VERTICAL WRITING ON THE WEB
Inadvertent layout inspiration from a search for cultural identity
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First name: 慧晶 (Hui Jing)
@hj_chen
What does the web mean to you?
“For the Web, the external link is what would allow it to actually become ‘worldwide’.”

—Sir Tim Berners-Lee
We are here!
Every other language in the world (~95%)

Distribution of languages used around the world

Sources: Worldometers, Ethnologue, W3Techs
A comprehensive overview of the Old World Language Families. Sizes of the branches represent the recorded native speakers before year 0.
Content is King
Internationalisation (i18n)

“To ensure that the technology supports text in any writing system of the world.”

—W3C Internationalisation
从前，在马来西亚的海边，住着一个渔民。他每天出海捕鱼，收获颇丰。然而，一次出海捕鱼时，他不慎落入了海里，差点就被鲨鱼给吃了。

这时，一个名叫阿华的年轻渔民见状，马上捞起鲨鱼并救了他。阿华是个善良的人，他看到渔民落海，感到非常心疼，于是决定把自己打到的鱼分给他一半。

渔民感激不尽，他决定以后要感激阿华的救命之恩。于是，他每天都要去阿华的店里，送他一些新鲜的鱼，让阿华可以卖个好价钱。

几年过去了，阿华的生意越来越好，渔民也感到非常欣慰。他觉得自己做了一件有意义的事情，帮助了别人，自己也得到了回报。

从这个故事中，我们可以学到，帮助别人就是帮助自己。只有这样，我们的社会才能更加和谐、美好。
Do developers even care about typography?
“Typography is writing with prefabricated letters”
—Gerrit Noordzij
Phoenician alphabet
Hippopotamus
(English) 12 letters
Lebensgefährte
(German) 14 letters
伴侣
Grianghrafadóireachta (Irish) 21 letters
<table>
<thead>
<tr>
<th>ORIGINAL MEANING</th>
<th>Egyptian</th>
<th>Phoenician</th>
<th>Greek</th>
<th>Roman Capital</th>
<th>Roman Uncial</th>
<th>Roman Half Uncia</th>
<th>Miniscule</th>
<th>MODERN FORMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ox</td>
<td>ⲍ</td>
<td>&lt;</td>
<td>Α</td>
<td>A</td>
<td>a</td>
<td>a</td>
<td>a</td>
<td>Aa Ac Aa Aa</td>
</tr>
<tr>
<td>House</td>
<td>ⲏ</td>
<td>❓</td>
<td>Β</td>
<td>B</td>
<td>b</td>
<td>b</td>
<td>b</td>
<td>Bb Bb Bb Bb</td>
</tr>
<tr>
<td>Camel</td>
<td>₫</td>
<td>₫</td>
<td>Γ</td>
<td>G</td>
<td>g</td>
<td>G</td>
<td>g</td>
<td>Gg Gg Gg Gg</td>
</tr>
<tr>
<td>Door</td>
<td>₧</td>
<td>A</td>
<td>Δ</td>
<td>D</td>
<td>d</td>
<td>d</td>
<td>d</td>
<td>Dd Dd Dd Dd</td>
</tr>
<tr>
<td>Window</td>
<td>ⲝ</td>
<td>₝</td>
<td>Ε</td>
<td>E</td>
<td>e</td>
<td>E</td>
<td>e</td>
<td>Ee Ee Ee Ee</td>
</tr>
<tr>
<td>Water</td>
<td>Ⲣ</td>
<td>₪</td>
<td>Ν</td>
<td>M</td>
<td>m</td>
<td>m</td>
<td>m</td>
<td>Mm Mm Mm Mm</td>
</tr>
<tr>
<td>Eye</td>
<td>ⲧ</td>
<td>O</td>
<td>Ω</td>
<td>O</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>Oo Oo Oo Oo</td>
</tr>
<tr>
<td>Cross</td>
<td>ⲫ</td>
<td>T</td>
<td>Τ</td>
<td>T</td>
<td>t</td>
<td>t</td>
<td>t</td>
<td>Tt Tt Tt Tt</td>
</tr>
</tbody>
</table>

Illustrating the probable development of some of the letters of the alphabet
<table>
<thead>
<tr>
<th>甲骨文</th>
<th>金文</th>
<th>小篆</th>
<th>隶书</th>
<th>楷书</th>
<th>草书</th>
<th>行书</th>
</tr>
</thead>
<tbody>
<tr>
<td>日</td>
<td>日</td>
<td>日</td>
<td>日</td>
<td>日</td>
<td>日</td>
<td>日</td>
</tr>
<tr>
<td>月</td>
<td>月</td>
<td>月</td>
<td>月</td>
<td>月</td>
<td>月</td>
<td>月</td>
</tr>
</tbody>
</table>
“Chinese-script projects are crazy. The scope is mind-blowing.”

