

Web typography: a non-English perspective

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Surname First name

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@hj_chen





🥑 Developer Advocate 🥑

nexmo[®]
The Vonage[®] API Platform

What is typography?

“Typography is the art and technique of arranging type to make written language legible, readable, and appealing when displayed.”

—Wikipedia



What is typography?

“Typography is the visual component of the written word.”

—Matthew Butterick



What is typography?

“Typography, the design, or selection, of letter forms to be organized into words and sentences to be disposed in blocks of type as printing upon a page.”

—Encyclopedia Britannica



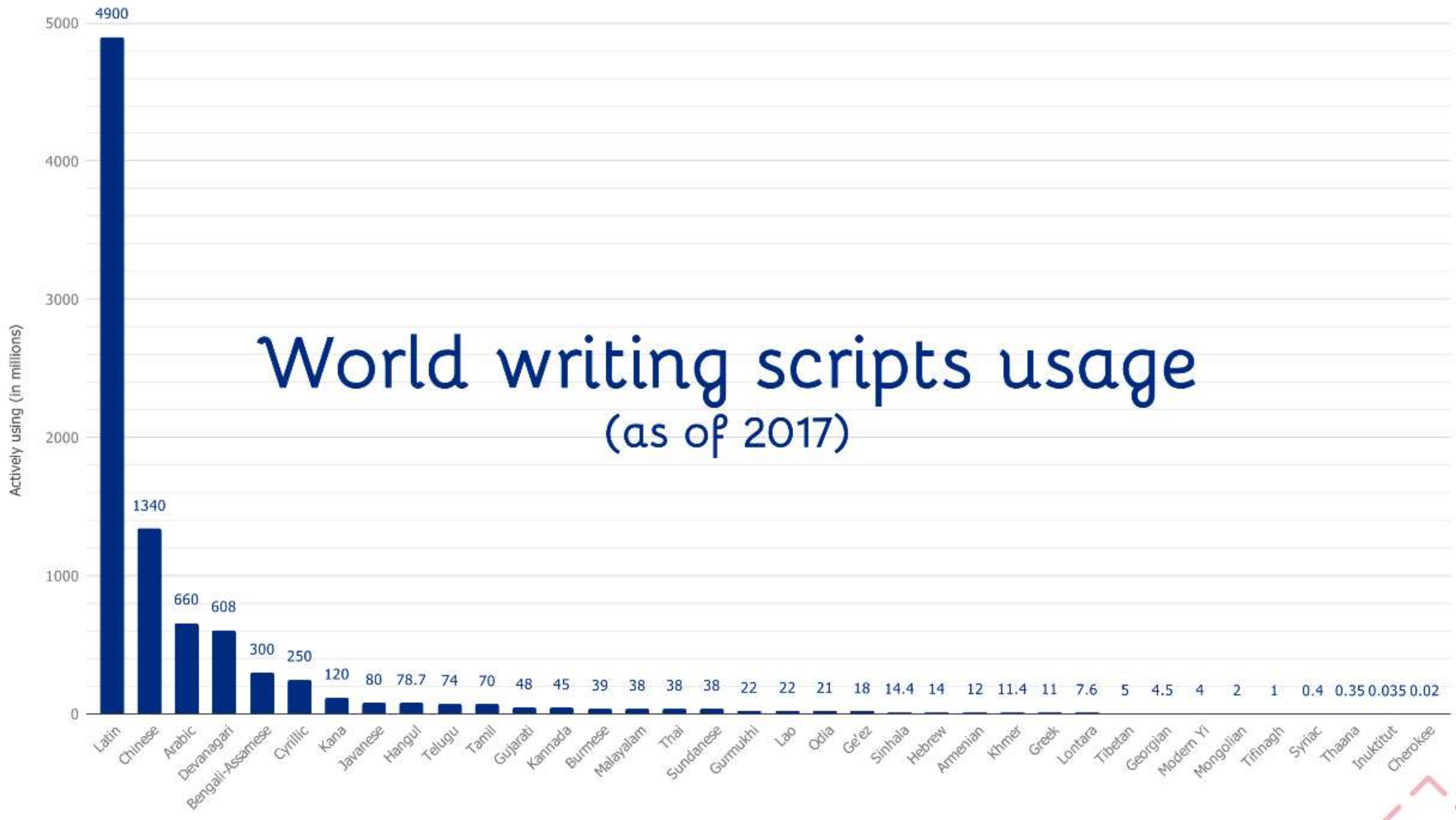
What is typography?

“ ✨ Typography is writing with prefabricated letters. ✨ ”

—Gerrit Noordzij



<http://www.worldwritingsystems.org/>





Latin script distribution



A, a	Ă, ă	Â, â	B, b	C, c	D, d
E, e	F, f	G, g	H, h	I, i	Î, î
J, j	K, k	L, l	M, m	N, n	O, o
P, p	Q, q	R, r	S, s	Ș, ș	T, t
Ț, ț	U, u	V, v	W, w	X, x	Y, y
Z, z	Romanian (31)				

א	ב	ג	ד	ה	ו
ז	ח	ט	י	כ	ל
מ	נ	ס	ע	פ	צ
ק	ר	ש	ת	י	י
Hebrew (22)					

ا	ب	ج	د	ه	و
ز	ح	ط	ي	ك	ل
م	ن	س	ع	ف	ص
ق	ر	ش	ت	ث	خ
ذ	ض	ظ	غ	Arabic (28)	

