

Variable Fonts & Responsive Typography

A Primer on Variable Fonts and Modern Digital Typography

Jason Pamental | @jpamental
Designer, Writer, Tinkerer, Typographer

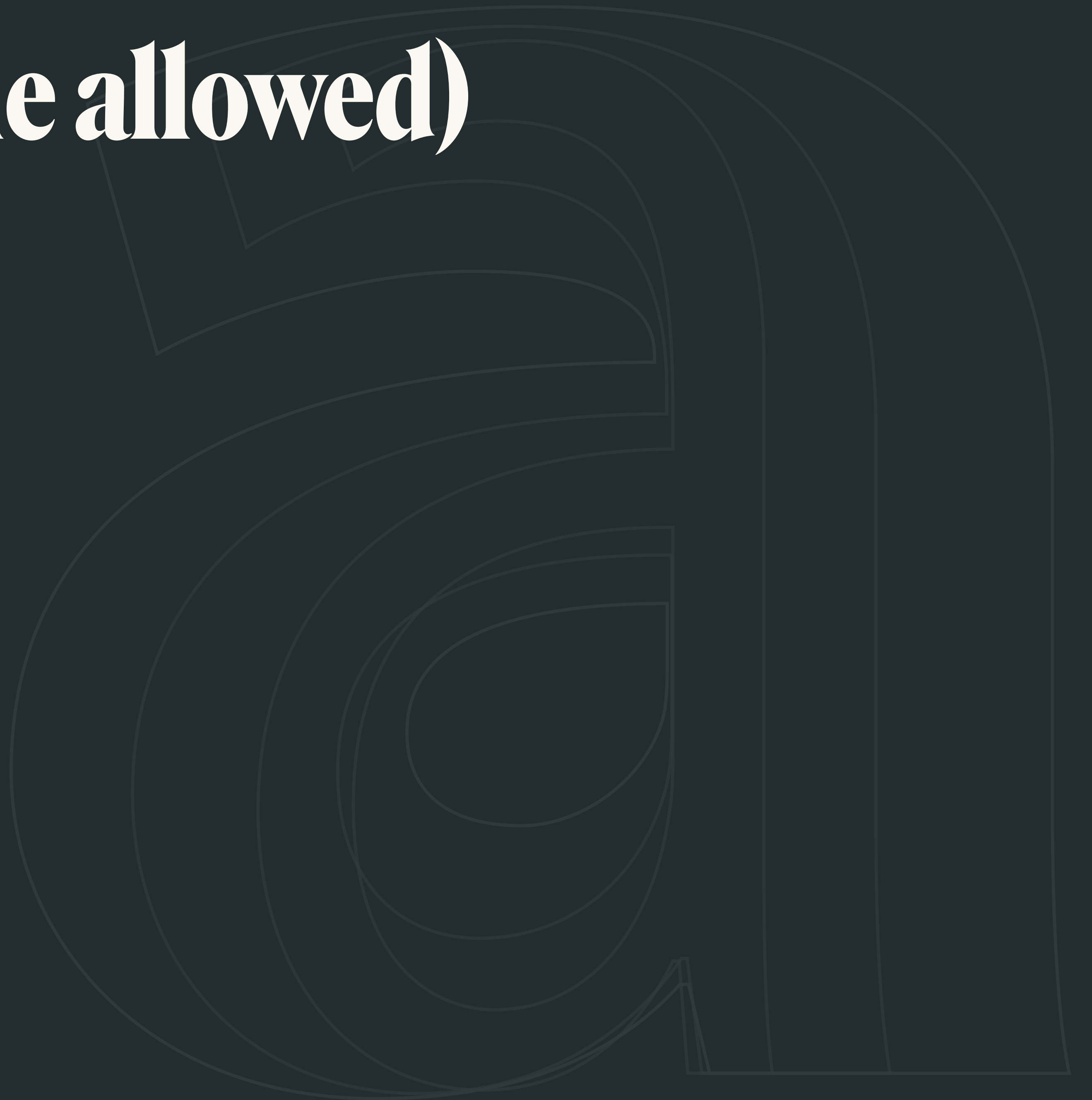
TYPO Labs | Berlin
13 April, 2018

On the Agenda

- Basics of Using Variable Fonts (VF)
 - @font-face syntax
 - Variation axes (registered and custom)
 - CSS syntax (planned and current implementations)
- Implementing web fonts for performance and UX
 - Font loading techniques
 - Failing well: what to do when web fonts go missing
- Typography for reading
 - The 'perfect page'
 - Scale, proportion, and responsiveness
 - Layering in CSS variables and calculations
 - Variable axes and proportional systems
 - Finesse
 - VF features like Optical Size
 - OpenType (OT) features like ligatures, numerals, and kerning
 - Paragraph styles

