Web typography: a non-English perspective

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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
World writing scripts usage (as of 2017)
Latin script distribution
<table>
<thead>
<tr>
<th>A, a</th>
<th>Ä, ä</th>
<th>Å, å</th>
<th>B, b</th>
<th>C, c</th>
<th>D, d</th>
</tr>
</thead>
<tbody>
<tr>
<td>E, e</td>
<td>F, ñ</td>
<td>G, g</td>
<td>H, h</td>
<td>I, i</td>
<td>Í, í</td>
</tr>
<tr>
<td>J, j</td>
<td>K, K</td>
<td>L, l</td>
<td>M, m</td>
<td>N, n</td>
<td>O, o</td>
</tr>
<tr>
<td>P, p</td>
<td>Q, q</td>
<td>R, r</td>
<td>S, s</td>
<td>Š, š</td>
<td>T, t</td>
</tr>
<tr>
<td>Ť, ť</td>
<td>U, u</td>
<td>V, v</td>
<td>W, w</td>
<td>X, x</td>
<td>Y, y</td>
</tr>
<tr>
<td>Z, z</td>
<td>Romanian (31)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
What are glyphs?
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

<table>
<thead>
<tr>
<th>Format</th>
<th>Microsoft</th>
<th>Mozilla</th>
<th>Opera</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOFF2 (Web Open Font Format 2)</td>
<td><img src="#" alt="Microsoft" /></td>
<td><img src="#" alt="Mozilla" /></td>
<td><img src="#" alt="Opera" /></td>
</tr>
<tr>
<td>WOFF (Web Open Font Format)</td>
<td><img src="#" alt="Microsoft" /></td>
<td><img src="#" alt="Mozilla" /></td>
<td><img src="#" alt="Opera" /></td>
</tr>
<tr>
<td>OTF (OpenType)</td>
<td><img src="#" alt="Microsoft" /></td>
<td><img src="#" alt="Adobe" /></td>
<td></td>
</tr>
<tr>
<td>TTF (TrueType)</td>
<td><img src="#" alt="Microsoft" /></td>
<td></td>
<td><img src="#" alt="Apple" /></td>
</tr>
<tr>
<td>EOT (Embedded Open Type)</td>
<td><img src="#" alt="Microsoft" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SVG (Scalable Vector Graphics)</td>
<td><img src="#" alt="W3C" /></td>
<td><img src="#" alt="SVG" /></td>
<td></td>
</tr>
</tbody>
</table>
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, Inclined, Cursive or Kursiv. Therefore it is not a simple problem to map typical font selection properties to a specific 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 so that results of this matching process are as consistent as possible across UAes (assuming that the same library of font faces is presented to each of them).

W3C Superseded Recommendation

<element font="" /> -- local change to font -->
<attlist font
    size CDATAIMPLIED -- {+}nn e.g. size="+1", size=4 --
    color CDATAIMPLIED -- #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 <font> element.

Fonts section in CSS1 (17-Dec-1996)

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

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 stylesheet 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.

<table>
<thead>
<tr>
<th>Font family</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>serif</td>
<td>Times New Roman, SimSun, SongTi SC</td>
</tr>
<tr>
<td>sans-serif</td>
<td>Arial, Microsoft Yahei, PingFang SC</td>
</tr>
<tr>
<td>monospace</td>
<td>Consolas, SimSun, PingFang SC</td>
</tr>
<tr>
<td>cursive</td>
<td>Comic Sans MS, Apple Chancery, SimSun (oblique), SongTi SC (oblique)</td>
</tr>
<tr>
<td>fantasy</td>
<td>Gabriola, Impact, Papyrus, Microsoft Yahei, PingFang SC</td>
</tr>
</tbody>
</table>

Level 4 is adding `system-ui`, `emoji`, `math` and `fangsong`
@font-face rule

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

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

```css
@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-values> ]
  font-feature-settings: normal | <feature-tag-value> #;
}
```
Hey @h.chan, 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.

Patrick Brosset @patrickbrosset - 24 Apr 2018

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.

HJ Chen @hj.chen

Replying to @patrickbrosset

Patrick Brosset @patrickbrosset - 25 Apr 2018

Thanks, this is very useful!

Patrick Brosset @patrickbrosset

Replying to @patrickbrosset @hj.chen

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

Firefox Font Tools
backdrop

The backdrop is the content behind the element and is what the element is composited with.

