“ ”.length === 1

Arabic Unicode and Calligraphy

Nick Doiron - @mapmeld

Today I...

WILL

help you avoid embarrassing errors

explain Arabic / RTL support

show pretty calligraphy

WILL NOT

teach you Arabic

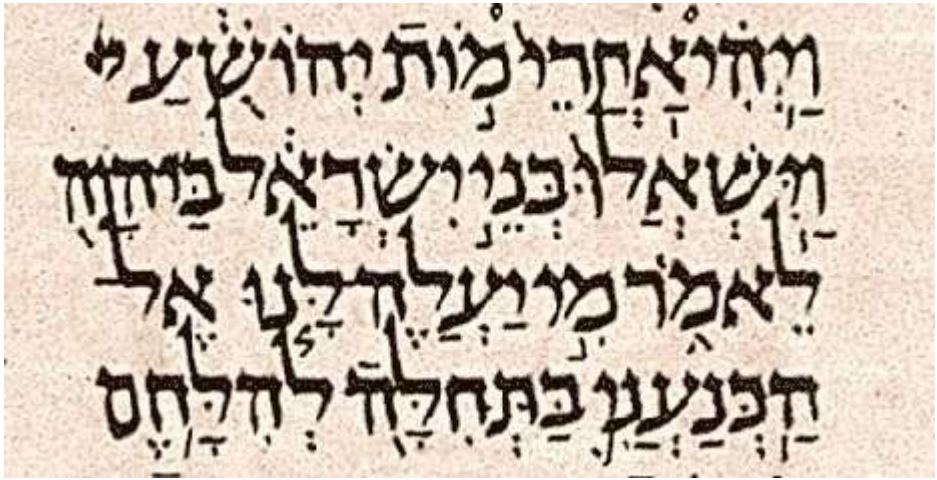
بيتزاك سبريس

بيتزاكسبرس

Right-to-left

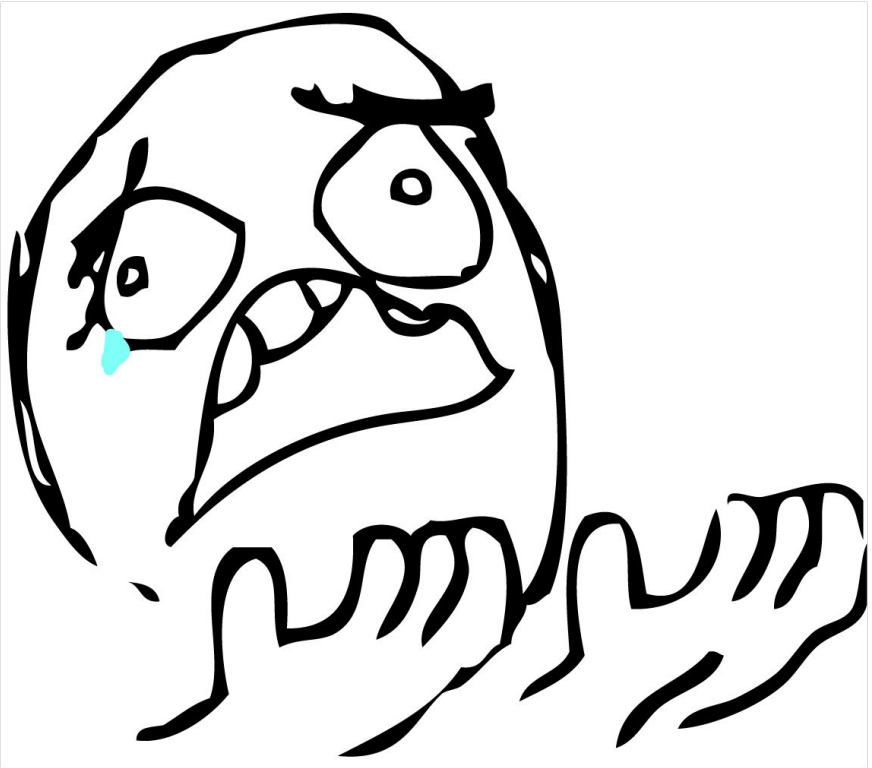
Work into internationalization

Also Hebrew, Dhivehi, related languages



NopeNotArabic.Tumblr.com
BESO
BACIO

But I can't read Arabic...



- Most letters connect
- Words have spaces
- Check left / right ends

Most times: Unicode does the work

User types د then ب then ي

They see دبي

Where are the vowels?

يَصِلُ بابا ولولو إلى دارِ الصّداقةِ.

سَبَقَهُما إليْها أطْفالٌ كَثيرون وهم يَمْرَحون.

لولو سَعيدٌ الآنَ لأنَّه يَلْتَقي أصْدِقاءَه.

«صَباحُ الخَيرِ يا فوفو،

صَباحُ الخَيرِ يا مُنى.

جِئْتُ لأَلْعَبَ معَكُما.»

HTML

These letters are so lonely 😿

```
<span class=‘red’>
&zwj; ي &zwj;
</span>
```

Making a right-to-left website

LIBRE PLANET 2017

March 25-26
MIT
Cambridge, Massachusetts

Pre-registration is full, but we will do our best to accomodate walk-ups.

