

Setting up the front-end of a Web service

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The front-end of a Web service

- n The World-Wide Web
- n Web browsers
- n HTML crash course
 - what is HTML?
 - structure, formatting
 - hyperlinks, images, maps
 - dialects: tables, backgrounds, . . .
- n HTML authoring tools and utilities
- n HTML authoring tips and tricks
- n The future of HTML and the Web



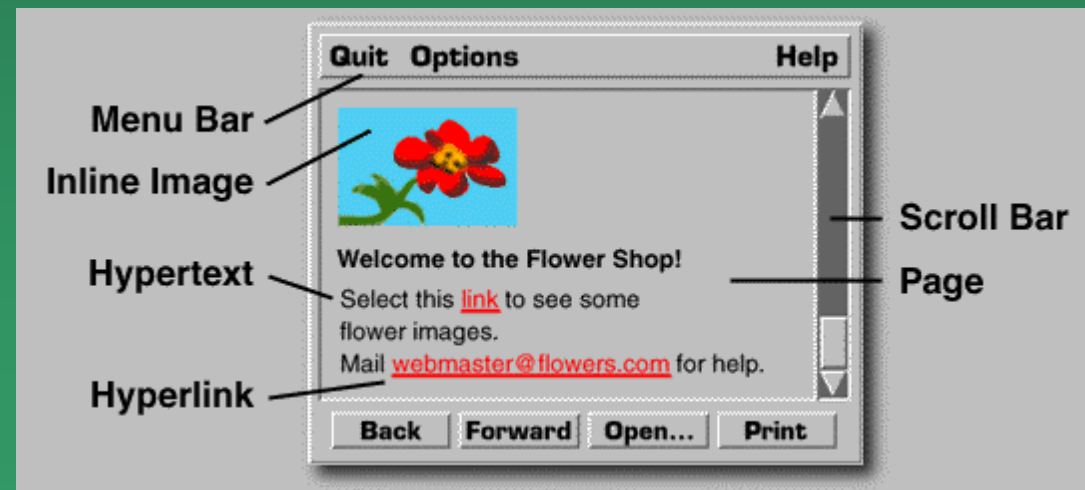
What is the World-Wide Web?

n a distributed hypermedia system

- *distributed* = client-server architecture
- *hypermedia* = hypertext + multimedia

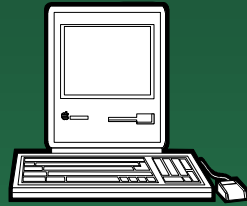
which provides

- rich contents: text, graphics, audio, video, ...
- simple access: Gopher, FTP, newsgroups, e-mail, ...
- single document interface to different information sources



Distributed: client-server architecture

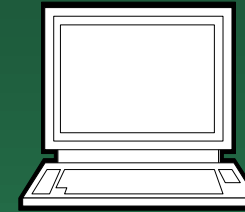
BROWSERS



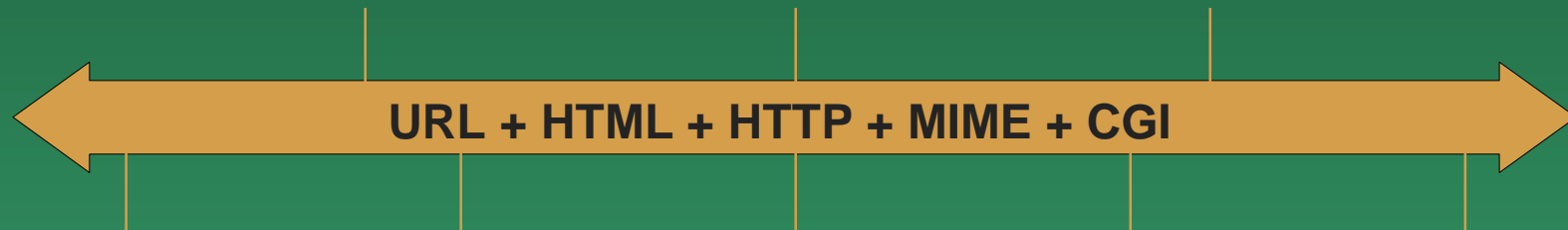
Macintosh



PC



Workstation



HTTP server

Gopher server

FTP server

NNTP server

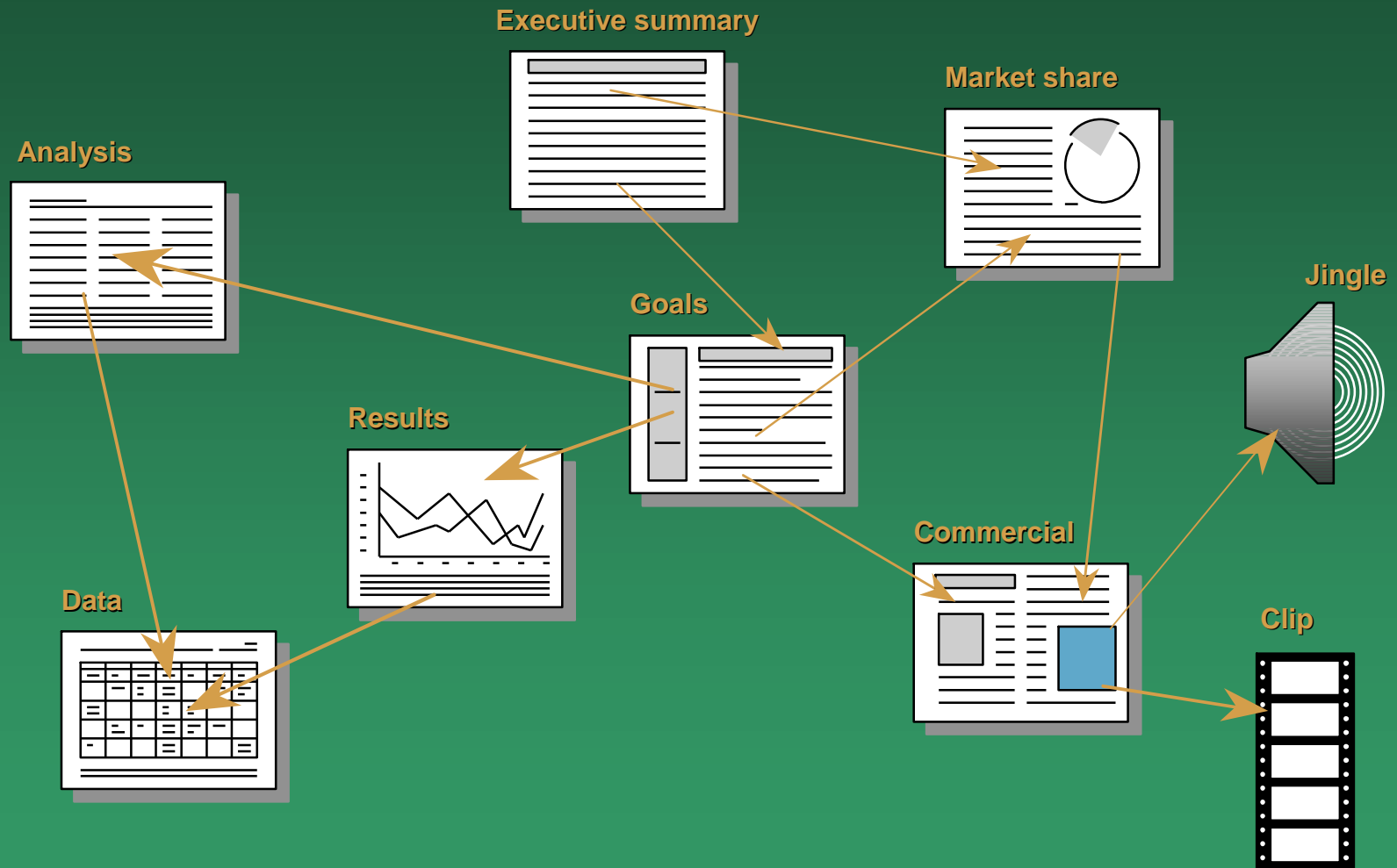
gateway



SERVERS



Hypermedia: hypertext + multimedia



The Web alphabet soup

n Client side

- **URL** **U**niversal **R**esource **L**ocator
addressing scheme: specifying Internet locations
- **HTML** **H**yper**T**ext **M**arkup **L**anguage
content encoding: capturing hypermedia contents

n Server side

- **HTTP** **H**yper**T**ext **T**ransfer **P**rotocol
transfer protocol: sending data requests & data
- **MIME** **M**ultimedia **I**nternet **M**ail **E**xtension
format negotiation: exchanging multimedia data
- **CGI** **C**ommon **G**ateway **I**nterface
service extension: enabling back-end engines



Web browsers

n Macintosh browsers

- Netscape *the market leader*
- Mosaic for Macintosh, MacWeb, ...

n Windows browsers

- Netscape *the market leader*
- Air Mosaic, WebSurfer, WinWeb, ...