Slides for *This world mixed and blended* by Qiao Wei.
This font does not support Cyrillic characters
@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

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

DRAGONS

Space 110

Weight 500
font-synthesis

Minion Pro
afwn
afwn
afwn
Minion Pro Faux Bold
afwn
afwn
afwn
Minion Pro Bold
afwn
afwn
afwn
Roboto
afwn
afwn
afwn
Roboto Faux Bold
afwn
afwn
afwn
Roboto Bold
afwn
afwn
afwn
Minion Pro Faux Italic
afeunyi
afeunyi
afeunyi
Minion Pro
afeunyi
afeunyi
afeunyi
Minion Pro Bold
afeunyi
afeunyi
afeunyi
Roboto
afeunyi
afeunyi
afeunyi
Roboto Bold
afeunyi
afeunyi
afeunyi
Faux bold effect
Faux italic effect

Image credit: Piotr Grochowski
Font feature properties

font-kerning
No kerning
Kerning applied

font-variant-position

C_\text{10} \cdot H_{\text{16}} \cdot N_{\text{5}} \cdot O_{\text{13}} \cdot P_{\text{3}}
C_{\text{10}} \cdot H_{\text{16}} \cdot N_{\text{5}} \cdot O_{\text{13}} \cdot P_{\text{3}}

font-variant-position-ligatures
\text{fi} \rightarrow \text{fi}
\text{f\ddot{i}} \rightarrow \text{f\ddot{i}}
\text{WORDS} \rightarrow \text{WORDS}
labor of love \rightarrow labor of love

font-variant-numeric
1st 17th 2a
2 \frac{1}{3} 2\frac{2}{3}

1st 17th 2a
409,280 367,112 155,068 171,792
409,280 367,112 155,068 171,792

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 \rightarrow \text{Je\text{f}uits}
quick \rightarrow \text{q\text{u}ick}
incroyable \rightarrow \text{in\text{c}royables}
519 \rightarrow \text{51\text{9}}
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
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
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/
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

If I want [flowers], I’m going to send them to myself.

Süße Soßen-Klöße genießen maßgeblich gefräßige preußische Nutznießer.

Ουδέν κακόν αμηγές καλού.

アイウェ オカクケ
Line breaks in inline boxes

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

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

```css
.linebox p.line-container {
    font-size: 150%;
}
.linebox .line-container em {
    background-color: limegreen;
    padding: 0.25em;
}
```
# CSS for controlling line breaks

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>line-break</td>
<td>allows choosing various levels of “strictness” for line breaking restrictions</td>
</tr>
<tr>
<td>word-break</td>
<td>controls what types of letters are glommed together to form unbreakable “words”, causing CJK characters to behave like non-CJK text or vice versa</td>
</tr>
<tr>
<td>hyphens</td>
<td>controls whether automatic hyphenation is allowed to break words in scripts that hyphenate</td>
</tr>
<tr>
<td>overflow-wrap</td>
<td>allows the UA to take a break anywhere in otherwise-unbreakable strings that would otherwise overflow</td>
</tr>
</tbody>
</table>

*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。
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

from 1987 to now

mixed

from 1987 to now

upright

from 1987 to now

sideways
**writing-mode property**

<table>
<thead>
<tr>
<th></th>
<th>From 1987 to now</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>horizontal-tb</strong></td>
<td>From 1987 to now</td>
</tr>
<tr>
<td><strong>vertical-rl</strong></td>
<td>From 1987 to now</td>
</tr>
<tr>
<td><strong>vertical-lr</strong></td>
<td>From 1987 to now</td>
</tr>
<tr>
<td><strong>sideways-rl</strong></td>
<td>From 1987 to now</td>
</tr>
<tr>
<td><strong>sideways-lr</strong></td>
<td>From 1987 to now</td>
</tr>
</tbody>
</table>

Properties marked with * have been deferred to Writing Modes Level 4.
text-combine-upright property

none

all

<

digits <integer>*

Codepen example for text-combine-upright
Not just for East Asian text

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.
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.

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

New resource: Short i18n review checklist March 7, 2019

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.
References

- The World's Most Popular Writing Scripts
- The man bringing dead languages back to life
- CSS Fonts Module Level 3
- CSS Fonts Module Level 4
- CSS Text Module Level 3
- 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
Mulțam fain!

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Font used is Bellato, by Kemie Quaida