

Apple Macintosh Computer Technical Informatio

SplInside Macintosh

May 1992

Figures

(c) Apple Computer, Inc.

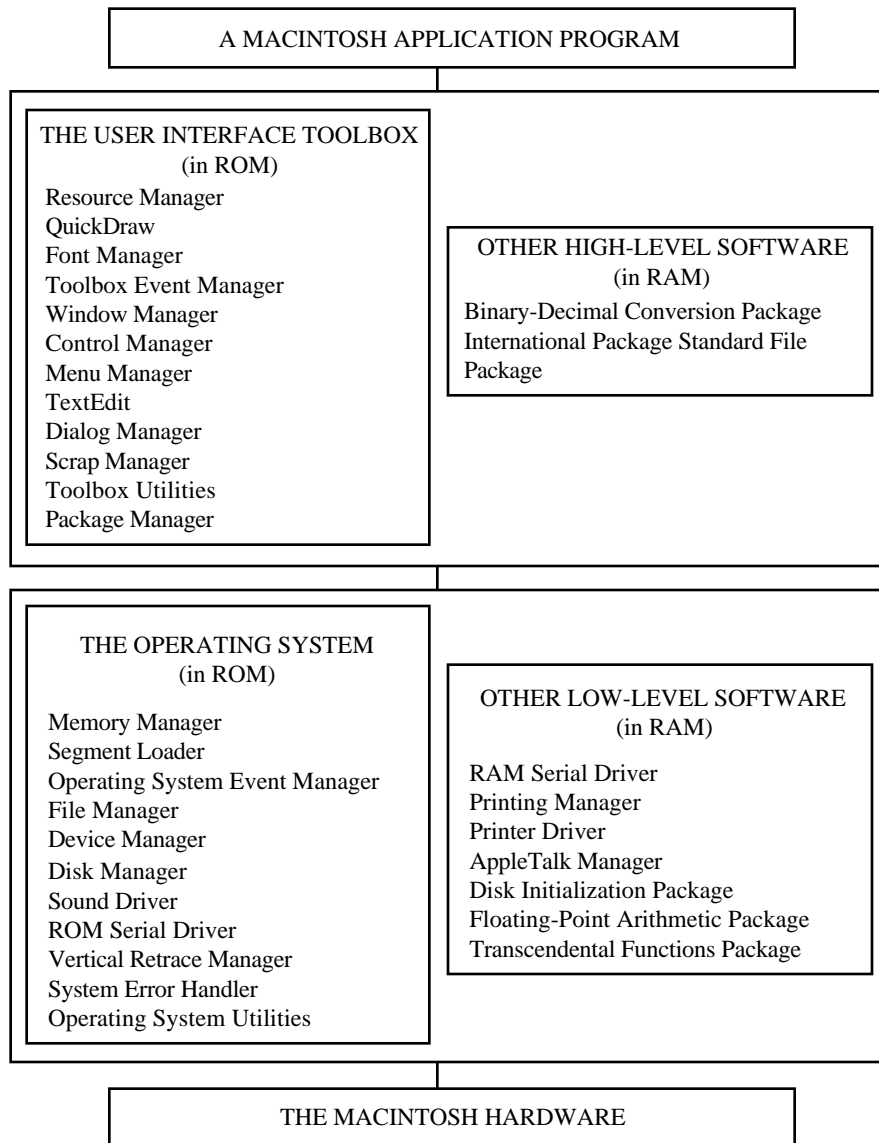


Figure 1-Overview

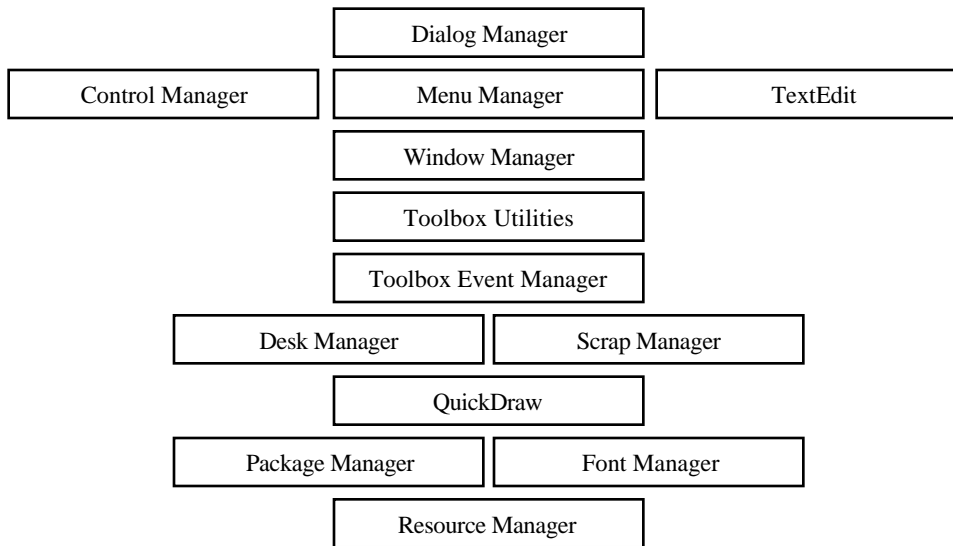


Figure 2—Parts of the Toolbox

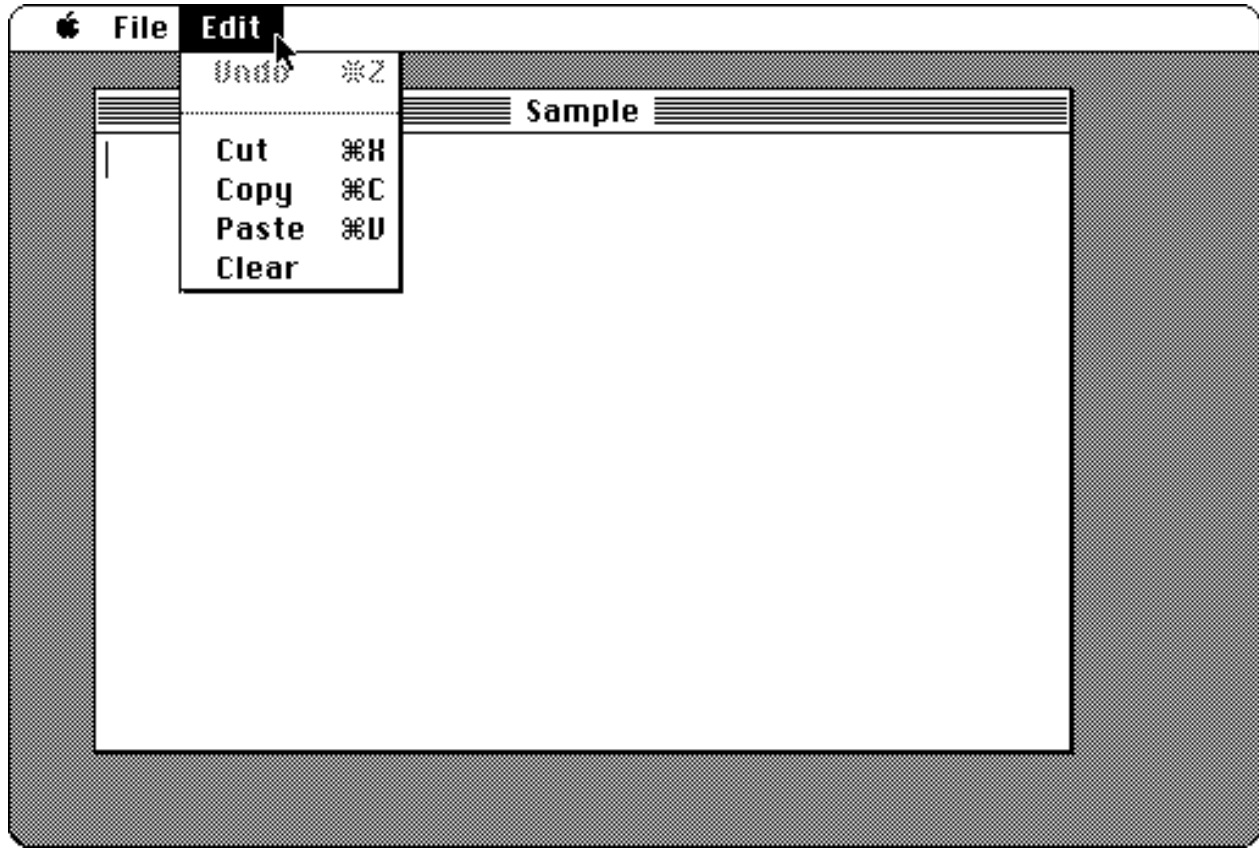
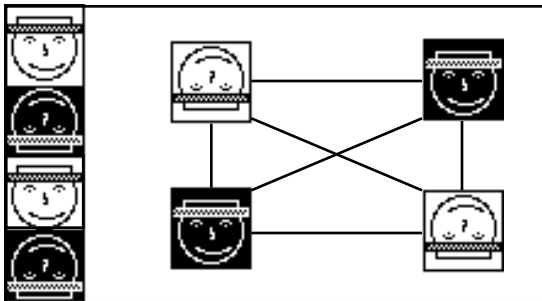


Figure 3—The Sample Application

The rest to some faint meaning make pretence
 But Shadwell never deviates into sense.
 Some beams of wit on other souls may fall,
 Strike through and make a lucid interval;
 But Shadwell's genuine night admits no ray,
 His rising fogs prevail upon the day.

