

# WEB TYPOGRAPHY

PAST, PRESENT AND FUTURE

Justin Slack

NML

# #1 OUTLINE

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## #1.1 TYPE ORIGINS

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#1.1 TYPE ORIGINS

#1.2 TYPE ON THE WEB - PAST AND PRESENT

# #1 OUTLINE

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#1.3 RICH TYPOGRAPHY WITH OPEN TYPE FEATURES

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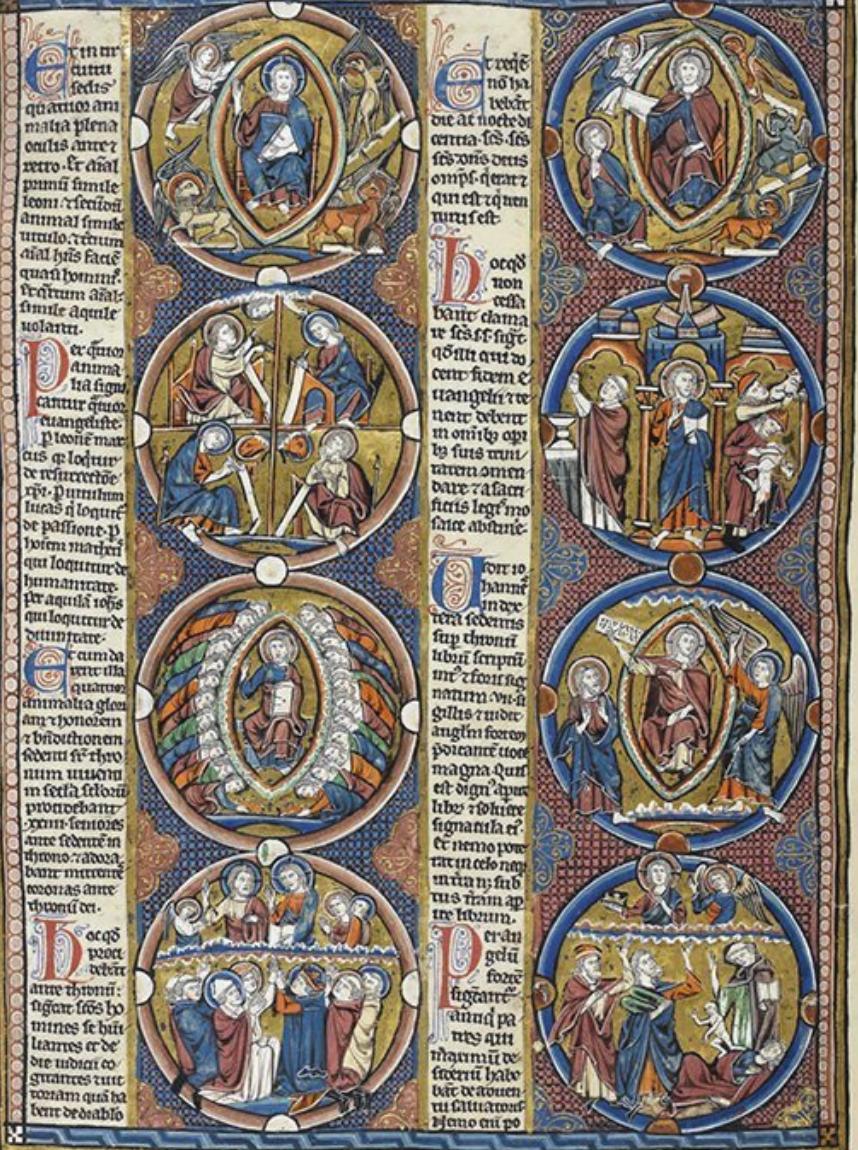
#1.4 PERFORMANCE MATTERS - FONT LOADING STRATEGIES

# #1 OUTLINE

- #1.1 TYPE ORIGINS
- #1.2 TYPE ON THE WEB - PAST AND PRESENT
- #1.3 RICH TYPOGRAPHY WITH OPEN TYPE FEATURES
- #1.4 PERFORMANCE MATTERS - FONT LOADING STRATEGIES
- #1.5 TYPE ON THE WEB - THE FUTURE