- Sessions & Schedule
- Speakers
- Social Events
- Exhibit Hall
- Livestream
- Raffle
- Travel, Food & Lodging

Roots of Freedom conference shirts now available

Reserve a shirt

Secure. View site information

Hacker News
new | threads | comments | show | ask | jobs | submit

mapmeld (642) | logout

1. 3.5 Years, 500k Lines of Go (npf.io)
   116 points by NateDad 1 hour ago | flag | hide | 20 comments
2. Dell's 32-inch 8K UP3218K Display Now for Sale: Check Your Wallet (anandtech.com)
   40 points by DiabloD3 49 minutes ago | flag | hide | 36 comments
3. German Space Center has constructed the world's largest artificial Sun (newatlas.com)
   121 points by kamaal 3 hours ago | flag | hide | 29 comments
4. Amazon, the world's most remarkable firm, is just getting started (economist.com)
   19 points by gpresot 57 minutes ago | flag | hide | 7 comments
5. Chasing the First Arcade Easter Egg (edfries.wordpress.com)
   70 points by anjalik 3 hours ago | flag | hide | 7 comments
6. Let's Compile like it's 1992 (fabiensanglard.net)

The **dir** attribute

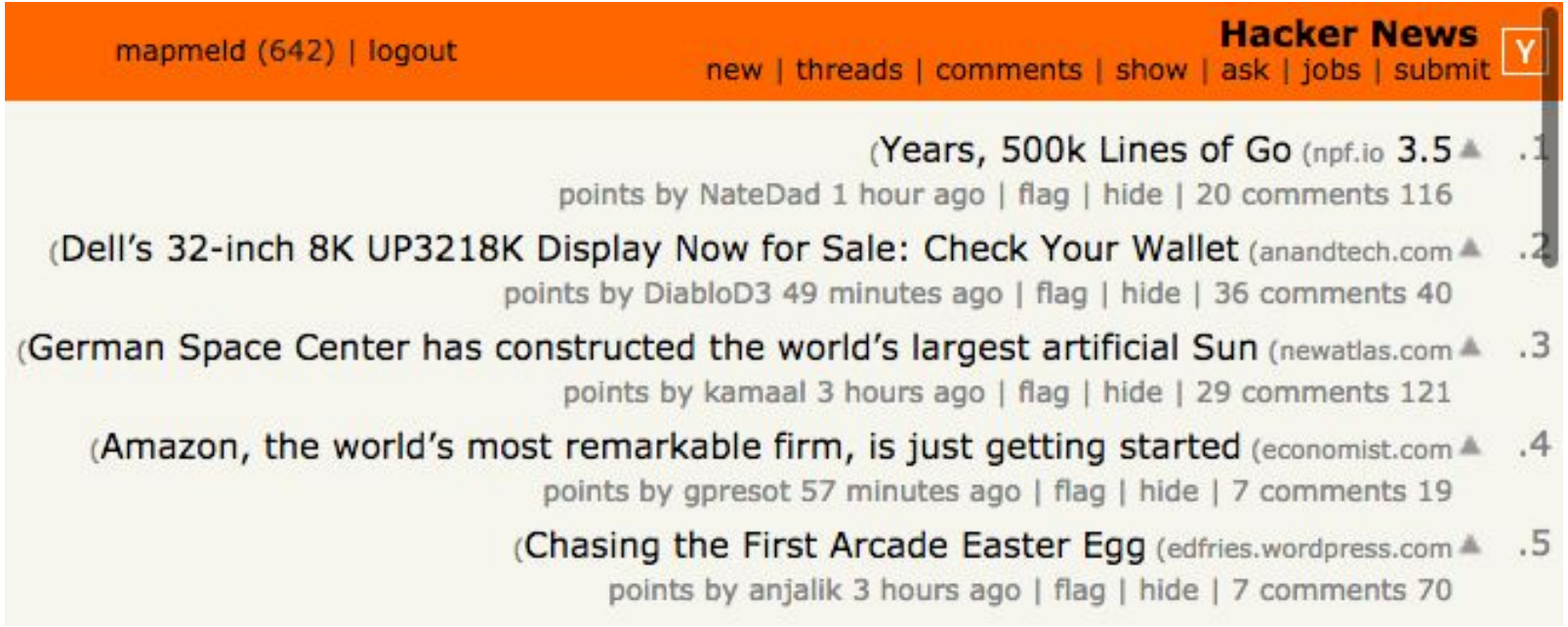
```
<body dir = “rtl”>
    <input dir = “auto”/>
</body>
```

Changes *layout direction*

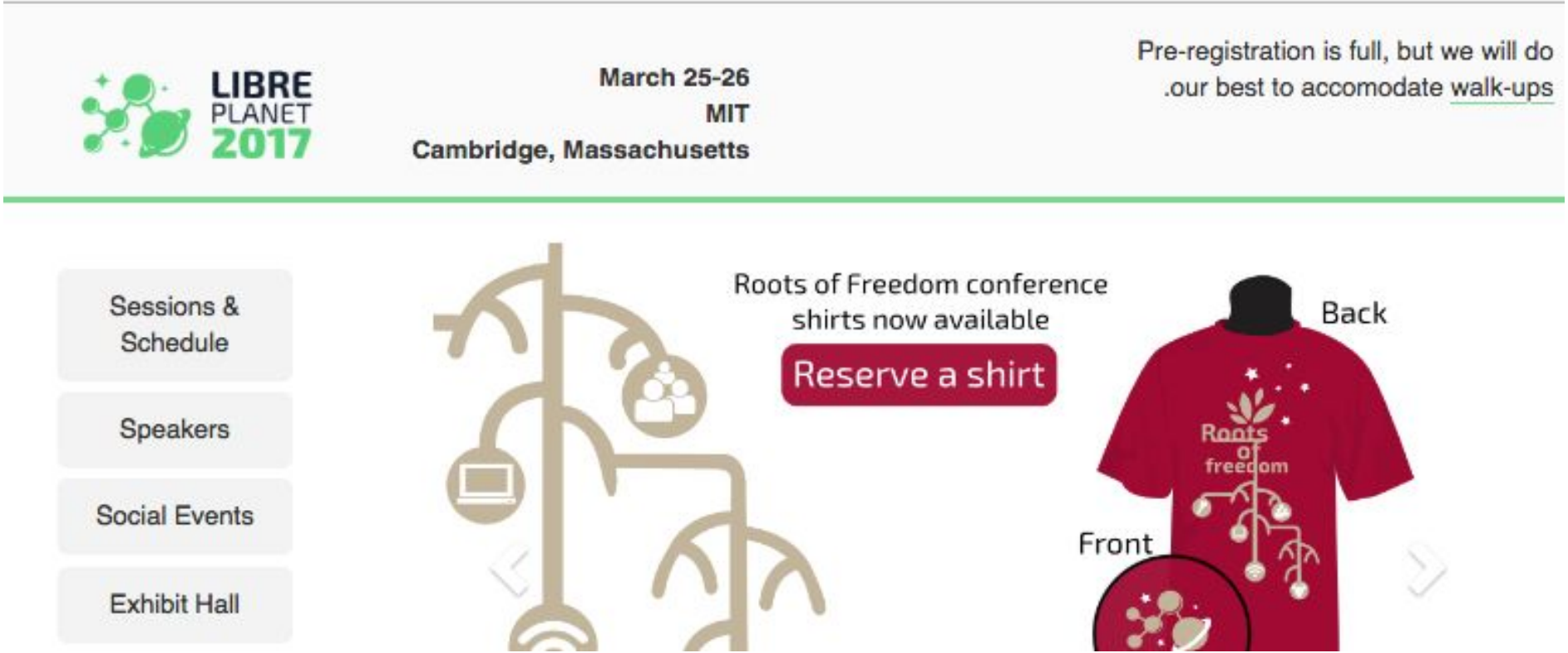
- LTR and RTL input look correct
- Not order of letters / words within tags