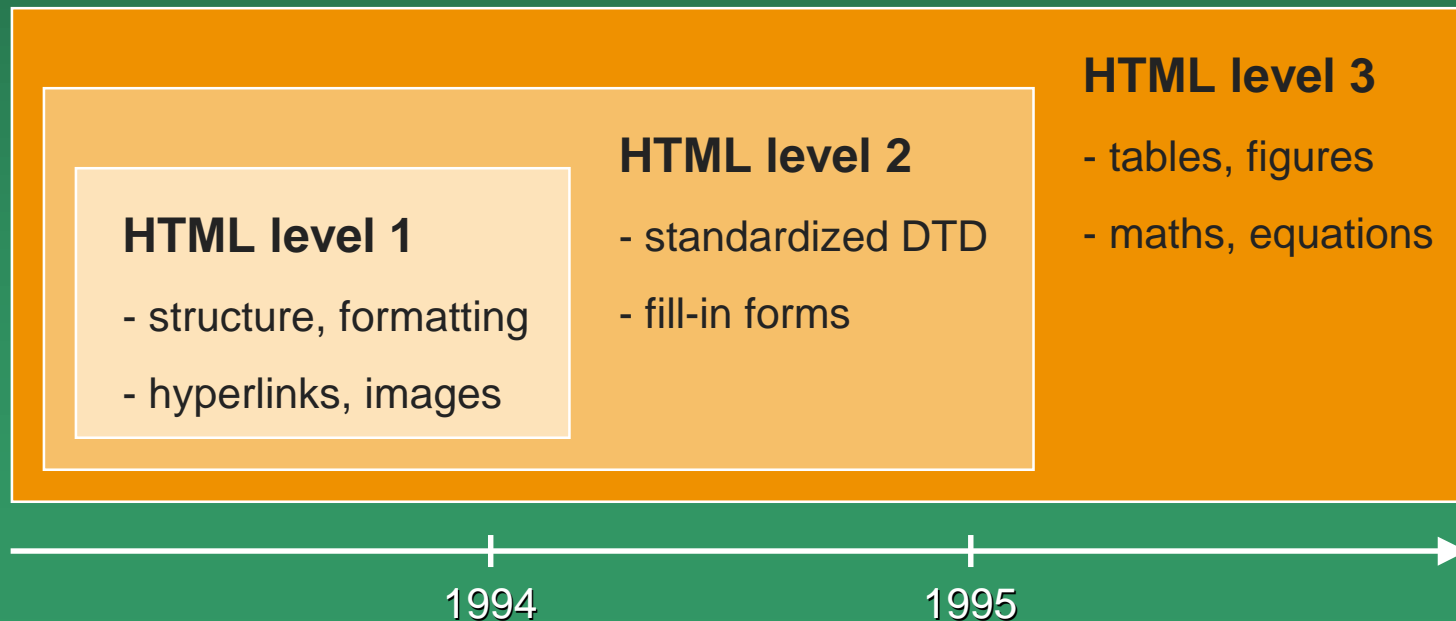
n UNIX browsers

- Netscape *the market leader*
- Mosaic *an experimental testbed*
- HotJava *the next generation browser*



What is HTML?

- n HTML = **H**yper**T**ext **M**arkup **L**anguage
 - an application of SGML, but easy to learn by novices
 - describe structure of hypermedia documents
 - define hypertext links and anchors
- n HTML levels



What is HTML?

layout markup styles

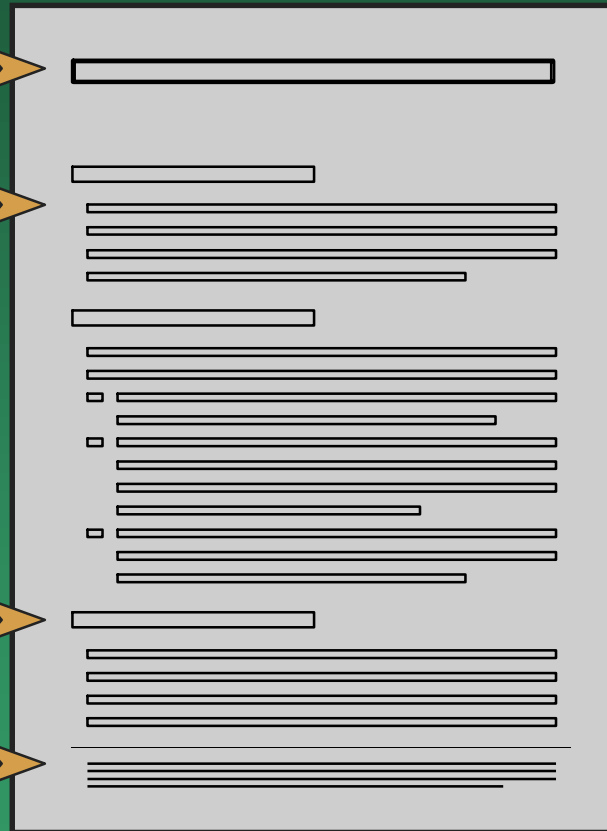
font: Helvetica
size: 18 pt
justification: left

font: Palatino
size: 10 pt

font: Helvetica
size: 12 pt
weight: bold

font: Palatino
size: 8 pt

DOCUMENT



logical markup objects

document title

level 1 heading

paragraph

numbered list

list element

address

Document structure

- n An HTML document has
 - a HEAD: document title, document information, ...
 - a BODY: document text

```
<HTML>
<HEAD>
<TITLE>An example document</TITLE>
</HEAD>
<BODY>
...
</BODY>
</HTML>
```



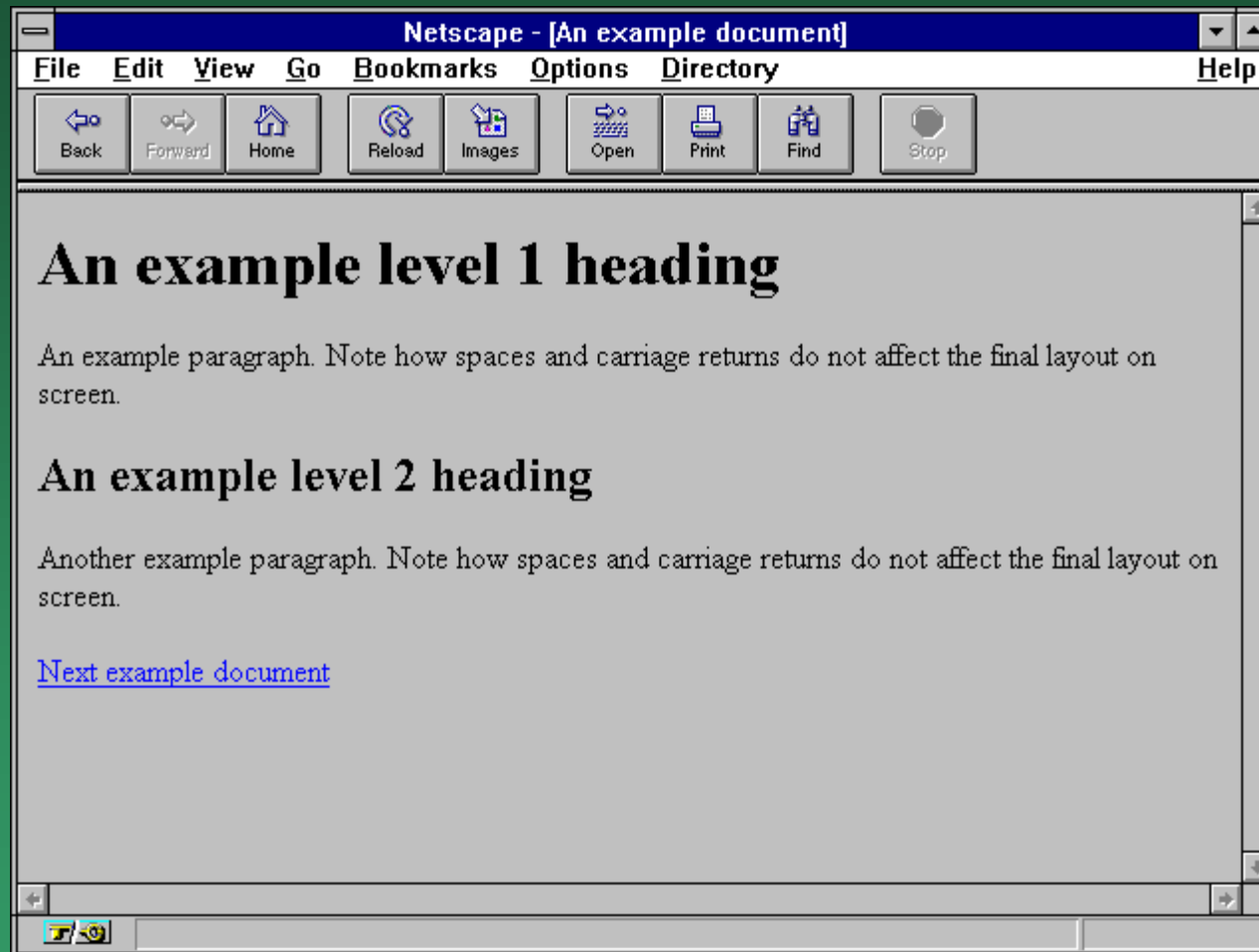
Document structure

- n The body of an HTML document can have
 - headings: 6 level hierarchy, no enforced order
 - paragraphs: spaces & carriage returns not significant

```
...  
<H1>An example level 1 heading</H1>  
<P>An example paragraph. Note how spaces  
and carriage returns do not affect the  
final layout on screen.</P>  
<H2>An example level 2 heading</H2>  
<P>Another example paragraph. Note how  
spaces and carriage returns do not  
affect the final layout on screen.</P>  
...
```