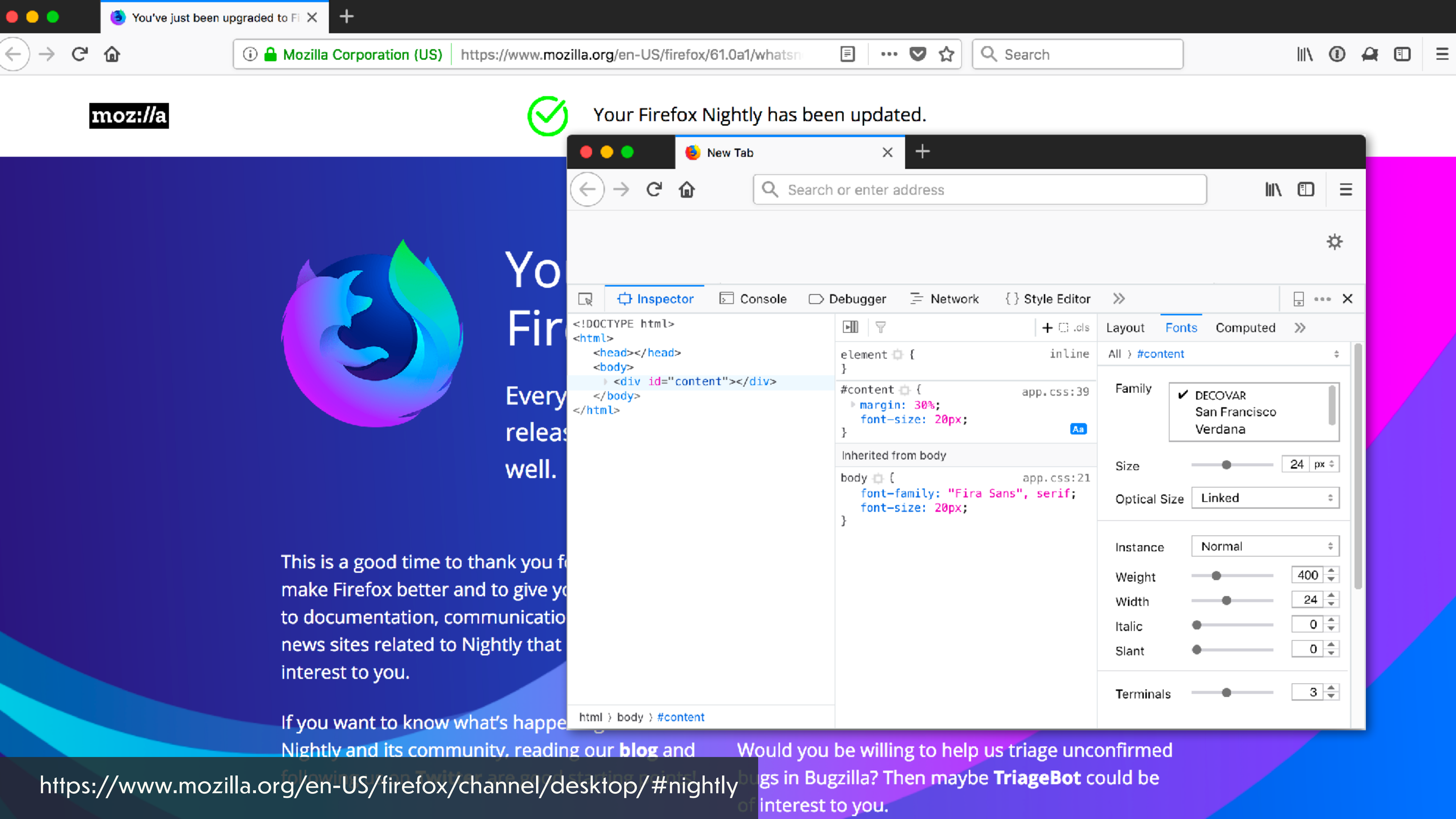
On the Agenda (time allowed)