MacFrecknoe Page 1

Text



Graphics

Advertising	132.9		
Manufacturing	121.3		
R & D	18.7		
Interest	12.2		
Total	285.1		

Array

Figure 1—Ways of Structuring Information

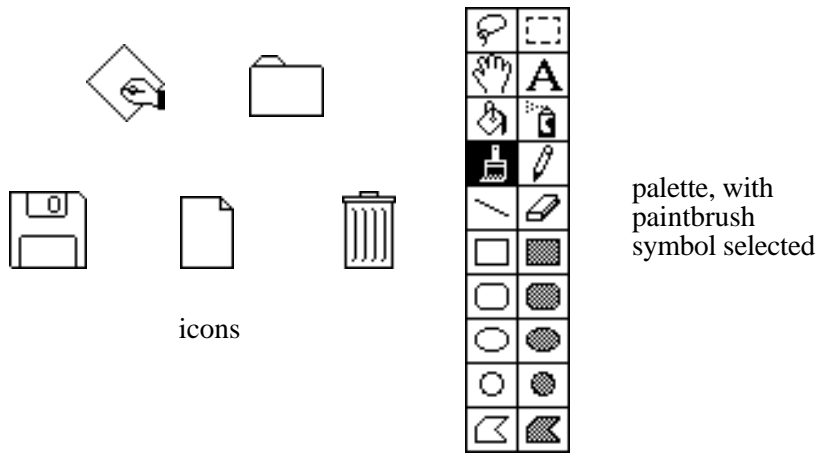


Figure 2—Objects on the Screen

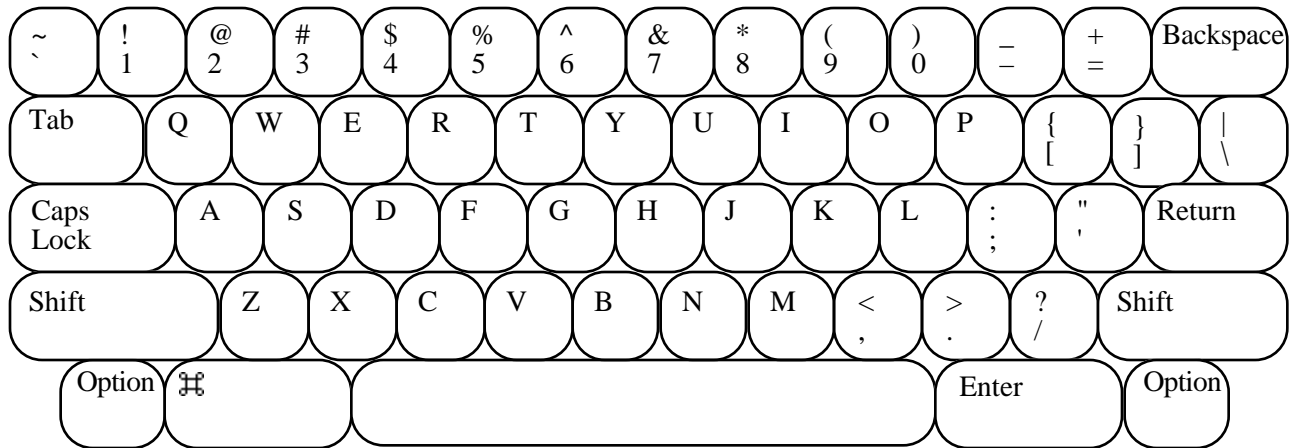


Figure 3–The Macintosh U.S. Keyboard

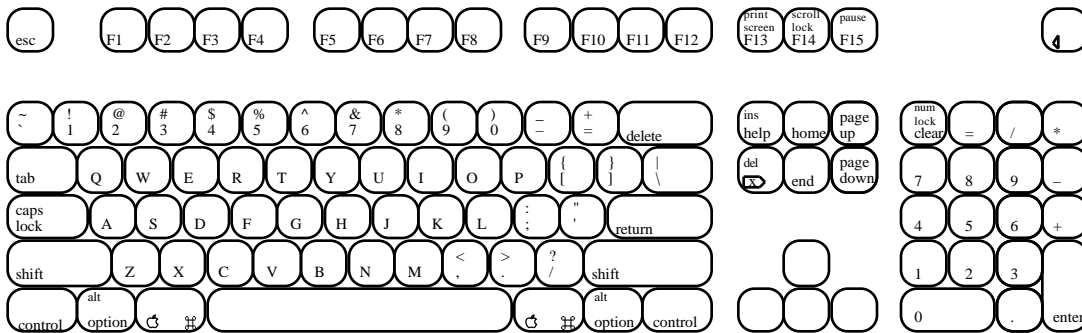


Figure 4—The Apple Extended Keyboard

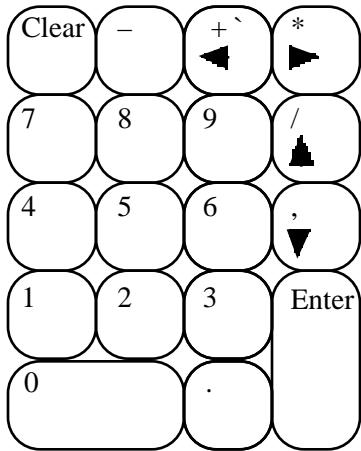


Figure 5—Numeric Keypad

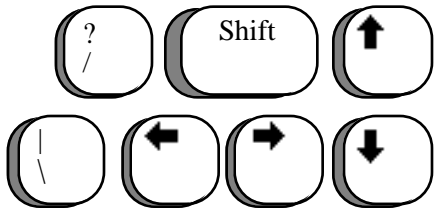


Figure 6—Macintosh Plus Arrow Keys

1. Insertion point is within a word: w|o|r|d
2. Shift-Left-Arrow is pressed: w|r|d
3. another Shift-Left-Arrow: w|o|r|d
4. Shift-Right-Arrow: w|r|d
5. three more times Shift-Right-Arrow: w|o|r|d

Figure 7--Selecting With Shift-Arrow Keys

1. Insertion point is within a word: `another wo|r`d
2. Option-Shift-Left-Arrow is pressed: `another word`
3. another Option-Shift-Left-Arrow: `another word`

Figure 8—Selecting With Option-Shift-Arrow Keys






<u>Pointer</u>	<u>Used for</u>
	Scroll bar and other controls, size box title bar, menu bar, desktop, and so on
	Selecting text
	Drawing, shrinking, or stretching graphic objects
	Selecting fields in an array
	Showing that a lengthy operation is in progress

Figure 9–Pointers

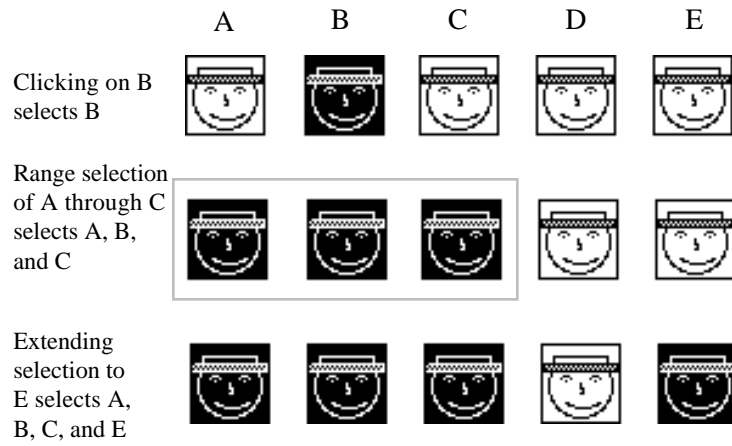


Figure 10—Selection Methods

Cells B2, B3, C2, and C3 are selected

	A	B	C	D
1				
2				
3				
4				
5				

The user holds down the Command key and clicks in D5

	A	B	C	D
1				
2				
3				
4				
5				

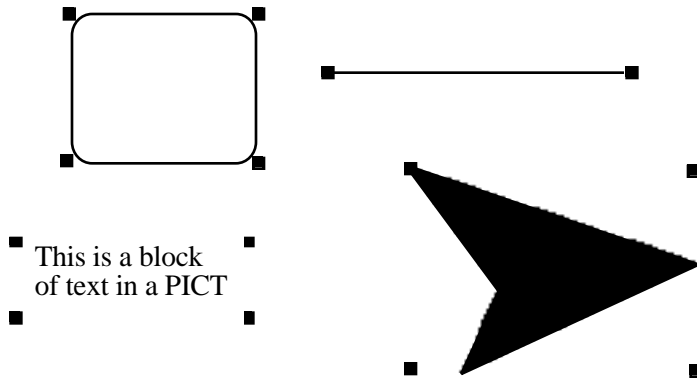
The user holds down the Command key and clicks in C3

	A	B	C	D
1				
2				
3				
4				
5				

Figure 11–Discontinuous Selection

Insertion point	And|springth the wude nu.
Range of characters	And springth the wude nu.
Word	And springth the wude nu.
Range of words	And springth the wude nu.
Discontinuous selection	And springth the wude nu.

