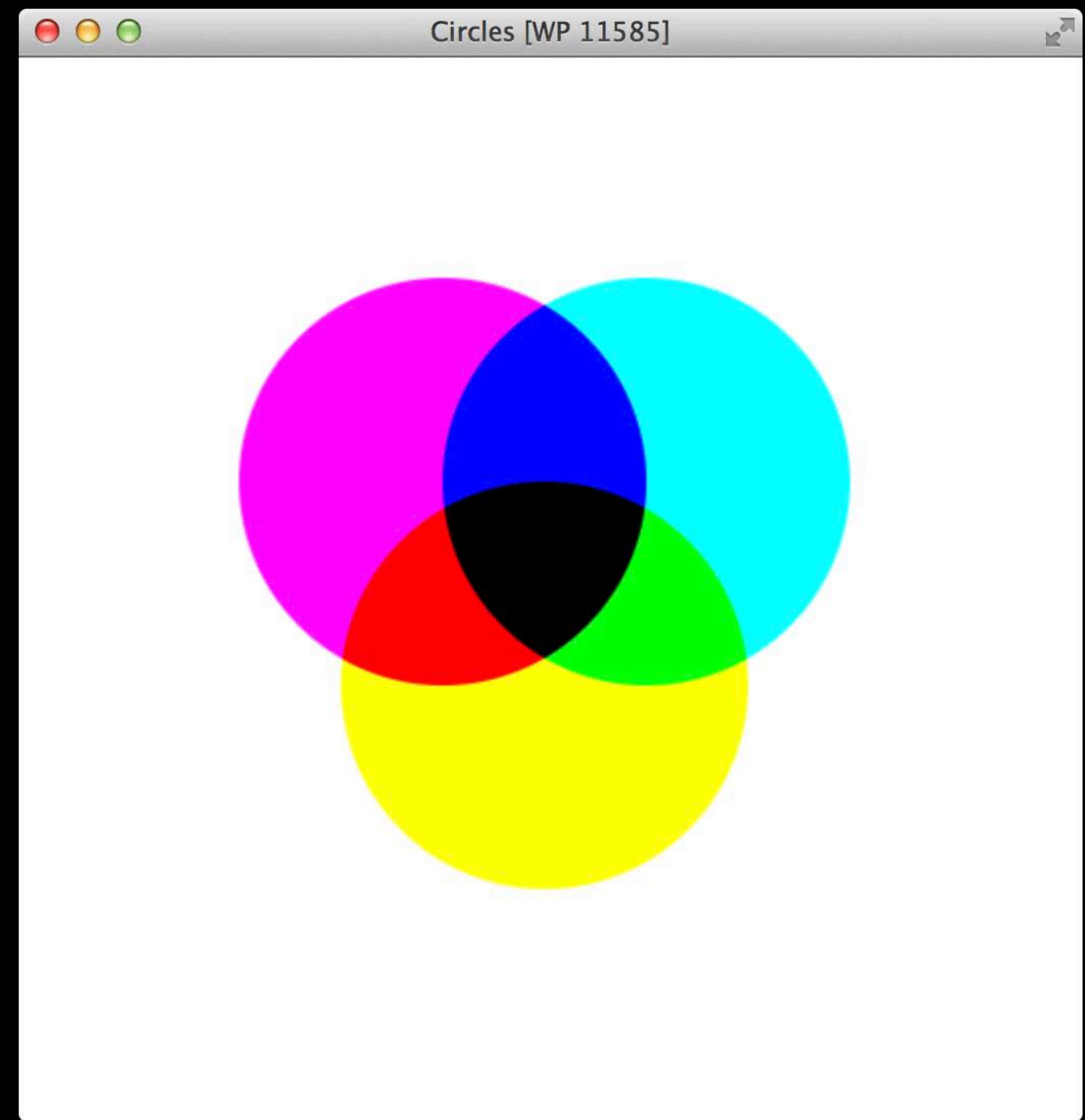


# Graphics Enhancements

## Canvas blending modes



```
function drawBlendedCircles(ctx) {  
    ctx.globalCompositeOperation =  
        'multiply';  
  
    // Draw magenta circle  
    ...  
  
    // Draw cyan circle  
    ...  
  
    // Draw yellow circle  
    ...  
}
```