dir=“rtl” and English placeholders

links and punctuation fixed with Arabic text



dir attribute does not cover everything



CSS

[dir=“rtl”] .icon { ... }

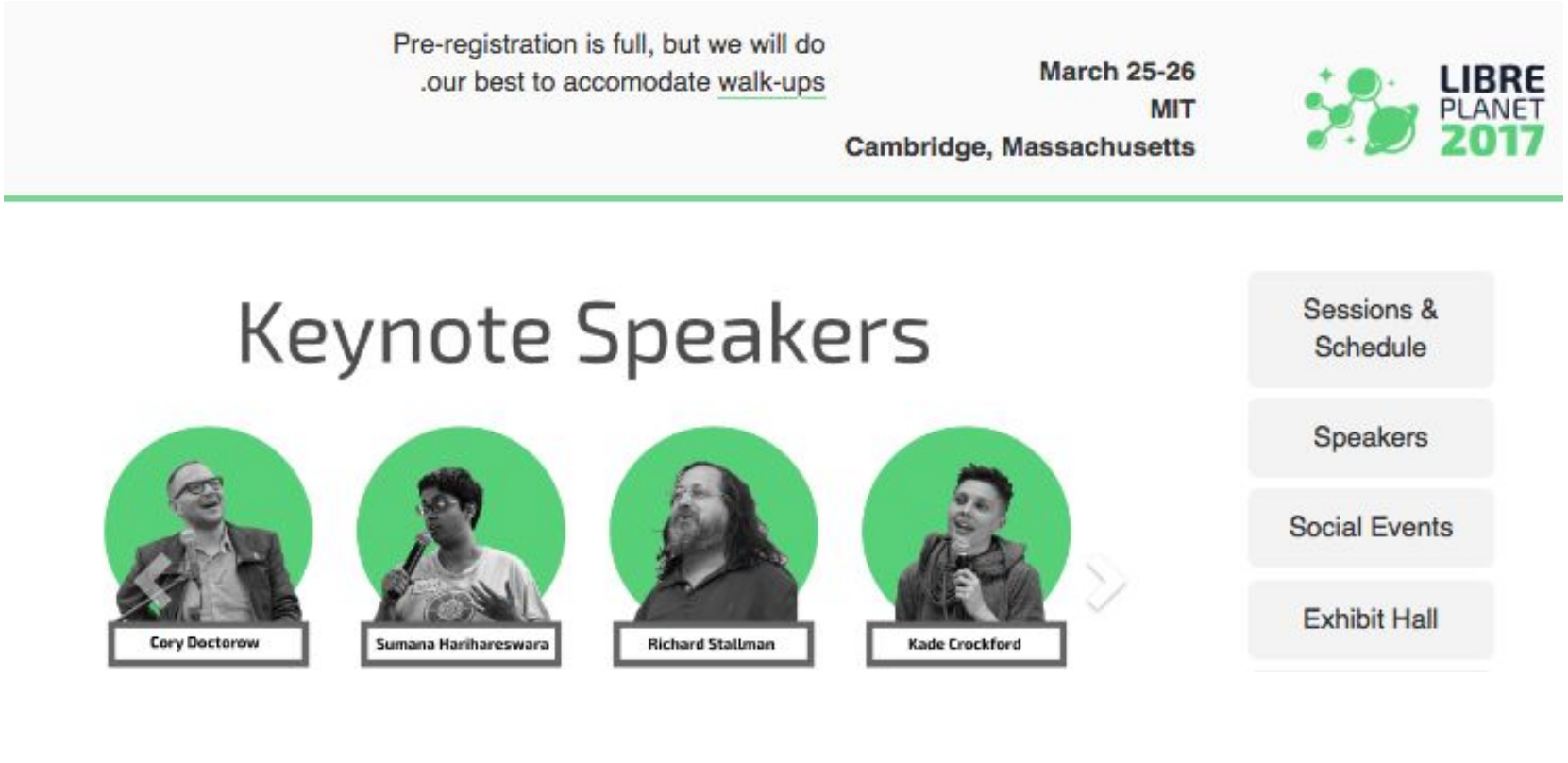
Layouts using float: left / right and % widths

Uneven padding, icons, round corners

direction: rtl;