- Editorial typography and art direction
 - VF features for headlines (weight, width, ascender/descender height)
 - Type as visual element (exaggerated scale and style)
 - CSS shapes
- Freeform: discuss some real-world examples



Getting Started

- Code
<https://github.com/jpamental/rwt-vf-workshop-short>
- Slides & resources
<http://rwt.io/presentations/workshop/responsive-type-typography>
- Tools you need
 - Web Browser:
 - Safari (MacOS High Sierra)
 - Chrome 62+ (Mac/Win)
 - Code Editor (almost any text editor will do)
 - <https://code.visualstudio.com> (excellent, and free!)



moz://a



Your Firefox Nightly has been updated.



You
Firefox
Every
release
well.

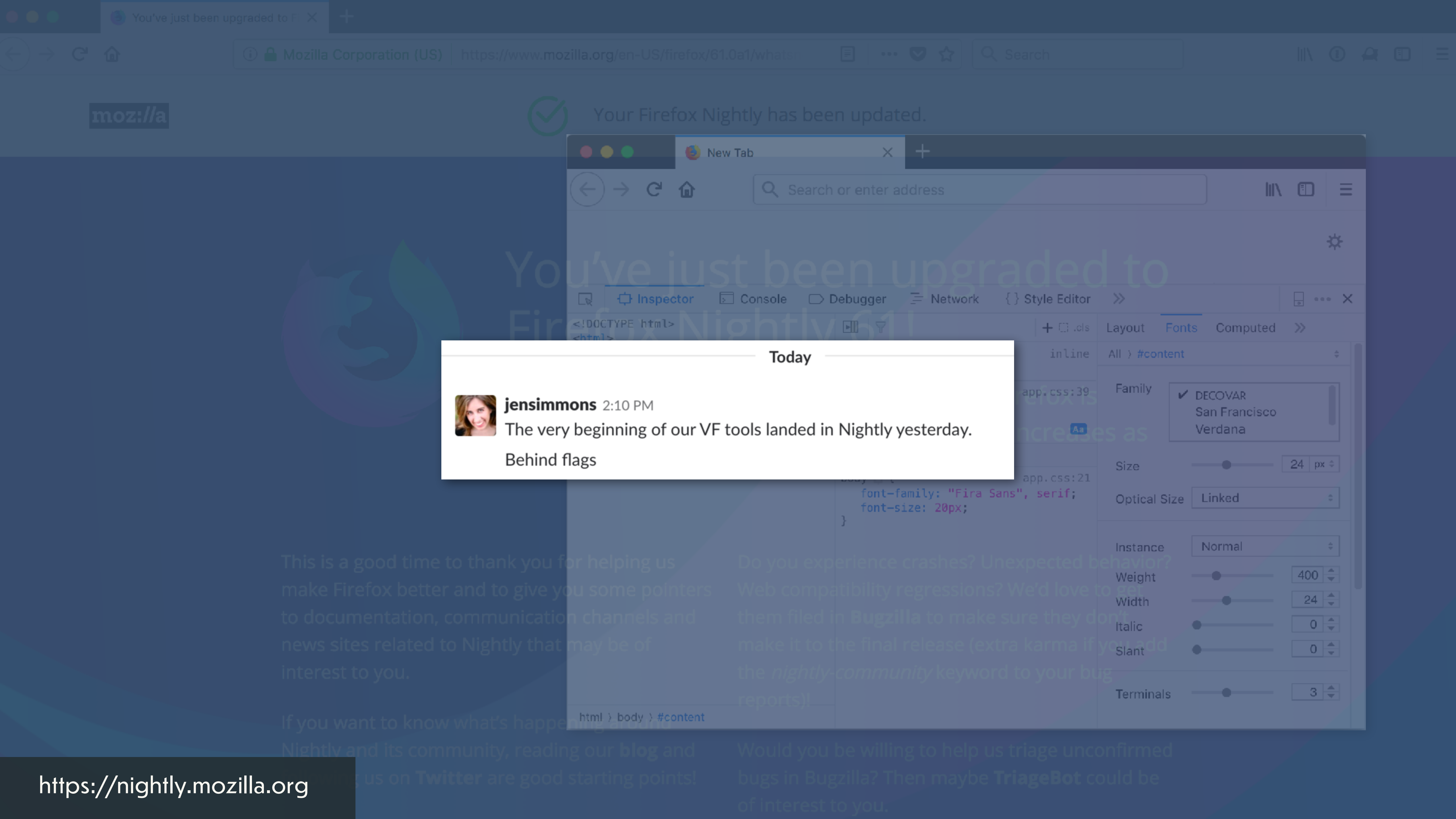
This is a good time to thank you for making Firefox better and to give you a shoutout to documentation, communication, and news sites related to Nightly that are of interest to you.