# Graphics Enhancements

## Canvas Path() object

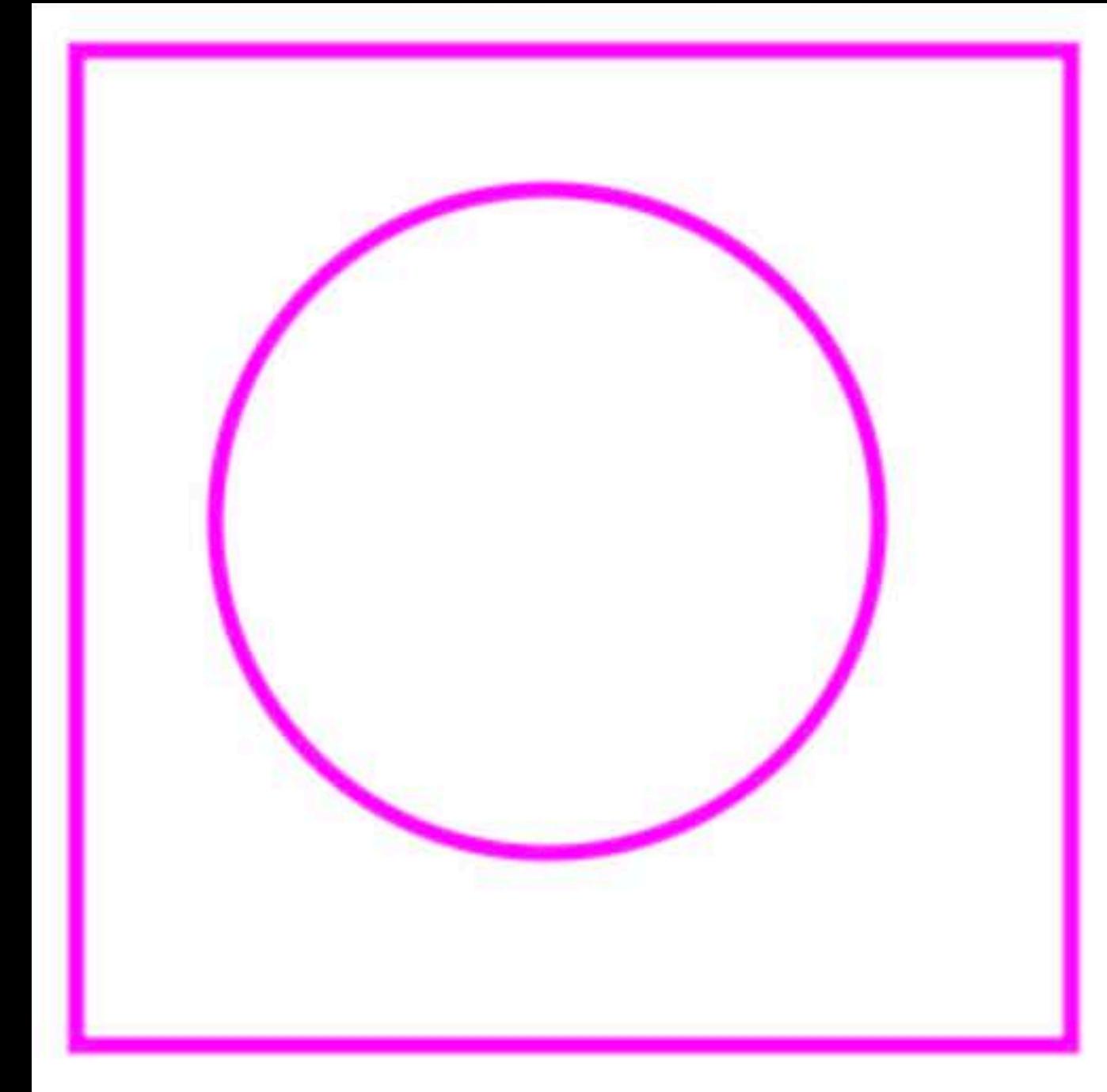


# Graphics Enhancements

## Canvas Path() object



```
function drawPaths() {  
    ...  
    // Create and store a square.  
    var square = new Path();  
    square.rect(8, 8, 300, 300);  
  
    // Create and store a circle.  
    var circle = new Path();  
    circle.arc(150, 150, 100, 0,  
              Math.PI*2, true);  
  
    ctx.stroke(square);  
    ctx.stroke(circle);  
}
```