With CSS and RTL applied

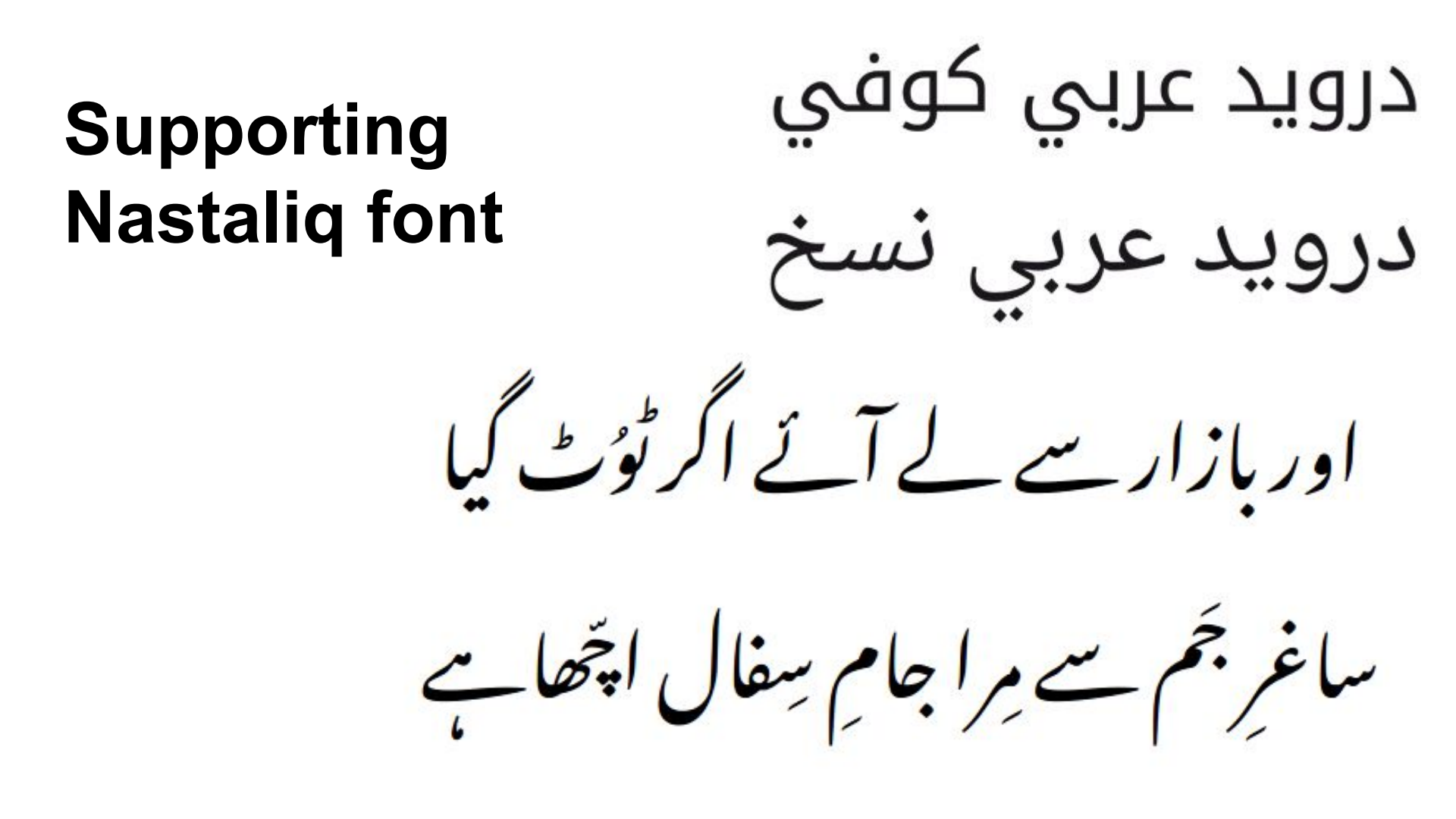
Bootstrap 3: https://github.com/morteza/bootstrap-rtl