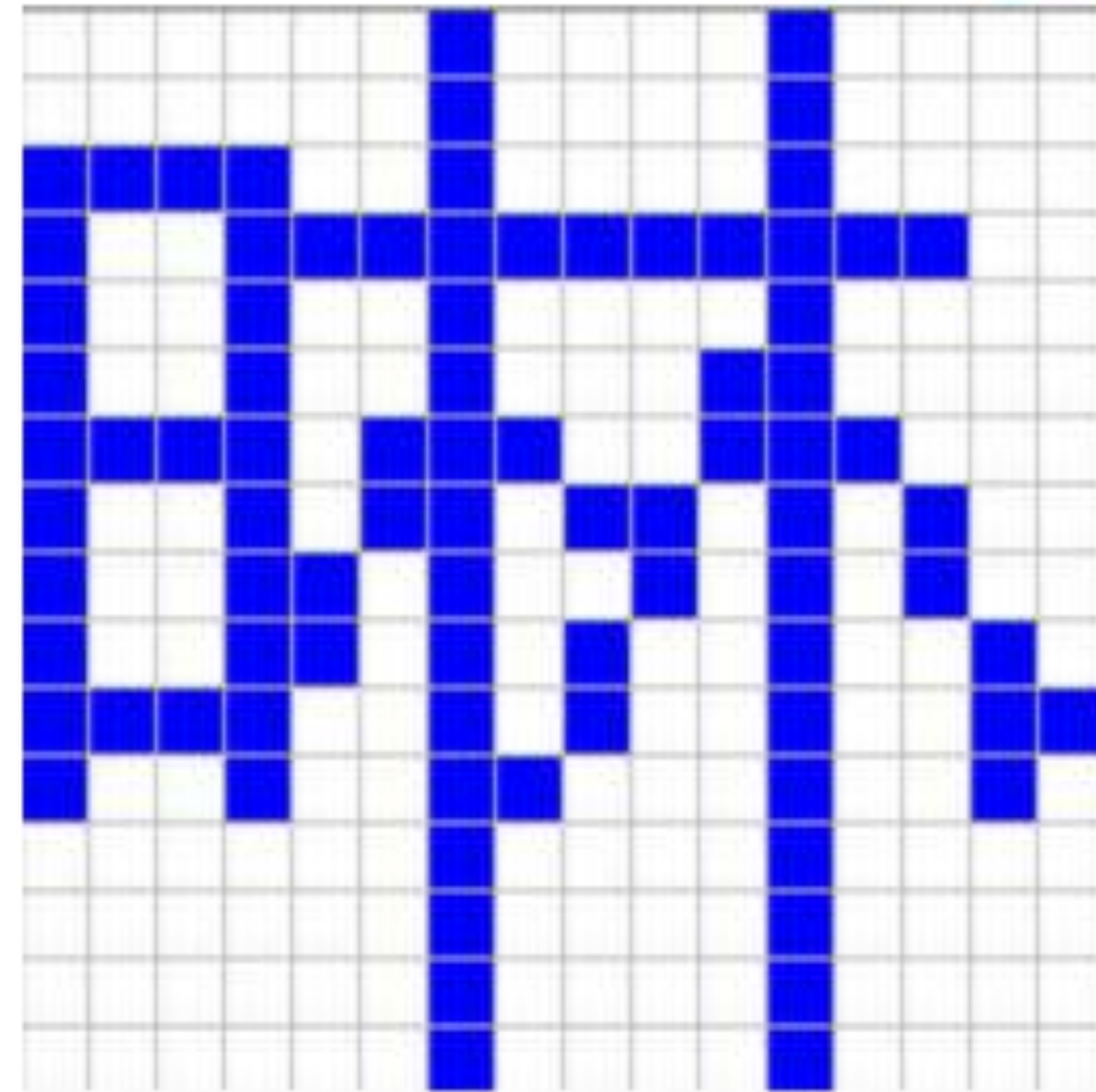
A a	B b	C c	D d	E e	F f
G g	H h	I i	J j	K k	L l
M m	N n	O o	P p	Q q	R r
S s	T t	U u	V v	W w	X x
Y y	Z z	English (26)			



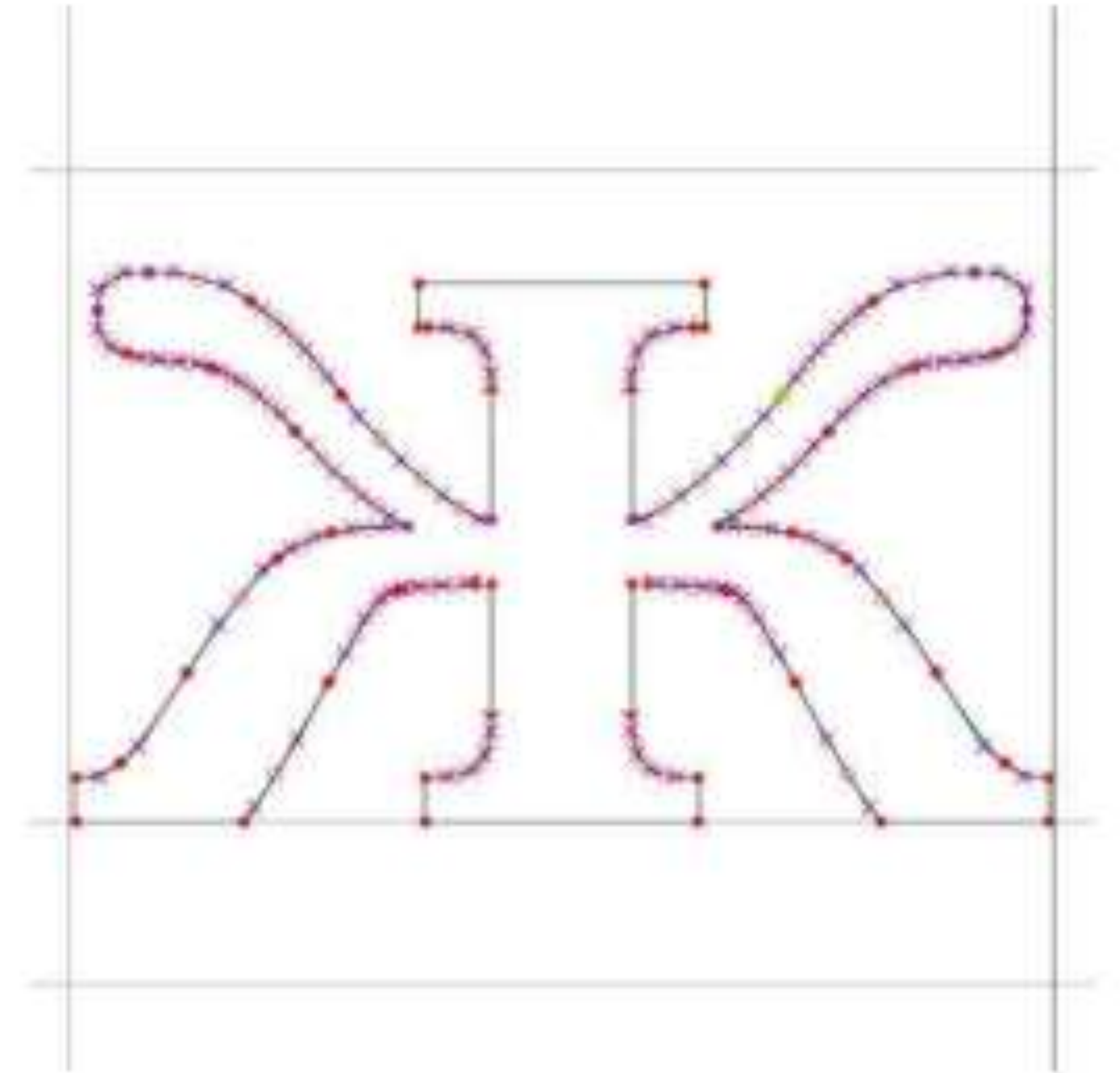
What are glyphs?