Document structure



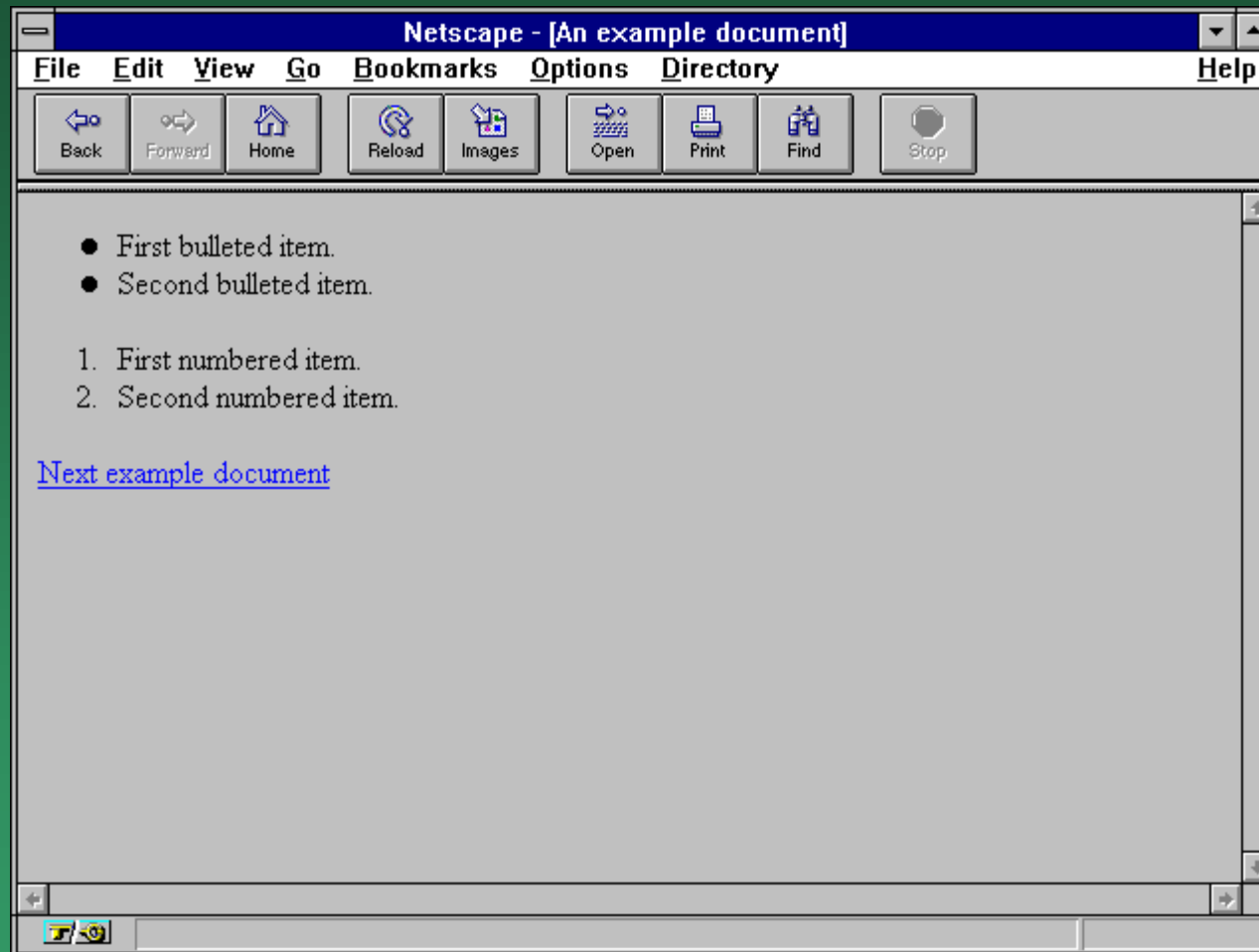
Document structure

- n The body of an HTML document can have
 - unordered lists: lists with bullets
 - ordered lists: lists with numbers

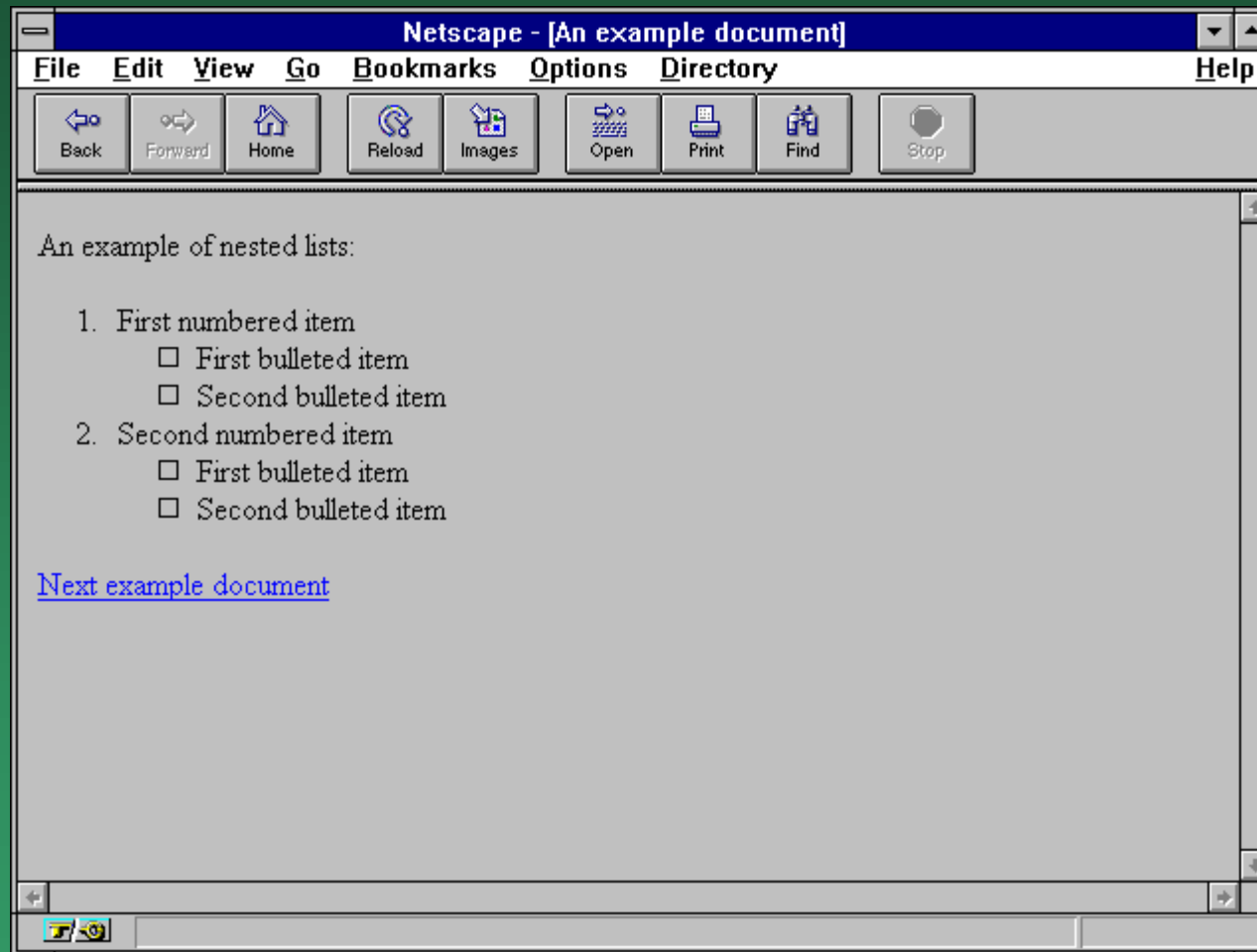
```
...  
<UL>  
<LI>First bulleted item.</LI>  
<LI>Second bulleted item.</LI>  
</UL>  
<OL>  
<LI>First numbered item.</LI>  
<LI>Second numbered item.</LI>  
</OL>  
...
```