Numbers in Arabic

Not Arabic numerals

Supporting Nastaliq font

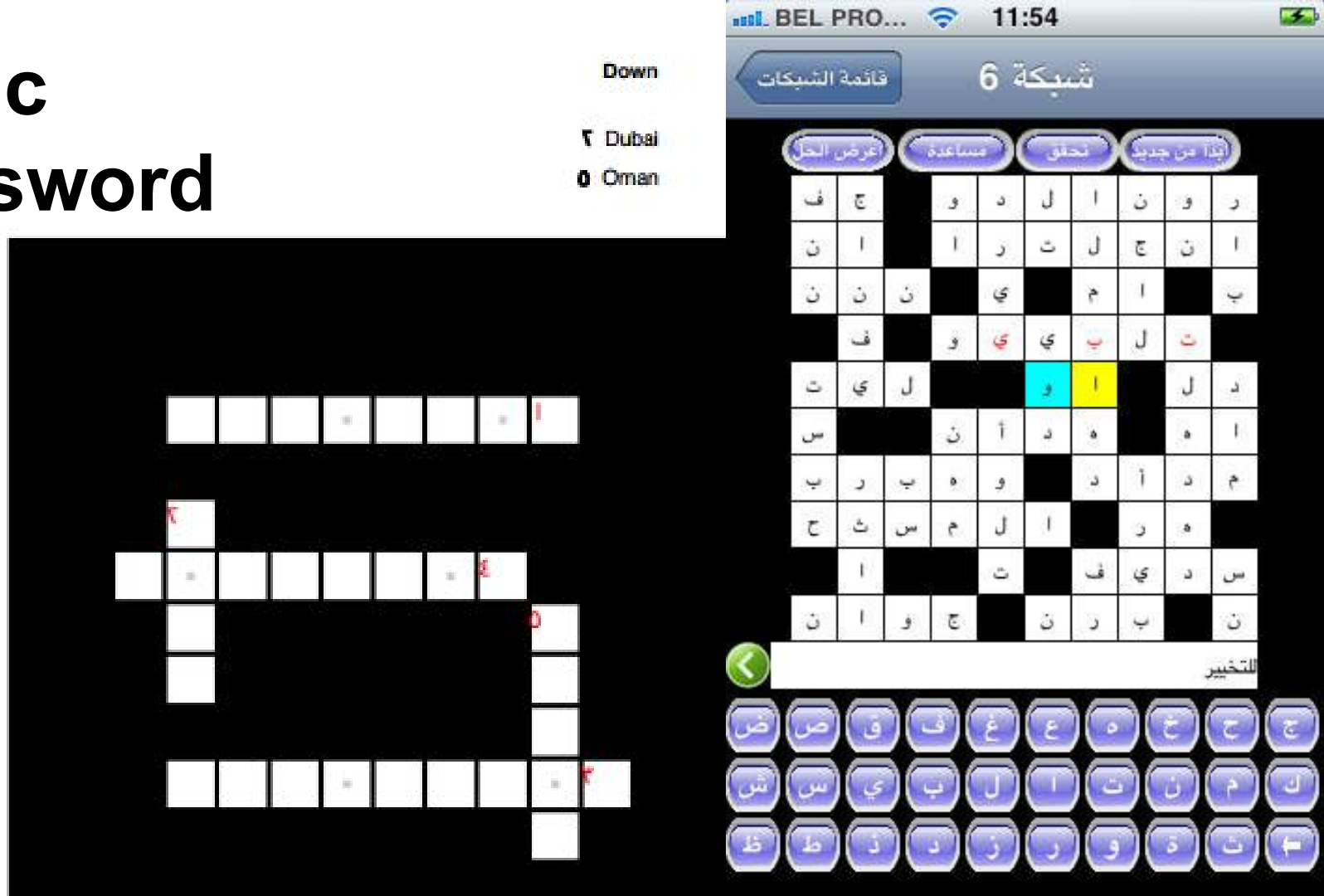


Graphics

Don’t just

mirror it

Arabic Crossword



Edge cases...

Why do ‘undo’ arrows point left?

