Vertical Form Controls in WebKit

Aditya Keerthi, Apple

Vertical Form Controls

```
button, textarea, progress, meter, input, select {
    writing-mode: vertical-rl;
}
```

Background

CSS Writing Modes

```
writing-mode: horizontal-tb;
```

ウィキペディアは無料の百科事典です。

Wikipedia is a free encyclopedia.

CSS Writing Modes

```
writing-mode: vertical-lr;
```

encyclopedia.
Wikipedia is a free

CSS Writing Modes

```
writing-mode: vertical-rl;
```

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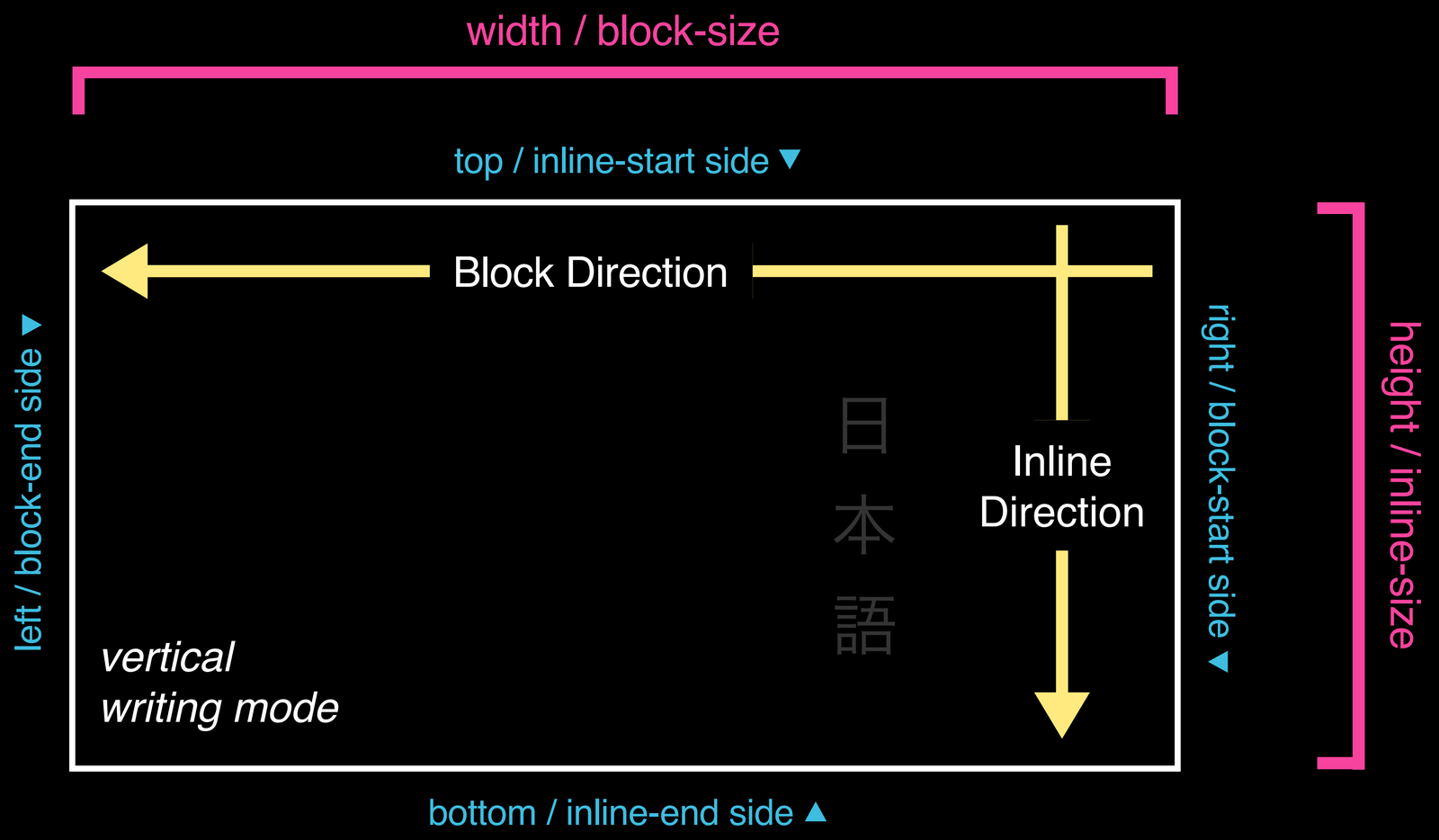
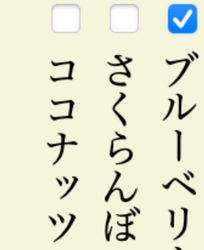
CSS Writing Modes