Figure 12–Text Selections



■ This is a block
of text in a PICT
■

Figure 13–Graphics Selections

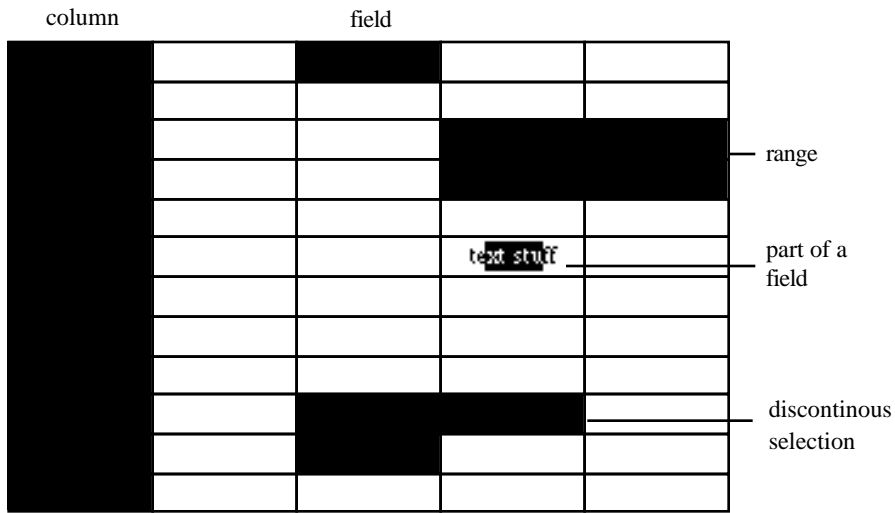


Figure 14-Array Selections

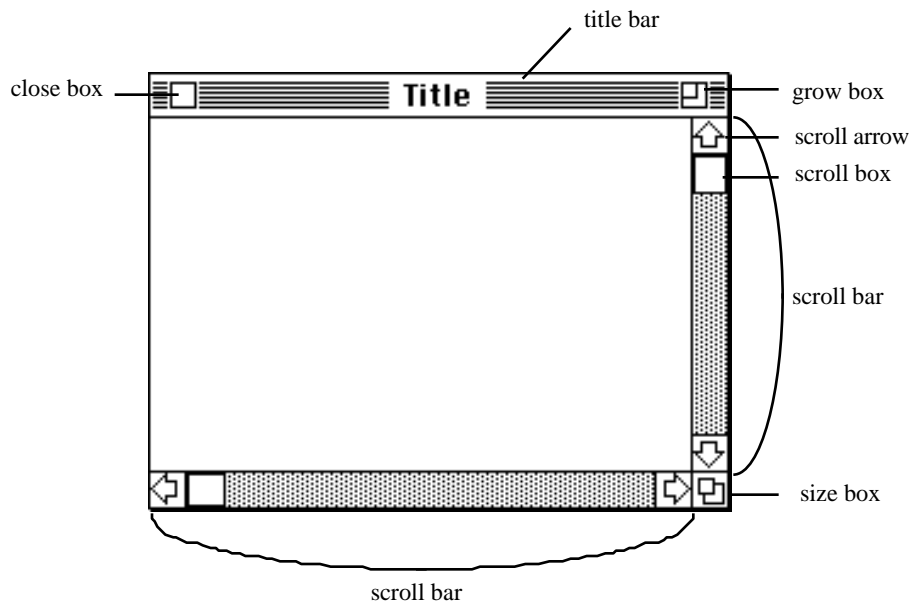


Figure 15—An Active Window

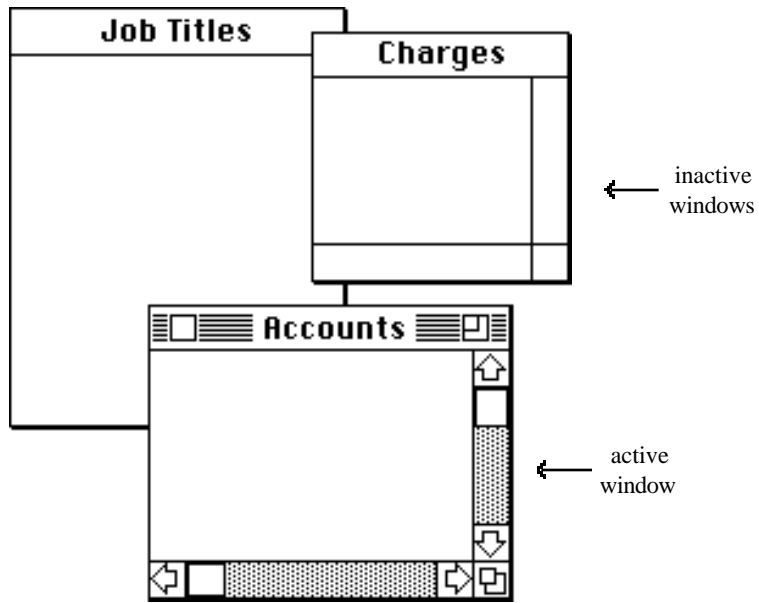


Figure 16—Multiple Windows

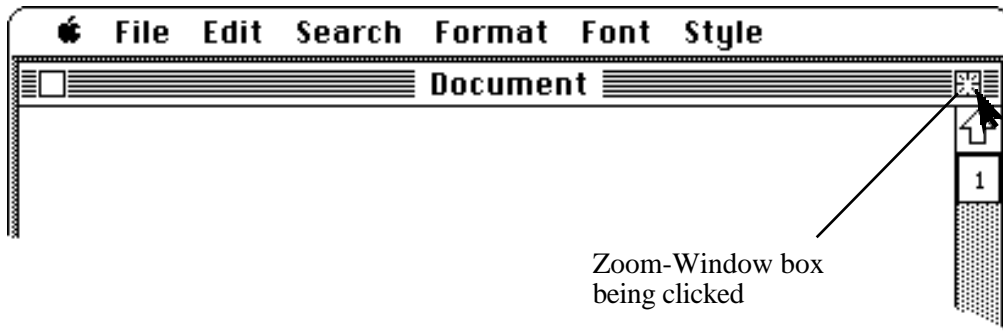
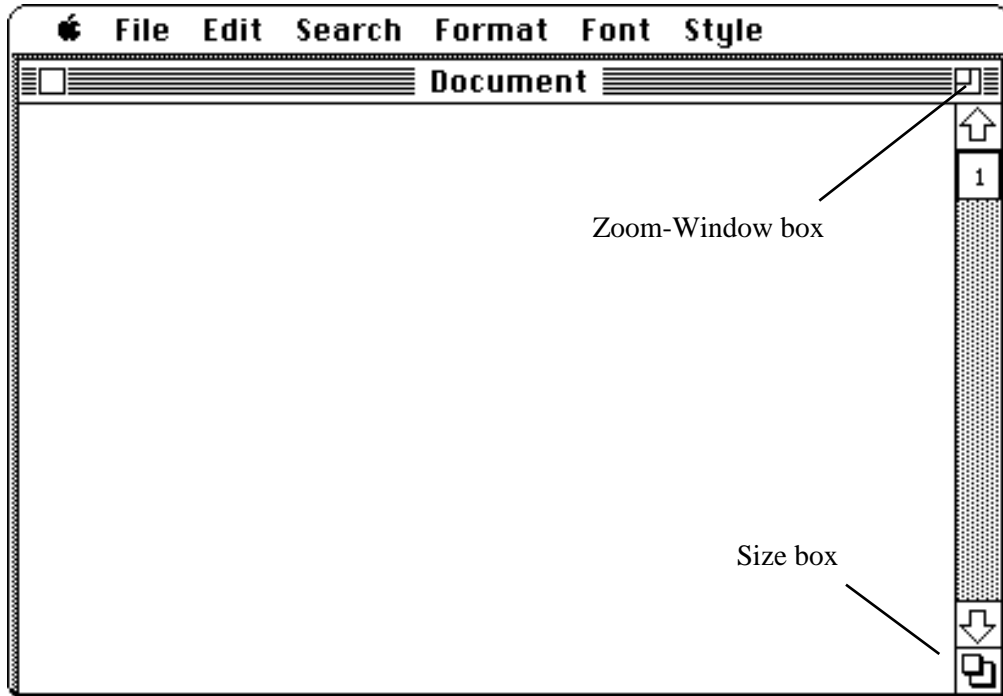