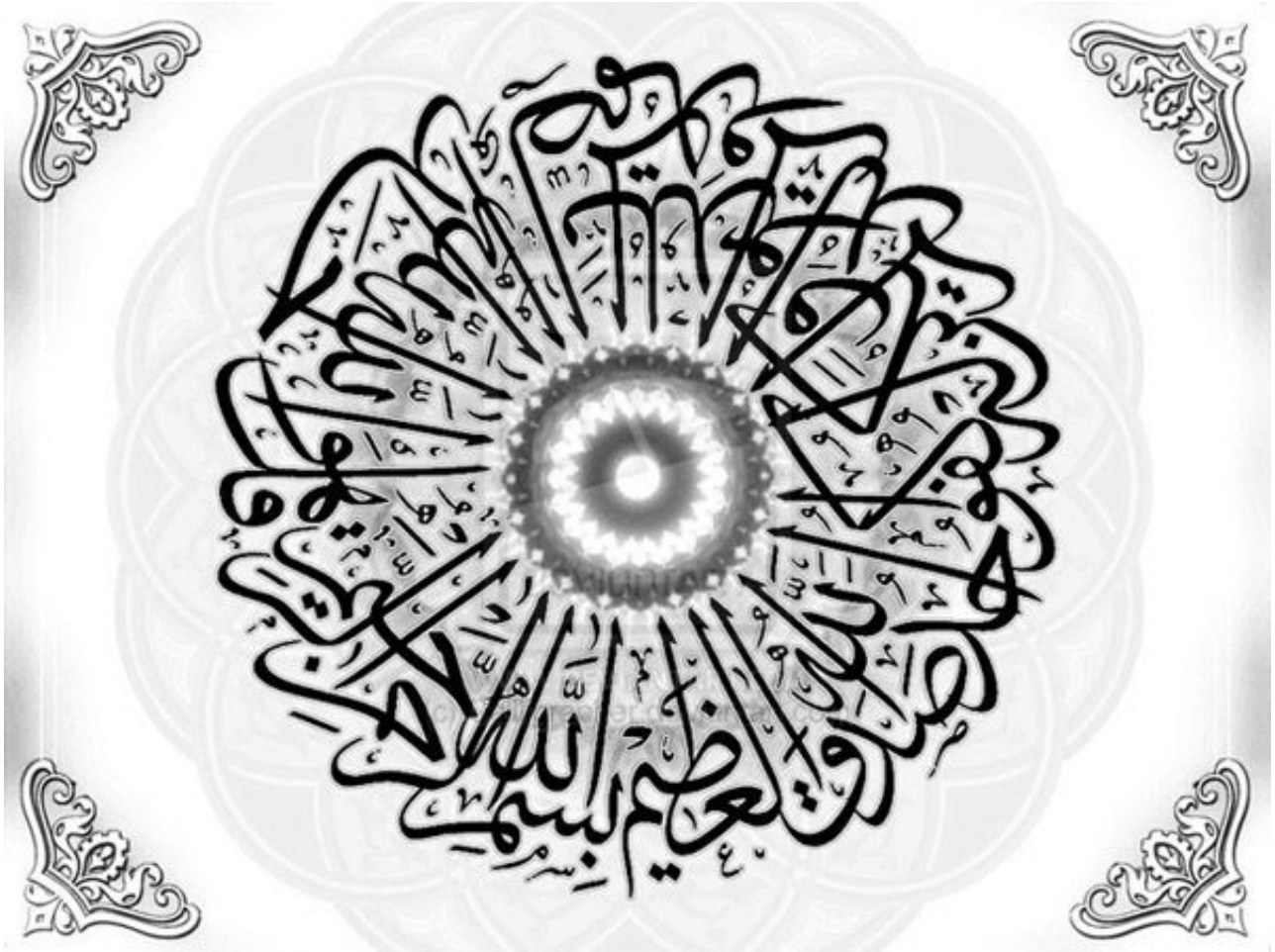
Geolocation

FedEx

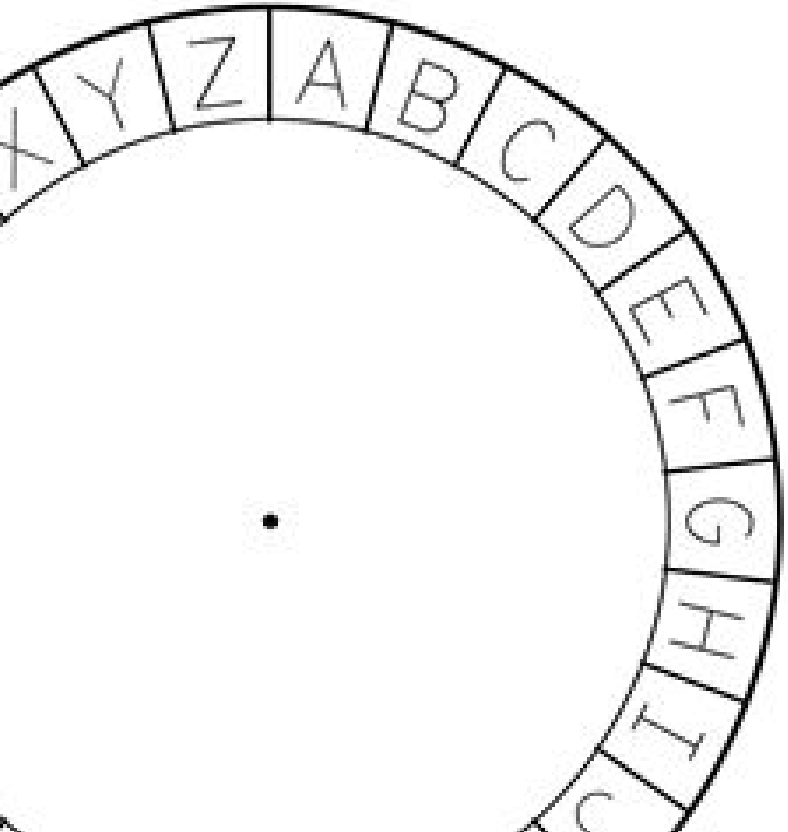
Calligraphy

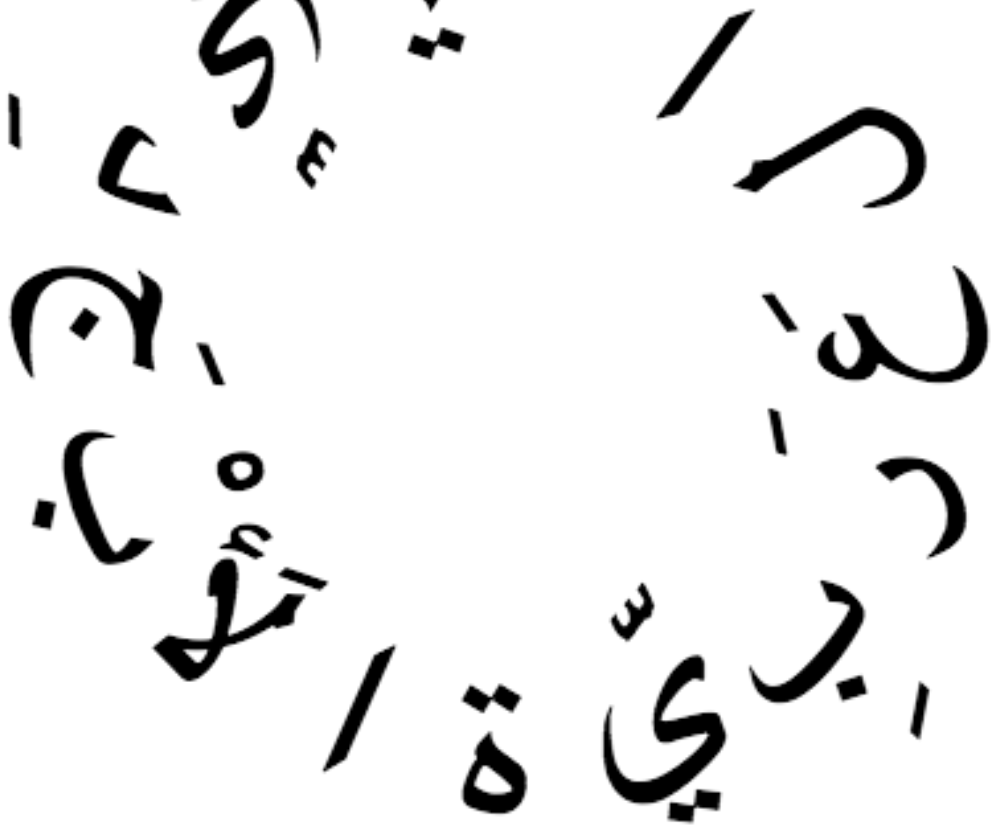
ALJAZEERA

Final Challenge: Geometric Calligraphy



We need text-shaping

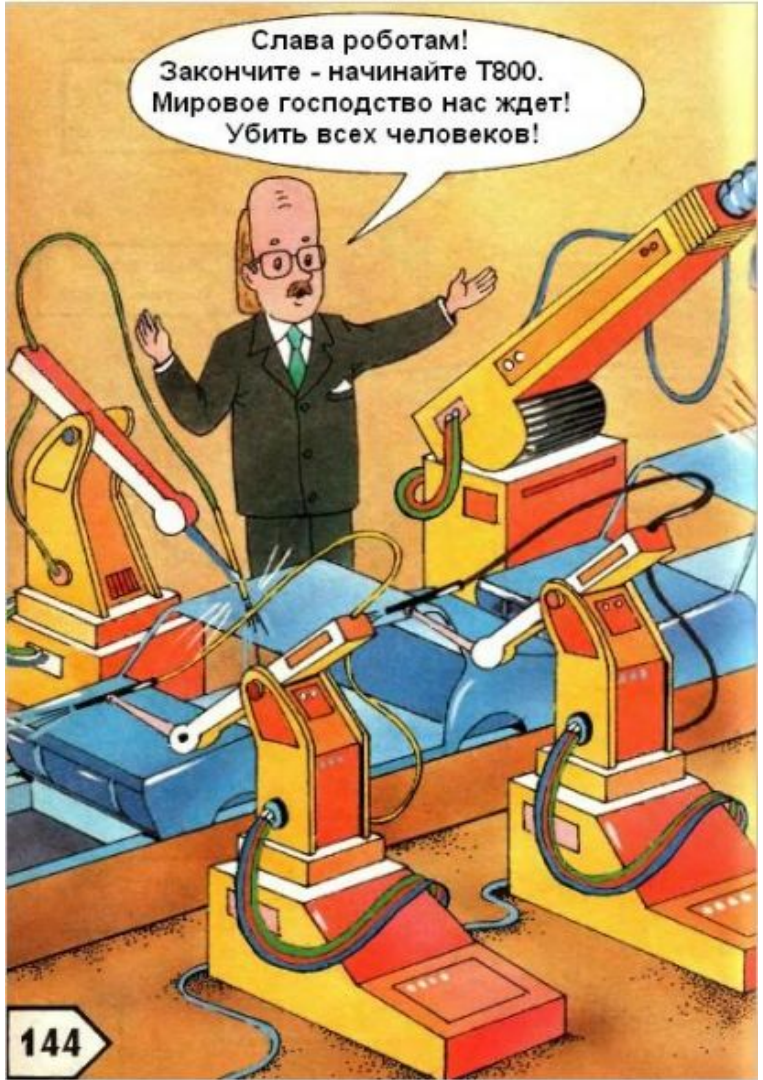




Based on a
real bug in Chrome /
OpenStreetMap

Existing GPL libraries

Circle example will make
more sense



Arabic Unicode: Extended Universe