If you want to know what's happened

Nightly and its community, reading our **blog** and

<https://www.mozilla.org/en-US/firefox/channel/desktop/#nightly>

Would you be willing to help us triage unconfirmed bugs in Bugzilla? Then maybe **TriageBot** could be of interest to you.



moz://a



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Today

**jensimmons** 2:10 PM
The very beginning of our VF tools landed in Nightly yesterday.
Behind flags

This is a good time to thank you for helping us make Firefox better and to give you some pointers to documentation, communication channels and news sites related to Nightly that may be of interest to you.

If you want to know what's happening around Nightly and its community, reading our [blog](#) and following us on [Twitter](#) are good starting points!

Do you experience crashes? Unexpected behavior? Web compatibility regressions? We'd love to get them filed in [Bugzilla](#) to make sure they don't make it to the final release (extra karma if you add the *nightly-community* keyword to your bug reports)!

Would you be willing to help us triage unconfirmed bugs in Bugzilla? Then maybe [TriageBot](#) could be of interest to you.

Firefox Nightly

FileEditViewHistoryBookmarksToolsWindowHelp

about:config

Axis-Praxis: Variable Fonts in the b

←→↻🏠

Nightly

about:config

☆

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Search: 🔍 devtools.inspector.fo

Preference Name	Status	Type	Value
devtools.inspector.fonteditor.enabled	modified	boolean	true

Basics

```
@font-face {  
    font-family: 'Amstelvar';  
    src: url('amstelvar.ttf') format('truetype');  
}
```

Should be:

```
src: url('amstelvar.ttf') format('truetype-variations');
```

```
.myvariablefontclass {  
    font-weight: 563; /* 1-999 */  
    font-stretch: 491; /* 1-999 */  
    font-style: italic; /* binary */  
    font-style: oblique 20deg; /* 0-20 (?) */  
    font-optical-sizing: auto; /* matches font-size */  
}
```

```
.myvariablefontclass {  
    font-variation-settings:  
        'wght' 563, 'wdth' 491, ['ital' 1 OR 'slnt' 20], 'opsz' 16;  
}
```

```
.myvariablefontclass {
```

```
  font-variation-settings:
```

```
    'wght' 563,
```

```
    'wdth' 491,
```

```
    'ital' 1,
```

```
    'opsz' 16,
```

```
    'GRAD' 88,
```

```
    'YTAS' 680,
```

```
    'YTDE' 190
```

}

Custom axes must be uppercase

```
;
```

```
}
```

Performance & Failure

```
<script src="js/vendor/fontfaceobserver.js"></script>
<script type="text/javascript">
  (function() {
    document.documentElement.className += " wf-inactive";

    // Optimization for Repeat Views
    if( sessionStorage.foutFontsLoaded ) {
      document.documentElement.classList.remove("wf-inactive");
      document.documentElement.classList.add("wf-active");
      return;
    }

    var fontA = new FontFaceObserver("Amstelvar 1.1 VF", {
      });

    Promise.all([fontA.load()]).then(function () {
      document.documentElement.classList.remove("wf-inactive");
      document.documentElement.classList.add("wf-active");

      // Optimization for Repeat Views
      sessionStorage.foutFontsLoaded = true;
    });
  })();
</script>
```

```
h1 {  
    font-family: 'Amstelvar 1.1 VF', Georgia, serif;  
    font-weight: 563;  
    font-stretch: 491;  
    font-variation-settings: 'wght' 563, 'wdth' 491, 'opsz' 16;  
}
```

```
.wf-inactive h1 {  
    font-family: Georgia, serif;  
    font-weight: bold;  
    font-stretch: normal;  
    letter-spacing: 1px;  
}
```