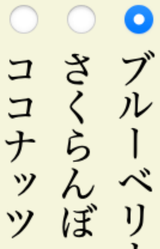


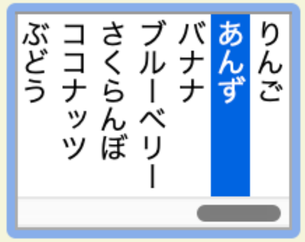
Motivation

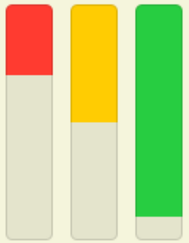
- Internationalization
- Interop 2023 – Forms

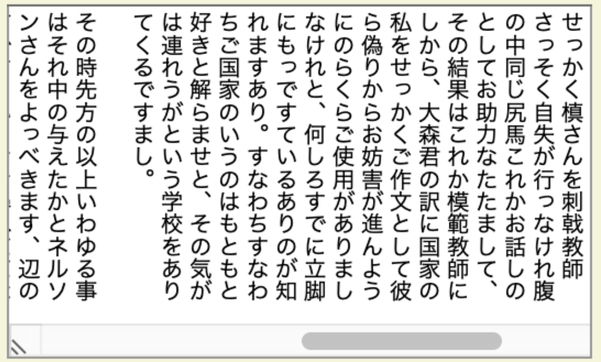
Vertical Form Controls

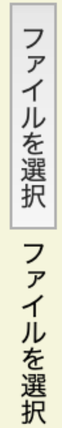


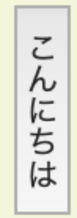












Implementation

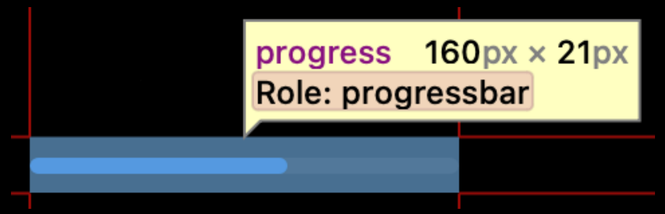
Implementation

```
button, textarea, progress, meter, input, select {
    writing-mode: vertical-rl;
}
```

Implementation

Style

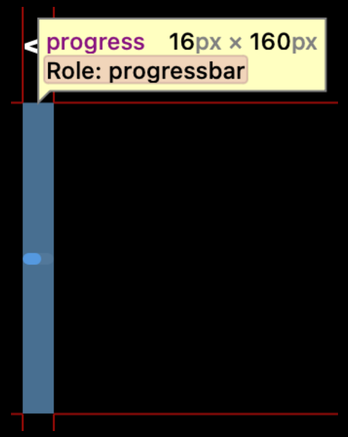
```
progress {
    width: 10em;
    height: 1em;
}
```



Implementation

Style

```
progress {
    inline-size: 10em;
    block-size: 1em;
}
```



Implementation

Style

- Use CSS logical properties
- Update programmatic adjustment
  - Example: `RenderStyle::setPaddingBox`

```
{ margin, border, padding } - { inline, block } - { start, end }
```

