Mobile browsers

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http://quirksmode.org
http://twitter.com/ppk
Yahoo! London, 24 June 2009
Desktop browsers

Desktop browsers are getting boring.

They all follow the standards; even juicy IE bugs are becoming scarce.

Fortunately ...
Mobile Desktop browsers

Mobile browsers come to the rescue.

They are MUCH more interesting. Many devices, many browsers, many incomprehensible bugs.

Good times are here again.
Mobile browsers

Today's session will help you make some sense of the situation.

Thanks to Vodafone's generous support I'm able to deliver a preliminary report on the State of the Mobile Browsers.
The :hover pseudo-class really only makes sense when a mouse cursor is present, as it is on S60v3.

**Focus**
The :hover styles are applied when the user focuses on the element by touching it, and removed when the user focuses on another element. Touch enabled by: Vodafone WM, Opera 8.65 SE, S60v3 WebKit, Iris (only while touching the screen), Ozone.

NF/SE: links only, hover only

Something happens on Skyfire, but it’s not even close to correct.

**Static**
The browser does not update the styles when elements are added dynamically.

The first time you add a paragraph at the start, WebKit/NokE66 gives the next paragraph (i.e. the previous first-child) the :last-child styles in addition to those.

NF/SEK770i can’t do dynamic test because of link focusing problems.

S60 WebKit has a last-child bug that may impact first-child.
<table>
<thead>
<tr>
<th>Browser</th>
<th>Focus</th>
<th>Testable</th>
<th>S60v3</th>
</tr>
</thead>
<tbody>
<tr>
<td>(9.5) HTC Touch Diamond</td>
<td>no</td>
<td>focus</td>
<td>no</td>
</tr>
<tr>
<td>(8.65) SE F1i</td>
<td>yes</td>
<td>focus</td>
<td>yes</td>
</tr>
<tr>
<td>(8.00) Motorola V3xx</td>
<td>yes</td>
<td>focus</td>
<td>yes</td>
</tr>
<tr>
<td>Nokia E71</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Nokia E66</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Nokia E71</td>
<td>yes</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Samsung i560</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Nokia 5800</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>iPhone</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Android G1</td>
<td>focus</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Android G2</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Bolt (E71)</td>
<td>focus</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>Iris (E71)</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Ozone (E71)</td>
<td>yes</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Samsung F700</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>Sony Ericsson C510</td>
<td>incom</td>
<td>complete</td>
<td>no</td>
</tr>
<tr>
<td>Blackberry 9500</td>
<td>no</td>
<td>no</td>
<td>no</td>
</tr>
</tbody>
</table>

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S60 WebKit has a last-child bug that may impact first-child.
Mobile browsers

- Android WebKit
- Opera Mobile
- NetFront
- Safari
- Opera Mini
- Blackberry
- S60 WebKit
- IE Mobile

- Iris
- Bolt
- Skyfire
- Obigo
- OpenWeb
- Nokia S40
- Palm Blazer
- Fennec
- Teashark
- Ozone

You may groan now.
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- Ozone

There is no “WebKit Mobile”
There is no “WebKit mobile”

Compatibility of :enabled, :disabled, and :checked

<table>
<thead>
<tr>
<th></th>
<th>S60v3 WebKit</th>
<th>S60v5 WebKit</th>
<th>Default WebKits</th>
<th>Non-default WebKits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nokia E66</td>
<td>no</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nokia E71</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Android G2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bolt (E71)</td>
<td>yes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iris (HTC)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ozone (E71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- no
- almost
- yes
- not :checked
- yes
- almost
- yes
Mobile browsers

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Modern default browsers

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Still quite a lot.
Thin clients

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Opera Mini

Opera Mini is a thin client, meant for decent web browsing on older phones.

The HTML, CSS, and JavaScript is interpreted by a special Opera server, which sends the result on to a thin client.
Opera Mini

Opera Mini does not allow any client-side interactactivity.

Every time an event takes place the server is re-queried and the page refreshed.
Mobile browsers overview

Top level:
Android WebKit, Safari, Opera Mobile

Mid level:
S60 WebKit, Blackberry, Opera Mini

Bottom level:
NetFront, IE Mobile (old)
Operating systems

- Symbian S60 (Nokia, Samsung)
- Windows Mobile (Samsung, HTC)
- Blackberry (RIM)
- Android (HTC, Samsung, etc.)
- iPhone (Apple)
- Symbian UIQ (Sony Ericsson)
- BREW (Motorola, LG)
- webOS (Palm)
- etc. etc. etc.
Operating systems

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JME (Java Mobile Edition)
“Write once, run anywhere.”
Operating systems

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- Windows Mobile (Samsung, HTC)
- Blackberry (RIM)
- Symbian UIQ (Sony Ericsson)

JME (Java Mobile Edition)

“Write once, run anywhere.”
“Write several times, run somewhere”
(Still, easier than starting from scratch.)
Example

As a test, I looked at the homepage of my QuirksMode.org in several mobile browsers on several platforms.

The results are ... interesting.
Example

Three variations:
1) Entire page shown, zoomed out (tiny fonts)
2) Upper left corner of page shown (normal size)
3) Positioning disregarded; site squeezed into small screen
QuirksMode.org is the prime source for browser compatibility information on the Internet. It is maintained by Peter-Paul Koch, freelance front-end consultant, agent, and trainer in Amsterdam, the Netherlands.