M



琳



𠂇

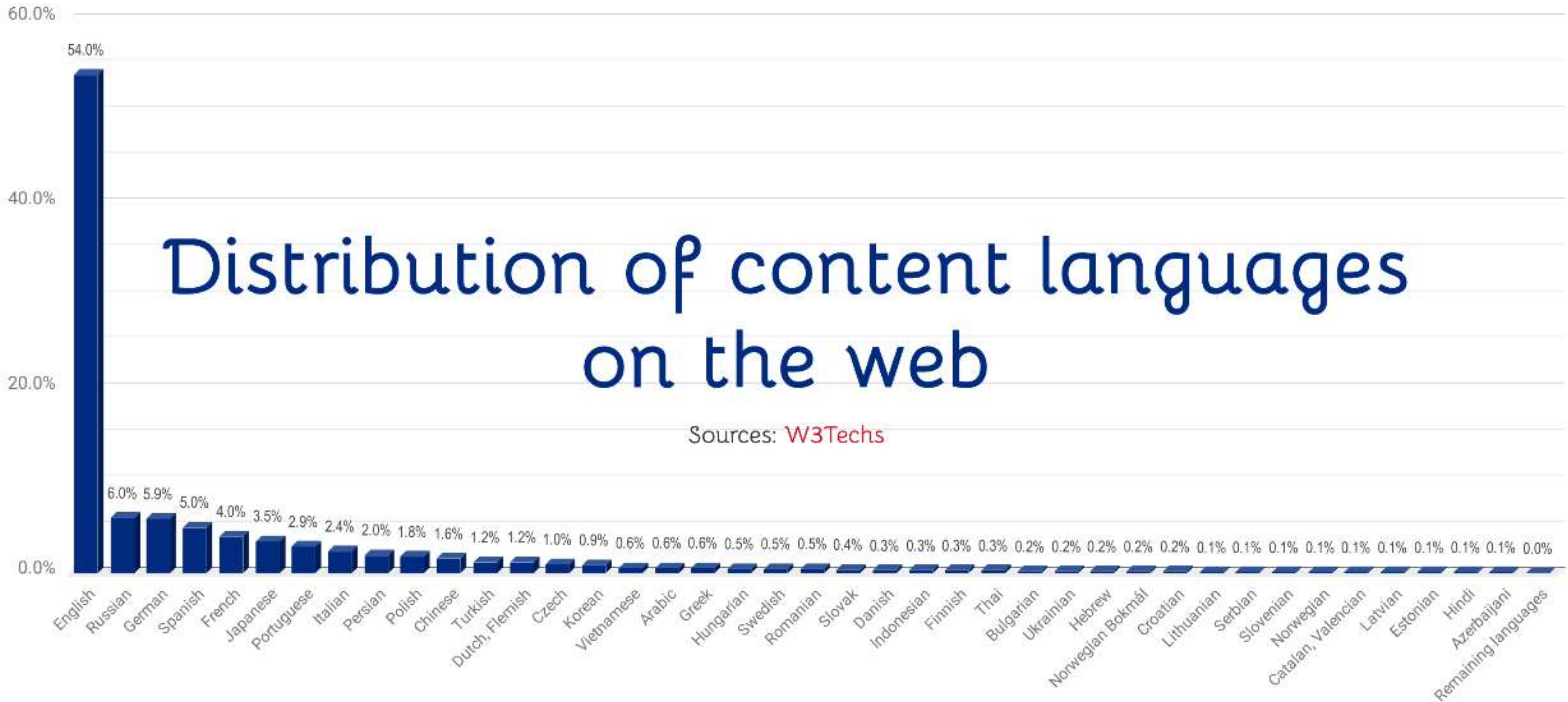


And what about fonts?



Distribution of content languages on the web

Sources: [W3Techs](#)



“When you lose your language, you lose your soul.”

—Ghil’ad Zuckermann



Writing systems on the web



Typesetting on the web




“Authors should language-tag their content accurately for the best typographic behaviour.”


—CSS Text Module Level 3




Font formats for web use

WOFF2 (Web Open Font Format 2)  Microsoft   Opera

WOFF (Web Open Font Format)  Microsoft   Opera

OTF (OpenType)  Microsoft 

TTF (TrueType)  Microsoft 

EOT (Embedded Open Type)  Microsoft

SVG (Scalable Vector Graphics)  



Fonts on web pages

- A pair of numbers in curly braces ({A,B}) indicates that the preceding type, word or group is repeated at least A and at most B times.

5.2 Font properties

Setting font properties will be among the most common uses of style sheets. Unfortunately, there exists no well-defined and universally accepted taxonomy for classifying fonts, and terms that apply to one font family may not be appropriate for others. E.g. 'italic' is commonly used to label slanted text, but slanted text may also be labeled as being *Oblique*, *Slanted*, *Incline*, *Cursive* or *Kursiv*. Therefore it is not a simple problem to map typical font selection properties to a specific font.