# Graphics Enhancements

Canvas on Retina

# Graphics Enhancements

## Canvas on Retina

- <canvas> on Retina needs a 2X backing store

# Graphics Enhancements

## Canvas on Retina

- <canvas> on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this

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# Graphics Enhancements

## Canvas on Retina

- <canvas> on Retina needs a 2X backing store
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- And sad
- Safari 7 no longer auto-doubles

# Graphics Enhancements

## Canvas on Retina

- <canvas> on Retina needs a 2X backing store
- Safari 6 auto-doubles to ensure this
- iOS did not auto-double
- People got confused
- And sad
- Safari 7 no longer auto-doubles
- If you used `webkitBackingStorePixelRatio`,  
your code still does the right thing

# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



# Enhancements

Changes that might affect you

# Enhancements

## Changes that might affect you

- <canvas> no longer auto-doubles

# Enhancements

## Changes that might affect you

- <canvas> no longer auto-doubles
- Kerning and ligatures on by default

# Enhancements

## Changes that might affect you

- <canvas> no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings

# Enhancements

## Changes that might affect you

- <canvas> no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings

```
.fit {  
    background-size: 100px 100px;  
}
```

...

```
.reset {  
    background: none;  
}
```

# Enhancements

## Changes that might affect you

- <canvas> no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings

```
.hot {  
    background-size: 100px 100px;  
    background: red url('image.png');  
}
```

# Enhancements

## Changes that might affect you

- <canvas> no longer auto-doubles
- Kerning and ligatures on by default
- background shorthand will override earlier settings
- -webkit-transition is now transition

# Enhancements

- Fonts
- CSS
- Graphics
- Changes that might affect you



# Summary

# Summary

- Rich, magazine-like layouts are coming to the web

# Summary

- Rich, magazine-like layouts are coming to the web
- Better integration with platform and devices

# Summary

- Rich, magazine-like layouts are coming to the web
- Better integration with platform and devices
- Tons of new stuff in WebKit all the time!

# More Information

**John Geleynse**

Director, Technology Evangelist

[geleynse@apple.com](mailto:geleynse@apple.com)

## Documentation

AV Foundation Programming Guide

[https://developer.apple.com/library/mac/#documentation/\(AudioVideo\)/Conceptual/AVFoundationPG/](https://developer.apple.com/library/mac/#documentation/(AudioVideo)/Conceptual/AVFoundationPG/)

Technical Note TN2300: Transitioning QTKit code to AV Foundation

<https://developer.apple.com/library/mac/technotes/tn2300/>

## Apple Developer Forums

<http://devforums.apple.com>

# Related Sessions

<b>Getting to Know Web Inspector</b>	Russian Hill Tuesday 10:15AM	
<b>Getting the Most Out of Web Inspector</b>	Russian Hill Tuesday 11:30AM	
<b>Power and Performance: Optimizing Your Website for Great Battery Life and Responsive Scrolling</b>	Russian Hill Wednesday 9:00AM	
<b>Preparing and Presenting Media for Accessibility</b>	Nob Hill Wednesday 10:15AM	
<b>Implementing OS X Push Notifications for Websites</b>	Marina Friday 9:00AM	
<b>Integrating JavaScript into Native Apps</b>	Marina Friday 10:15AM	

# Labs

**Safari and WebKit Open Lab**

Media Lab A  
Tuesday 10:15AM

**Safari and Web Tools Lab**

Media Lab A  
Tuesday 12:45PM