Figure 17–Window in Standard State

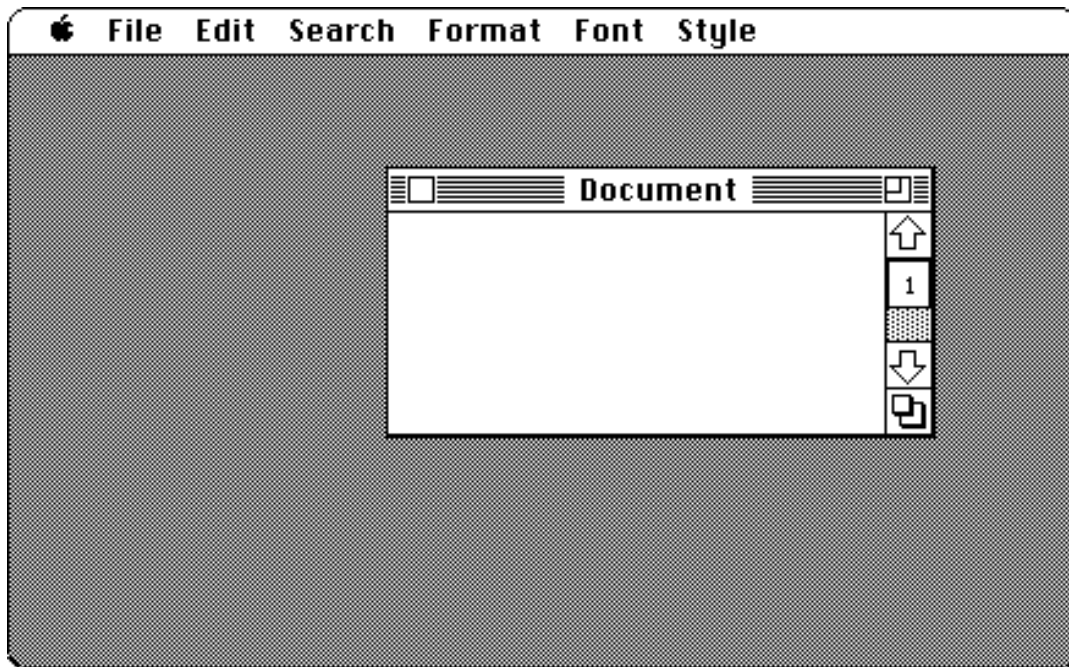
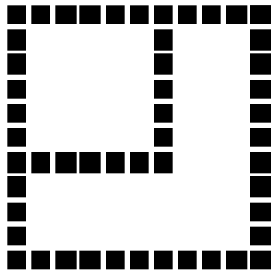
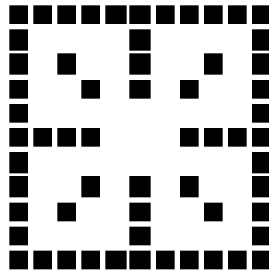


Figure 18–Window in User State

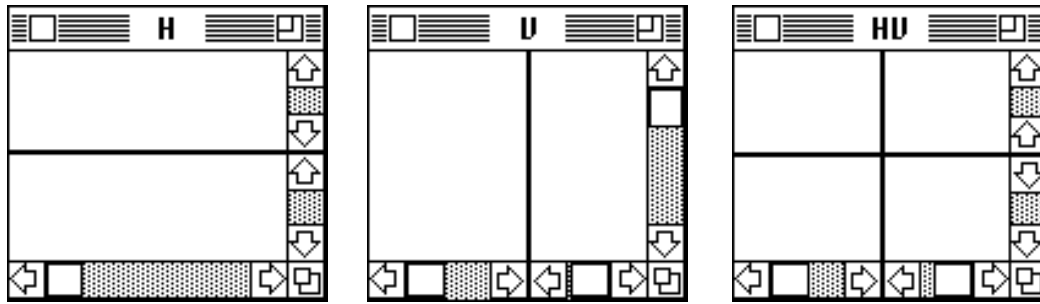


Before being
clicked



Being clicked

Figure 19–Zoom-Window Box Details



horizontal split

vertical split

both splits

Figure 20—Types of Split Windows

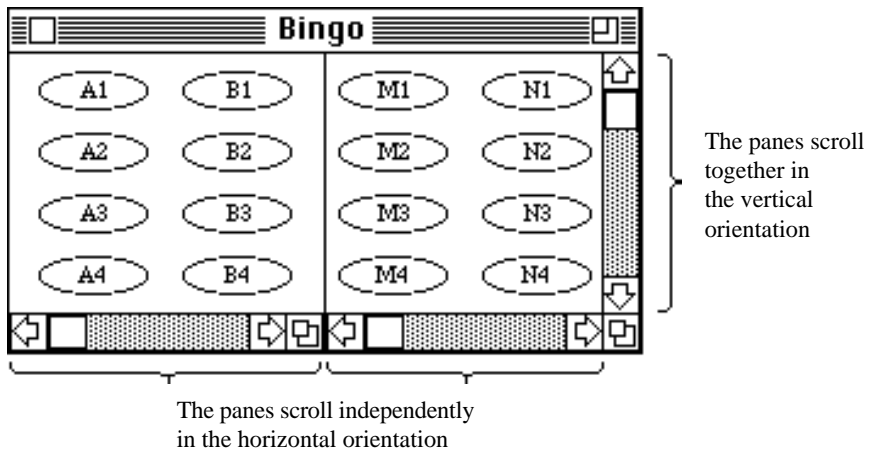


Figure 21—Scrolling a Split Window

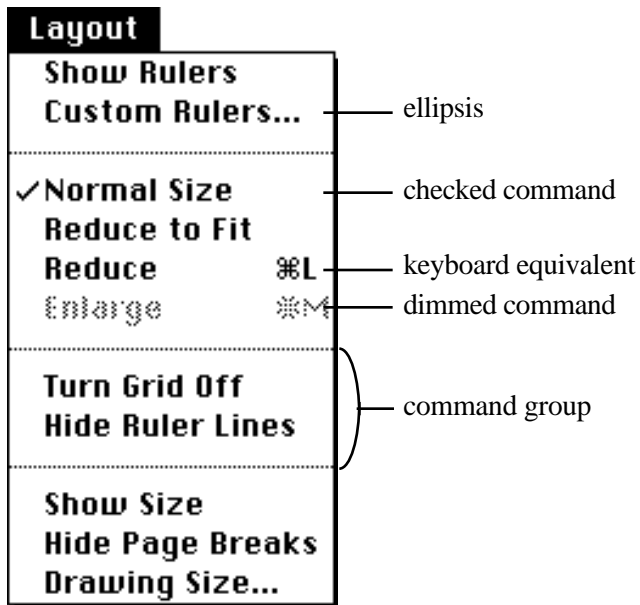


Figure 22–Menu

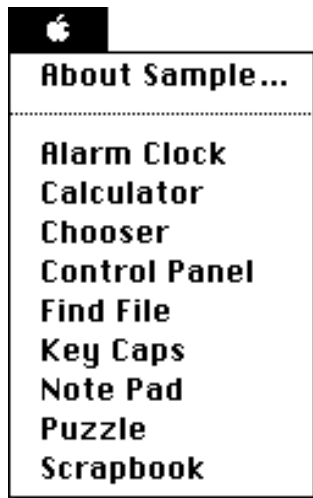


Figure 23–Apple Menu

File	
New	⌘N
Open...	⌘O
Close	
.....	
Save	⌘S
Save As...	
Revert to Saved	
.....	
Page Setup...	
Print...	⌘P
.....	
Quit	⌘Q

