

# \*:96 Overheads

## Part 6e: Cascading Style Sheets (CSS)

More about this course about Internet application protocols can be found at URL:

<http://www.dsv.su.se/jpalme/internet-course/Int-app-prot-kurs.html>

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### Rendering:

Here is one word, which is boldfaced and with a smaller font.

### Old notation:

Here is one `<B><FONT SIZE="2">word</B></FONT>` which is boldfaced and with a smaller font.

### New notation:

```
<HEAD>
<STYLE type="text/css">
SPAN.xyz { font-size:10pt; font-style: bold }
</STYLE>
</HEAD><BODY>
```

Here is one `<SPAN class="xyz">word</SPAN>` which is boldfaced and with a smaller font.

**Note:** { } surrounds a group of properties for a certain style.

## Why is CSS good?

CSS separates formatting from logical content, which has many advantages,

1. formatting codes need not be repeated,
2. it is easier to produce text if it is separated from formatting mark-up,
3. the risk of errors is probably smaller,
4. it is easier to format the same content in multiple formats,
5. it is easier to modify the formatting for many pages,
6. tasks can be better separated between content producer and format designer.

## Relative and absolute font sizes

Before we got style sheets, HTML only allowed relative font sizes. A user could specify `<font size="n">` where the following values of "n" were allowed:

Non-signed value	Signed value	Example of possible rendering, for a Windows user with 12 pt as default font size using the Arial font (50 % larger here)
1	-2	The quick brown fox
2	-1	The quick brown fox
3	0	The quick brown fox
4	+1	<b>The quick brown fox</b>
5	+2	The quick brown fox
6	+3	<b>The quick brown fox</b>
7	+4	<b>The quick brown</b>

## With CSS, absolute fonts became possible

With CSS, absolute fonts became possible, for example

```
<style type="text/css"> <!--
.arial8 { font-family: Arial; font-size: 8pt}
--> </style>
```

Absolute font size	Windows rendering (96 pixels/inch)	Macintosh rendering (72 pixels/inch)
8 pt	Arial 8 pt	Arial 8pt
10 pt	Arial 10 pt	Arial 10 pt
12 pt	Arial 12 pt	Arial 12 pt

Note: The pictures have been increased 50 % (with corresponding reduced resolution) to become more readable on an overhead screen.

## How to stop links changing colour when visited?

Old method: only works for all links in the whole document:

```
<BODY BGCOLOR="#FFFFFF" LINK="#003399" VLINK="#003399"
ALINK="#003399">
```

Using style sheets (the HTML below is abbreviated):

```
<HTML><HEAD>
<TITLE>CSS and link colour</TITLE>
<STYLE type="text/css">
A.allblue:visited { color: #003399 }
A.allblue:link { color: #003399 }
</STYLE></HEAD><BODY BGCOLOR="#FFFFFF">
<FONT SIZE=5>Visited and unvisited links have the same colour:
<TABLE BORDER="1" CELLPADDING="4" CELLSPACING="1" WIDTH="500">
<TR><TD BGCOLOR="#FFCC00">
<A class="allblue" HREF="hem.html"
target="subwindow">
<FONT FACE="Geneva, Helvetica" SIZE=3>
<B>Hem</A></TD></TABLE>
<FONT SIZE=5>Archives of this list are available from
<A HREF="//SEGATE.SUNET.SE/">FTP://SEGATE.SUNET.SE
</A>.You can also browse the archives by http from
```

This link will not  
change colour

This link will  
change colour

## Command links should not change colour

Below, a command bar is produced using a HTML table (saves download time compared to using graphical buttons). But the links in the command bar should not change colour when they have been visited, like the links in the text below the command bar.

Visited and unvisited links have the same colour:

Hem	Personligt	Logga ut	Web4Groups	Skriva brev	Hjälp
-----	------------	----------	------------	-------------	-------

Visited and unvisited links have different colour:

Hem	Personligt	Logga ut	Web4Groups	Skriva brev	Hjälp
-----	------------	----------	------------	-------------	-------

Archives of this list are available by anonymous ftp from [FTP://SEGATE.SUNET.SE](ftp://segate.sunet.se). You can also browse the archives by http from [HTTP://segate.sunet.se/archives/mailnews-1.html](http://segate.sunet.se/archives/mailnews-1.html). The FTP archives are better if you want to download all messages, the HTTP archives are better if you want to browse and find a particular message only.