Document structure



Document structure



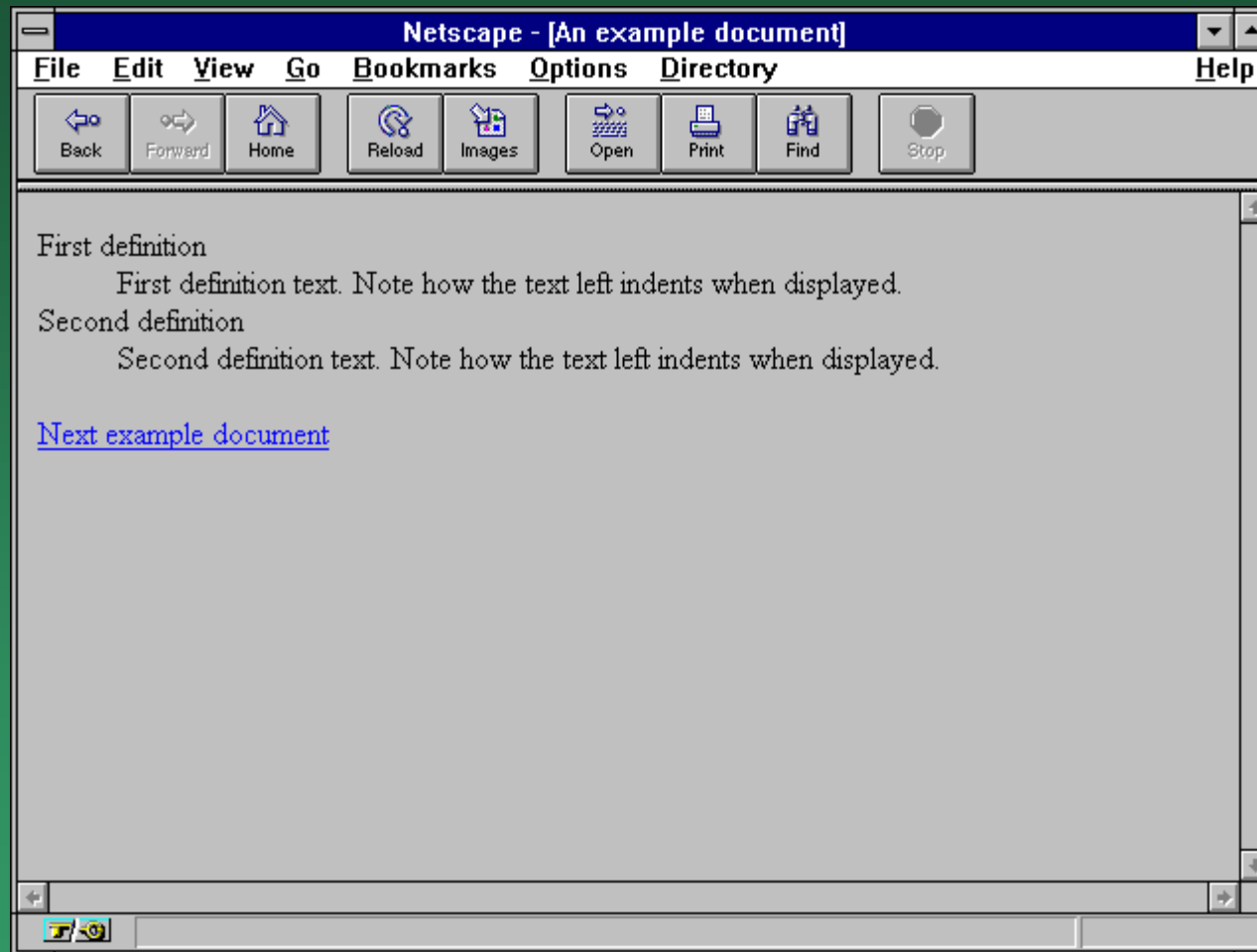
Document structure

- n The body of an HTML document can have
 - definition lists: lists with definitions
 - menu lists, directory lists (*discontinued*)

```
...  
<DL>  
<DT>First definition</DT>  
<DD>First definition text. Note how the  
text left indents when displayed.</DD>  
<DT>Second definition</DT>  
<DD>Second definition text. Note how the  
text left indents when displayed.</DD>  
</DL>  
...
```



Document structure



Document structure

- n The body of an HTML document can have
 - BLOCKQUOTE, ADDRESS
 - CITE, CODE, SAMP, KBD, VAR, ... (*discontinued*)

...

```
<P>An example paragraph. Note how spaces  
and carriage returns do not affect the  
final layout on screen.</P>
```

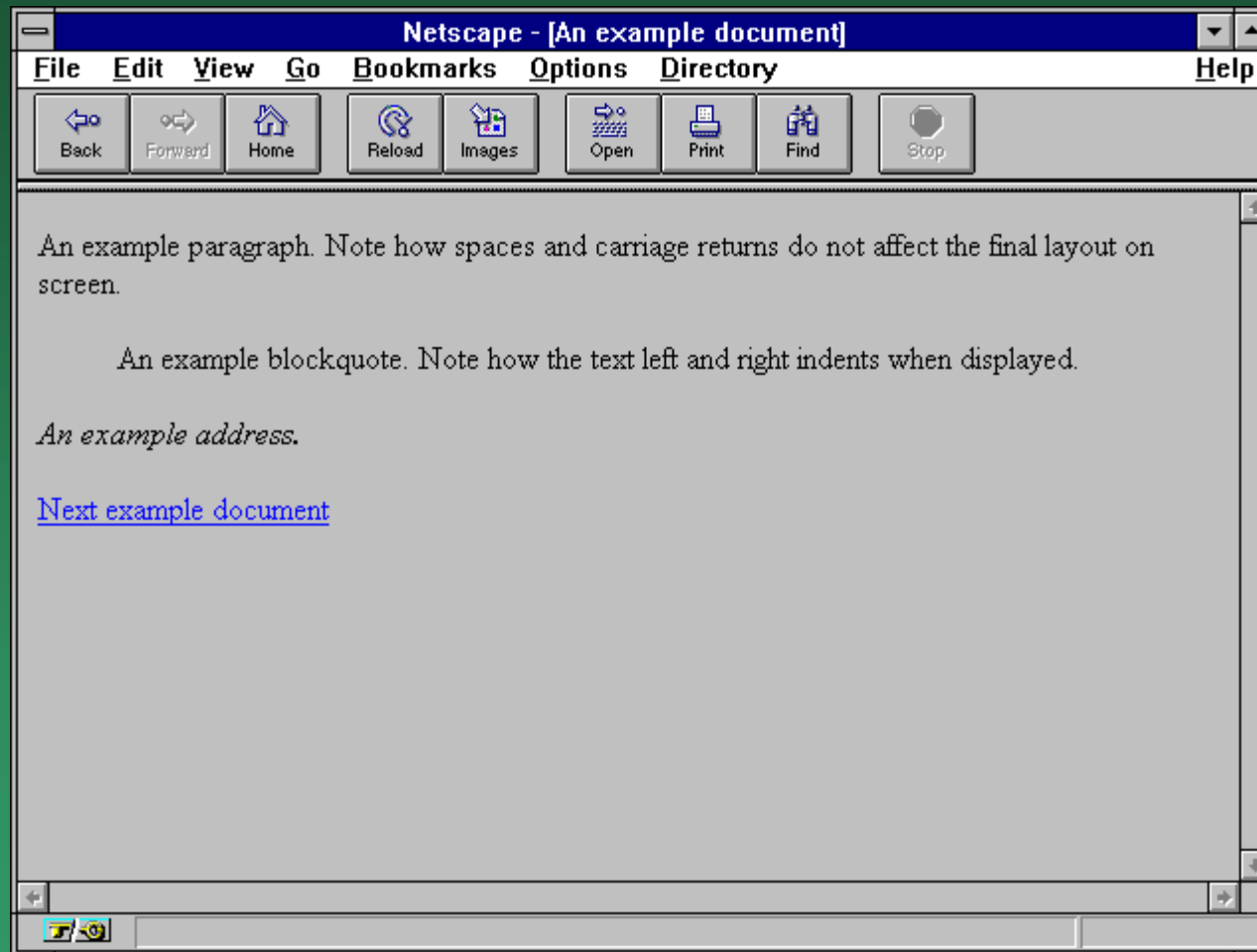
```
<BLOCKQUOTE>An example blockquote. Note  
how the text left and right indents when  
displayed.</BLOCKQUOTE>
```

```
<ADDRESS>An example address.</ADDRESS>
```

...



Document structure



Text formatting

- n The text of an HTML document can have
 - hard formatting: formatting specified by the user
 - soft formatting: formatting controlled by the browser

...

```
<P>A paragraph with hard formatting.
```

```
Text can be <B>bold</B>, <I>italic</I>,
```

```
<TT>typewriter</TT> and
```

```
<BLINK>blinking</BLINK>.</P>
```

```
<P>A paragraph with soft formatting.
```

```
Text can be <EM>emphasized</EM> or
```

```
<STRONG>strongly emphasized</STRONG>.</P>
```

...