CSS1 defines the properties `'font-family'`, `'font-style'`, `'font-variant'` and `'font-weight'`, `'font-size'`, `'font'`.

5.2.1 Font matching

Because there is no accepted, universal taxonomy of font properties, matching of properties to font faces must be done carefully. The properties are matched in a well-defined order to insure that the results of this matching process are as consistent as possible across UAs (assuming that the same library of font faces is presented to each of them).

Fonts section in CSS1 (17-Dec-1996)

FONT

```
<!ELEMENT FONT - - (%text)*      -- local change to font -->
<!ATTLIST FONT
  size      CDATA      #IMPLIED    -- [+]nn e.g. size="+1", size=4 --
  color     CDATA      #IMPLIED    -- #RRGGBB in hex, e.g. red: color="#FF0000" --
>
```

Requires start and end tags. This allows you to change the font size and/or color for the enclosed text. The attributes are: `size` and `color`. Font sizes are given in terms of a scalar range defined by the user agent with no direct mapping to point sizes etc. The `font` element may be phased out in future revisions to HTML.

size

This sets the font size for the contents of the font element. You can set size to an integer ranging from 1 to 7 for an absolute font size, or specify a relative font size with a signed integer value, e.g. `size="+1"` or `size="-2"`. This is mapped to an absolute font size by adding the current base font size as set by the `BASEFONT` element (see below).

color

Used to set the color to stroke the text. Colors are given as RGB in hexadecimal notation or as one of 16 widely understood `color names` defined as per the `BGCOLOR` attribute on the `BODY` element.

Font tag in HTML3.2 (14-Jan-1997)



Bridging a font reference with font data

3. Adding WebFonts to CSS

The *font description* provides the bridge between a *font reference* (within a stylesheet) and the *font data*, which is the data needed to format text and to render the glyph representations to which the characters map - the actual scalable outlines or bitmaps. Fonts are referenced by style sheet properties. The font description is used to select the relevant font data. The font description consists of *descriptors* which provide the location of the font data on the Web, and/or characterize that font data. The font descriptors are also used to match font references with the correct font description.

Font descriptors may be classified into three types:

1. those that provide the link between the CSS usage of the font and the font description - these have the same names as the corresponding CSS font properties
2. the URL for the *location* of the font data
3. those that further characterize the font, to provide a link between the font description and the font data

Font descriptions are contained in an *at-rule*. At-rules - so called because they start with the *@* symbol - were introduced in CSS 1 where they were used to import other stylesheets. Ordinary CSS rules start with a selector, and apply solely to the selected HTML elements. At-rules have no selector, and apply to the whole style sheet.

The general form of this new at-rule is

```
"@font-face { <font description> }"
```

where the font description has the form

```
descriptor: value;  
descriptor: value;  
[...]  
descriptor: value;
```

For example, here the font 'Robson Celtic' is defined and referenced in a style sheet contained in an HTML document.

.....

Earliest reference of webfonts I could find (21-Jul-1997)



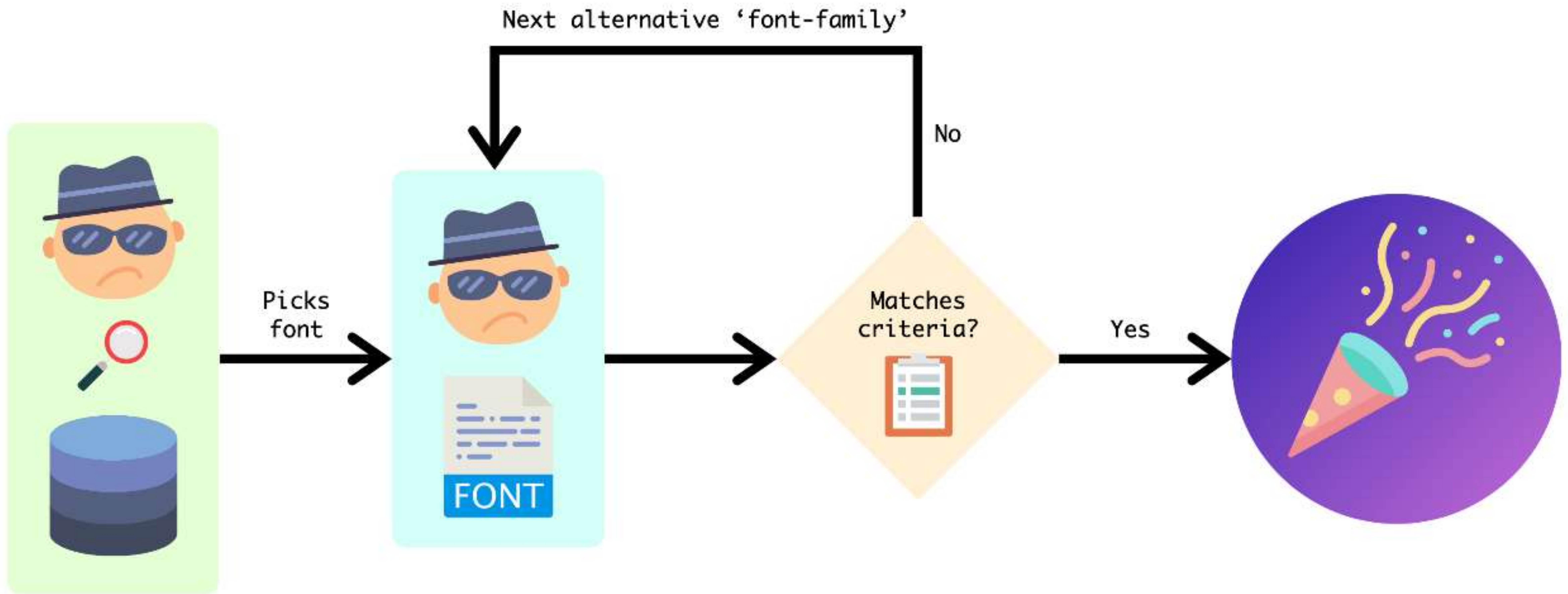
Generic font families

Dependent on OS, HTML language, character set and browser.