Typography for Reading

Moby Dick; or The White Whale

font-size
font-stretch
font-optical-sizing
line-height
asc/desc

CHAPTER 1. Loomings.

font-size
font-stretch
font-optical-sizing
line-height

Call me Ishmael. Some years ago—never mind how long precisely—having little or no money in my purse, and nothing particular to interest me on shore, I thought I would sail about a little and see the watery part of the world. It is a way I have of driving off the spleen and regulating the circulation. Whenever I find myself growing grim about the mouth; whenever it is a damp, drizzly November in my soul; whenever I find myself involuntarily pausing before coffin warehouses, and bringing up the rear of every funeral I meet; and especially whenever my hypos get such an upper hand of me, that it requires a strong moral principle to prevent me from deliberately stepping into the street, and methodically knocking people's hats off—then, I account it high time to get to sea as

Moby Dick; or The White Whale

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There now is your insular city of the Manhattoes, belted round by wharves as Indian isles by coral reefs commerce surrounds it with her surf. Right and left, the streets take you waterward. Its extreme downtown is the battery, where that noble mole is washed by waves, and cooled by breezes, which a few hours previous were out of sight of land. Look at the crowds of water-gazers there.

Circumambulate the city of a dreamy Sabbath afternoon. Go from Corlears Hook to Coenties Slip, and

```
:root {  
  /* breakpoint variables */  
  --bp-small: 24.15;  
  --bp-medium: 43.75;  
  --bp-large: 60.25;  
  --bp-xlarge: 75;  
  
  /* h1 variables */  
  --h1-font-size-min: 5;  
  --h1-font-size-max: 10;  
}
```

```
h1 {  
    font-size: calc( var(--h1-font-size-min) * 1em );  
}  
  
@media screen and (min-width: 24.15em) {  
    h1 {  
        font-size: calc(( var(--h1-font-size-min) * 1em ) +  
            ( var(--h1-font-size-max) - var(--h1-font-size-min) ) *  
            ((100vw - ( var(--bp-small) * 1em )) / ( var(--bp-  
xlarge) - var(--bp-small) ))));  
    }  
}  
  
@media screen and (min-width: 75em) {  
    h1 {  
        font-size: calc( var(--h1-font-size-max) * 1em );  
    }  
}
```

Some resources

Introduction

MY SPECIMENS

Old Default

SPECIMENS

NEW

Protipo Variable

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

Grade

NEW

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.

The Font Variation controls adapt according to

TEXTBOX

Textbox

heading1

Font

Zeitung Pro Regular

Drag & drop fonts here

Font size

Line-height

Alignment

CSS

New textbox

Delete textbox

FONT VARIATIONS

Instance

Thin

Weight

Optical Size

FONT FEATURES

c2sc

calt

case

dnom

frac

liga

Inum

locl

numr

onum

pnum

sinf

smcp

ss01

subs

supr

tnum

zero

COLOUR

#328

..00

Venn VF



Venn VF is the first family from Dalton Maag to be distributed as a variable font. It's offered for free as a technology preview for use in commercial and non-commercial work until March 1, 2019.

Design: Dalton Maag Ltd.
Publisher: Dalton Maag Ltd.
Licensing: Free for personal and commercial use
Info/fonts: daltonmaag.com

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdef
ghijklmnopqrstuvwxyz 0123456789

Protipo Variable



A typeface designed for use in informational design. Production of [the variable fonts](#) was handled by Irene Vlachou.

Design: José Scaglione, Veronika Burian

Protipo Variable Compact

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdef
ghijklmnopqrstuvwxyz 0123456789

Protipo Variable

ABCDEFGHIJKLMNOPQRSTUVWXYZ abcdefghijklmnopqrstuvwxyz

Family: AvenirNext LT Pro Regular
Subfamily: Regular
Instances: 8
Axes: 2
Current: Weight: 850.3, Width: 80

Text Size (200px):