Text formatting



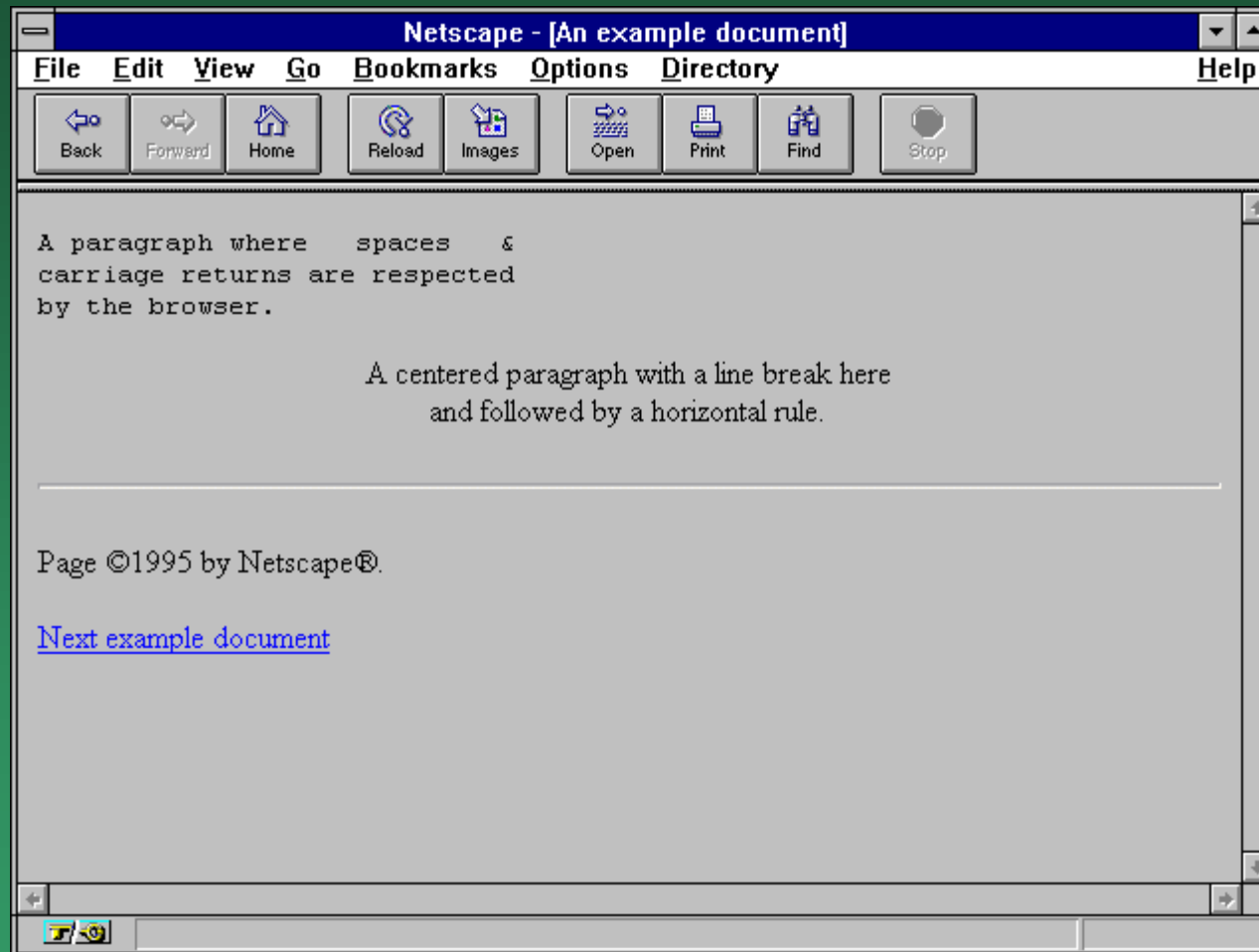
Text formatting

- n The text of an HTML document can
 - be preformatted, centered
 - have a horizontal rule, (no) line break, word break
 - contain special characters (platform-independent)

```
...  
<PRE>A paragraph where spaces &amp;  
carriage returns are respected  
by the browser.</PRE>  
<CENTER><P>A centered paragraph with a  
line break here<BR> and followed by a  
horizontal rule.</P></CENTER><HR>  
<P>Page &copy;1995 by Netscape&reg;.</P>  
...
```



Text formatting



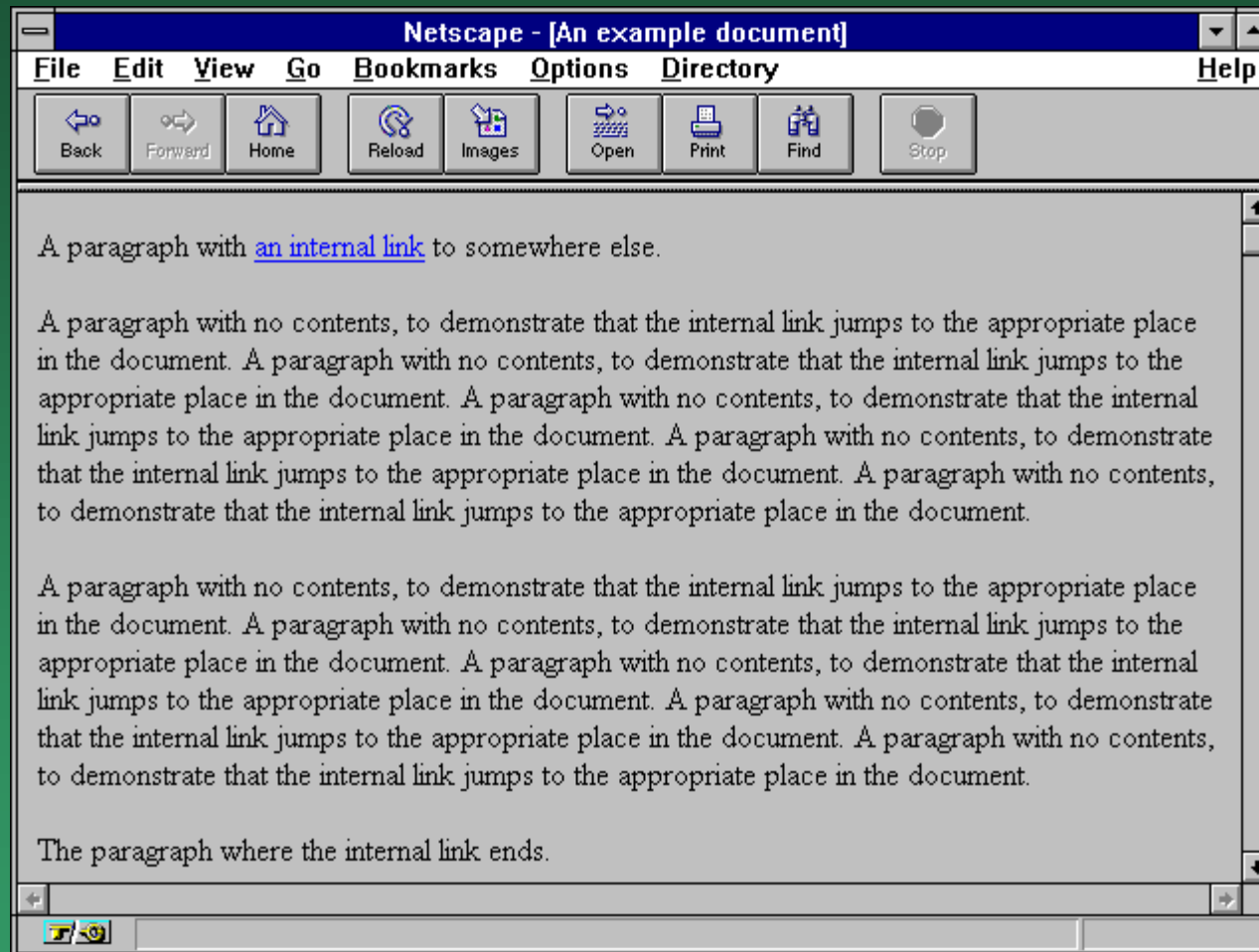
Hyperlinks

- n The body of an HTML document can have
 - internal hyperlinks: other location, same document
 - external hyperlinks: other location, other document

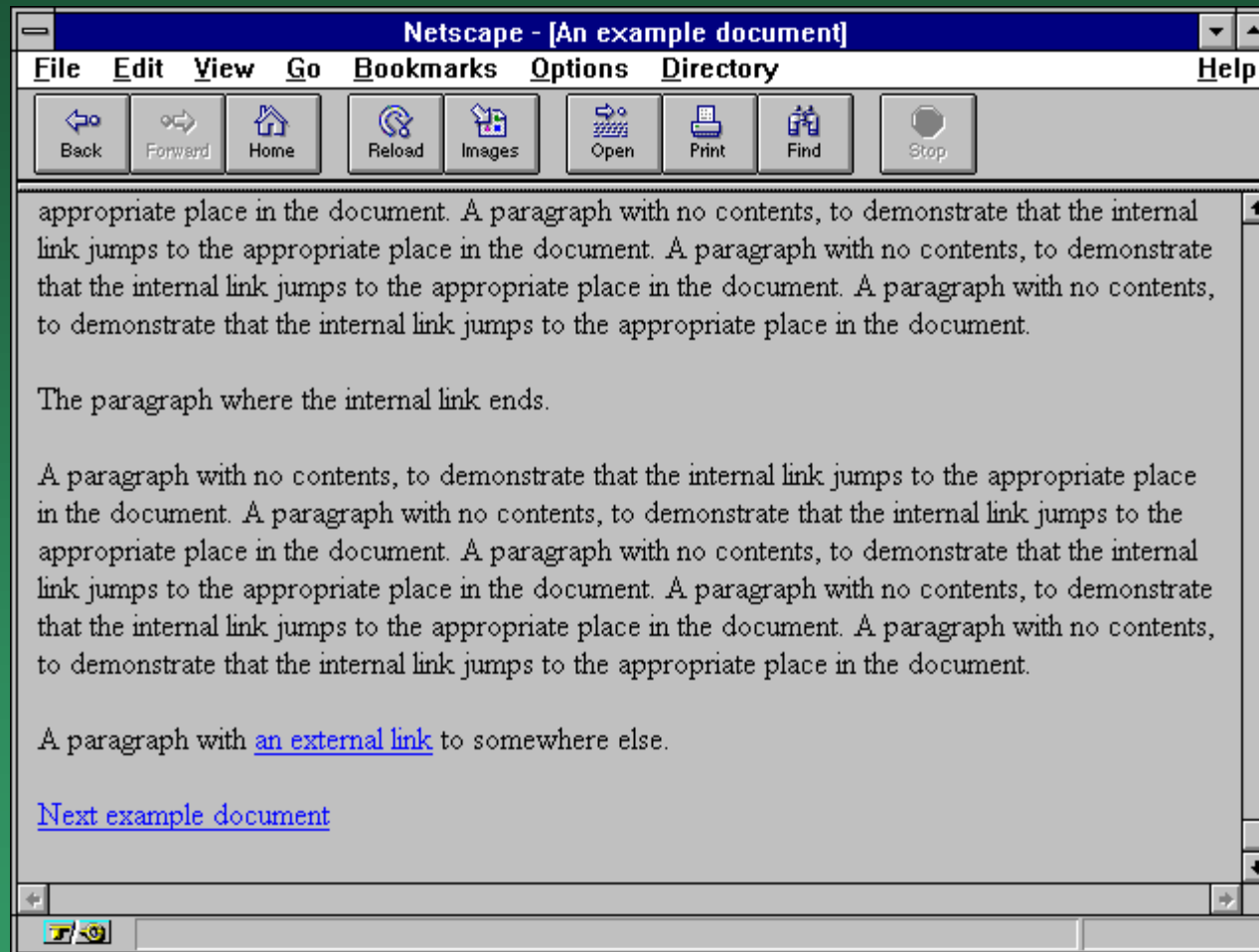
```
...  
<P>A paragraph with <A HREF="#here">an  
internal link</A> to somewhere else.</P>  
...  
<P><A NAME="here">The paragraph</A> where  
the internal link ends.</P>  
...  
<P>A paragraph with <A HREF="there.html">an  
external link</A> to somewhere else.</P>  
...
```



