TYPESETTING EAST ASIAN LANGUAGES ON THE WEB
(and how it can inspire alternative web layouts)

By Chen Hui Jing / @hj_chen
Aa Bb Vv Гг Дд Ее
Ёё Жж Зз Іі Йй Кк
Лл Мм Нн Оо Пп Рр
Сс Тт Уу Ыы Фф Хх
Цц Чч Шш Ыы Ъъ Ээ
Юю Яя

Belarusian (32)

أ ب ج د ه
ز خ ض ط

م ن س ع ف ص
ق ر ش ت ث خ

ن ض ط غ (28)

Arabic

א ב ג ד ה
ז ח ט פ צ

ס ט ט ע צ ק פ

י ז ע ז

Hebrew (22)

English (26)
захапленне
(Belarusian) 10 letters
Communication
(English) 13 letters
Grianghrafadóireachta
(Irish) 21 letters
Phoenician 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>马马马</td>
<td>马马马</td>
<td>马马马</td>
<td>马马马</td>
<td>马马马</td>
<td>马马马</td>
<td>马马马</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
Distribution of content languages on the web

Sources: W3Techs
“People long for their national identity, to be different, to be proud of who they are. Political is daily, cultural is eternal.”

—Alena Makouskaya, coordinator of Budzma
“Only 13% of pupils in Belarus study in the Belarusian language.”
—Alesia Rudnik, Belarus Digest
“In order to tend to the continued development of our languages, we must continue to create technologies that provide smaller languages with the same support enjoyed by larger ones.”