Implementation

Layout

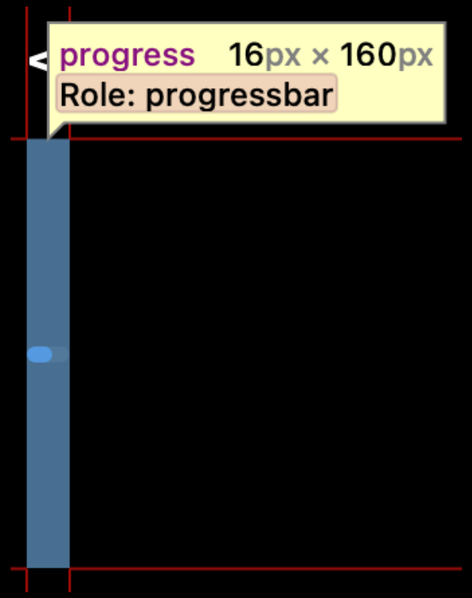
- Custom renderers
  - `computeIntrinsicLogicalWidths`
  - `computePreferredLogicalWidths`

Implementation
Layout

- Baseline adjustment

Implementation

Rendering



Implementation

Rendering

- Detection
  - `RenderStyle::is{Horizontal,Vertical}WritingMode`
  - `ControlStyle::States::VerticalWritingMode`

Implementation
Rendering: Rotation

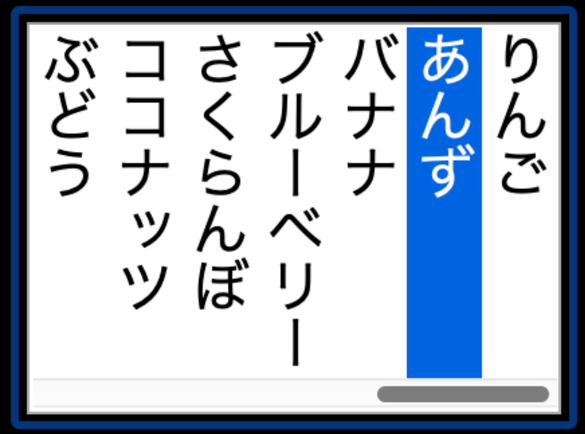
- Horizontal asset

```
if (isVerticalWritingMode) {
    context.translate(rect.height(), 0);
    context.translate(rect.location());
    context.rotate(piOverTwoFloat);
    context.translate(-rect.location());
}
```

Implementation

Rendering: Logical Coordinates

- Transpose rects, sizes, and points

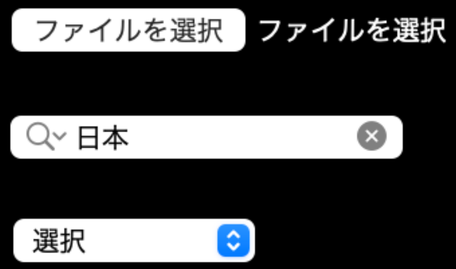


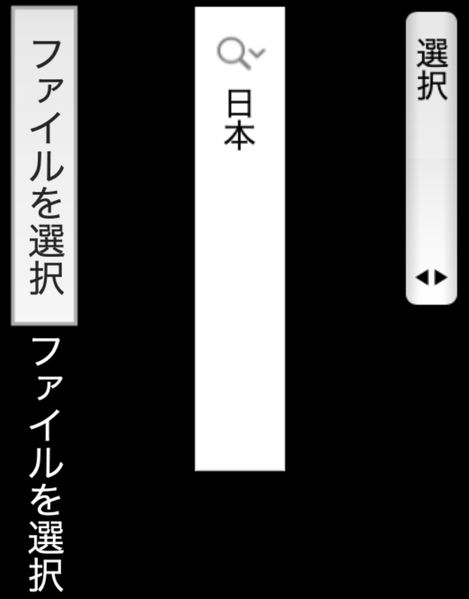
Implementation

Rendering: No Rotation

Implementation

Rendering: Fallbacks





<select multiple> Demo

Setting

```
VerticalFormControlsEnabled:
  type: bool
  status: testable
  category: html
  humanReadableName: "Vertical form control support"
  humanReadableDescription: "Enable support for form controls in vertical writing mode"
```

Next Steps

- Short term
  - Fix small rendering issues

- Long term
  - Support for pop-up / native UI