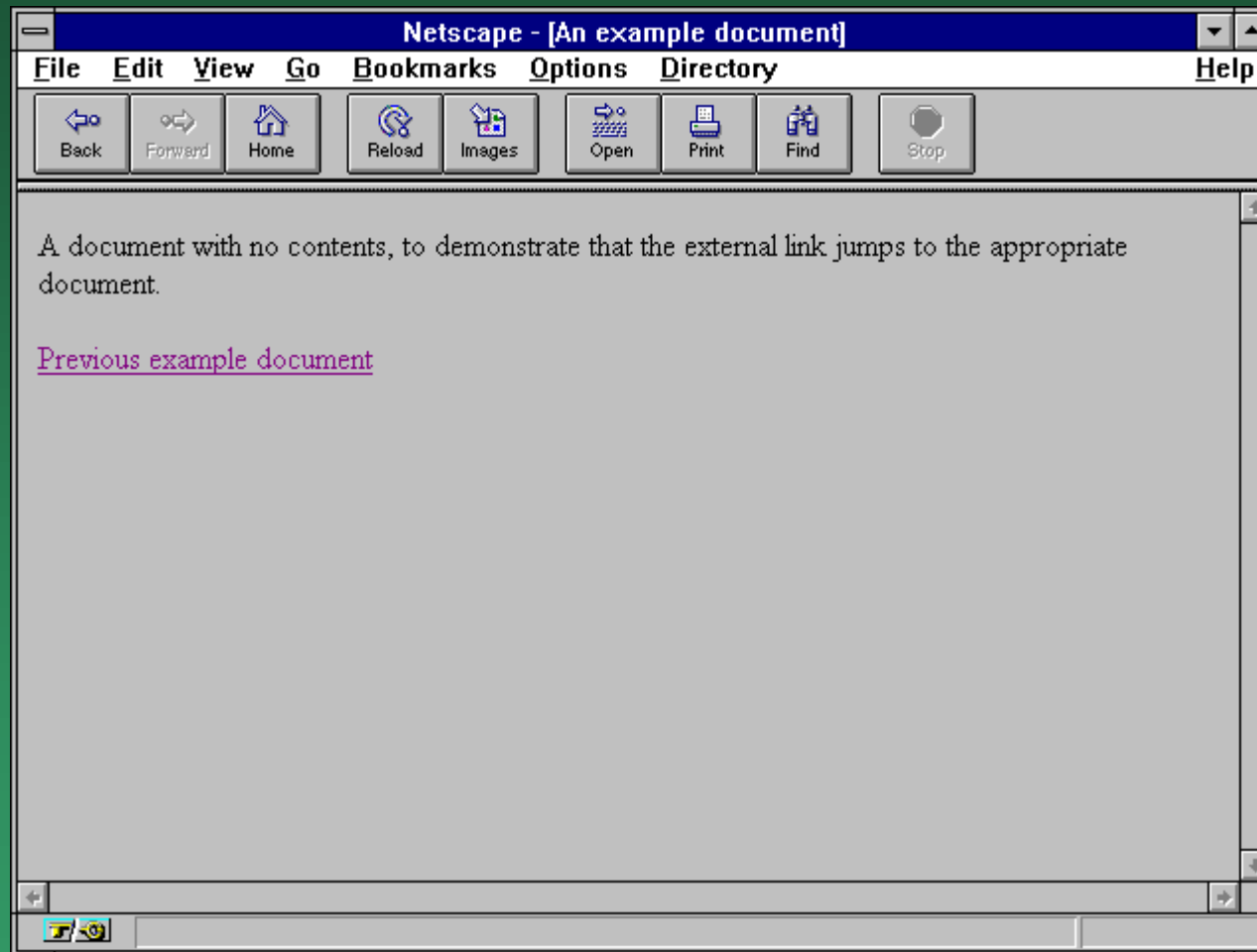
Hyperlinks



Hyperlinks



Hyperlinks



URL: Universal Resource Locator

n Scheme : Location

n Scheme : // Host [:Port] / Path

n Examples:

- http <http://dept.uni.edu:80/directory/file.html>
- file <file://localhost/directory/file.html>
- mailto <mailto:somebody@dept.uni.edu>
- ftp <ftp://ftp.dept.uni.edu/directory/file.ps.Z>
- gopher <gopher://dept.uni.edu/11/>
- wais <wais://dept.uni.edu/>
- news <news:alt.hypertext>



Types of URLs

n Absolute URLs

- `Homepage of IBM`
- `Picture of Prince`

n Relative URLs

- `Chapter 1`
- `Section 2` in this chapter
- `Section 4` in chapter 3



Images

- n The body of an HTML document can have
 - in-line images: images inside the text
 - external images: images outside the document

...

```
<P><IMG SRC="floppy.gif" ALIGN="top">
```

A paragraph with an in-line image aligned to the top of the line.</P>

```
<P><A HREF="police.jpg">
```

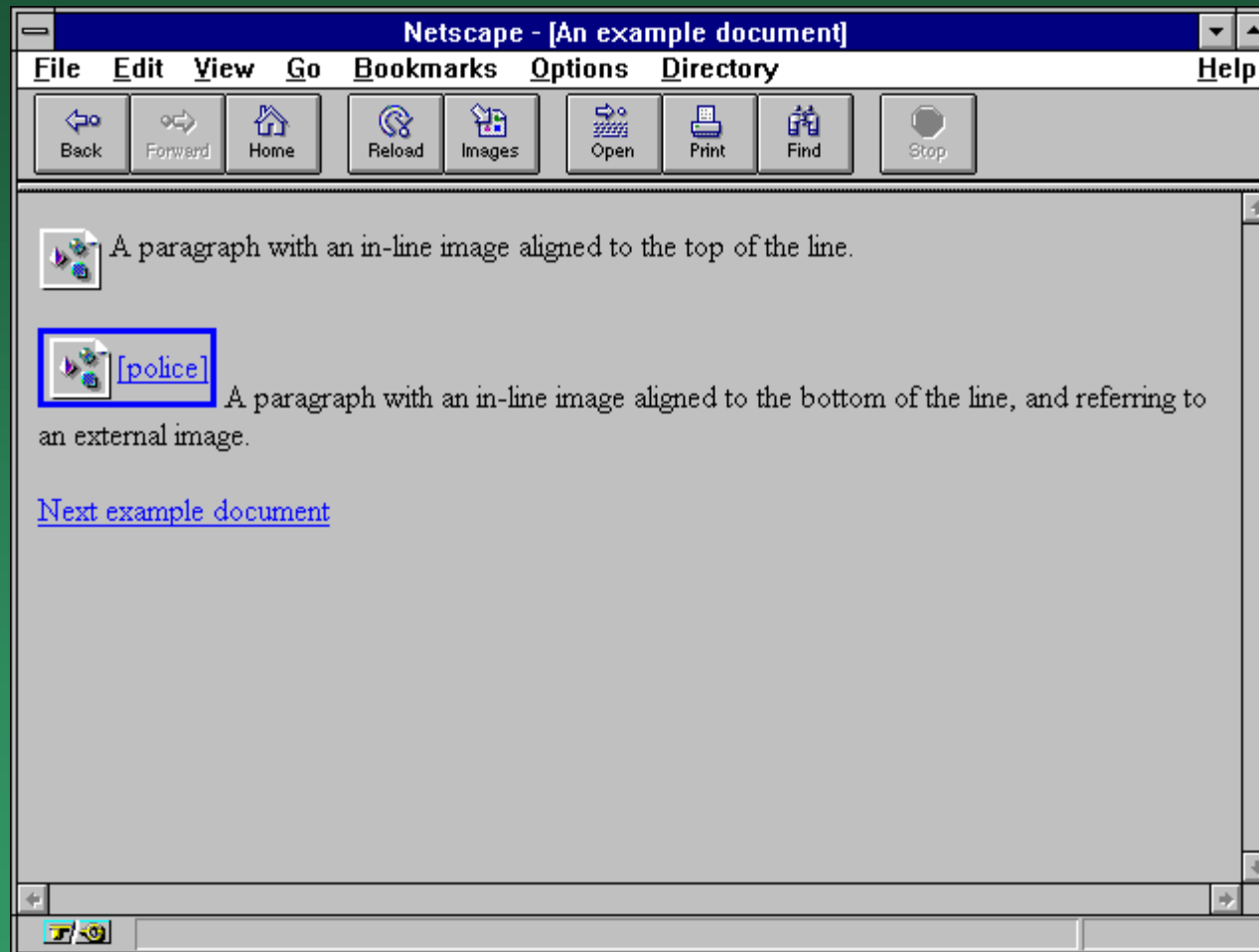
```
<IMG SRC="police.gif" ALT="[police]">
```

```
</A>A paragraph with an in-line image aligned to the bottom of the line, and referring to an external image.</P>
```