Figure 24–File Menu

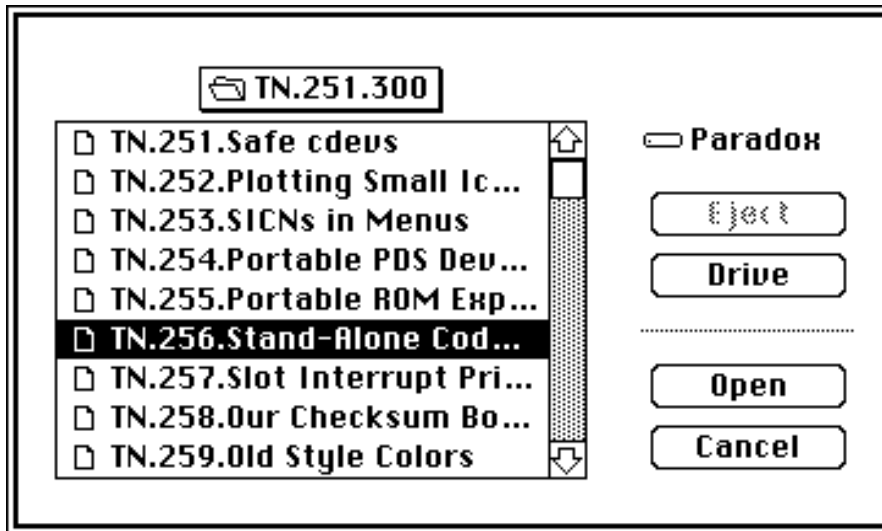


Figure 25–Open Dialog Box

Edit	
Undo	⌘Z
.....	
Cut	⌘H
Copy	⌘C
Paste	⌘U
Clear	
Select All	⌘A
.....	
Show Clipboard	

Figure 26–Edit Menu



Figure 27-Font Menu

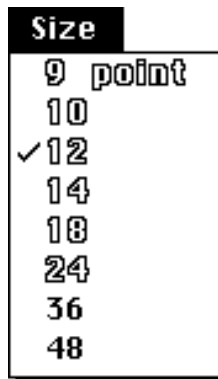


Figure 28—FontSize Menu



Figure 29–Style Menu

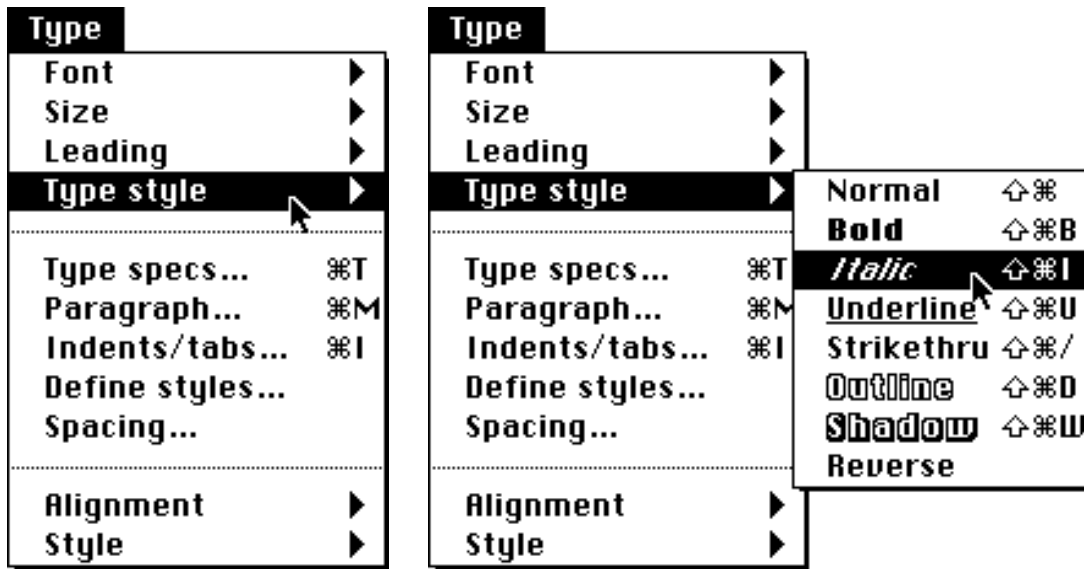


Figure 30—Main Menu Before and After Submenu Appears

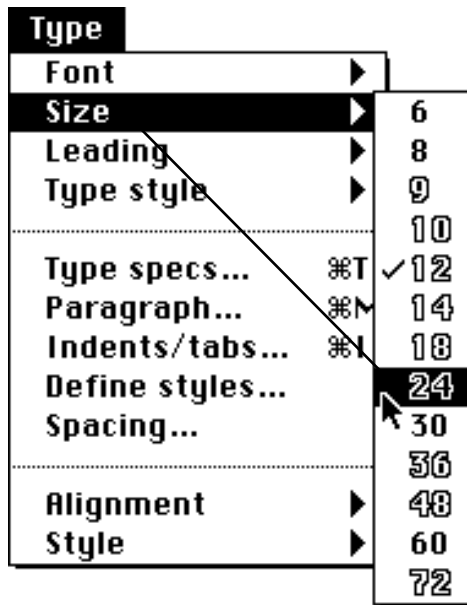


Figure 31—Dragging Diagonally to a Submenu Item

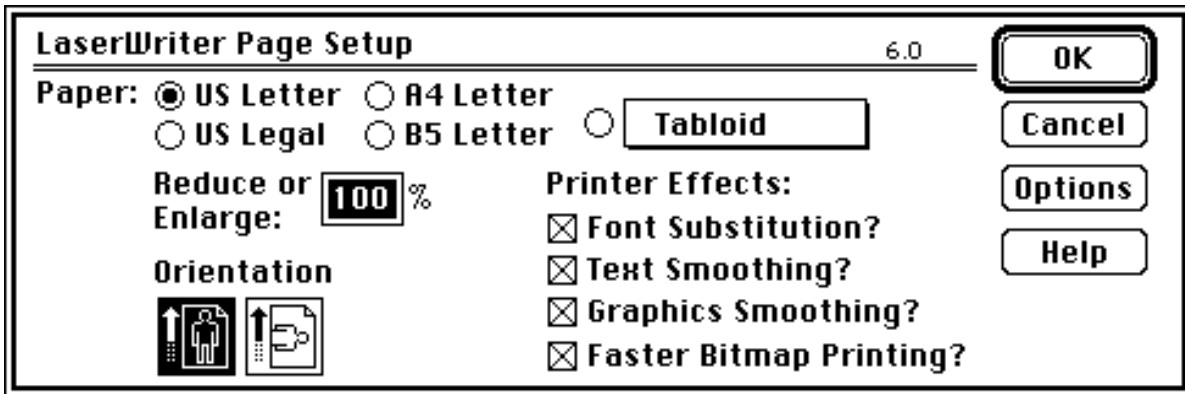


Figure 32—Dialog Box With Pop-up Menus

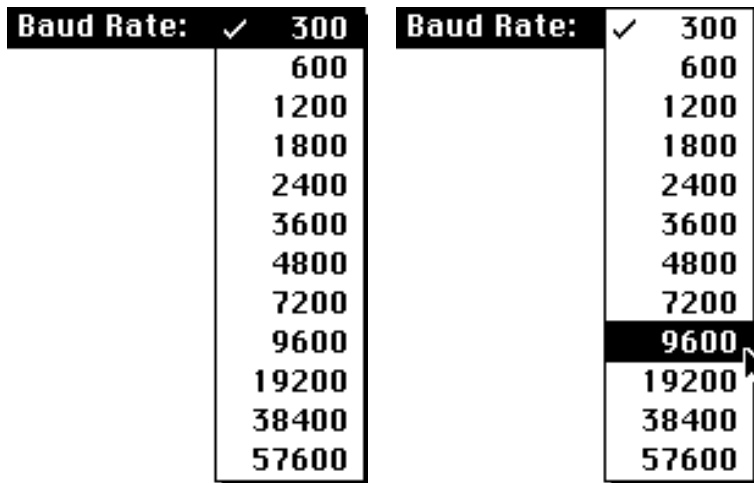


Figure 33—Dragging Through a Pop-up Menu

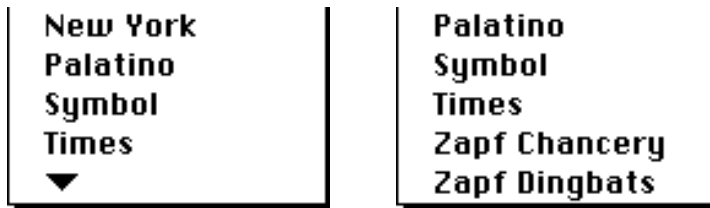


Figure 34—Scrolling Menus: Indicator at Bottom

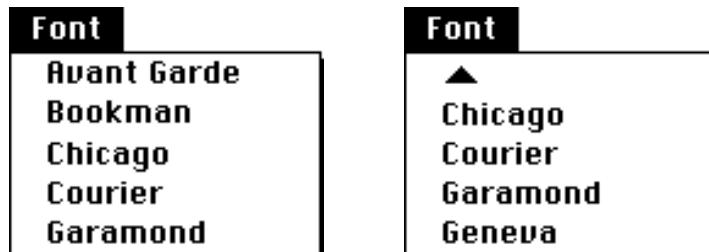


Figure 35—Scrolling Menus: Indicator at Top

Example 1:

- | | |
|-------------------------------|--|
| 1. Select a word. | Drink to me only with thine eyes. |
| 2. Choose Cut. | Drink to me\|with thine eyes. |
| 3. Select an insertion point. | Drink to me with \|thine eyes |
| 4. Choose Paste. | Drink to me with only \|thine eyes. |

Example 2:

- | | |
|-------------------------------|---------------------------|
| 1. Select a word. | How, now brown cow |
| 2. Choose Cut. | How,\| brown cow |
| 3. Select an insertion point. | How\|, brown cow |
| 4. Choose Paste. | How now\|, brown cow |

Figure 36—Intelligent Cut and Paste

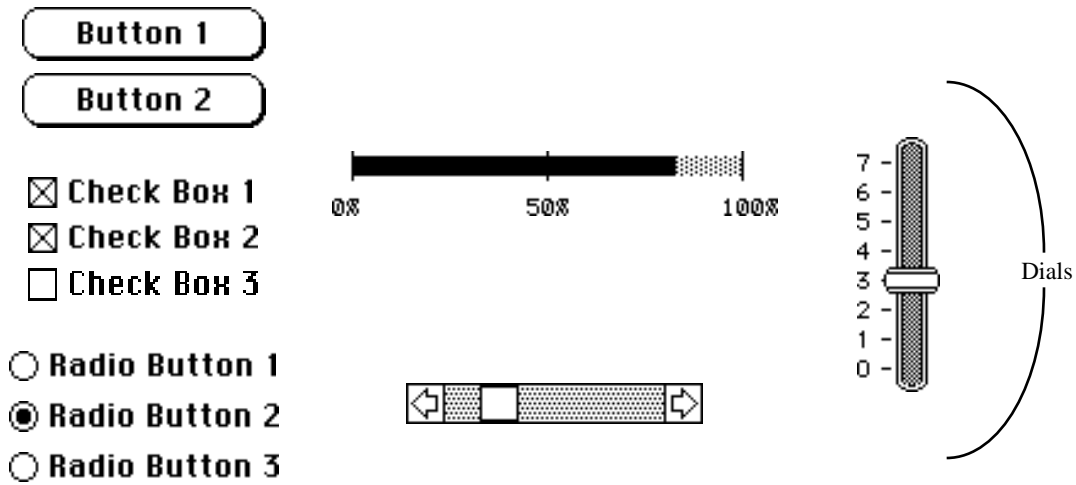


Figure 37—Controls