serif	Times New Roman, SimSun, SongTi SC
sans-serif	Arial, Microsoft Yahei, PingFang SC
monospace	Consolas, SimSun, PingFang SC
cursive	Comic Sans MS, Apple Chancery, SimSun (oblique), SongTi SC (oblique)
fantasy	Gabriola, Impact, Papyrus, Microsoft Yahei, PingFang SC

Level 4 is adding `system-ui`, `emoji`, `math` and `fangsong`





寶劍

@font-face rule

```
@font-face {  
  font-family: 'Bellato';  
  src: url('Bellota-Regular.woff2') format('woff2'),  
       url('Bellota-Regular.woff') format('woff');  
}
```

WOFF - Web Open Font Format [🔗](#)

Compressed TrueType/OpenType font that contains information about the font's source.

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
9	16	64	71	11.1	11.2			4.4	6.4
10	17	65	72	12	11.4			4.4.4	7.4
11	18	66	73	12.1	12.1	all	71	67	8.2
		67	74	TP	12.2				

✓  Partial Support

Global: 96.41% + 0% = 96.41%

Data from caniuse.com | Embed from caniuse.herokuapp.com

[Enable accessible colours](#)

WOFF 2.0 - Web Open Font Format [🔗](#)

TrueType/OpenType font that provides better compression than WOFF 1.0.

IE	Edge	Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
9	16	64	71	11.1	11.2			4.4	6.4
10	17	65	72	12	11.4			4.4.4	7.4
11	18	66	73	12.1	12.1	all	71	67	8.2
		67	74	TP	12.2				

✓  Partial Support

Global: 87.72% + 0.59% = 88.31%

Data from caniuse.com | Embed from caniuse.herokuapp.com

[Enable accessible colours](#)

@font-face rule

```
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  font-family: 'Bellato';  
  src: url('Bellota-Regular.woff2') format('woff2'),  
       url('Bellota-Regular.woff') format('woff');  
}
```



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		67	74	TP	12.2				

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Data from [caniuse.com](#) | Embed from [caniuse.itsolco.de](#)

[Enable accessible colours](#)

WOFF2 - Web Open Font Format [🔗](#)

WOFF2 is a font format that provides better compression than WOFF 1.0.

Firefox	Chrome	Safari	iOS Safari	Opera Mini	Chrome for Android	Android Browser	Samsung Internet
16	64	71	11.1			4.4	6.4
17	65	72	11.4			4.4.4	7.4
18	66	73	12.1	all	71	67	8.2
67	74	TP	12.2				

✓ Partial Support

Global: 87.72% + 0.59% = 88.31%

Data from [caniuse.com](#) | Embed from [caniuse.itsolco.de](#)

[Enable accessible colours](#)



Anatomy of an @font-face rule

```
@font-face {  
  font-family: <family-name>;  
  src: [ <url> [format(<string> #)]? | <font-face-name> ] #;  
  font-style: normal | italic | oblique ;  
  font-weight: normal | bold | 100 | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 ;  
  font-stretch: normal | ultra-condensed | extra-condensed | condensed | semi-condensed ;  
  unicode-range: <urange> #;  
  font-variant: normal | none | [ <common-lig-values> || <discretionary-lig-value> ;  
  font-feature-settings: normal | <feature-tag-value> #;  
}
```



Patrick Brosset @patrickbrosset · 24 Apr 2018
Hey @hj_chen, I seem to remember you talking about subsetting your fonts quite a lot and wanting a thing in devtools to help locate missing characters. Do you mind sharing an example please? I'd like to test a thing I'm prototyping in this area.

1 3

HJ Chen
@hj_chen

Replying to @patrickbrosset

I had the idea when i was working on my slides built on reveal.js, here's a link to a reduced test case: goo.gl/PsR4KM
the font i'm loading does not contain all the Ukrainian letters loaded, but at a glance it might not be obvious which letters are missing

9:43 AM - 25 Apr 2018

2 Likes



1 2

Patrick Brosset @patrickbrosset · 25 Apr 2018
Thanks, this is very useful!

1

Patrick Brosset
@patrickbrosset

Following

Replying to @patrickbrosset @hj_chen

This is a rough prototype for what I have in mind.