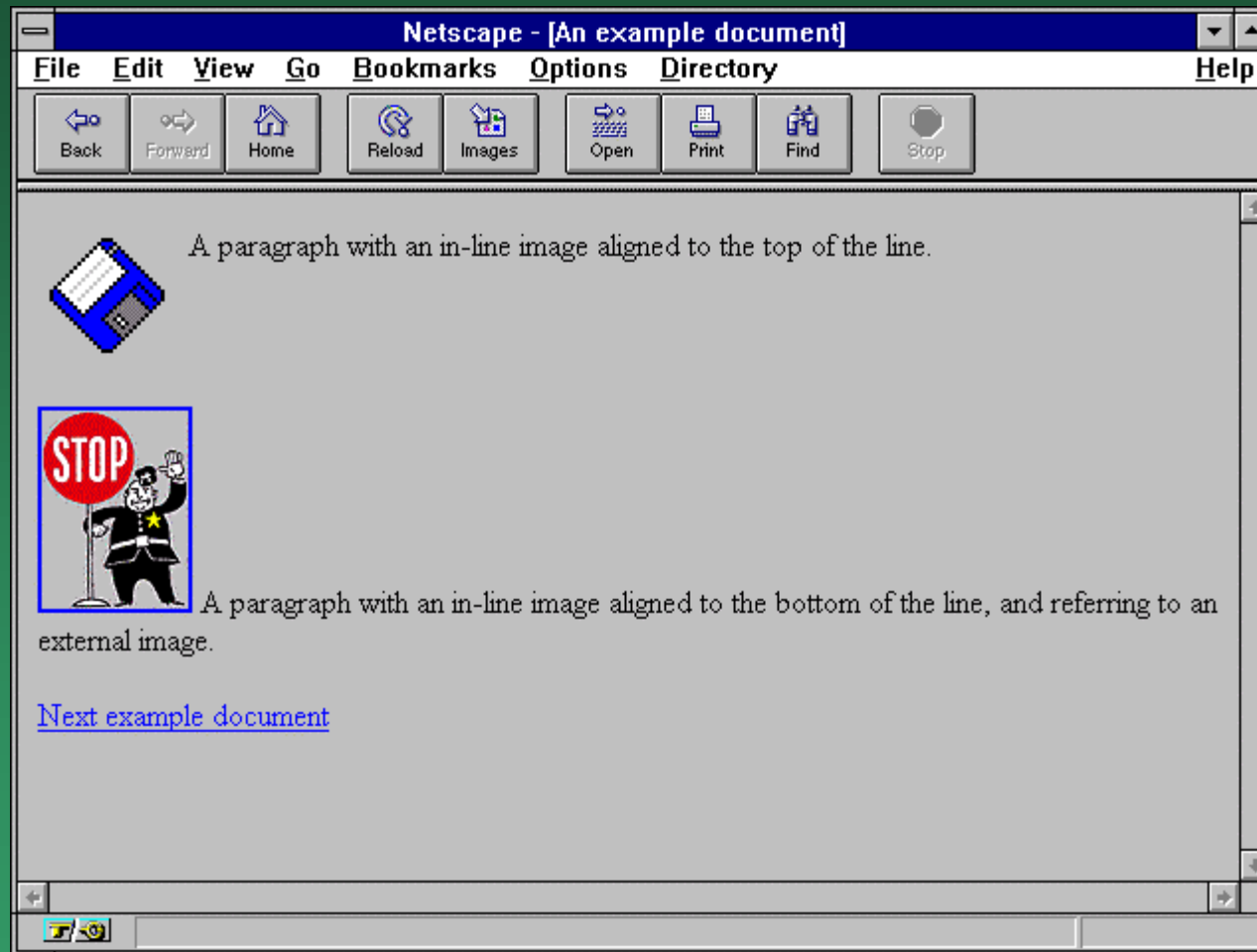
...



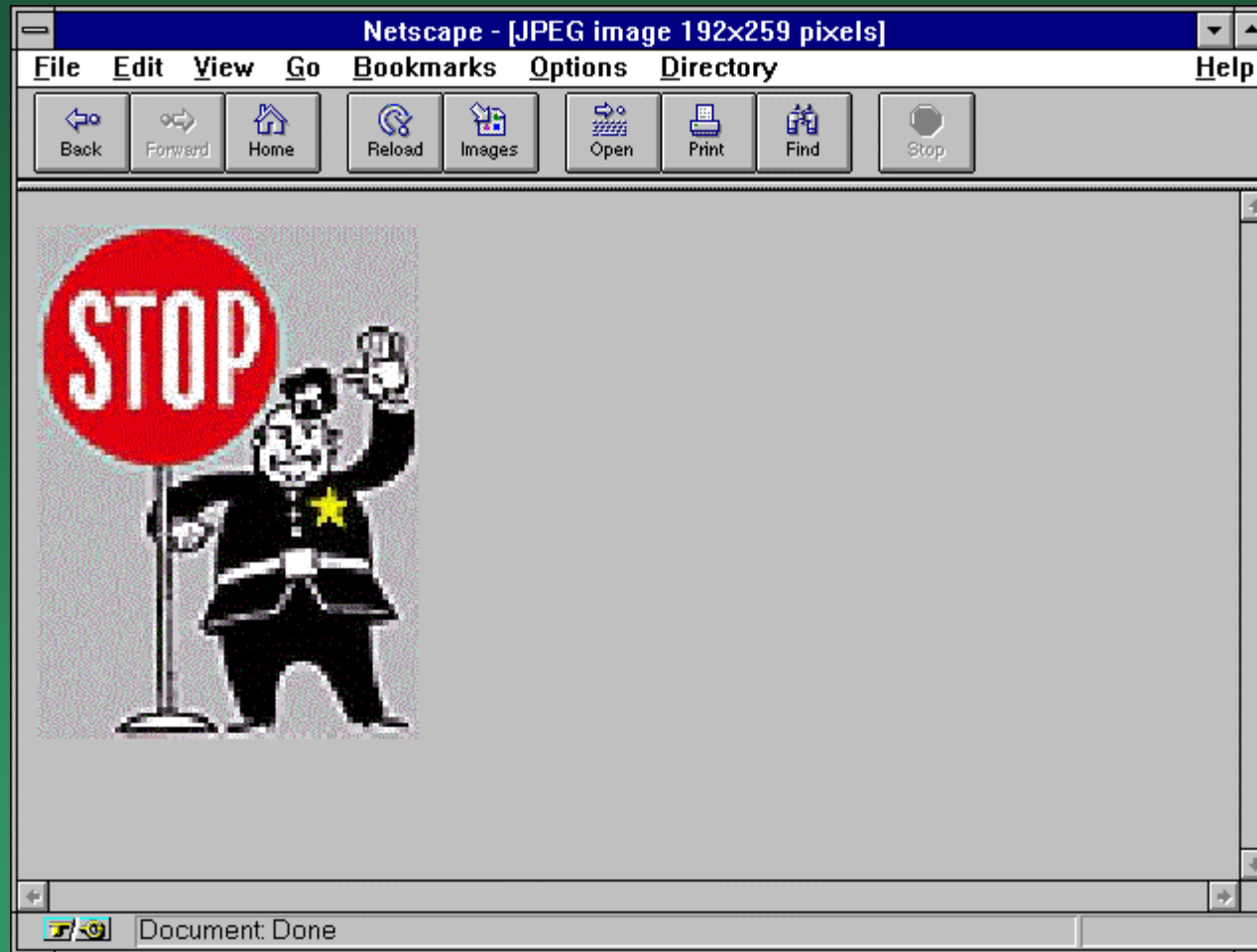
Images



Images

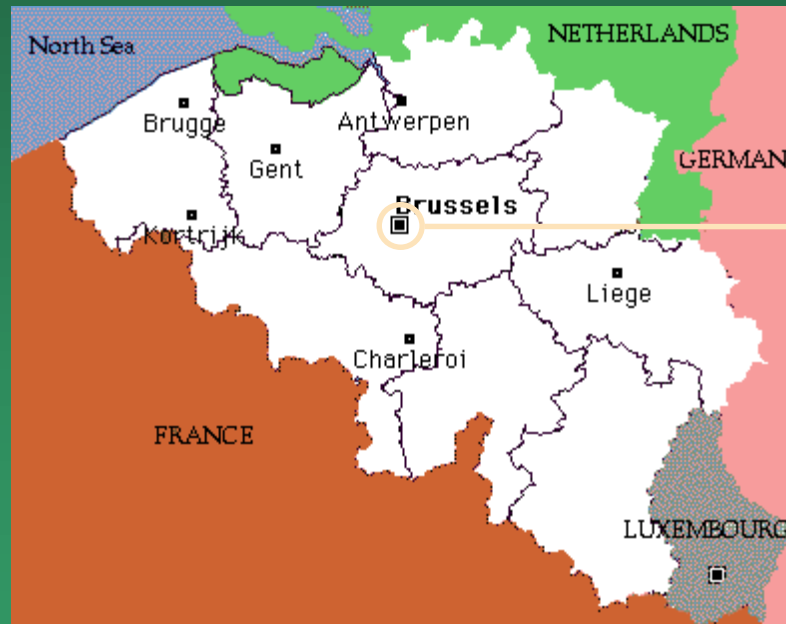


Images



Maps

- n An image can be a clickable image map
 - in-line image with embedded hyperlinks
 - selecting a hotspot activates the relevant hyperlink