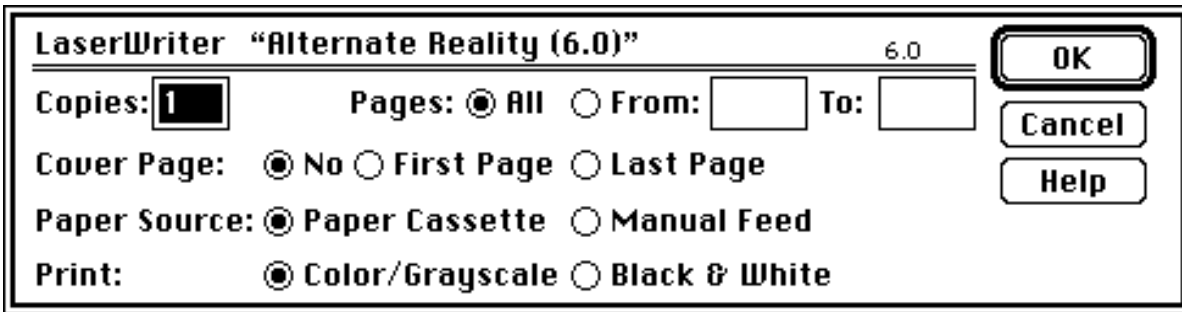


Figure 38–A Modal Dialog Box

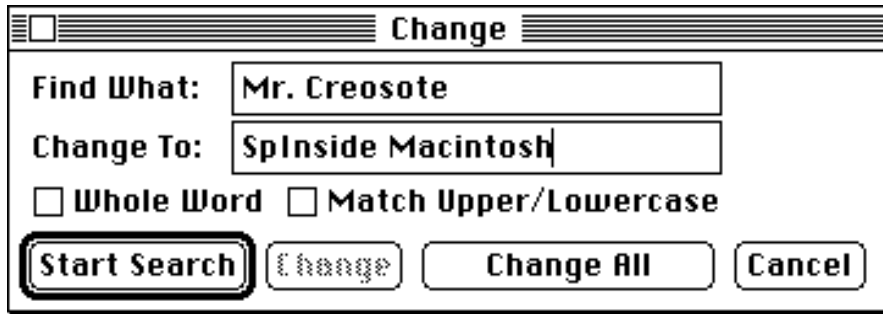


Figure 39–A Modeless Dialog Box

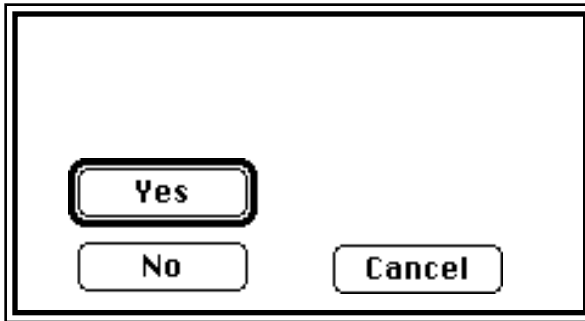


Figure 40–A Standard Close Dialog



Figure 41—An Alert Box

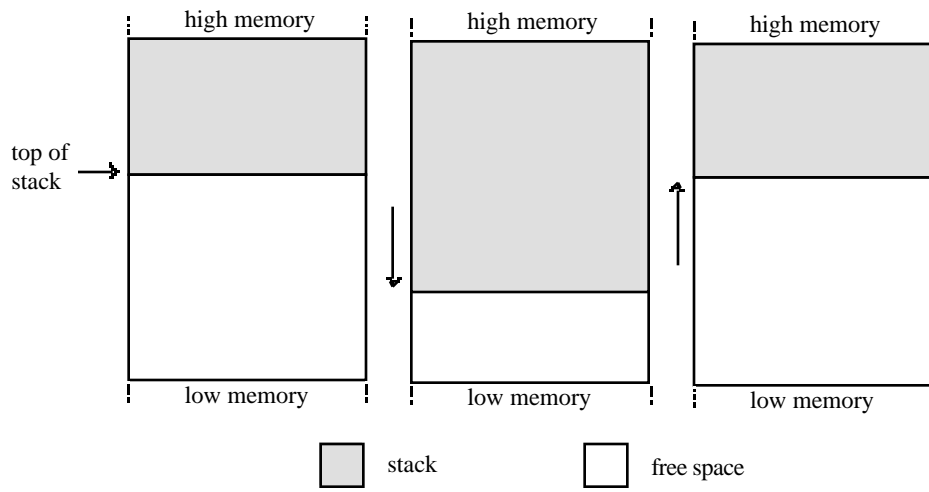


Figure 1—The Stack

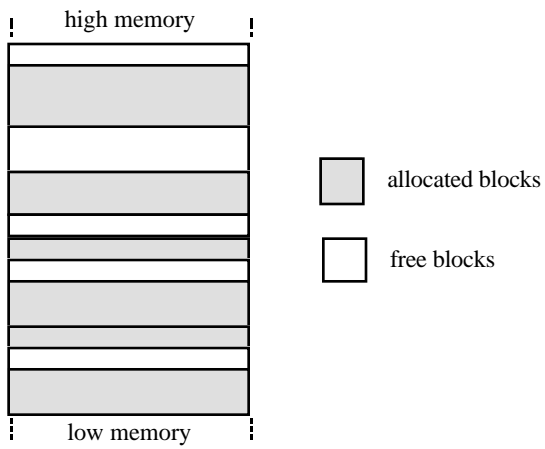


Figure 2—Fragmented Heap

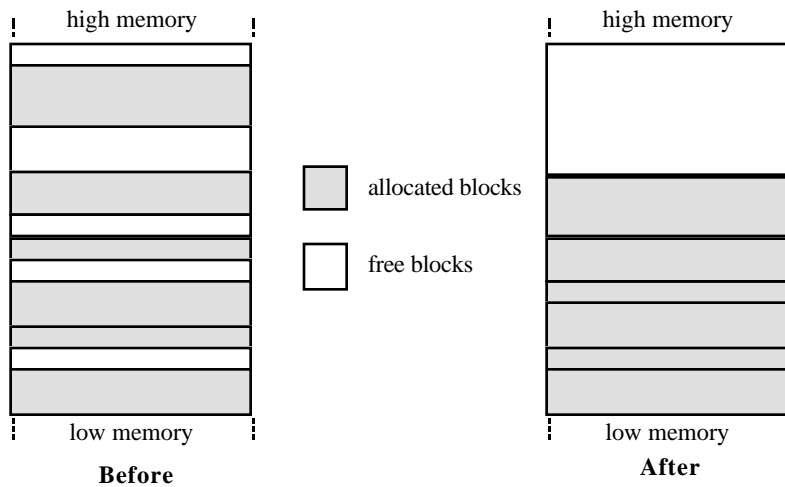


Figure 3-Heap Compaction

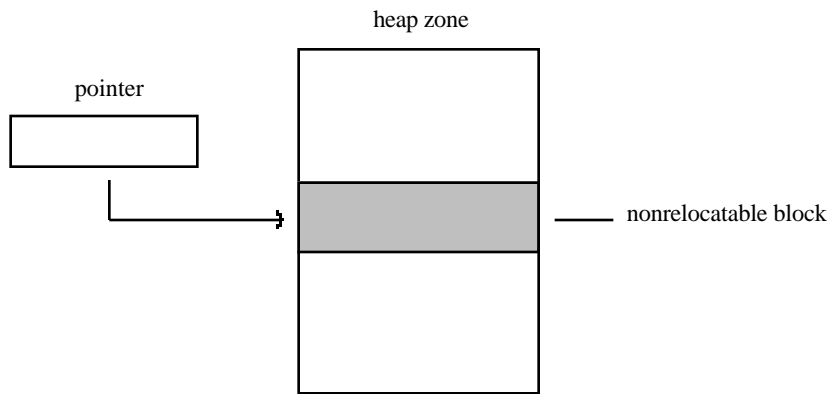


Figure 4-A Pointer to a Nonrelocatable Block

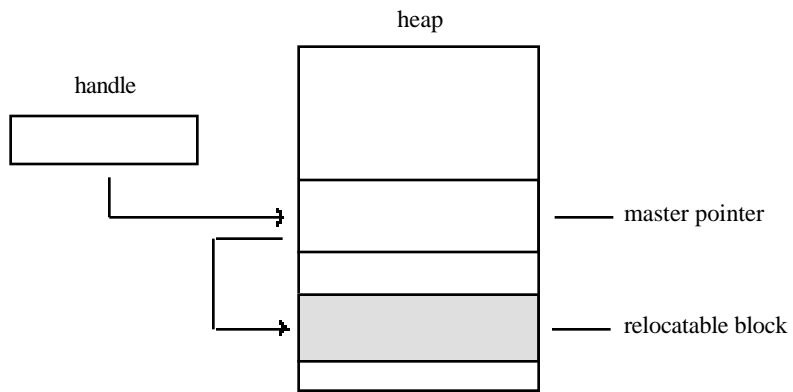


Figure 5-A Handle to a Relocatable Block

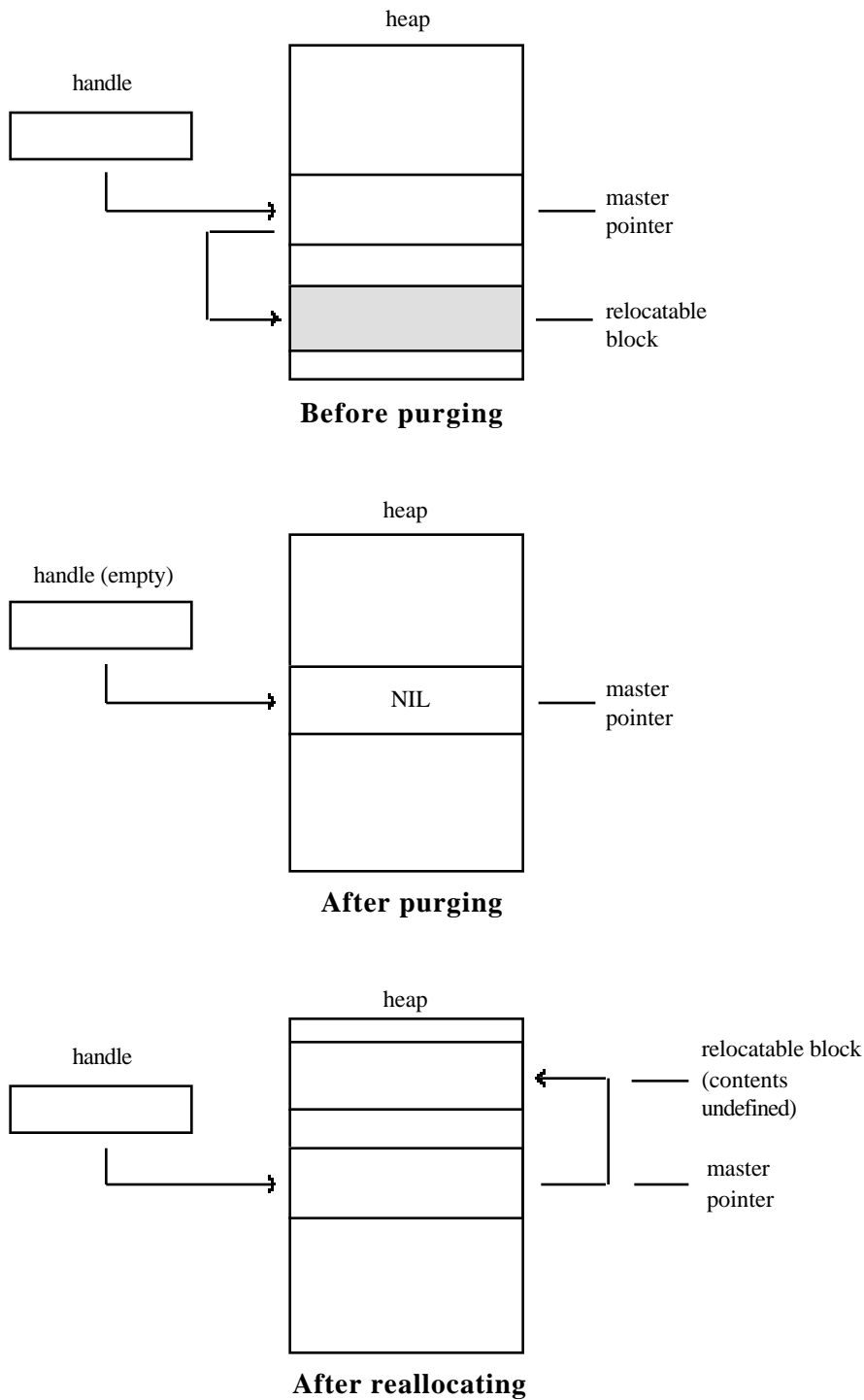