## Using CSS to avoid too long rows

For good readability, text rows should contain about 40-60 characters per line. But if the user has set his browser to a wide window (which the user needs when viewing other web pages) ordinary text will be too wide.

Archives of this list are available by anonymous ftp from [FTP://SEGATE.SUNET.SE](ftp://segate.sunet.se). You can also browse the archives by http from [HTTP://segate.sunet.se/archives/mailnews-1.html](http://segate.sunet.se/archives/mailnews-1.html). The FTP archives are better if you want to download all messages, the HTTP archives are better if you want to browse and find a particular message only.

Archives of this list are available by anonymous ftp from [FTP://SEGATE.SUNET.SE](ftp://segate.sunet.se). You can also browse the archives by http from [HTTP://segate.sunet.se/archives/mailnews-1.html](http://segate.sunet.se/archives/mailnews-1.html). The FTP archives are better if you want to download all messages, the HTTP archives are better if you want to browse and find a particular message only.

Archives of this list are available by anonymous ftp from [FTP://SEGATE.SUNET.SE](ftp://segate.sunet.se). You can also browse the archives by http from [HTTP://segate.sunet.se/archives/mailnews-1.html](http://segate.sunet.se/archives/mailnews-1.html). The FTP archives are better if you want to download all messages, the HTTP archives are better if you want to browse and find a particular message only.

This shows Netscape rendering of text shows the same text in three ways:

1. Ordinary plain text with a wide browser window
2. Using a table with `<TD WIDTH=400>`
3. Using style sheets with `<P class=`

## Using CSS to avoid too long rows

```
<HTML><HEAD>
  <TITLE>CSS and link colour</TITLE>
  <STYLE type="text/css">
    P.narrow { width: 400 }
  </STYLE>
</HEAD><BODY BGCOLOR="#FFFFFF">
```

### Table method

```
<TABLE BORDER="0" CELLPADDING="8" CELSPACING="0"
WIDTH="400"><TR><TD>
Iamque fretum Minyae Pagasaea puppe secabant,
perpetuaque trahens inopem sub nocte senectam.
</TD></TR></TABLE>
```

### CSS method

```
<P class="narrow">
Iamque fretum Minyae Pagasaea puppe secabant,
perpetuaque trahens inopem sub nocte senectam.</p>
```

## Using style sheets for absolute positioning

```
<HTML><HEAD><TITLE>CSS position command</TITLE>
  <STYLE type="text/css">
    div.dsvtext {position: absolute; left: 135px; top: 10px;
right:auto; bottom: auto; width:150 }
    div.backimg {position: absolute; left: 300px; top: 60 px;
right:auto; bottom: auto }
    div.backtext {position: absolute; left: 305px; top: 95 px;
width:100 px; bottom: auto }
    div.saveimg {position: absolute; left: 40px; top: 130px;
right:auto; bottom: auto }
    div.savetext {position: absolute; left: 20px; top: 130 px;
width:100 px; bottom: auto }
    div.floweringimg {position: absolute; left: 150px; top:
150px; right:auto; bottom: auto }
  </STYLE>
</HEAD><BODY BGCOLOR="#FFFFFF">
```

```
<IMG SRC="DSV-logo123x57.gif" WIDTH="123" HEIGHT="57"
ALIGN="BOTTOM" BORDER="0" ALT="DSV-logo">
<DIV class="dsvtext"><FONT SIZE=5>Department of
Computer and Systems Sciences</FONT></DIV>
```

*continued*

## Using style sheets for absolute positioning

(may not work with all browsers)