—David Březina from The long, incredibly tortuous, and fascinating process of creating a Chinese font
The web is a unique medium of its own
Web fonts

The CSS3 Fonts specification describes the basic controls CSS provides for selecting and using fonts within documents.

What is a font?
And what are glyphs?
Font formats for web use

<table>
<thead>
<tr>
<th>Format</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOFF2 (Web Open Font Format 2)</td>
<td>Microsoft, Mozilla, Opera</td>
</tr>
<tr>
<td>WOFF (Web Open Font Format)</td>
<td>Microsoft, Mozilla, Opera</td>
</tr>
<tr>
<td>OTF (OpenType)</td>
<td>Microsoft, Adobe</td>
</tr>
<tr>
<td>TTF (TrueType)</td>
<td>Microsoft, Apple</td>
</tr>
<tr>
<td>EOT (Embedded Open Type)</td>
<td>Microsoft</td>
</tr>
<tr>
<td>SVG (Scalable Vector Graphics)</td>
<td>W3C, SVG</td>
</tr>
</tbody>
</table>
@font-face
{
  font-family: 'Inria Sans';
  src: url('inriasans-regular.woff2') format('woff2'),
       url('inriasans-regular.woff') format('woff');
}

WOFF - Web Open Font Format
Compressed TrueType/OpenType font that contains information about the font’s source.