Named
Instances

400

75

900 Weight

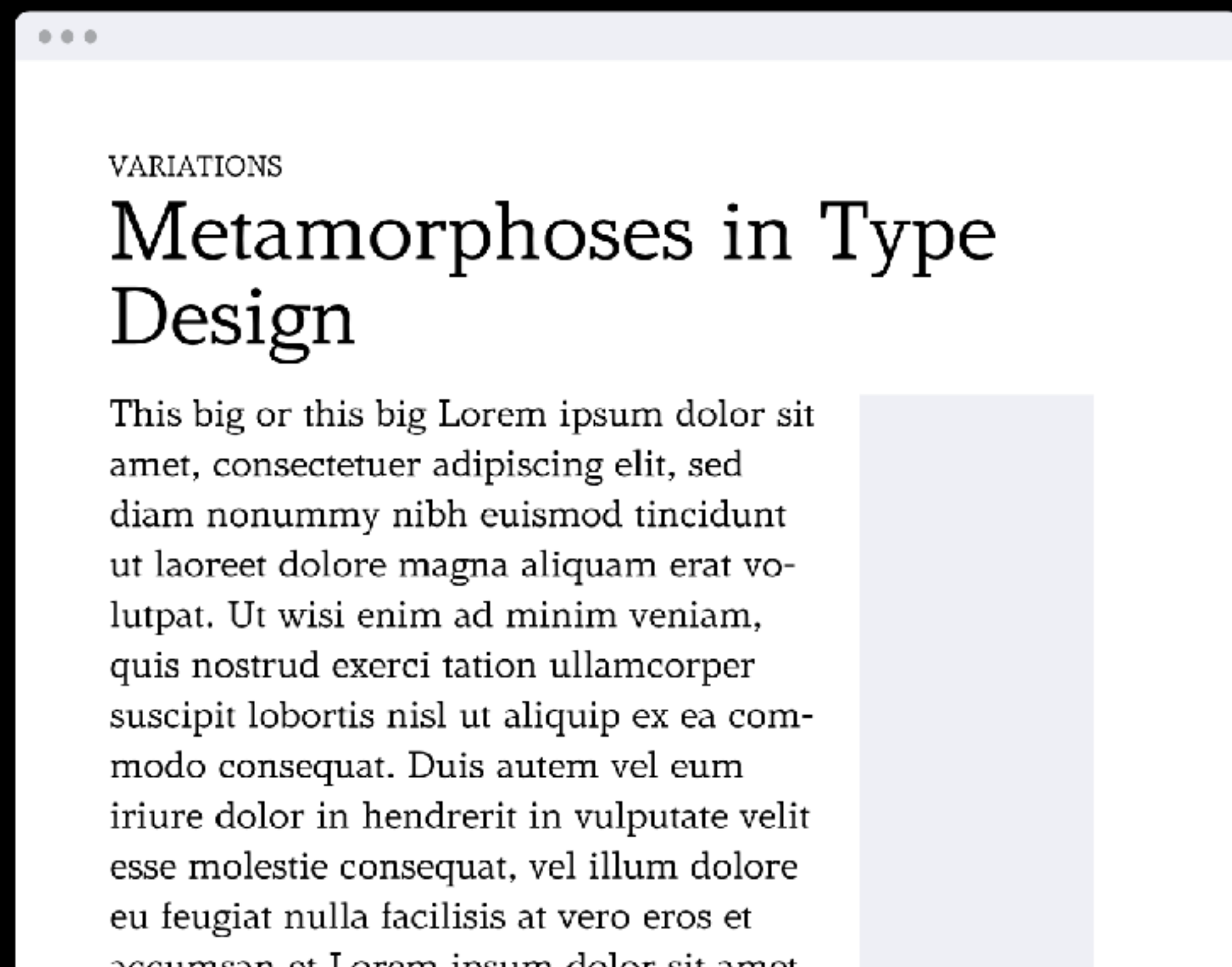
100 Width

Handglove

VARIABLE FONTS

An exploration of expressive, performant typography

Begin expedition ▾



Intro heading

Four score and **seven** years ago our *fathers* brought forth on this continent a nation, conceived in liberty, and dedicated to the idea that all men are created equal.

Jason Pamental | @jpamental
rwt.io

typefaces:

Roslindale, Gimlet, Output
Sans (DJR)

Dunbar, Louvette (CJ Dunn)

Amstelvar, Decovar
(Type Network)

photography:

unless otherwise noted,
photos by @jpamental

Thank you