Back



A flower to CSS

```
<DIV class="backimg"><IMG SRC="Arrow.GIF" WIDTH="45"
HEIGHT="31" ALIGN="BOTTOM" BORDER="0" ALT=" &lt;=>"></DIV>
<DIV class="backtext"><FONT SIZE=5>Back</FONT></DIV>

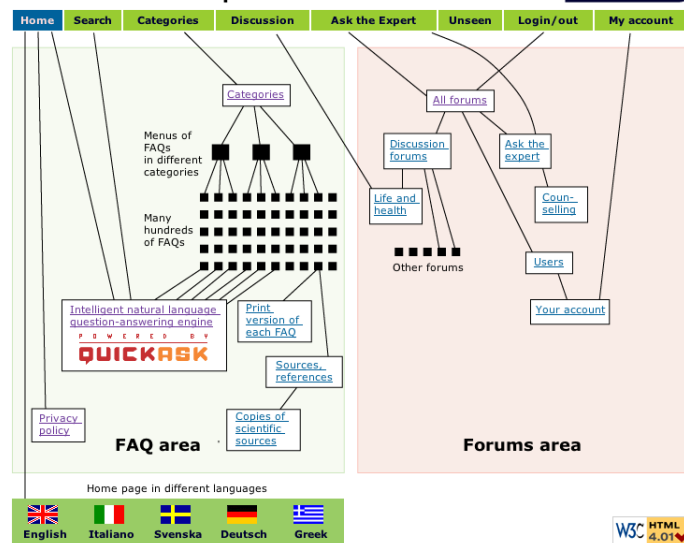
<DIV class="saveimg"><IMG SRC="disk.gif" WIDTH="32"
HEIGHT="32" ALIGN="BOTTOM" BORDER="0" ALT="Disk"></DIV>
<DIV class="savetext"><FONT SIZE=5>Save on Disk</FONT></DIV>

<DIV class="flowerimg"><IMG SRC="flower1.gif" WIDTH="28"
HEIGHT="29" ALIGN="BOTTOM" BORDER="0" ALT="Flower">
<FONT SIZE=5>A flower to CSS</FONT></DIV>

</BODY></HTML>
```

## Web page with absolute positioning: Site map

### Web4Health Site Map



Advantage: Same background and formatting can easily be used to produce this web page in multiple languages (English, Swedish, etc.)

## Extract of CSS used in the site-map example:

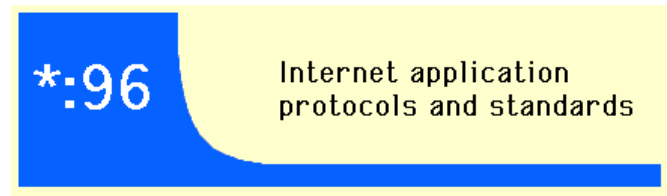
```
.text {
font-family: verdana, geneva, helvetica, arial, non-serif;
font-size: 11px
}
#categories { position: fixed; left: 241px; top: 123px
}
```

## Extract of HTML used in the site-map example:

```
<div class="text" id="categories">
  <a href=
    "/en/answers/project-all-menus.htm">Categories</a>
</div>
```

Note: "class" is suitable for formatting which is used many times, "id" for formatting used only once.

## Using tables for exact positioning



```
<TABLE BORDER=0 CELLPADDING=0 CELLSPACING=0>
  <TR><TD ROWSPAN=2 BGCOLOR="#0066FF">
    <CENTER>
      <FONT SIZE=7 COLOR="#FFFFFF"><B>*:96</B></FONT>
      <BR>&nbsp;</TD>
    <TD WIDTH=73 HEIGHT=100 BGCOLOR="#0066FF">
      <IMG SRC="exam-98-05a.gif" WIDTH=73 HEIGHT=100>
    </TD>
    <TD WIDTH=254 HEIGHT=100 BGCOLOR="#FFFFCC">
      <FONT SIZE=5><B>Internet application<BR>
        protocols and standards</B></FONT>
    </TD>
  </TR><TR>
    <TD HEIGHT=14 COLSPAN=2 BGCOLOR="#3366FF">&nbsp;</TD>
  </TR>
</TABLE>
```

## Selectors in CSS

.big { font-size: 24px }	<p class=big>, <div class=big>
p.big { font-size: 24px }	<p class=big>
div.big { font-size: 24px }	<div class=big>
p#big { font-size: 24px }	<p id=big>
a.dynamic:hover { color: red ; font-weight: bold}	<a class=dynamic ...
a.dynamic:link { color: blue ; font-weight: normal}	
a.dynamic:visited { color: red ; font-weight: normal}	
h1 em {color: red }	<h1>This headline is <em>very</em> important</h1>

There are many more selector variants in the CSS recommendation.

## Cascading in Cascading Style Sheets

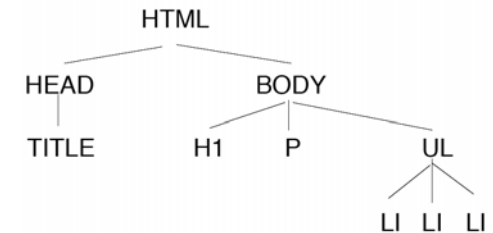
Style sheets may be specified by

- (a) Author
- (b) Reader, specially for this document
- (c) Defaults in the browser, set at delivery or modified by the user

How, then, should conflicting style sheet information be combined?