WOFF 2.0 - Web Open Font Format
TrueType/OpenType font that provides better compression than WOFF 1.0.
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;
  font-stretch: normal | ultra-condensed | extra-condensed;
  unicode-range: <urange> #;
  font-variant: normal | none | [ <common-lig-values> | | <
  font-feature-settings: normal | <feature-tag-value> #;
}
```
@font-face {
  font-family: 'Heiti Plus';
  src: local('Heiti SC');
  /* no range specified, defaults to entire range */
}

@font-face {
  font-family: 'Heiti Plus';
  src: url('fonts/andikanewbasic-r.woff2') format('woff2')
       url('fonts/andikanewbasic-r.woff') format('woff');
  unicode-range: U+0-2FF; /* Unicode range for Latin characters */
}
This is some English text.

這是一行中文字体。
Descriptors
describe individual font faces

Properties
requests for styling
## Basic 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>
font-size-adjust

This is a run of text in Merriweather.

This is a run of text in Georgia.

This is a run of text in Georgia with font-size-adjust set to 0.555, which is the (estimated) aspect ratio for Merriweather.

This is a run of text that's supposed to be set in Noticia Text but the font doesn't exist, so the fallback of Georgia has been invoked, with the font-size-adjust set to 0.530, which is the estimated aspect ratio of Noticia Text. Georgia has an estimated aspect ratio of 0.481.
font-synthesis

Image credit: Piotr Grochowski
Font feature properties

- **font-kerning**
  - Without kerning: AV Wa
  - With kerning: AV Wa

- **font-variant-position**
  - C 10 H 16 N 5 O 13 P 3

- **font-variant-position-ligatures**
  - fi fi
  - tz tz

- **font-variant-numeric**
  - 1st 17th 2a ➤ 1st 17th 2a
  - 2 1/3 ➤ 2½
  - 4000 ➤ 4000
  - 2 1/3 ➤ 2½
  - Lining 409,280 367,112 155,068 171,792
  - Old-Style 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 ➤ Jesuits
  - quick ➤ quick
  - Quick ➤ Quick
  - incroyable ➤ incroyables
font-variant-east-asian

麹町 → 麹町
大学 → 大學
欧文フォント → 欧文フォント
font-feature-settings

Provides low-level control of advanced OpenType features

<table>
<thead>
<tr>
<th>aalt</th>
<th>cpss</th>
<th>frac</th>
<th>jp83</th>
<th>mset</th>
<th>psts</th>
<th>smcp</th>
<th>ss15</th>
<th>twid</th>
</tr>
</thead>
<tbody>
<tr>
<td>abvf</td>
<td>cswh</td>
<td>fwid</td>
<td>jp90</td>
<td>nalt</td>
<td>pwid</td>
<td>smpl</td>
<td>ss16</td>
<td>unic</td>
</tr>
<tr>
<td>abvm</td>
<td>curs</td>
<td>half</td>
<td>jp04</td>
<td>nlck</td>
<td>qwid</td>
<td>ss01</td>
<td>ss17</td>
<td>valt</td>
</tr>
<tr>
<td>abvs</td>
<td>cv01-cv99</td>
<td>haln</td>
<td>kern</td>
<td>nukt</td>
<td>rand</td>
<td>ss02</td>
<td>ss18</td>
<td>vatn</td>
</tr>
<tr>
<td>afrs</td>
<td>c2pc</td>
<td>halt</td>
<td>lfbd</td>
<td>numr</td>
<td>rctl</td>
<td>ss03</td>
<td>ss19</td>
<td>vert</td>
</tr>
<tr>
<td>akhn</td>
<td>c2sc</td>
<td>hist</td>
<td>liga</td>
<td>onum</td>
<td>rkrf</td>
<td>ss04</td>
<td>ss20</td>
<td>vhal</td>
</tr>
<tr>
<td>blwf</td>
<td>dist</td>
<td>hkna</td>
<td>ljmo</td>
<td>opbd</td>
<td>rlig</td>
<td>ss05</td>
<td>ssty</td>
<td>vjmo</td>
</tr>
<tr>
<td>blwm</td>
<td>dlig</td>
<td>hlig</td>
<td>lnunm</td>
<td>ordn</td>
<td>rphf</td>
<td>ss06</td>
<td>stch</td>
<td>vknk</td>
</tr>
<tr>
<td>blws</td>
<td>dnom</td>
<td>hngl</td>
<td>locl</td>
<td>ornrm</td>
<td>rtbd</td>
<td>ss07</td>
<td>subs</td>
<td>vkrnn</td>
</tr>
<tr>
<td>calt</td>
<td>dtls</td>
<td>hojo</td>
<td>ltra</td>
<td>palt</td>
<td>rtlf</td>
<td>ss08</td>
<td>supers</td>
<td>vpal</td>
</tr>
<tr>
<td>case</td>
<td>expt</td>
<td>hwid</td>
<td>ltrm</td>
<td>pcpa</td>
<td>rtlm</td>
<td>ss09</td>
<td>swsh</td>
<td>vrt2</td>
</tr>
<tr>
<td>ccmp</td>
<td>falt</td>
<td>init</td>
<td>mark</td>
<td>pkna</td>
<td>ruby</td>
<td>ss10</td>
<td>titl</td>
<td>vrtr</td>
</tr>
<tr>
<td>cfar</td>
<td>fin2</td>
<td>isol</td>
<td>med2</td>
<td>pnum</td>
<td>rvrn</td>
<td>ss11</td>
<td>tjmo</td>
<td>zero</td>
</tr>
<tr>
<td>cjct</td>
<td>fin3</td>
<td>ital</td>
<td>medi</td>
<td>pref</td>
<td>salt</td>
<td>ss12</td>