12:16 pm - 25 Apr 2018

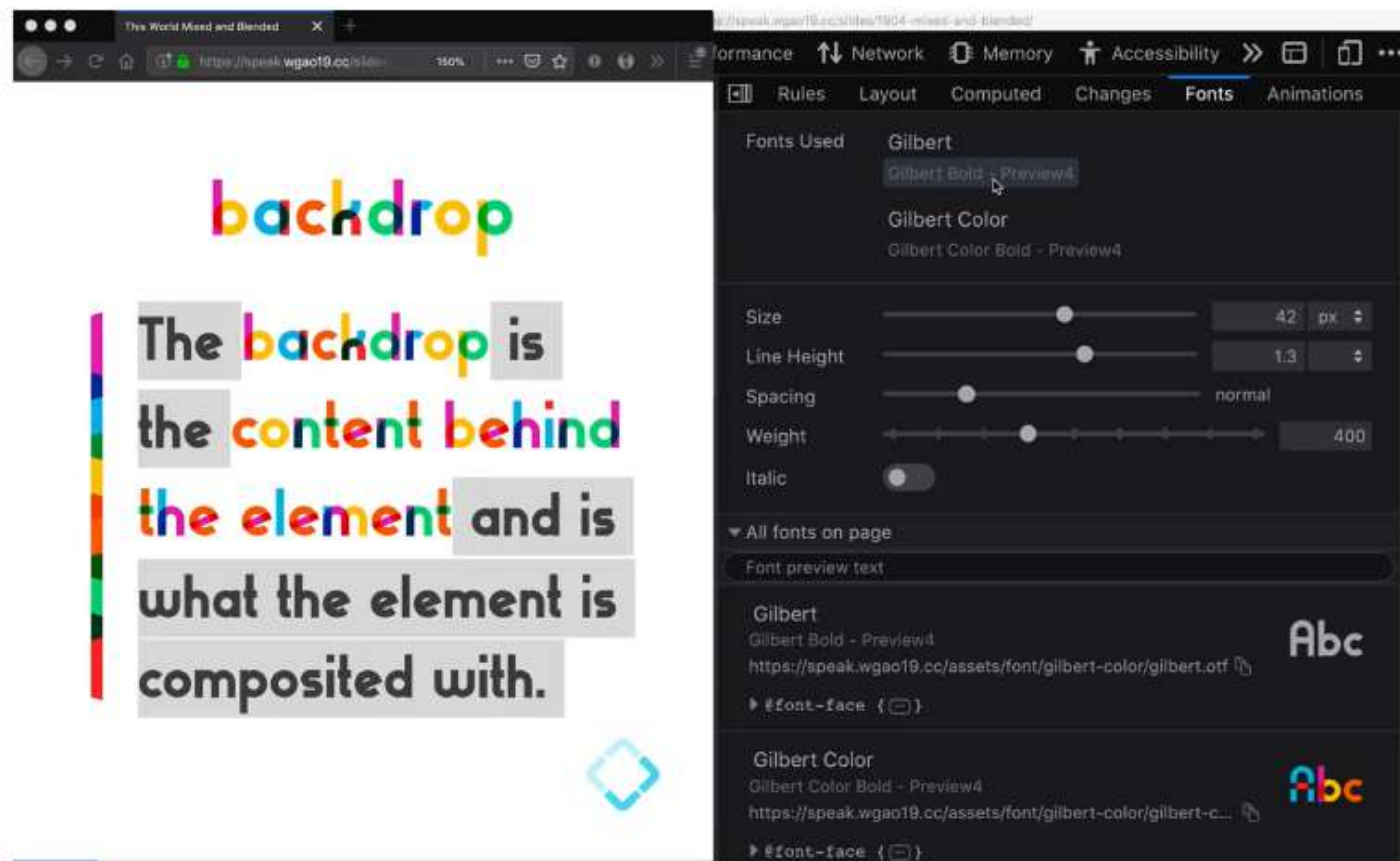
3 Likes



2 3

Firefox Font Tools





Slides for *This world mixed and blended* by Gao Wei.



Raleway

Multiple Designers (18 styles)



This font does not
support Cyrillic
characters

Comfortaa

Johan Aakerlund, Cyreal (5 styles)



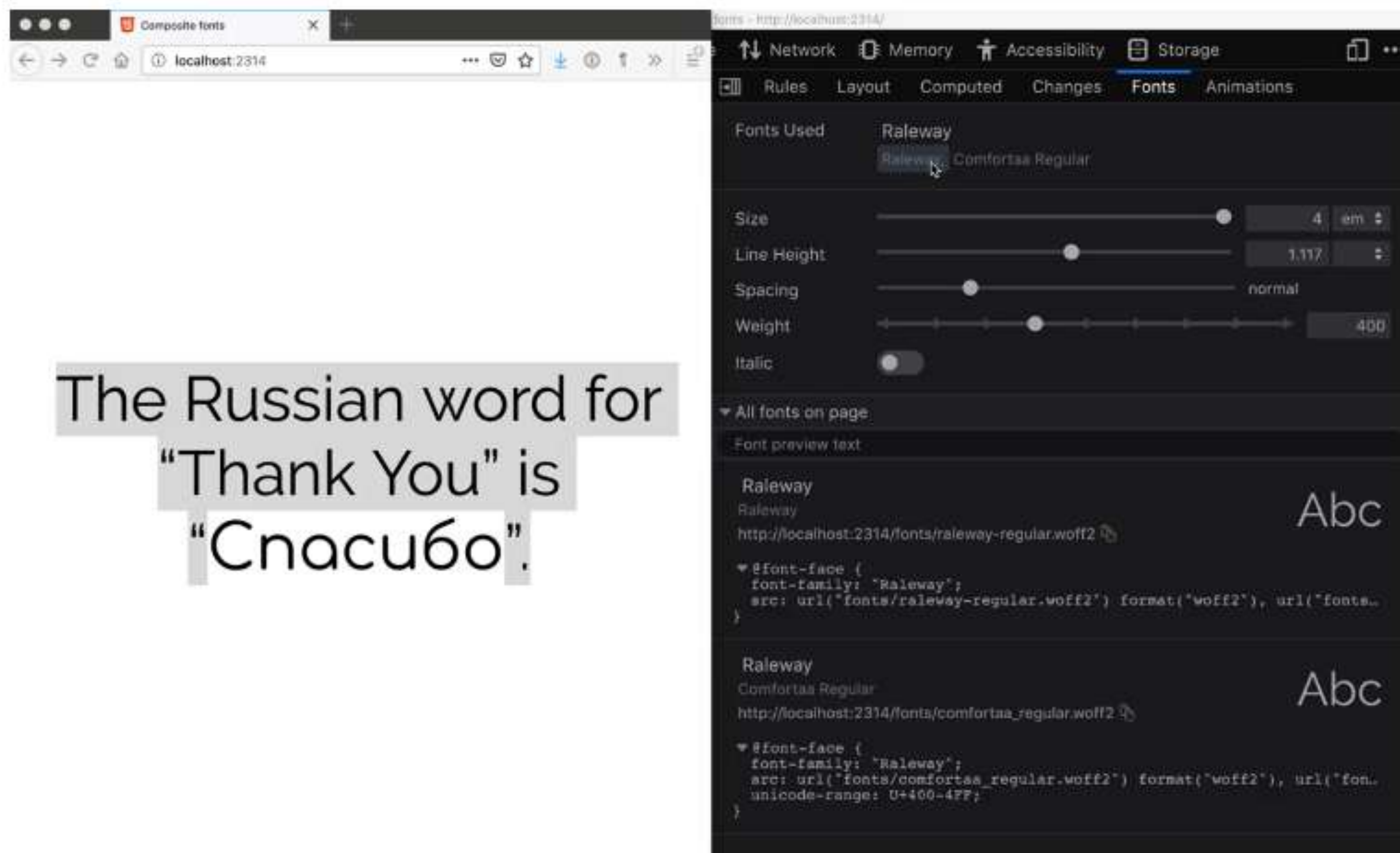
Этот шрифт
поддерживает
символы
кириллицы




```
@font-face {  
  font-family: 'Raleway';  
  src: url('fonts/raleway-regular.woff2') format('woff2'),  
        url('fonts/raleway-regular.woff') format('woff');  
  /* no range specified, defaults to entire range */  
}  
  
@font-face {  
  font-family: 'Raleway';  
  src: url('fonts/comfortaa_regular.woff2') format('woff2'),  
        url('fonts/comfortaa_regular.woff') format('woff');  
  unicode-range: U+0400-U+04FF; /* Unicode range for Cyrillic characters */  
}
```