# #1 TYPE ORIGINS





libros diuinis f. monus hester. **M**ea  
ita hinc pice vatas legit libri virginis  
duo: id est novis quicq; s. p. phar. odo:  
agio pharos noui. Quamvis nonnulli  
autem inut agographa scrip-  
tientur: et hoc libri i sui puer nunc  
supradictos: ac p. hoc esse praelegit  
libros virginianos quos sub numeris  
virginianis scimus. apocalypsis  
ieatis inducit adorantes agnii: et ro-  
rouas suas plena vultus obiectant.  
Saunders coram hinc atalibus ostendit:  
autem et recte id est in pietatis i in fidei  
reipublica: et indecessu voe clamans  
vobis. sanctus seb. dñs deus omni-  
potens qui erat: qui est: qui vici  
est. hic plorans scipionem quasi ga-  
lacon principi. cibis libris quido de  
hebreo videntur? I sciam vobis certe post  
ut sicut valeamus? quicquid erga hos est  
inter apocrypha et ponendum. Ignis  
lapis q. vulgo salomonis inservit: et  
ihi belli strati lib. i iudicis: et thobias  
et paulus non sunt in canonie. Mactabon  
enim libri hebreorum epistola. Hoc est grec  
q. qd ipso phariseis placit post. Que  
ita ut se habent. obiecto et ledo: ne la-  
borem meum replacemente climes am-  
ique. In templo dei: offert uniusquisque  
qd post. Alii et argenti et lapidi-  
ceti preciosos: aliis belliti et purpuram  
cora obiectant: iumenti. Nobilitate  
agunt: si obiectumq; pelles et capaces  
pilos. Si tamen aples temerabilitate  
una magis necessitate indicatur. Hinc  
et tota illa tabernacula pulchritudo: et  
plumbas specie recte pilas: sursum  
distinctor pilis agri: et cibis: arduo:  
q. solido et iunctu a ymbra: et q. vultu:  
ta sic pharisei. Ego ergo pium sanum

aut non nobis liberis. Et absconditur vir  
de omni sua statuus dies: ut a-  
peratur et manifestetur deo regnui in  
fin. Nam autem dico vobis huius omni  
et ambo regnum domini duci. Vobis ergo die  
venerabilis beatitudo. dicitur; faciente  
vobis ut et cunctis filiis vestris et cunctis  
filia. Nam autem tunc parere una  
cunctis quibusdam diligebatur. Dominus  
autem confutat vobis et. Prodigie  
quod ei omnia eius - voluntate an-  
ticipantur et prebeat qd deo  
etiam vobis omnia. Hicq; sanctus  
prophetas dicit: omnes vestes qd asce-  
deret ad apollum tuum. Et sic prouocabat n.  
Ponit illa letare: nō capiabitis abū.  
Dicit qd beatitudine vir sicut Anna  
et Ioseph: qd nō conuidistis: qd quā obē-  
stis me: nō ego in die  
vobis quā deo filius. Hoc autem  
accipit: concedat te birebas in  
ita. Et huius taciturnus fecerit vobis illa  
poste domi: dicit: nō esset anna  
et ioseph: ducatis ad dium kios  
languorem vobis vobis dicendo. Dicit qd  
et cunctis quibus videtis afflictionem  
familiis nra: recordar: nra furtis nec  
aliquis malefit nec detestat: facie nre  
ne vobis vobis dico omnis dies  
et cunctis quoniam nra ostendit super  
apertum. Sicut est autem cū illa ma-  
gister pater vocat dñm: ut huius obser-  
varet nra. Proinde omnia loquuntur  
et cunctis quibus: labia eius inueni-  
tuntur et vox patinum nra audientur.  
Manifestatur ergo eam huius multitudinem:  
et cunctis quibus nra mactat. Et spou-  
sus et spousa: inquit dñe mihi. Nra mul-  
titudinem nra ego sum: uniusq; et

omne quod invenire posset non bibi sed  
studi anima mea in conspectu domini. Ne  
reperto altissima tuis quibus uia de fidelibus  
fidelis quia et multitudine doloris et  
meritorum meorum locuta sum usque in perfusio.  
Tunc hely erit. Parce in parte et dico  
istud ab aliis priuatis tua quia rogasti  
eum. Per illam dixi. Ueniam inuenient  
autem nos gratias oculis noster. Et abieci  
multis in via tua et comedie: vultus tuus  
illius non sicut aplinis in diuina mutari.  
Et surrexerunt manus et ad orationem  
coram domino: reuelatus est et venient in  
domini sua tam alia. Ego nunc autem  
habebam anima vestre misericordia et recordatio  
nem a domino. Et factus est post circulum dñe  
coepit anima et pergit hinc: vocatus  
venerabilis aus somnus: te quia a domino postu  
lasse es. Alcedo autem virus te dicit: habebas  
et a domino: ut in foliis dno baptista  
solitarius: et vocari sumi: anima non asem  
bit. Dixit mihi vero Iohannes. Non vadamus  
donec ablaudes in laus: et ducat eum in  
apartem ante conspectum domini: et maneat  
ibi iugulatus. Et ait ei habebas anima vestre  
suis. Et quod boni nisi videtur: et mane  
donec ablaudes sit proximus in implorare  
dno verbum tuum. Manstru ergo misericordia  
te latuam subtili sum: donec amio uer  
ti a latere. Et adduxitur tu secum post te: ab  
ducatur in vincula mibz et cibis mo  
ndo saturo: et aperta uita: et adduxitur  
ab domini domini in hunc. Pute autem  
te adhuc infandulus. Et humiliatur  
ante vincula et obductus puer habet. Et  
in anima. Obsecro tu domine omnia asa  
mea dñe. Ego sum illa miser qui fui  
et te hic: deus domini pro puro isto.  
Oraui deinde multo dñis precionem  
meam quia postulauim. Idcirco et ego



