CSS Menus

By Roger Keays, 16 April 2007

Building menus in HTML can dramatically improve the navigation and useability of your website. Getting it just right can be a very time consuming task though. There are a lot of javascript/dhtml implementations of menus out there but they almost all suffer from excessive bloat, inflexibility and complicated declarations to create the menu.

This blog describes how you can turn *any* existing HTML unordered list into a dropdown menu that is easily customisable through CSS. No need to call any fancy, indecipherable javascript, hardcode colors or sizes or fiddle with 3rd party library code: just import a single stylesheet and you're done.

We've set the following requirements for our menus:

- 1. Require no additional markup (e.g. class names, id's, anchors) other than regular and tags.
- 2. Use no javascript.
- 3. Use no browser-dependent code.
- 4. Be independent of font size or screen size.

CSS menus aren't a new idea. Originally, I think credit for the idea goes to Eric Meyer [1]. Our method also uses ideas from howtocreate.co.uk [2] to support Microsoft Internet Explorer. Improvements made over these approaches include fixing flashing menu problems; cleaning up the css; supporting horizontal menus and fixing some problems displaying borders.

The Clean Implementation

Let's take the following markup, and convert it into a horizontal dropdown menu.

```
<1i>>
     <a href="#">Popular</a>
     ul>
       <a href="#">70s</a>
       <a href="#">80s</a>
       <a href="#">90s</a>
      <!-- music -->
 <
  <a href="#">Dance</a>
  <a href="#">Salsa</a>
    <a href="#">Cha Cha</a>
    <a href="#">Waltz</a>
    <1i>>
     <a href="#">Swing</a>
     ul>
       <a href="#">East Coast Swing</a>
       <a href="#">Lindy Hop</a>
      <!-- dance -->
 <!-- menu -->
```

Conceptually, we do the following steps with the CSS styling:

1. Remove list style types

- 2. Float the top-level elements to arrange them horizontally
- 3. Use CSS2 positioning to postion second and third-level elements
- 4. Hide the second and third-level elements using display: none;
- Use a li:hover ul selector to display second and third-level

 elements when the mouse moves
 over their containing

In detail, the styles we use are:

```
/* top level menu container */
```

```
ul {
  list-style: none; /* no list bullets
                                                               * /
                     /* don't try to indent lists
 margin: 0px;
                                                               * /
                     /* don't try to indent lists
                                                               * /
 padding: 0px;
 background: wheat;
}
/* top level menu items */
li {
 position: relative; /* makes this a containing block
                                                              * /
 float: left; /* align menu horizontally
                                                               * /
 width: 5em;
                     /* make each item the same width
                                                               * /
}
/* second level menu container */
ul ul {
 border: 1px solid black;
 display: none; /* don't show this menu by default
                                                               * /
 position: absolute; /* use absolute positioning for submenu */
 top: 100%;
                /* display directly under menu bar
                                                              * /
}
/* second level menu items */
li li {
 float: none;
                        /* makes this list a vertical one
                                                              * /
                        /* our second level menus are wider
 width: 8em;
                                                              * /
}
/* position third level menu container */
ul ul ul { top: 0px; left: 100%; }
/* make the anchor fill the li */
li a { display: block; padding: 3px; }
/* highlight effect on hover */
li a:hover { background: yellow; }
/*
 * The magic which shows the menus. The > selector selects only an
 * immediate child. So this selector says 'The ul directly below the
 * li being hovered over'.
```

```
*/
li:hover > ul { display: block; }

/* clear the floated elements */
ul:after {
  content: ".";
  display: block;
  height: 0;
  clear: both;
  visibility: hidden;
}
```

Take a look at the example.

Internet Explorer

There are, as you might expect, several problems getting this to work on Microsoft Internet Explorer. The biggest of these is that IE 6 and 5.x don't support the :hover psuedoclass for elements (quite ironic, seeing as it was Microsoft who invented the :hover psuedoclass, first using it for the <a> element). IE7 also has problems implementing this selector, particularly when the user changes the font size.

Unfortunately, we must look to javascript for a solution here. We can take advantage of IE's proprietary behavior CSS property to make this as transparent as possible:

```
li { behavior: url('IEmenus.htc'); }
```

With this file containing the javascript required to mimic the required :hover functionality:

```
<attach event="onmouseover" handler="rollOver" />
<attach event="onmouseout" handler="rollOff" />
<script type="text/javascript">

function rollOver() {

    /* fix style */
    element.className += ' hover';

    /* prevent redraw of entire menu */
    window.event.cancelBubble = true;

    /* change display of child */
    for (var x = 0; element.childNodes[x]; x++) {
```

```
if (element.childNodes[x].tagName == 'UL') {
            element.childNodes[x].style.display = 'block';
            /* force IE to draw the child properly */
            element.childNodes[x].style.visibility = 'visible';
        }
    }
}
/*
* Called when the mouse moves off the li element.
function rollOff() {
    /* fix style */
   element.className = element.className.replace(' hover', '');
     * Prevent redraw of entire menu by cancelling event bubble when moving
     * onto children. Otherwise you get a lot of flickering in IE with large
     * menus.
     * /
   var onto = window.event.toElement;
    if (onto != null) {
     do {
        if (onto == element) {
            window.event.cancelBubble = true;
            return;
        }
      } while ((onto = onto.parentElement) != null);
    }
    /* change display of child */
    for (var x = 0; element.childNodes[x]; x++) {
        if (element.childNodes[x].tagName == 'UL') {
            element.childNodes[x].style.display = 'none';
        }
    }
}
</script>
```

IE also has some typical rendering defects:

- Gaps are shown between the second and third-level menu items. This is fixed with li li { verticalalign: bottom; }.
- Anchor elements sometimes ignore the :hover event. This is fixed by putting the elements in hasLayout mode with li a:hover { zoom: 1; }.
- IE doesn't support the :after psuedoclass for clearing the floated s. IE will clear elements when the containing block is in hasLayout mode though, so the fix is simply: ul { zoom: 1; }. You could also use width: 100%; here if that is appropriate for your design.
- For IE versions before 7, the position of the submenu is out by 1px when the containing has an odd height in pixels. This is fixed with the following IE6-specific css expression:
 ul ul { _margin-top: expression(this.parentNode.clientHeight % 2 == 0 ? 0 : 1); }

That's it.

Download IEmenu.htc

References

- [1] http://meyerweb.com/eric/css/edge/menus/demo.html
- [2] http://www.howtocreate.co.uk/tutorials/testMenu.html

About Roger Keays



Roger Keays is an artist, an engineer, and a student of life. He has no fixed addressand has leftfootprints on 40-something different countries around the world. Roger is addicted to surfing. His other interests are music, psychology, languages, the proper use of semicolons, and finding good food.