The Russian word for
"Thank You" is
"Спасибо".



CSS font properties

<code>font-size</code>	Indicates the desired height of the glyphs. Takes absolute or relative values.
<code>font-weight</code>	Specifies the weight of the glyphs in the font. Can use keywords or numerical values.
<code>font-style</code>	Allows italic or oblique faces to be selected.
<code>font-stretch</code>	Selects a normal, condensed or expanded face from a font family. Range spans over 9 keywords.
<code>font-size-adjust</code>	Adjusts the font-size to preserve the x-height of the first choice font.
<code>font-synthesis</code>	Controls whether user agents are allowed to synthesize bold or oblique font faces when missing.



Variable fonts

DRAGONS

Space
110

Weight
500



font-synthesis

Minion Pro

afwn

Roboto

afwn

Minion Pro

afeunyi

Minion Pro Faux Bold

afwn

Roboto Faux Bold

afwn

Minion Pro Faux Italic

afeunyi

Minion Pro Bold

afwn

Roboto Bold

afwn

Minion Pro Italic

afeunyi

Faux bold effect

Faux italic effect>

Image credit: Piotr Grochowski



Font feature properties

font-kerning

AV Wa

No kerning

AV Wa

Kerning applied

font-variant-position

C₁₀H₁₆N₅O₁₃P₃

C₁₀H₁₆N₅O₁₃P₃

font-variant-position-

ligatures

fi ▶ fi tʒ ▶ tʒ

WORDS ▶ WORDS

labor of love ▶ *labor of love*

font-variant-numeric

1st 17th 2a ▶ 1st 17th 2^a

2 1/3 ▶ 2⅓ Lining Old-Style

4000 ▶ 4000 409,280 409,280

2 1/3 ▶ 2⅓ 367,112 367,112

2 1/3 ▶ 2⅓ 155,068 155,068

2 1/3 ▶ 2⅓ 171,792 171,792

font-variant-caps

The DOM, the HTML syntax, and the XHTML syntax cannot all represent the same content. For example, namespaces cannot be represented using the HTML syntax, but they are supported in the DOM and in the XHTML syntax.

font-variant-alternates

Jesuits ▶ Jefuits

quick ▶ *quick* *Quick* ▶ *Quick*

incroyable ▶ incroyable

• ▶ ❁ ❂ ❃ 519 ▶ ⑤①⑨



font-variant-east-asian

Allows control of glyph substitution and sizing in East Asian text

一個簡體字可能對應多個繁體字，如簡體字「發」，其相應的繁體字可能為「發」或「髮」；一個繁體漢字對應多個簡體漢字的情況與前者相比數量極少但仍需註意，如繁體字「乾」可能對應簡體字「幹」或「乾」。繁簡漢字的對應關係具體應由上下文決定。

茨

噓

```
.fvea .han {  
  font-variant-east-asian:  
  traditional;  
}  
  
.fvea .jap {  
  font-variant-east-asian:  
  jis78;  
}
```



font-language-override


To control the use of language-specific glyph substitutions and positioning

```
<!-- Macedonian lang code -->
<body lang="mk">
  <h4>Член 9</h4>
  <p>Никој човек нема да биде
  подложен на произволно апсење,
  притвор или прогонување.</p>
</body>
```

```
body {
  /* Serbian OpenType language tag */
  font-language-override: "SRB";
}
```

Example lifted from [CSS Fonts Module Level 4](#)



A still life photograph of a fondue meal. In the upper right, a large copper fondue pot sits on a matching copper stand. To its left, a long, golden-brown loaf of bread rests on a wooden surface. In the foreground and middle ground, several white ceramic plates are arranged, each divided into sections containing different dipping ingredients: red cubes (likely meat or cheese), yellow powder (possibly cornmeal or flour), and red powder (possibly paprika or chili powder). A green fringed napkin with a silver fork and spoon is visible in the bottom right corner. The background is a rustic brick wall. A semi-transparent yellow circle is centered over the image, containing text.

Drop a font!

Fonts aren't uploaded,
they stay on your computer

<https://wakamaifondue.com/>

Web Typography

*A handbook for designing beautiful and
effective responsive typography*



Richard Rutter

<http://book.webtypography.net/>



tings on Chinese Culture
TSIEN

Golden rules for web typography

by Richard Rutter

1. Don't trust computers
2. Use the default font size for paragraph text
3. Adjust type size according to reading distance
4. Adjust the font size if the typeface requires it
5. Set tables to be read
6. Set text at display sizes, even on small screens
7. Resize display text as you would an image
8. Reduce your payload
9. Optimise page render timing
10. Learn to use variable fonts

Web Typography @ CSS Day 2018



The text-transform property

Iþ I want [flowers], I'm going to send them to myself.

Süße Soßen-Klöße genießen maßgeblich gefräßige
preußische Nutznießer.

Ουδέν κακόν αμιγές καλού.