The image shows a single page from a medieval book. At the top, the word "TENEBR" is printed in large, bold, white capital letters. Below this, the page is filled with dense Latin text in a black Gothic script. A decorative initial letter, possibly 'I', is located at the bottom left. The parchment appears aged and slightly yellowed.

omnib[us] q[uo]d inveniatur post non bibi-let  
studi animata mta in cōspic̄ dñi. Ne  
repentes afflata ea s[ecundu]m suā de libibis  
befat-qua te uulnereamur dolos &  
metono me locuta sū u[er]bi p[ro]fessio.  
Tunc h[ab]et aira. Pate in parte & dñe  
ist[em] de cib[is] p[re]dictis tua quā rogata  
eū. At illa dixit. Vtina inueniam  
aliam tua gressu[m] oculis nra. Et ab ipse  
multat ut iū sūa te comedat; uulnere  
nib[us] non sūe aptius in diuina misericordia.  
Et si furentes manū- et ad orationem  
coram dñi: conculc[er]e; s[ed] ut venter in  
domini sua tamach[er]e. Ego nōne ante  
h[ab]entia anna sicut uero s[ecundu]m; recordar  
eū dñs. Et fadū ē p[er]sticula dñi:  
cōcepti amata & p[re]gnantib[us] uorariorib[us]  
nonne eae famulato r[es] a dñi polu  
lasse sū. Nescio aut eis ne h[ab]ent  
a dñi ton[us] a[ct]u uulnereate dñs loquā  
solonim[us] & uoni sūni: & anna nō aliena  
deinde uero s[ecundu]m. Nam uideau  
deinde quod videris ad uideat te maius  
dome ablatas s[ed] p[ro]p[ter] ut implorat  
dñs uero s[ecundu]m. Mansus ergo mulier  
te faduit filii sūni: doce[re] amouere  
s[ecundu]m a latr. Et adduxit r[es] seu p[ro]p[ter] ab  
aduocata in uulnere mbs & eads mo  
dno faciunt & ap[er]tu vint[er] & adduxit  
ad domum dñi in h[ab]lo. Pate autem  
carib[us] infanteus. Et uulnere  
uulnere obulentiū p[ro]p[ter] h[ab]lo. Et  
annam. Oblecto sum ita multa que feci  
te te h[ab]e. Ons dñm pro p[ro]p[ter] illa.  
Drau[er]e deinde nra dñs p[re]dicione  
neq[ue] postulauit sū. Duxo et ego

# GUTTENBERG BIBLE



marci etiam ut p noia un  
gloz a mīgīā ānis t sup̄ oēs  
qui ad bellū pcederēt: q̄d rāgī  
taq̄nōs mūlia serēt qūiqua  
gūita. De filiis uida p genēa  
nones t familias ac domos  
cognationū suar p nomūa  
singulor a viceſimo āno et

# BLACK LETTER

mar tuemur ut p noia un  
glor a m̄ḡia ānis t sup̄ oēs  
qui ad bellia pcederēt: q̄dra ḡi  
taq̄n̄is milia serēt q̄n̄qua  
gūta. De filiis uida p genera  
tiones t familias ac domos  
cognationū suar p nomūa  
singulor a viceſimo āno et

## 184 LA VIE DES BOVRBONS.

faire quelque facherie en Poictou, fauorisant le Roy d'Angleterre. Au moyen de quoy, pour y prouuoir, il alla à la Rochelle, & y tint son grand Conseil en vne maison de Charpentier, cotigüe à la muraille de la ville: mais estant en consultation, la charpenterie fondit, plusieurs y estans bleuez & morts, entre autres Monsieur Iaques de Bourbon, Sieur de Preaux, Grand Chambelan de France: & le Roy fut vn peu blesé, mais n'y eut danger aucun de sa personne, à cause que son siege estoit bien auant dedans la muraille, où la ruine ne peut attaindre.

1423.

L'an 1423. les Anglois vindrēnt, & affigèrent Bazaz: pour le secours de laquelle place, le Vicōte de Narbonne, & Messire Guillaume d'Albret, Sire d'Orual, assemblerent leurs forces, & empescherēt pour lors la prinſe de la ville. Toutefois depuis le Roy n'ayant aucun moyen de secourir les habitans, par ce qu'il atioit retiré ces Seigneurs, & la plus part de la Noblesse de Guyenne, pour établir ses affaires ailleurs, les habitans de Bazaz furent cotraintz de faire joug à l'Anglois. Ce fut alors que Charles septiesme, donna au Bastard d'Orleans Gien, Fontenay, & Dun.