hyperlink

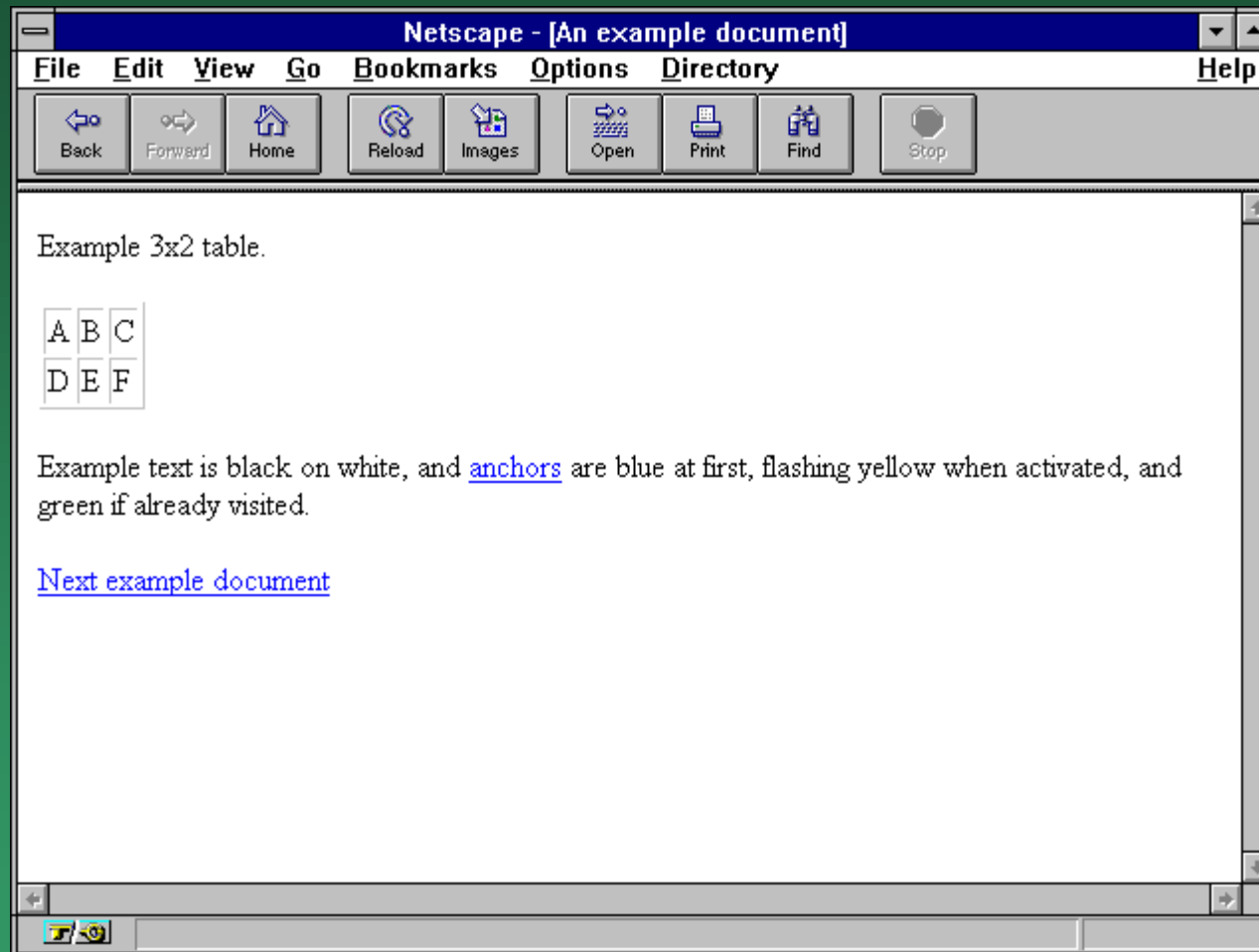
Tables and backgrounds

- n The body of an HTML document can have
 - tables (*experimental*)
 - colored background & foreground (*experimental*)

```
...  
<BODY BGCOLOR="#FFFFFF" TEXT="#000000"  
LINK="#0077FF" VLINK="#22AA22"  
ALINK="#FFFF00">  
<TABLE BORDER>  
<TR><TD>A</TD><TD>B</TD><TD>C</TD></TR>  
<TR><TD>D</TD><TD>E</TD><TD>F</TD></TR>  
</TABLE>  
</BODY>  
...
```



Tables



HTML authoring tools

n HTML editors

- help in creating an HTML document
 - ü stand-alone / template
 - ü checking / unchecking
 - ü WYSIWYG / raw HTML

n HTML convertors

- convert an existing text format into HTML and back

n HTML validators

- check conformance of HTML documents w.r.t. DTD

n HTML authoring environments?

- complete, industrial strength tools in the near future



HTML authoring utilities

n Image utilities

- create original artwork
- manipulate scanned images
- JPEG, TIFF, GIF, ... viewers

n Sound utilities

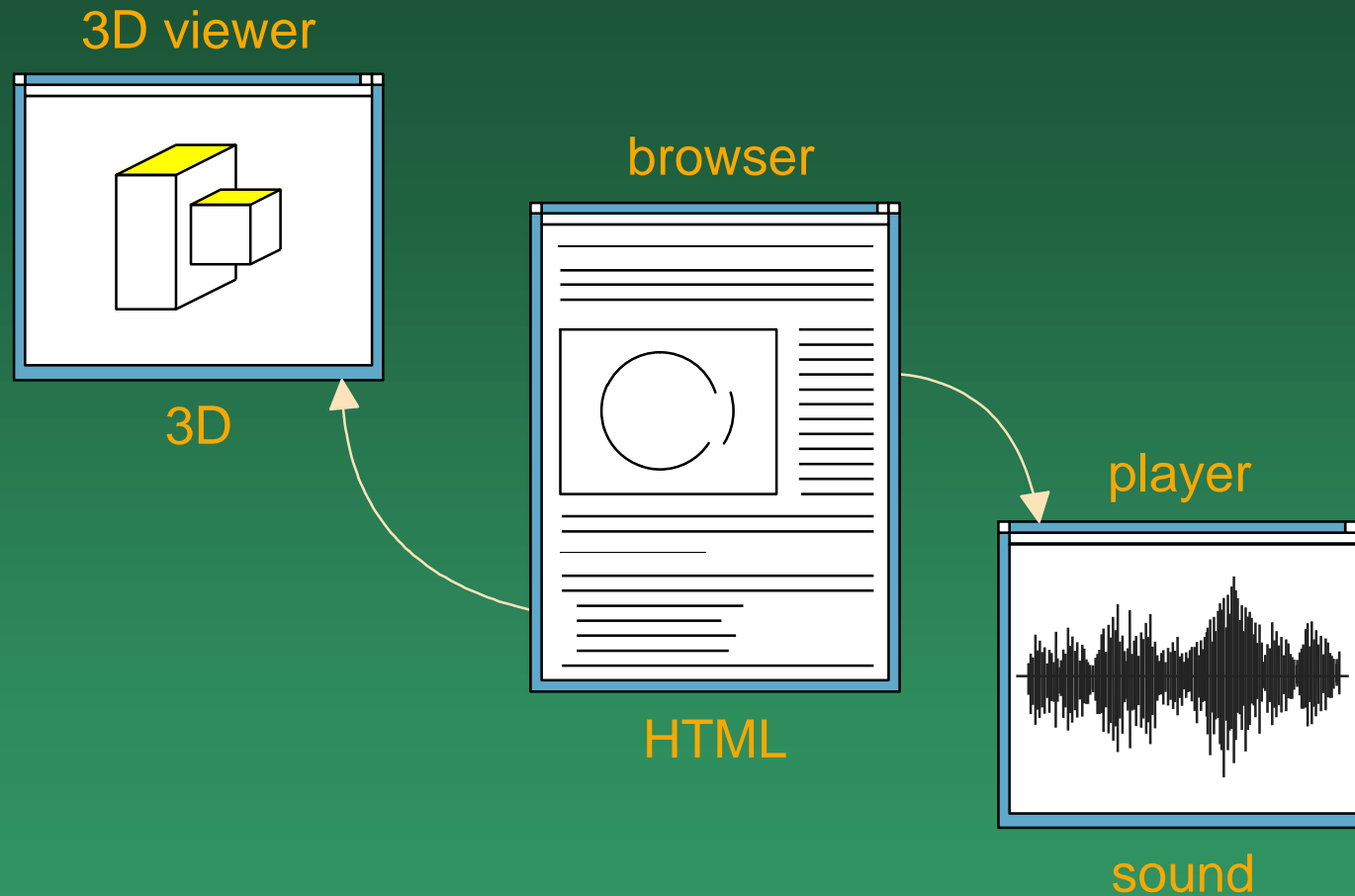
- sample and digitize sounds
- delayed or realtime playback

n Video utilities

- compress moving images
- QuickTime, MPEG viewers



MIME: Format negotiation



browser + helper applications



HTML authoring tips and tricks

- n never use logical styles for layout purposes
- n check your HTML with various browsers
- n provide context for the document
 - links to related documents
 - date / sign / locate the document
- n provide consistency for the user
 - use predictable navigation links
 - use a template / conform to a house style
- n concentrate on content > structure > appearance
 - but ... if you find a nice looking page, do get the source!



The future of HTML and the Web

n HTML is a moving target

- HTML 2.0 ratified, HTML 3.0 forever changing
- each new browser adds its own extensions
 - ü HTML è pure SGML with stylesheets?
 - ü HTML è confusing mix of logical / layout tags?
- VRML = **V**irtual **R**eality **M**arkup **L**anguage

n The Internet = the Web

- the Web = single largest Internet service
- HTML = the “esperanto” of the Internet

n If you want to be really noticed on the Net you'd better learn to speak its language fluently ...