## Cascading in Cascading Style Sheets

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0//EN">
<HTML>
<TITLE>My home page</TITLE>
<BODY>
<H1>My home page</H1>
<P>Welcome to my home page! Let me tell you about my favorite
composers:
<UL>
<LI> Elvis Costello
<LI> Johannes Brahms
<LI> Georges Brassens
</UL>
</BODY>
</HTML>
```



## Measurements and inheritance:

cm, mm, in		h1 {padding-top: 5mm }
pixels <sup>1</sup>	px	h1 { font-size: 12px }
points = inch/72	pt	p { word-spacing: 20pt }
relative to inherited size	em	body {font-size: 16px } h1 {margin: 0,5em }
	ex	h1 {margin-left: 0,5ex }
	%	h1 {line-height: 120% }

<sup>1</sup> Converted when printed on paper based on 96 pixels/inch.

### Cascading order (section 6.3.1 in the CSS recommendation)

To find the value for an element/property combination, user agents must apply the following algorithm:

1. Find all declarations that apply to the element/property in question. Declarations apply if the associated selector matches [p. 43] the element in question. If no declarations apply, terminate the algorithm.
2. Sort the declarations by explicit weight: declarations marked 'important' carry more weight than unmarked (normal) declarations. See the section on 'important' [p. 60] rules for more information.
3. **Sort by origin: the author's style sheets override the user's style sheets which override the default style sheet.** An imported style sheet has the same origin as the style sheet from which it is imported.

4. Sort by specificity of selector: more specific selectors will override more general ones. The definition and calculation of specificity is object-language dependent. Pseudo-elements and pseudo-classes are counted as normal elements and classes, respectively.

5. Sort by order specified: if two rules have the same weight, the latter specified wins. Rules in imported style sheets are considered to be before any rules in the style sheet itself.

The search for the property value must be terminated when any of the above steps yields a rule that has a higher weight than the other rules that apply to the same element/property combination.

This strategy gives author's style sheets considerably higher weight than those of the reader. It is therefore important that the User agent gives the user the ability to turn off the influence of a certain style sheet, e.g., through a pull-down menu.

## Linking to external style sheet

### HTML example:

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-
transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <link href="http://web4health.info/web4health-v2.css"
rel="stylesheet" type="text/css">
  <link href="http://web4health.info/site-map.css"
rel="stylesheet"
type="text/css">
</head>
```

### XML example:

```
<?xml-stylesheet type="text/css" href="bach.css"?>
<ARTICLE>
  <HEADLINE>Fredrick the Great meets Bach</HEADLINE>
  <AUTHOR>Johann Nikolaus Forkel</AUTHOR>
  <PARA>
    ... ..
```

## HTML STYLE Attribute

Instead of

```
<HEAD>
<STYLE type="text/css">
SPAN.xyz { font-size:10pt; font-style: bold }
</STYLE>
</HEAD><BODY>
```

Here is one `<SPAN class="xyz">word</SPAN>` which is boldfaced and with a smaller font.

One can write

```
Here is one <SPAN style="font-size:10pt; font-style:
bold">word</SPAN> which is boldfaced and with a smaller font.
```

**Disadvantage:** Eliminates many of the advantages of separate style sheets.

**Advantage:** Easier for minor or automatic adaption of existing HTML code. Can use CSS commands in HTML.

**Example of use:** Google cached search results for the query “Olof Palme murder” using style attribute:

On February 28, 1986 Swedish Prime Minister **Olof Palme** was gunned down on a Stockholm street, as he was walking home from a cinema with his wife. While there are various theories about who could have been behind the **murder**, the identity of the culprit remains a mystery.

## Shorthand properties in CSS

```
h1 {
font-weight: bold;
font-size: 12pt;
line-height: 14pt;
font-family: Helvetica;
font-variant: normal;
font-style: normal;
}
```

may be rewritten with a single shorthand property:

```
h1 { font: bold 12pt/14pt Helvetica }
```

In this example, 'font-variant', and 'font-style' take their initial values.

## Special formatting of *first line* of a paragraph

CSS      `p:first-line {text-transform: uppercase }`

HTML      `<p>Iamque fretum Minyae Pagasaea puppe secabant, perpetuaque trahens inopem sub nocte senectam Phineus visus erat, iuvenesque Aquilone creati virgineas volucres miseri senis ore fugarant.</p>`

Rendering IAMQUE FRETUM MINYAE PAGASAEA puppe secabant, perpetuaque trahens inopem sub nocte senectam Phineus visus erat, iuvenesque Aquilone creati virgineas volucres miseri senis ore fugarant.