## LA VIE DES BOVRBONS 185

L'an 1424. fut dōnée la bataille de Verneuil en Perche, en laquelle mourut grād nōbre de Noblesse Frāçoise. Entre les plus signalez furent le Vicomte de Narbonne le fils du Comte d'Aumale, de la maison de Harcourt, les Comtes de Tonnerre, de Ventadour, de Rambouillet, de la Baſtide, de Clermont, de Lodéue, de Guitry, Philippe & Anselin de la Tour d'Auvergne, yſſus des Comtes de Beaufort, Vicomtes de Turéne,

1426.

L'an 1426. le Duc de Bourgongne Philippe se trouua à Mascon, pour traiter la paix avec le Roy Charles septiesme, lequel à ces fins y députa Mousieur Charles de Bourbon, Comte de Clermont, l'Archevesque de Reins, & l'Evesque du Puy: mais ce fut en vain: car ils n'auancerent rien, fors que ledit Sieur Charles de Bourbon promit d'espouser Madame Agnez, sœur du Duc de Bourgongne.

Au mesme an le Duc de Bretagne vint à Saumur, sous pretexte de faire hommage au Roy: mais en effect c'estoit pour cōsulter sur les affaires de la guerre, sa Majesté estant accompagnée des Comtes de Clermont & de Vendome, Princes de Bourbon, des Comtes de Foix, Cuminge & Estrac, du Sire d'Al-



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# PIERRE HAULTIN

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bon, Comte de Clermont & Avesnesques de  
Reims , ce f'eust que du 14 au 16. ce fut en  
vain : car ils n'anancerent rien , fors que ledit  
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IN 1991

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THERE WAS  
ONE WEBSITE

IN 1991

**THERE WAS  
ONE WEBSITE**

AT CERN

IN 1991

# THERE WAS ONE WEBSITE

AT CERN

Built by **Tim Berners-Lee**

THE WEB WAS  
ALWAYS FLUID

WE BROKE IT



# HOW DID WE DO THAT?

# HOW DID WE DO THAT?

- Tables and spacer gifs

# HOW DID WE DO THAT?

- Tables and spacer gifs
- Flash

# HOW DID WE DO THAT?

- Tables and spacer gifs
- Flash
- Floats and fixed widths

# HOW DID WE DO THAT?

- Tables and spacer gifs
- Flash
- Floats and fixed widths
- Frameworks - Bootstrap et al



# MEANWHILE

MEANWHILE

TYPE ON THE  
SCREEN

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WAS MAKING IMPORTANT STRIDES

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Core fonts for the Web started by Microsoft in 1996

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Slow adoption of CSS

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Slow adoption of CSS

The font wars



# THE FONT WARS?

SERIOUSLY?

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CONTESTING FORMATS

SERIOUSLY?

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CONTESTING FORMATS

Apple Advanced Typography (AAT or GX typography)

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Adobe - Type 1 (Postscript)

SERIOUSLY?

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## CONTESTING FORMATS

Apple Advanced Typography (AAT or GX typography)

Adobe - Type 1 (Postscript)

True Type - Microsoft and Apple

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## CONTESTING FORMATS

Apple Advanced Typography (AAT or GX typography)

Adobe - Type 1 (Postscript)

True Type - Microsoft and Apple

Open Type - Adobe and Microsoft



# WHY

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# OPEN TYPE?

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OPEN TYPE IMPROVES ON POSTSCRIPT IN MANY WAYS

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OpenType file can contain 65,535 characters or glyphs

While Postscript is limited to 256 characters in a file

This allows for extensive language support as well as space for advanced typographic features

**“WEB DESIGN IS  
95%  
TYPOGRAPHY”**

Oliver Reichenstein, 2006

@font-face



# CUSTOM FONTS

# CUSTOM FONTS

FIRST BROWSER

# CUSTOM FONTS

## FIRST BROWSER

The first browser to support embedded type was  
Netscape Navigator 4 in 1994

```
<head>
    <link rel="FONTDEF" src="myfont.pfr">
</head>
<body>
    <font face="myfont">Type</font>
</body>
```



# WHAT ABOUT?

WHAT ABOUT?

IE

WHAT ABOUT?