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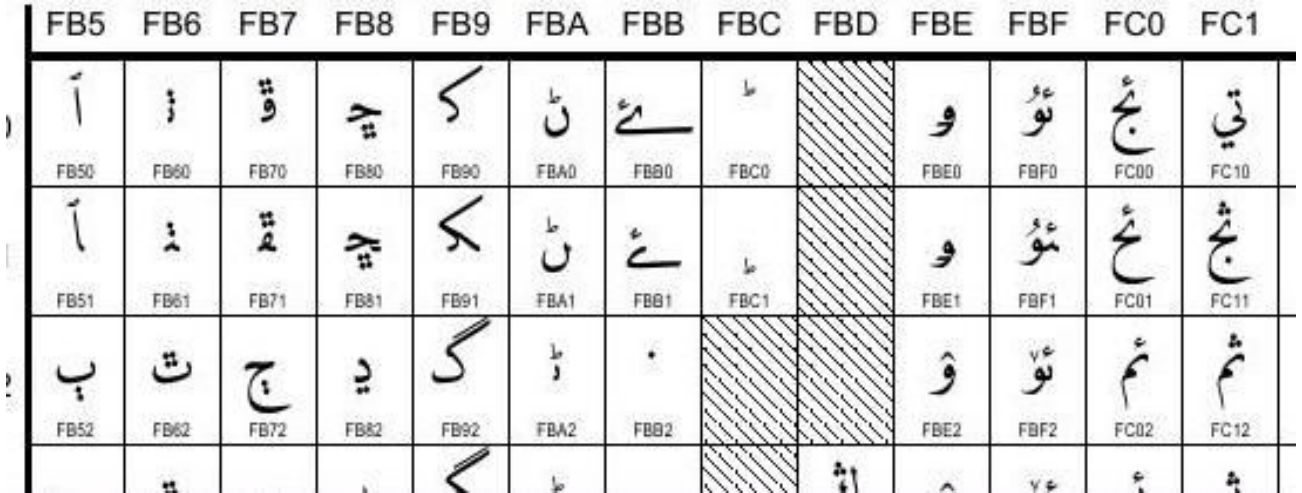


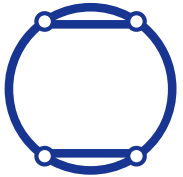
FB5	FB6	FB7	FB8	FB9	FBA	FBB	FBC	FBD	FBE	FBF	FC0	FC1
FB50	FB60	FB70	FB80	FB90	FBA0	FBB0	FBC0		FBE0	FBF0	FC00	FC10
FB51	FB61	FB71	FB81	FB91	FBA1	FBB1	FBC1		FBE1	FBF1	FC01	FC11
FB52	FB62	FB72	FB82	FB92	FBA2	FBB2			FBE2	FBF2	FC02	FC12

Arabic Unicode: Extended Universe

ریال

جل
جلاله

صلى الله
عليه وسلم



Quran,Currencies,Calligraphy

Kashida “stretch Arabic”