## Special formatting of *first letter* of a paragraph

CSS `p:first-letter {font-size: 3em }`

HTML `<p>Iamque fretum Minyae Pagasaea puppe secabant, perpetuaque trahens inopem sub nocte senectam Phineus visus erat.</p>`

Rendering **I**amque fretum Minyae Pagasaea puppe secabant, perpetuaque trahens inopem sub nocte senectam Phineus visus erat.

## Special formatting of *first word* of a paragraph

CSS `span.largeword {font-size: 2em ; text-transform: uppercase }`

HTML `<p><span class=largeword>Iamque</span> fretum Minyae Pagasaea puppe secabant, perpetuaque trahens inopem sub nocte senectam Phineus visus erat.</p>`

Rendering **IAMQUE** fretum Minyae Pagasaea puppe secabant, perpetuaque trahens inopem sub nocte senectam Phineus visus erat.

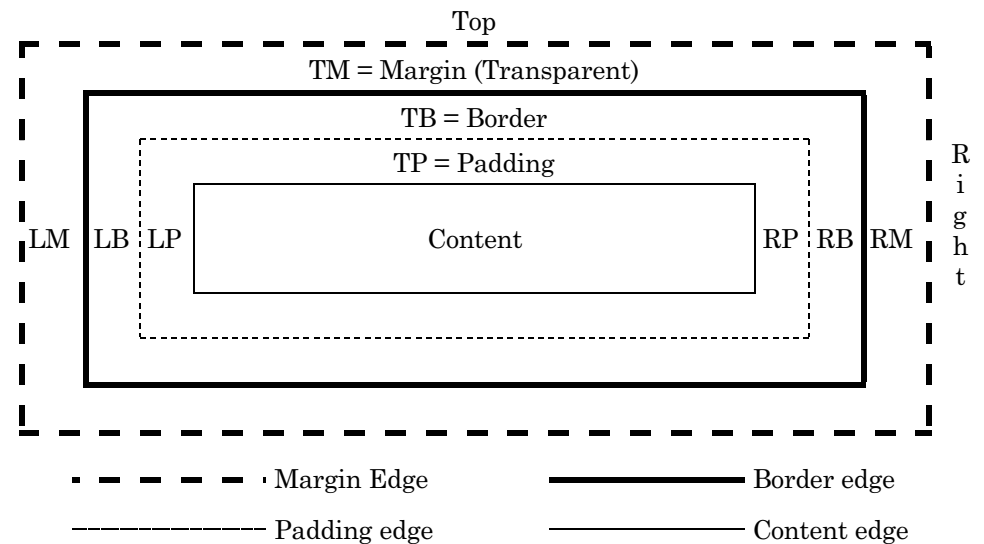
## Different formatting for screen viewing and printing

```
@media print {
.dummy {} /* some faulty browser need this */
.pagebreak
{ page-break-before: always }
h1 { font-size: 18pt }
} /* end of media print */

@media screen, print {
.dummy {}
h1 { font-family: Verdana, Arial, Helvetica, sans-serif;
text-align: left;
padding-top: 0.2cm;
padding-bottom: 0.2cm;
font-weight: bold }
} /* end of media screen, print */

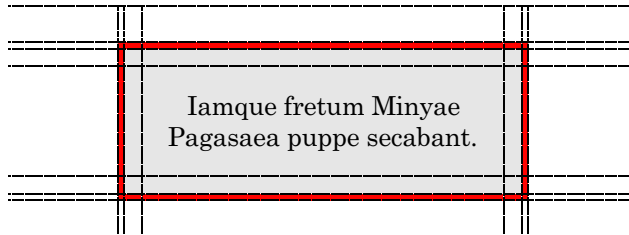
@media screen{
.dummy {}
h1 { font-size: 26px }
} /* End of media screen */
```