IE

has supported @font-face since 1997

```
@font-face {  
    font-family: 'myfont';  
    src: url('myfont.eot');  
}
```

@font-face



**WOFF**

WOFF

# WEB OPEN FONT FORMAT

WOFF

# WEB OPEN FONT FORMAT

Developed by Mozilla in 2009

WOFF

# WEB OPEN FONT FORMAT

Developed by Mozilla in 2009

Adopted as standard in 2012

WOFF

# WEB OPEN FONT FORMAT

Developed by Mozilla in 2009

Adopted as standard in 2012

2015 WOFF2 30% reduction in file size

```
@font-face {  
    font-family: 'MyFontFamily';  
    src: url('myfont-webfont.eot?#iefix') format('embedded-opentype'),  
         url('myfont-webfont.woff') format('woff'),  
         url('myfont-webfont.ttf') format('truetype'),  
         url('myfont-webfont.svg#svgFontName') format('svg');  
    font-weight: normal;  
    font-style: normal;  
}
```

```
@font-face {  
    font-family: 'my-web-font';  
    src: url('webfont.woff2') format('woff2'),  
        url('webfont.woff') format('woff');  
    font-weight: normal;  
    font-style: normal;  
}
```

# #3 OPEN TYPE FEATURES



# RICH TYPOGRAPHY

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OPEN TYPE IMPROVES ON TRUE TYPE IN MANY WAYS

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OPEN TYPE IMPROVES ON TRUE TYPE IN MANY WAYS

OpenType features allow fonts to behave smartly

OPEN TYPE

# FEATURES

OPEN TYPE IMPROVES ON TRUE TYPE IN MANY WAYS

OpenType features allow fonts to behave smartly

Once we know what they are it is easy to enable them on our web pages



so

so

WHAT ARE THEY?

so

# WHAT ARE THEY?

There are more than 100 Open Type features

so

# WHAT ARE THEY?

There are more than 100 Open Type features

We should care about the important ones at the right times



# SOME EXAMPLES

# SOME EXAMPLES

Kerning, old-style figures, tabular figures, small capitals, fractions, swashes, superiors, inferiors, titling letters, contextual and stylistic alternates, and a full range of ligatures, symbols and ornaments



# LIGATURES

## LIGATURES

A specialist financial  
services software  
development company.

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services software  
development company.

## LIGATURES

A specialist financial  
services software  
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```
.class {  
  font-variant-ligatures: common-ligatures;  
  font-feature-settings: "liga", "clig";  
}
```



# LIGATURES

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# #4 PERFORMANCE MATTERS



# FONT LOADING

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Before a browser can show a web font it needs to be downloaded over the network

# FONT LOADING

Before a browser can show a web font it needs to be downloaded over the network

The download is only initiated once the browser detects the `font-family` in the CSS file



# FONT LOADING

# FONT LOADING

This means that web fonts cause serious performance issues

— — — —



•  
•  
•

—

—





— — — —

•  
•  
•

— — — —

— — — —



⋮

# FOIT - FLASH OF UNSTYLED TEXT



# HTML Ipsum Presents

- Lorem ipsum dolor sit amet, consectetuer adipiscing elit.
- Aliquam tincidunt mauris eu [Donec non enim](#) risus.
- Vestibulum auctor dapibus neque.

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**Pellentesque habitant morbi tristique** senectus et netus et malesuada fames ac turpis egestas. Vestibulum tortor quam, feugiat vitae, ultricies eget, tempor sit amet, ante. Donec eu libero sit amet quam egestas semper. *Aenean ultricies mi vitae est.* Mauris placerat eleifend leo. Quisque sit amet est et sapien ullamcorper pharetra. Vestibulum erat wisi, condimentum sed, **commodo vitae**, ornare sit amet, wisi. Aenean fermentum, elit eget tincidunt condimentum, eros ipsum rutrum orci, sagittis tempus lacus enim ac dui. [Donec non enim](#) in turpis pulvinar facilisis. Ut felis.

## Pellentesque fermentum dolor

Aliquam quam lectus, facilisis auctor, ultrices ut, elementum vulputate, nunc.

# HTML Ipsum Presents

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*Pellentesque fermentum dolor.*

# FOIT - FLASH OF UNSTYLED TEXT

## HTML Ipsum Presents

- *Donec ipsum dolor sit amet, consectetur adipiscing elit.*
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- *Vestibulum auctor dapibus neque.*

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*Pellentesque fermentum dolor.*

FOIT IS WAY  
WORSE THAN  
FOUT



so

so

**WHAT CAN WE DO?**



DON'T USE  
CUSTOM FONTS

```
body {  
    font-family: -apple-system, BlinkMacSystemFont, "Segoe UI", Roboto,  
    Oxygen-Sans, Ubuntu, Cantarell, "Helvetica Neue", sans-serif;  
}
```



# MINIMISE DOWNLOADS

```
@font-face {  
    font-family: 'Open Sans';  
    font-weight: 400;  
    src: local('Open Sans'), url(https://font.woff2) format('woff2');  
}
```



**DOWNLOAD  
EVEN LESS**

```
@font-face {  
    font-family: 'Open Sans';  
    font-weight: 400;  
    src: local('Open Sans'), url(https://font.woff2) format('woff2');  
    unicode-range: U+0-A0;  
}
```



**DOWNLOAD  
EARLIER**