<td>tnam</td>
<td></td>
</tr>
<tr>
<td>clig</td>
<td>fina</td>
<td>jalt</td>
<td>mgrk</td>
<td>pres</td>
<td>sinf</td>
<td>ss13</td>
<td>tnum</td>
<td></td>
</tr>
<tr>
<td>cpct</td>
<td>flac</td>
<td>jp78</td>
<td>mkmk</td>
<td>pstf</td>
<td>size</td>
<td>ss14</td>
<td>trad</td>
<td></td>
</tr>
</tbody>
</table>
Variable fonts

Image credit: John Hudson
<table>
<thead>
<tr>
<th>CSS property</th>
<th>Tag</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>font-weight</td>
<td>'wght'</td>
<td>Weight</td>
<td>Used to vary stroke thicknesses to give variation from lighter to blacker.</td>
</tr>
<tr>
<td>font-style</td>
<td>'slnt'</td>
<td>Slant</td>
<td>Used to vary between upright and slanted text.</td>
</tr>
<tr>
<td></td>
<td>'ital'</td>
<td>Italic</td>
<td>Used to vary between non-italic and italic.</td>
</tr>
<tr>
<td>font-stretch</td>
<td>'wdth'</td>
<td>Width</td>
<td>Used to vary width of text from narrower to wider.</td>
</tr>
<tr>
<td>font-optical-sizing</td>
<td>'opsz'</td>
<td>Optical size</td>
<td>Used to vary design to suit different text sizes.</td>
</tr>
</tbody>
</table>
Variable Fonts Experiments

A collection of experiments with variable font text effects. Warning: These are really heavy on your computer.

Special credit to David Beren for the fonts https://twitter.com/dberen
font-variation-settings

Provides low-level control over OpenType or TrueType font variations
濃愁 小猶豫

小時候的煩惱很清澈，長大的煩惱卻很混濁。
如果以湯頭比喻煩惱這件事，
小時候的像是昆布鰤魚湯，滾燙的血騷動著整鍋的情緒，
但一眼就看出端倪來、
長大了莫名就變成南瓜牛奶湯，
就算再煮下去，
也只會，唉，越來越「濃愁」。

https://www.axis-praxis.org/
Flyingman Safety Matches

TRADE MARK

SINCERE MATCH & TOBACCO FACTORY LTD.
PETALING JAYA, KUALA LUMPUR, MALAYA.
Hanya satu sahaja PANAU SALAP yang selalu dipakai orang yaitu

PANAU SALAP CHAP GAJAH
kerana penyakit

★ PANAU
★ KURAP
★ GATAL²
★ Dan Lain²

Ada terjual disemua kedai obat diseluruh Malaysia, Singapura dan Brunei.
Kansai Yamamoto became known for his avant-garde kimono. In 1994, he returned to
kimono design, which he did for the first time in 1990. He worked with David
Beckham on his Ziggy Stardust tour in 2002 and designed the skimpy t-shirt.
The magic of Writing Modes

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).
You can make your browser literally turn on its side from left-to-right.

Or make it read from right-to-left.

Vertical text is fun!
### Writing-Mode Property

<table>
<thead>
<tr>
<th>Mode</th>
<th>From</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>horizontal-tb</td>
<td>1987</td>
<td>现在</td>
</tr>
<tr>
<td>vertical-rl</td>
<td>1987</td>
<td>现在</td>
</tr>
<tr>
<td>vertical-lr</td>
<td>1987</td>
<td>现在</td>
</tr>
<tr>
<td>sideways-rl*</td>
<td>1987</td>
<td>现在</td>
</tr>
<tr>
<td>sideways-lr*</td>
<td>1987</td>
<td>现在</td>
</tr>
</tbody>
</table>

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

mixed

upright

sideways
text-combine-upright

property

none
all
digits <integer>*

Codepen example for text-combine-upright
If Jackson Pollock was the public face of the New York avant-garde, Willem de Kooning could be described as an artist's artist, who was perceived by many of his peers as its leader. He was born in Rotterdam, where he grew up in an impoverished household and attended the Rotterdam Academy, training in fine and commercial arts. In 1926, the adventurous young artist stowed away on a ship bound for Argentina. While the ship was docked in Virginia, de Kooning slipped off, skrated immigration, and made his way to New Jersey—and so began the rest of his life.
# CSS Logical Properties

Use start/end properties that depend on LTR or RTL writing direction instead of left/right.

<table>
<thead>
<tr>
<th></th>
<th>IE</th>
<th>Edge</th>
<th>Firefox</th>
<th>Chrome</th>
<th>Safari</th>
<th>IOS Safari</th>
<th>Opera Mini</th>
<th>Chrome for Android</th>
<th>Android Browser</th>
<th>Samsung Internet</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>14</td>
<td>57</td>
<td>63</td>
<td>10</td>
<td>10.2</td>
<td></td>
<td></td>
<td>4.4</td>