QuirksMode.org is the home of the Browser Compatibility Tables, where you'll find hype-free assessments of the major browsers' CSS and JavaScript capabilities, as well as their adherence to the W3C standards.
Safari iPhone 2.2

Zooms out and shows entire page.
Blackberry Storm

Zooms out and shows entire page (with minor bugs)
Opera 9.5
HTC Touch Diamond (Win Mob)

Zooms out and shows entire page
Zoom

If the browser shows the entire site, it usually gives you a zooming option, too.

Let's take a look at a few.
Opera Mini
Nokia E71

Initial: show entire site.

Notice the zoom window top left.
Clicking on Zoom zooms in to the requested area.
Bolt
Nokia E71

Bolt has an unusual zoom interface.
Click the lower right icon...
Android WebKit G2

... and drag the zoom layer. Releasing it zooms in.
Zoom

Browsers have some interesting ideas, but the final word in zoom interfaces has not yet been spoken.

(Especially when Apple continues its patent fascism.)
Example

Let's continue with our examples.
Opera 9.5
HTC Touch Diamond
(Win Mob)

Zooms out and shows entire page
But... this is desktop mode

Zooms out and shows entire page
this is mobile mode

Opera 9.5
HTC Touch Diamond
(Win Mob)

Errr ....
Opera 9.5
HTC Touch Diamond (Win Mob)
Errr ....
Opera Mobile
- desktop mode
- mobile mode
Opera Mobile

- desktop mode
- mobile mode

Sites are shown exactly as on a desktop computer.
Opera Mobile

- desktop mode
- mobile mode

Sites are squeezed until they fit the display; and several CSS declarations don't work. (such as float, position, width)
More tests necessary.
in my test cases:

```
font-weight: 700

font-style: italic

According to JavaScript the font-style of the previous line is italic

text-decoration: underline

TEXT-TRANSFORM : UPPERCASE

FONT-VARIANT : SMALL-CAPS

color: blue

letter-spacing: 0.3em

word-spacing: 1em  word-spacing: 1em

font-size: 150%
```

Opera 9.5
HTC Touch Diamond (Win Mob)
desktop mode
Basic font CSS - mobile

I want to be sure mobile browsers support this CSS because I often use it in my test cases.

font-weight: 700

font-style: italic
According to JavaScript the fontStyle of the previous line is italic

text-decoration: underline

TEXT-TRANSFORM: UPPERCASE

font-variant: small-caps

color: blue

letter-spacing: 0.3em

word-spacing: 1em word-spacing: 1em

font-size: 150%
Opera Mobile

Opera says desktop mode is the default mode; users have to explicitly set mobile mode.

I believe them, but they may be wrong.
Opera Mobile

Changing random settings just because you can is popular in the mobile world.

It expresses power over other parts of the mobile value chain.

So I expect some hardware vendor or carrier to switch the mode.
Example

Let's continue with our examples.
Opera 9.5
HTC Touch Diamond
(Win Mob)
Errr ....
IE Mob (old)
HTC Touch Diamond (Win Mob)
Errr ....
NetFront
Samsung
F700

Errr ....
But ... this is vertical orientation
NetFront Samsung F700 horizontal
S60v3
WebKit
Nokia E71

Shows upper left corner of site.
Android WebKit G2

Shows upper left corner of site.
On most browsers, going back to the previous page is done by pressing the correct button.

(BTW: Windows Mobile browsers usually go to the top of the previous page, and not to the point where you were.)
Still, by far the best Back interface is offered by the S60 WebKit. I hope other browsers will copy it.
Pressing the back button reveals this interface...
Ozone does something similar, but it needs some more work.
Browser bugs

Unsurprisingly, all browsers have their share of bugs, especially in CSS.

And please count every WebKit as a separate browser in this regard.
support this CSS because I often use it in my test cases.

font-weight: 700

font-style: italic

According to JavaScript the font style of the previous line is italic

text-decoration: underline

TEXT-TRANSFORM: UPPERCASE

FONT-VARIANT: SMALL-CAPS

color: blue

letter-spacing: 0.3em

word-spacing: 1em word-spacing: 1em

font-size: 150%
NetFront SE C510

Lacks some declarations.

font-weight: 700

font-style: italic

According to JavaScript the fontStyle of the previous line is italic

text-decoration: underline

text-transform: uppercase

font-variant: small-caps

color: blue
Opera Mob 8.00
Motorola V3xx

Locked in mobile mode.

Lacks most declarations.
Besides, a JavaScript check for `fontStyle` is incorrect.

According to JavaScript the `fontStyle` of the previous line is italic.
Browser bugs

This problem has implications for testing.
Do NOT use JavaScript to ascertain whether a certain CSS declaration is supported.
The script might misfire.
Browser bugs

Prize for the weirdest CSS bug goes to the Android G2.

Reference:
http://quirksmode.org/css/box.html
Browser bugs

This is the normal test (Firefox):

- Traditional box model width
- W3C box model width
- Mozilla's padding-box

- -moz-box-sizing: content-box
- -moz-box-sizing: border-box
- -moz-box-sizing: padding-box

Width purple: 300px
Width blue: 330px
Browser bugs

G2: the purple box is WIDER than the blue one... but only in portrait orientation (Sorry, no screen shot.)
Developing for mobile

Rule 1:
Do NOT use emulators.

They cannot be trusted.
Developing for mobile

Rule 2:
Make sure you have:
- iPhone or Android (or both)
- S60
- Windows Mobile
- (Blackberry)
Developing for mobile

Rule 3:
Use media queries

@media all and (max-width: 300px) {
   // styles for small screens
}

Opera, minor WebKits: full support
iPhone, S60v5 WK: static support
Thank you for your attention
Questions?

Ask away.

Or ask me on Twitter
http://twitter.com/ppk
or on my site
http://quirksmode.org