アイウエ オカクケ

```
.txt-trans p {  
  text-transform: full-size-  
  kana;  
}
```



Line breaks in inline boxes

If an element *generates*
zero boxes, was it *really*
there at all?

```
<p class="line-container">If an element  
<em>generates zero boxes</em>, was it  
<strong>really there</strong> at  
all?</p>
```

```
.linebox p.line-container {  
  font-size: 150%;  
}  
  
.linebox .line-container em {  
  background-color: limegreen;  
  padding: 0.25em;
```



CSS for controlling line breaks

`line-break`

allows choosing various levels of “strictness” for line breaking restrictions

`word-break`

controls what types of letters are glommed together to form unbreakable “words”, causing CJK characters to behave like non-CJK text or vice versa

`hyphens`

controls whether automatic hyphenation is allowed to break words in scripts that hyphenate

`overflow-wrap`

allows the UA to take a break anywhere in otherwise-unbreakable strings that would otherwise overflow

[Line breaking](#) by Florian Rivoal @ dotCSS



Hyphenation

“ If you don't give a lang attribute, you don't get automatic hyphenation. ”

—Florian Rivoal

Browsers use **language-specific** dictionaries to figure out where the hyphenation points should be.



text-align & text-justify

- Sets the `text-align-all` and `text-align-last` properties
- Describes how the inline-level content of a block is aligned along the inline axis if the content does not completely fill the line box.

```
text-align: start | end | left | right | center | justify | match-parent | justify
```

Values other than `justify-all` or `match-parent` are assigned to `text-align-all` and reset `text-align-last` to `auto`.

Selects the justification method used when a line's alignment is set to `justify`

```
text-justify: auto | none | inter-word | inter-character
```



Text alignment and justification

定义了CSS如何支持各种不同国际化语言的书写模式，例如拉丁（Latin）语系及印度（Indic）语系采用从左到右的书写模式，希尔伯特语（Hebrew）或阿拉伯语（Arabic）采用从右到左的书写模式，一些混合了拉丁语和阿拉伯语的文字可能采用双向书写（bidirectional），而一些东亚文字则需要竖排（从上到下）的书写模式。

```
.txt-align p {  
    text-align: justify;  
    text-justify: inter-character;  
}
```



Vertical text on the web

CSS Writing Modes Level 3 defines CSS features to support for various international writing modes, such as **left-to-right** (e.g. Latin or Indic), **right-to-left** (e.g. Hebrew or Arabic), **bidirectional** (e.g. mixed Latin and Arabic) and **vertical** (e.g. Asian scripts).

text-orientation property

从1987到现在

mixed

从1987到现在

upright

从1987到现在

sideways



writing-mode property

horizontal-tb	从1987到现在
---------------	----------

vertical-rl	从1987到现在
-------------	----------

vertical-lr	从1987到现在
-------------	----------

sideways-rl*	从1987到现在
--------------	----------

sideways-lr*	从1987到现在
--------------	----------

Properties marked with * have been deferred to Writing Modes Level 4.



text-combine-upright property

民國107年5月25日

none

民國107年5月25日

all

民國107年5月25日

<

*digits <integer>**

Codepen example for text-combine-upright



古巴
Cuba

罗马尼亚
Romania

列支敦斯登
Liechtenstein



Not just for East Asian text

M
A
G
-
E

gândesc numai cât trebuie vieții.”
nu gândesc nimic, adică aceia care
“Nu pot fi periciti decât oamenii care

Din umbra falnicelor bolți
Ea pasul și-l îndreaptă
Lângă fereastră, unde-n colț
Luceafărul așteaptă.

Privea în zare cum pe mări
Răsare și străluce,
Pe mișcătoarele cărări
Corăbii negre duce.

Calul bun se vinde în
grajd

```
}  
  
.wm-cont2 .vert-lr {  
  writing-mode: vertical-lr;  
  color: #fcd116;  
}  
  
.wm-cont2 .rotate {  
  transform: rotate(180deg);  
  color: #002b7f;  
}  
  
.wm-cont2 {  
  display: grid;
```



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The W3C Internationalization (I18n) Activity works with W3C working groups and liaises with other organizations to make it possible to use Web technologies with different languages, scripts, and cultures. From this page you can find articles and other resources about Web internationalization, and information about the groups that make up the Activity. Read also about the opportunities to participate and fund work via the new Sponsorship Program.

[Learn more about the Activity...](#)

Recent highlights

- ▶ New resource: Short i18n review checklist *March 7, 2019*
- ▶ Working Group Note: Character Model for the World Wide Web: String Matching *February 4, 2019*
- ▶ One new, one updated article published *January 23, 2019*
- ▶ Article published: Approaches to line-breaking *August 13, 2018*
- ▶ For 2nd review: Approaches to line breaking *July 26, 2018*
- ▶ W3C launches Internationalization Initiative *July 10, 2018*
- ▶ For review: Approaches to line breaking *June 13, 2018*
- ▶ For last call review: Character Model for the World Wide Web: String Matching *May 8, 2018*

All news

March 7, 2019

New resource: Short i18n review checklist

The Short i18n review checklist points developers of specifications to various aspects of a spec that may need internationalization review. It can also be used by spec reviewers, to get an idea of what to look for in a spec.

Only 12 items long, it follows the format: if the spec or its implementation does X then check Y, and points to the relevant parts of the detailed checklist for more information.

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Group pages

- ▶ [i18n WG](#)
- ▶ [i18n Interest Group](#)
- ▶ [i18n Tag Set \(ITS\) IG](#)
- ▶ [Arabic Layout TF](#)
- ▶ [Chinese Layout TF](#)
- ▶ [Ethiopic Layout TF](#)
- ▶ [Hebrew Layout TF](#)
- ▶ [India Int. Prog. TF](#)
- ▶ [Japanese Layout TF](#)
- ▶ [Mongolian Layout TF](#)
- ▶ [Southeast Asian TF](#)
- ▶ [Tibetan Layout TF](#)

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- The man bringing dead languages back to life
- CSS Fonts Module Level 3
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- Approaches to line breaking
- All you need to know about hyphenation in CSS
- Advanced web typography: Justification & hyphenation
- Requirements for Chinese Text Layout
- Best Practices for Chinese Layout
- W3C Internationalisation

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