```
<link rel="preload" href="https://font.woff2"  
as="font" type="font/woff2" crossorigin>
```



# FONT FACE OBSERVER

```
var font = new FontFaceObserver('My Family', {  
  weight: 400  
});
```

```
var font = new FontFaceObserver('My Family');

font.load().then(function () {
  document.documentElement.className += " fonts-loaded";
});
```

```
body {  
    font-family: sans-serif;  
  
.fonts-loaded {  
    body {  
        font-family: My Family, sans-serif;  
    }  
}
```



# FONT DISPLAY



# FONT DISPLAY

# FONT DISPLAY

The font display timeline is based on a timer that begins the moment the user agent attempts to use a given downloaded font face.

# FONT DISPLAY

The font display timeline is based on a timer that begins the moment the user agent attempts to use a given downloaded font face.

The timeline is divided into the three periods below which dictate the rendering behavior of any elements using the font face.



# FONT DISPLAY

# FONT DISPLAY

Font block period

# FONT DISPLAY

Font block period

Font swap period

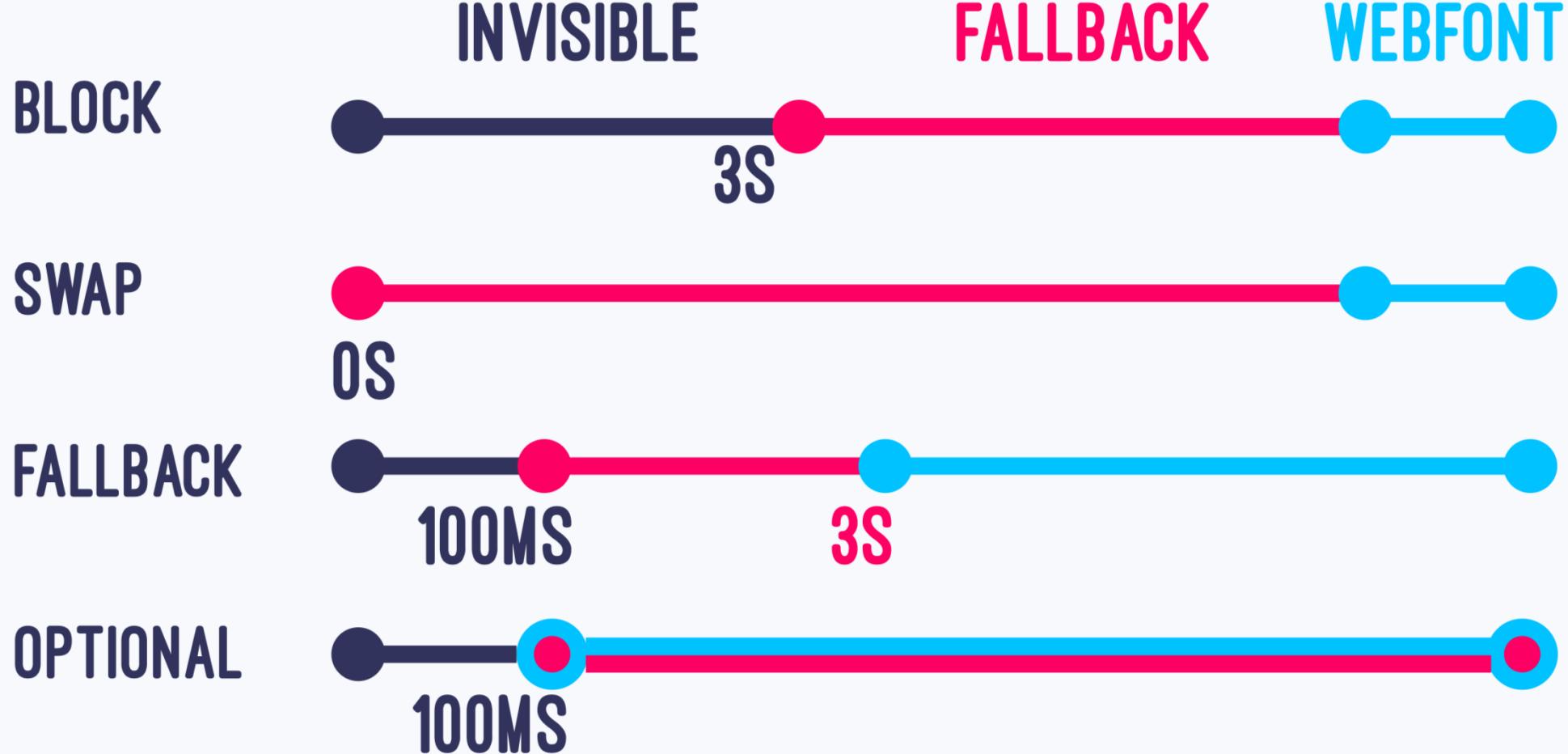
# FONT DISPLAY

Font block period

Font swap period

Font failure period