—Rihards Kalniņš, The Guardian
Let's talk about CSS

CSS to do typography

CSS to do layout
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>Microsoft</th>
<th>Mozilla</th>
<th>Opera</th>
</tr>
</thead>
<tbody>
<tr>
<td>WOFF2 (Web Open Font Format 2)</td>
<td>![Microsoft logo]</td>
<td>![Mozilla logo]</td>
<td>![Opera logo]</td>
</tr>
<tr>
<td>WOFF (Web Open Font Format)</td>
<td>![Microsoft logo]</td>
<td>![Mozilla logo]</td>
<td>![Opera logo]</td>
</tr>
<tr>
<td>OTF (OpenType)</td>
<td>![Microsoft logo]</td>
<td>![Adobe logo]</td>
<td></td>
</tr>
<tr>
<td>TTF (TrueType)</td>
<td>![Microsoft logo]</td>
<td>![Apple logo]</td>
<td></td>
</tr>
<tr>
<td>EOT (Embedded Open Type)</td>
<td>![Microsoft logo]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SVG (Scalable Vector Graphics)</td>
<td>![W3C logo]</td>
<td>![SVG logo]</td>
<td></td>
</tr>
</tbody>
</table>
@font-face {
  font-family: 'Farro';
  src: url('farro-light.woff2') format('woff2'),
  url('farro-light.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> #;
}
```
@font-face {
  font-family: 'Farro';
  src: url('fonts/farro-light.woff2') format('woff2'),
       url('fonts/farro-light.woff') format('woff');
/* no range specified, defaults to entire range */
}

@font-face {
  font-family: 'Farro';
  src: url('fonts/linbiolimum.woff2') format('woff2'),
       url('fonts/linbiolimum.woff') format('woff');
  unicode-range: U+0400–U+04FF; /* Unicode range for Cyrillic characters */
}
Go to about:config from your address bar
Search for fonthighlighter and double-click it to change its value to true
# 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-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 Italic
afeunyi
afeunyi
afeunyi

Image credit: Piotr Grochowski
Font feature properties

**font-kerning**

No kerning

Kerning applied

**font-variant-position**

**font-variant-numeric**

1st  17th  2a ▶  1st  17th  2a
2 1/3 ▶  2 1/3
4000 ▶  4000
2 1/3 ▶  2 1/3

**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
incroyable ▶  incroyables
• ▶  •
Drop a font!

Fonts aren't uploaded, they stay on your computer

https://wakamaifondue.com/
Variable fonts

Image credit: John Hudson
Variable Fonts Experiments

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

Special thanks to Daniel Kerst for the fonts: https://system.io/home
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.

😊

😊

 eBooks, PDFs, websites, & more

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 eBooks, PDFs, websites, & more

 eBooks, PDFs, websites, & more

 eBooks, PDFs, websites, & more

 eBooks, PDFs, websites, & more
**writing-mode property**

<table>
<thead>
<tr>
<th>horizontal-tb</th>
<th>从1987到现在</th>
</tr>
</thead>
<tbody>
<tr>
<td>vertical-rl</td>
<td>从1987到现在</td>
</tr>
<tr>
<td>vertical-lr</td>
<td>从1987到现在</td>
</tr>
<tr>
<td>sideways-rl*</td>
<td>从1987到现在</td>
</tr>
<tr>
<td>sideways-lr*</td>
<td>从1986到现在</td>
</tr>
</tbody>
</table>

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

从1987到现在
mixed

从1987到现在
upright

从1987到现在
sideways
<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>text-combine-upright</td>
<td>none</td>
<td>Displays text in an upright manner</td>
</tr>
<tr>
<td></td>
<td>all</td>
<td>Displays text in an upright manner</td>
</tr>
<tr>
<td></td>
<td>digits</td>
<td>Displays text in an upright manner</td>
</tr>
</tbody>
</table>

**Codepen example for text-combine-upright**
古巴
Cuba

白俄罗斯共和国
Belarus

列支敦士登
Liechtenstein
Typography suggestions
Use and declare the correct font-family

zh-tw  zh-cn  ko  vi  ja

Image credit: Tetsuhiro Ueda
Make sure the font-size is large enough

白俄罗斯  Belarus
世界上的事就是怪，不想发生的事偏发生了。我把那位迟到的学生带到办公室了解情况。原来他家离学校有二十多里路，他如果要准时到校的话，早晨五点钟就得起床，还要摸黑走上十几里山路。
Set appropriate margins between paragraphs

我问他想不想走出大山。他说，想。我说，要走出大山就得好好读书。他抹着眼泪点点头。
我说，相信老师，老师会帮你的。

这个冬天，每天早晨等上课铃响过后，我和另一位老师轮换着去查他的被褥。如果是湿的，我们 就悄悄拿到自己的寝室里烘干。
课外活动时，我尝试着给他们读一些脍炙人口的诗篇：风雨沉沉的夜里，前面一片荒郊，走尽荒郊，便是人们的道，呀！黑暗里歧路万千，教我怎样走好，上帝！快给我些光明吧，让我向前跑，上帝慌着说：光明，我没处给你找，你要光明，你自己去造。
今天的比赛，胜负取决于关键时刻的表现。下半场，双方的比分胶着，但关键的三分球却成为胜负的转折点。雷霆的防守球员，特别是防守弱点，被对手抓住，导致比分一度落后。

雷霆的防守球员，特别是防守弱点，被对手抓住，导致比分一度落后。但在最后的几分钟里，雷霆的防守球员表现出色，成功限制了对手的得分，最终以108比105赢得了比赛。雷霆的后卫马库斯·瑟斯顿表现出色，全场贡献了25分，是球队取胜的关键。雷霆的胜利，离不开所有球员的共同努力。
Yayoi Kusama

mental disease. “
expression of my life, particularly of my
has maintained that her artwork is an
creativity, for the rest of her life. She
would plan her work, while also feeling her
visual and aural hallucinations, then
of 10 when she began experiencing the
when she began experiencing the
discouragement of her interest in art
indelibly, and her family’s
mother’s cruelty, her father’s
clamored, nevertheless scarred by her
of World War II, she was, as she has
Japan. Later, shielded from the horrors
but dysfunctional family in Nagano,
Kusama was born in 1929 into a well-off
heritage of the art world."
otherwise, but I consider myself a
she once said. “People may call me
own terms, I am an obsessive artist.

art, and Institutional Critique—
Expressionism, Minimalism, Pop art,
distinguishive style utilizing approaches
early 1970s, Yayoi Kusama developed a
art scene from the late 1950s to the
A vital part of New York’s avant-garde
Logical directions

**block-start**

Ultimately it is the magic of shadows. Were the shadows to be banished from its corners, the alcove would in that instant revert to mere void.

**inline base direction**

**inline-end**

A phosphorescent jewel gives off its glow and color in the dark and loses its beauty in the light of day. Were it not for shadows, there would be no beauty.

**block-end**
# CSS Logical Properties

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

<table>
<thead>
<tr>
<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>15</td>
<td>60</td>
<td>67</td>
<td>11</td>
<td>10.3</td>
<td>d1</td>
<td>60</td>
<td>67</td>
<td>7.2</td>
</tr>
<tr>
<td>10</td>
<td>16</td>
<td>61</td>
<td>68</td>
<td>11.1</td>
<td>11.2</td>
<td>d1</td>
<td>60</td>
<td>67</td>
<td>7.2</td>
</tr>
<tr>
<td>11</td>
<td>17</td>
<td>62</td>
<td>69</td>
<td>12</td>
<td>11.4</td>
<td>d1</td>
<td>60</td>
<td>67</td>
<td>7.2</td>
</tr>
<tr>
<td>18</td>
<td></td>
<td>63</td>
<td>70</td>
<td>TP</td>
<td>12</td>
<td>d1</td>
<td>60</td>
<td>67</td>
<td>7.2</td>
</tr>
</tbody>
</table>
多次靠三分球扩大比分

多次靠三分球扩大比分，高晴队在第二节更是投中8记三分，取得了高分。陈静也因为表现突出，成为球队的首要得分手。他的三分球帮助球队在第一节就取得了领先。

陈静的三分球表现也引起了对手的重视。对手的防守开始变得更加严密，但是陈静依然能够找到空位投篮的机会。他的三分球帮助球队在第二节取得了领先。陈静也成为球队的首要得分手。他的表现也引起了对手的重视。对手的防守开始变得更加严密，但是陈静依然能够找到空位投篮的机会。他的三分球帮助球队在第二节取得了领先。
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.

Responsive vertical to horizontal layout
Without roots. Everywhere.

Vertical mobile navigation
I had wrapped the images that were supposed to do the stacking thing in a `div` that had `display: flex` applied, and this somehow messed up the rendering in Firefox while in vertical writing mode. I suspect this behaviour is related to the following bugs: Bug 1189131, Bug 1223180, Bug 1332555, Bug 1318825 and Bug 1382867.

In the meantime, I'm kinda intrigued by this effect that images, which are flex children, have in vertical writing mode on Firefox. It's like the browser just went nope 😞😢😔. 

https://www.chenhuijing.com/blog/vertical-typesetting-revisited
Frequency of major browser releases
A long list of references

- Internet World Stats
- Language Diversity Index Tracks Global Loss of Mother Tongues
- The Internet is Killing Most Languages
- After decades of Russian dominance, Belarus begins to reclaim its language
- The Endangered Languages Project
- 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
- Getting started with variable fonts
- 全球首款! 文鼎晶熙黑體支援可變式字體格式
- Creative text effects with CSS by Mandy Michael (video)
- W3C Internationalization & Text Layout Requirements
- Best Practices for Chinese Layout
Дзякуй

https://www.chenhuijing.com

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Font used is Farro, by Grayscale