A sample workflow for handling bi-di text

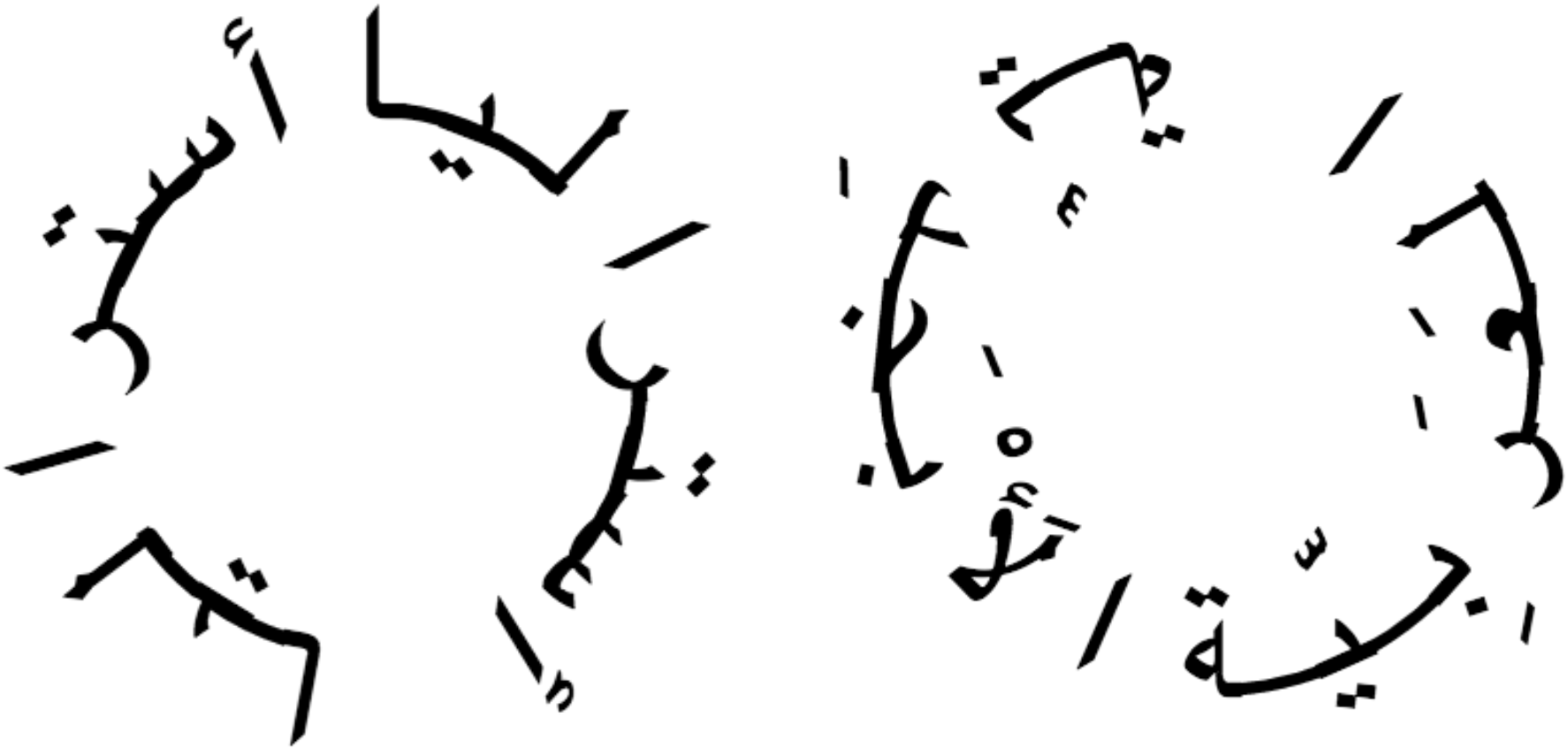
1. Determine that content contains RTL text
2. Not Arabic:
    a. Pair letters + modifiers in ‘RTL buffer’
    b. Read pairs right-to-left
3. Arabic:
    a. Add letters + modifiers based on position
    b. Add ligatures

```
if (!arabicRegex.test(inputText)) {
    // Hebrew or Thaana RTL script
    for (var n = 0; n < inputText.length; n++) {
        var c = inputText[n];
        if ((thaanaVowel.test(c) || hebrewSign.test(c)) && rtlBuffer.length) {
            rtlBuffer[rtlBuffer.length - 1] += c;
        } else if (rtlRegex.test(c)) {
            rtlBuffer.push(c);
        } else if (c === ' ' && rtlBuffer.length) {
            // whitespace within RTL text
            rtlBuffer = [rtlBuffer.reverse().join('') + ' '];
        } else {
            // non-RTL character
            ret += rtlBuffer.reverse().join('') + c;
            rtlBuffer = [];
        }
    }
```

```
let previous_output = output[output.length - 1];
if (previous_output[FORM] === NOT_SUPPORTED) {
  // not Arabic before this one
  output.push([letter, 'isolated']);
} else if (!(_connects_with_letter_before(letter))) {
  // this letter doesn't try to connect with previous
  output.push([letter, 'isolated']);
} else if (!(_connects_with_letter_after(previous_output[LETTER]))) {
  // previous letter doesn't try to connect to me
  output.push([letter, 'isolated']);
} else if (previous_output[FORM] === 'final' && !_connects_with_letters_before_and_after(previous_output[LETTER])) {
  // previous letter was final and cannot be medial to connect to me
  output.push([letter, 'isolated']);
} else if (previous_output[FORM] == 'isolated') {
  // previous letter was alone - we can change it to be initial of my phrase
  // for now this letter is the final of the phrase
  output[output.length - 1][1] = 'initial';
  output.push([letter, 'final']);
} else {
  // previous letter can be changed to medial
  // this one can be final
  output[output.length - 1][1] = 'medial';
  output.push([letter, 'final']);
}
```

```
for (let x = 0; x < LIGATURES.length; x++) {
  let ligature = LIGATURES[x];
  for (let y = 0; y < ligature.matches.length; y++) {
    let pattern = ligature.matches[y];
    let textFragment = text;
    let textFragmentOffset = 0;
    while (textFragment.indexOf(pattern) > -1) {
      // determine which ligature form to use
      let a = textFragment.indexOf(pattern);
      let start_form = output[a + textFragmentOffset][FORM];
      let end_form = output[a + textFragmentOffset + pattern.length - 1][FORM];
```

Now in outie and innie styles!



“ ”.length === 1

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