## Box model



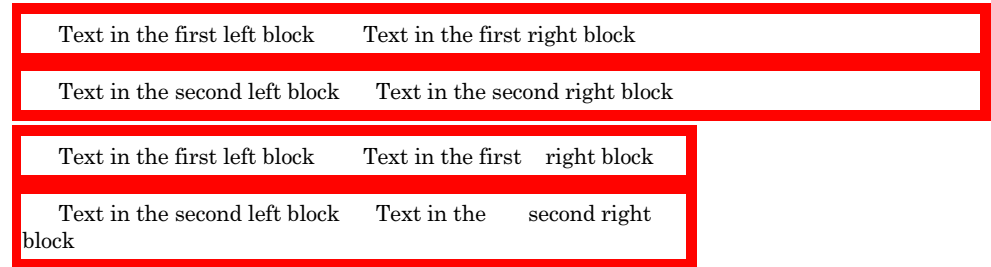
## Example of use of box model

```
<style type="text/css">
div.mybox {
margin: 1cm 3cm; border: 5pt solid red;
padding: 5mm; background-color: #CCCCCC;
text-align: center; font-size: 20pt }
</style>
</head><body>
<div class=mybox>Iamque fretum Minyae Pagasaea puppe
secabant.</div>
</body></html>
```



## Inline and block boxes

```
<style type="text/css">
.inlinebox { display: Inline; padding: 5mm }
.blockbox { display: block; border: 6pt solid red }
</style></head><body>
<div class=blockbox>
<div class=inlinebox>Text in the first left block</div>
<div class=inlinebox>Text in the first right block</div>
</div>
<div class=blockbox>
<div class=inlinebox>Text in the second left block</div>
<div class=inlinebox>Text in the second right block</div>
</div>
```



## The display property

block	A block box (laid out vertically).
inline	One or more inline boxes (laid out horizontally). Split into several boxes if all does not fit into the line.
inline-block	a block box, which itself is flowed as a single inline box, similar to a replaced element. The inside of an inline-block is formatted as a block box, and the element itself is formatted as a replaced element on the line.
list-item	<ul style="list-style-type: none"> <li>• a list of</li> <li>• items</li> </ul>
run-in	Either block or in-line depending on context, example: TO BE OR NOT TO BE, that is the question.
table	As HTML <TABLE>
table-row	As HTML <TR>
table-cell	As HTML <TD>

} Useful to achieve side-by-side effects, does not work with Internet Explorer.

## Static and relative positioning

### position:

static	Normal flow
relative	Normal flow plus offset
absolute	Fixed position in relation to surrounding block (??)
fixed	Fixed position in relation to: <ul style="list-style-type: none"> <li>• Window (screen)</li> <li>• Page (printing)</li> </ul>

### Combined with top, bottom, right, left which can have:

- absolute value
- percentage (of containing block)
- auto
- inherit



## Side by side effects:

The screenshot shows a web page with a navigation bar at the top containing links like Home, Search, Categories, Discussion, Ask the Expert, Unseen, Login/out, and My account. The main content area features a question titled 'Prevalence of Bullying' with a 'Submit question' button. Below the question is an answer section. On the right side, there are several sidebar links such as 'Bullying', 'Positive Action', 'Stop the Bullying', 'Anti-Bullying & Violence', and 'Bullying Prevention'. A disclaimer is visible at the bottom of the page.

## Side by side: Why does absolute positioning not work?

```
<div style="margin:auto; width: 200px">
  <div style="position:absolute; left: 0px; width:50px">
    <p>Text in column one.</p>
  </div>
  <div style="position:absolute; left: 55px; width:50px">
    <p>Text in column two.</p>
  </div>
  <div style="position:absolute; left: 110px; width:50px">
    <p>Text in column three.</p>
  </div>
</div>
<div id="footer">
  <p>Text below the table
</div>
```

### Note:

“margin-left” works somewhat better than “left”, why?

## Side by side: Table cells work with most browsers except Explorer

```
<html><head>
  <style type="text/css">
    .table { display:table; margin: auto; }
    .row { display:table-row; }
    .cell { display:table-cell; width:50px; padding:5px; }
    #footer { text-align:center; }
  </style>
</head><body>
<div class="table">
  <div class="row">
    <div class="cell"><p>Text in column one.</p></div>
    <div class="cell"><p>Text in column two.</p></div>
    <div class="cell"><p>Text in column three.</p></div>
  </div>
</div>
<div id="footer">
  <p>Text below the table
</div>
</body></html>
```

## Float

```
<STYLE type="text/css">
IMG { float: left }
BODY, P, IMG { margin: 1em }
</STYLE></HEAD><BODY>
<P>
<IMG src="gunborg-palme-154px.jpg" alt="A floating picture">
Iamque fretum Minyae Pagasaea puppe secabant, perpetuaque
trahens inopem sub nocte senectam Phineus visus erat,
iuvenesque Aquilone creati virgineas volucres miseri senis ore
fugarant, multaue perpassi ... ..
```