<td>4.4</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>15</td>
<td>58</td>
<td>64</td>
<td>10.1</td>
<td>10.3</td>
<td></td>
<td></td>
<td>4.4,4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>16</td>
<td>59</td>
<td>65</td>
<td>11</td>
<td>11.2</td>
<td>all</td>
<td></td>
<td>64</td>
<td>62</td>
<td>6.2</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>60</td>
<td>66</td>
<td>11.1</td>
<td>11.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Partial Support | Prefixed

Global: 4.86% x 85.21% = 90.07%
https://www.smashingmagazine.com/2018/03/understanding-logical-properties-values/
MIBL女子决赛：昔加末攀高峰夺冠
（吉隆坡29日讯）国手陈慧晶昨晚在第一届大马全国篮球
联赛（MIBL）女子决赛中爆发，全场轰进18分4篮板，
带领昔加末篮球公会以60比51击退吉隆坡高峰集团，以大
热姿态在第一座MIBL奖杯上名词。

陈慧晶夺生涯首个MVP
陈慧晶在初赛与半决赛并不是特别抢眼，岂知来到决赛却
成为了球队的致胜功臣。身高177公分的陈慧晶此役14投8
中，命中率为56%，尤其最后一节更是独得8分，顶住了
高峰队的反扑，凭藉决赛的精彩演出，陈慧晶也因此当选
决赛MVP（最有价值球员），生涯首次获得这项荣誉。

对于陈慧晶的表现，昔加末主帅戴正钧也赞不绝口，他
说，「陈慧晶在这一场比赛的发挥是大家有目共睹的。而
除了我们的MVP（陈慧晶），汪秀婷、邱嫦嫦也在关键时刻
投进了几个三分球，我们才能够在最后关头将比分扩
大。」

多次靠三分球扩大比分
雷升龙：发挥输对手5%
昔加末队主场雷升龙表示，高峰队其实在本场决赛发挥得不
错，只是昔加末的表现更为出色，防守也比他们更为严
谨。
文字的故事

人類和其他生物種類是在以自己獨特的方式和語言給予大自然和自己的生命歷程留下一些印跡。當遠古時期的猿人根據熊掌印開始追溯的時候，那便是最早的視覺交流與傳播（Visual Communication）的開始。

最早的視覺傳達方式基本都是利用圖形進行的。這是北美印地安史前的岩洞壁畫，古老的原始繪畫。大約西元前一萬五千年，人類文明的開始。這堵草枝表現的是動物，其中最顯眼的是黃牛，這頭黃牛正要踏過一道圍欄，是在向牛群兩側的動物低頭大喊。最上方還寫著三個人物，一個是兩手張開的，另一個是兩手交握的，最後一個是兩手各握一支長矛的。
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
- For review: Inline markup and bidirectional text in HTML, December 4, 2017
- New article: Using character escapes in markup and CSS, August 30, 2017
- New article: Strings and bidi, August 28, 2017
- For review: Strings and bidi, August 17, 2017
- For review: Flooding times, June 19, 2017
- New article: Approaches to full justification, April 3, 2017
- Talk slide: JUPA seminar
- Unicode Conference speaker submission deadline, March 20, 2017
- For review: Approaches to full justification, March 12, 2017

All news
Updated article: Inline markup and bidirectional text in HTML, December 13, 2017

An update for the article Inline markup and bidirectional text in HTML has just been published.

This article tells you how to write HTML where text with different writing directions is mixed within a paragraph or other HTML block (i.e., inline or choral content). The article has been updated to bring it in line with recent browser developments and to simplify the guidelines. Examples are linked to live versions, and indications are given for which features are supported by which browsers.

Leave a comment
Tags: article, inline, bidi, markup
Bookshelf-style design with vertical text
Building for cross-browser compatibility

This is the third post of a multi-part series about developing the brand identity for Wismut Labs.

The previous post covered a number of design decisions made with regards to the overall style of the Wismut Labs brand. This post will focus on the actual building of the Wismut Labs website.
This is a website dedicated to Penang Hokkien, the language of my hometown. I talk about the inspiration for the content of this site in the inaugural story post. But I am also a web developer, and so this site also serves as my CSS playground for experimenting with the concept of mixed writing-modes. If that sentence made sense to you, technical details here.

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Responsive vertical to horizontal layout
Without roots. Everywhere.

Vertical mobile navigation
Bugs, bugs, bugs
A long list of references

- Usage of content languages for websites
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- Source Han Serif / Noto Serif CJK History & Development
- Chinese Fonts & Related Issues
- Variable fonts, a new kind of font for flexible design
- Introducing OpenType Variable Fonts
- fvar — Font Variations Table
- Variable Fonts on the Web
- How to Use Variable Fonts on the Web
- Getting started with variable fonts
- 全球首款! 文鼎晶熙黑體支援可變式字體格式
- W3C Internationalization & Text Layout Requirements
Thank you!

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