```
@font-face {  
    font-display: auto;  
    font-display: block;  
    font-display: swap;  
    font-display: fallback;  
    font-display: optional;  
}
```



[HTTPS://FONT-DISPLAY.GLITCH.ME/](https://font-display.glitch.me/)

# #5 THE FUTURE



**WHAT?**

WHAT?

# VARIABLE FONTS

WHAT?

# VARIABLE FONTS

AN ENTIRE TYPEFACE IN ONE FILE

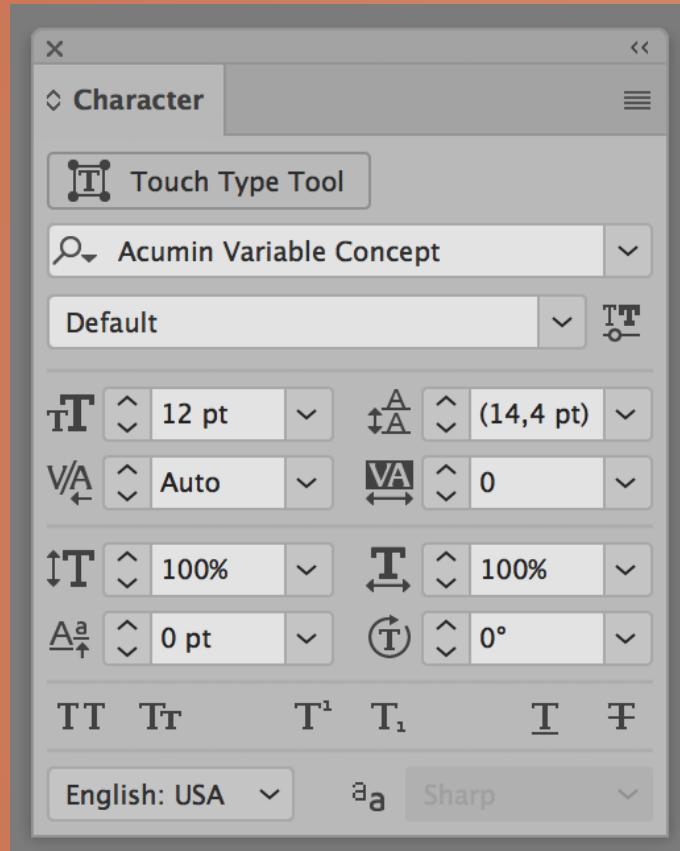
WHAT?

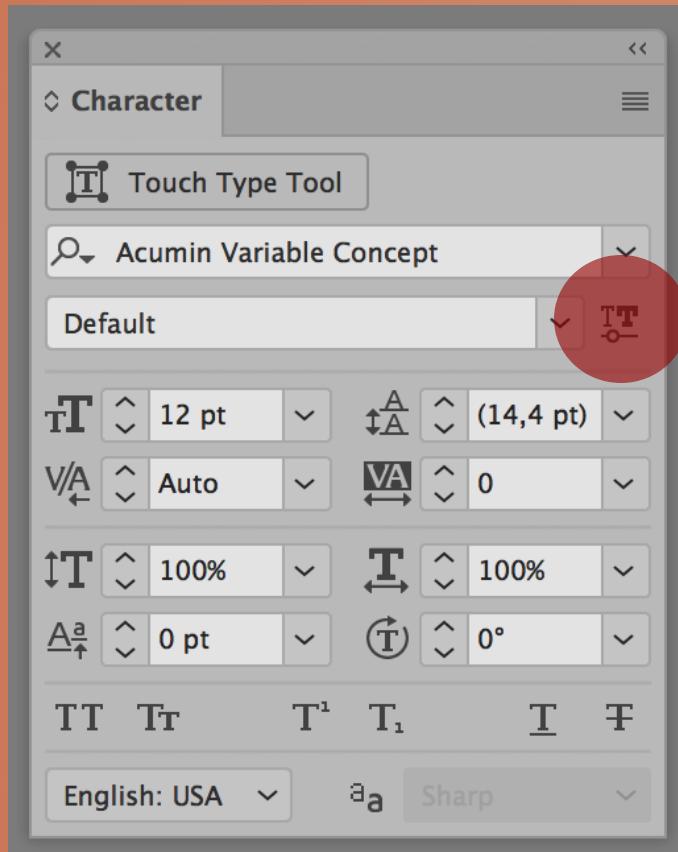
# VARIABLE FONTS

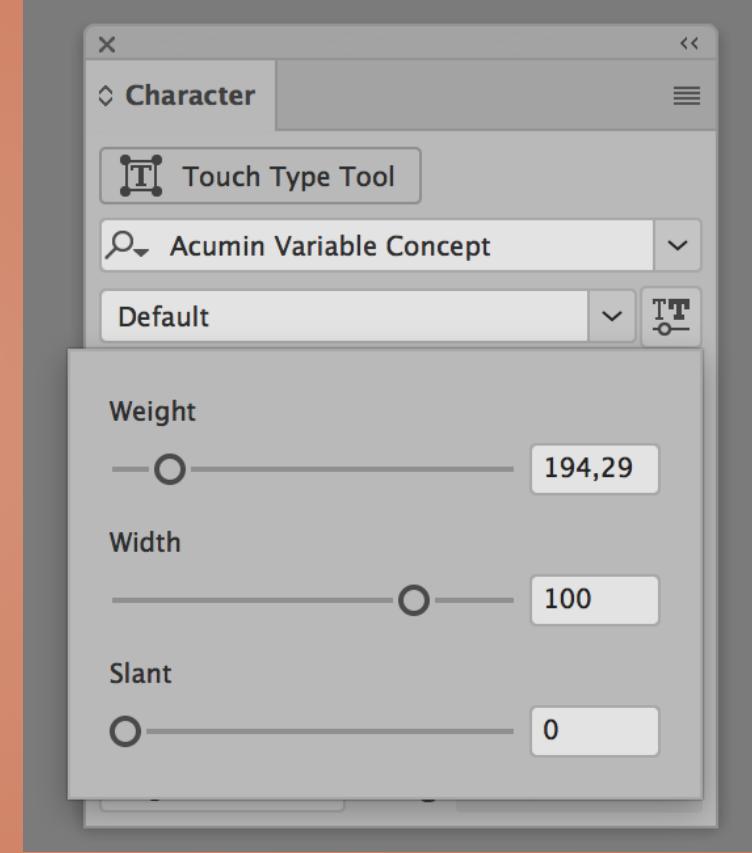
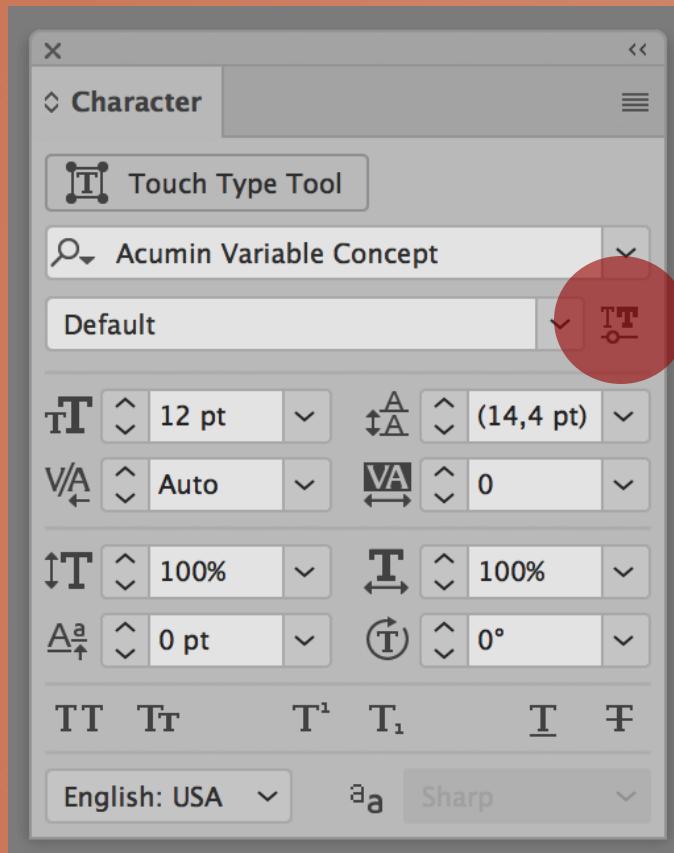
AN ENTIRE TYPEFACE IN ONE FILE

A variable font can store a continuous range of design variants











# VARIABLE FONTS

# VARIABLE FONTS

Acumin Pro

wght

wdth

opsz

ital

slnt

```
h1 {  
  font-variation-settings: "wght" 850, "wdth" 100, "ital" 1;  
}
```

```
h1 {  
  font-weight: 850;  
  font-style: italic;  
  font-stretch: normal;  
}
```

# VARIABLE FONT PLAYGROUND



# COLOUR FONTS

# COLOUR FONTS

Color fonts represent a key evolution in digital typography, introducing rich graphic features into font files

# COLOUR FONTS

Color fonts represent a key evolution in digital typography, introducing rich graphic features into font files

OpenType-SVG is a font format in which an OpenType font has all or just some of its glyphs represented as SVG (scalable vector graphics) artwork.

“Designers will benefit from [approaching] their work now and again as being written rather than assembled.”

Dean Allen, ‘Reading Design’, A List Apart, 2001