Figure 6—Purging and Reallocating a Block

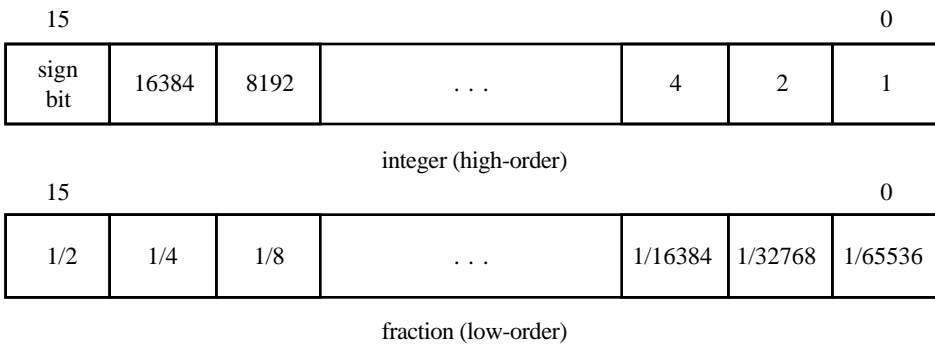


Figure 7-Fixed-Point Number

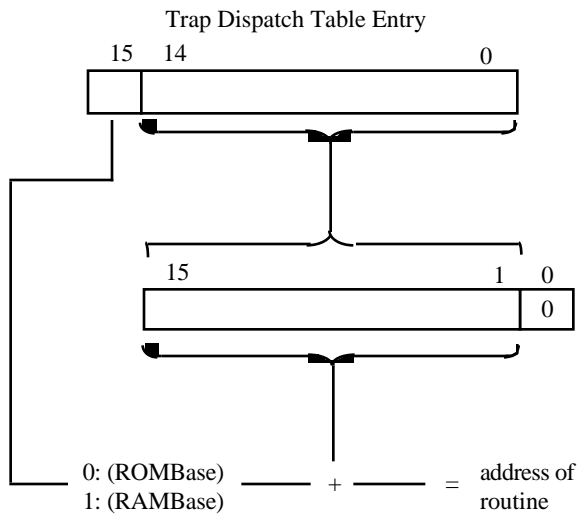


Figure 1-Trap Dispatch Table Entry

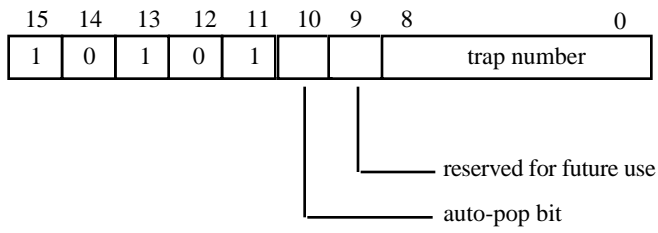


Figure 2--Toolbox Trap Word (Bit 11=1)

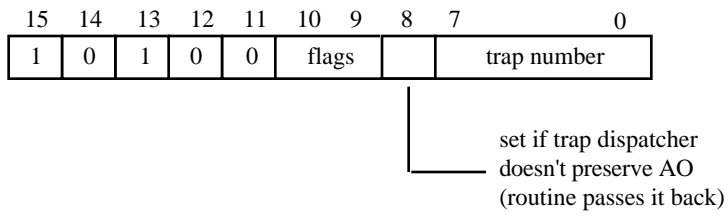


Figure 3—Operating System Trap Word (Bit 11=0)

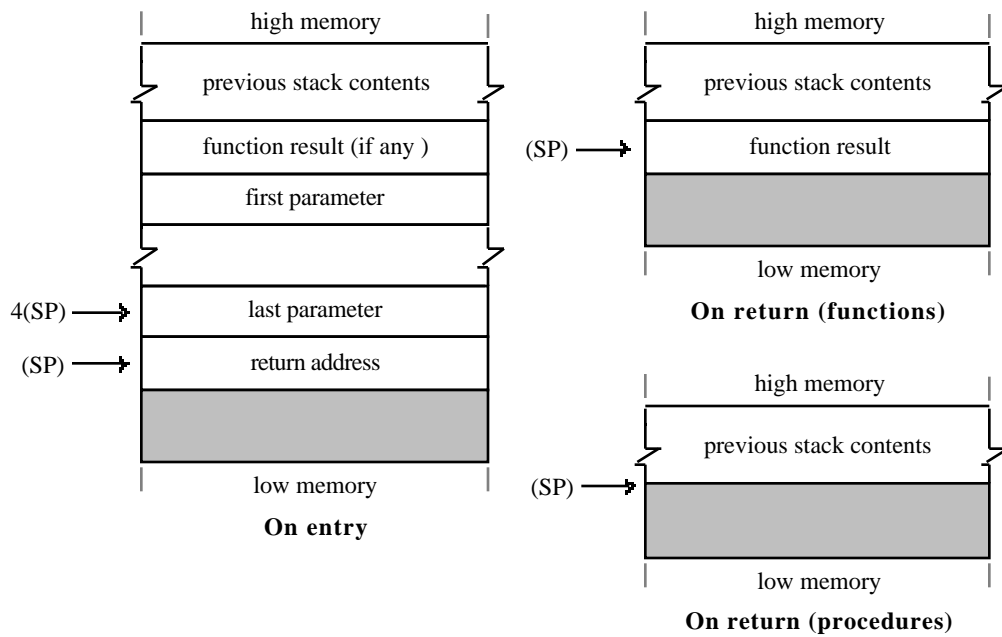


Figure 4—Stack Format for Stack-Based Routines

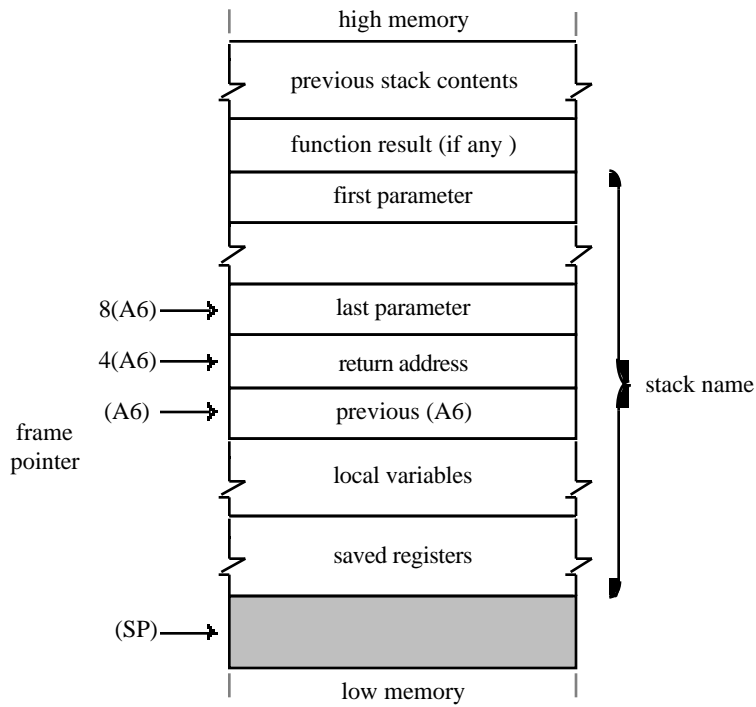


Figure 5–Frame Pointer

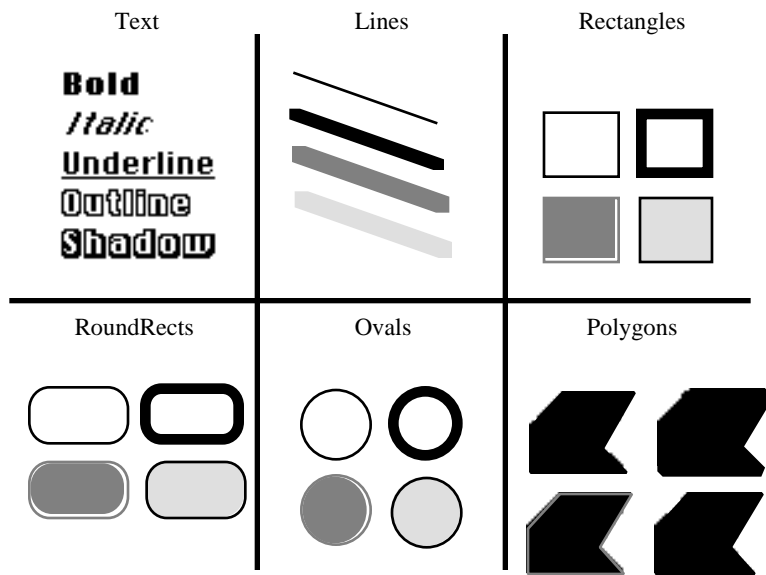


Figure 1—Samples of QuickDraw’s Abilities

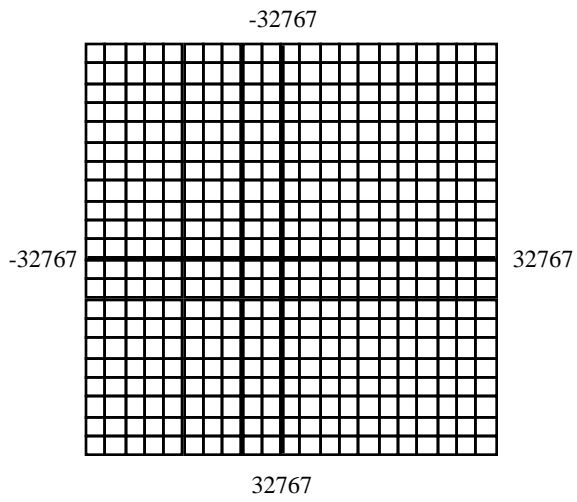


Figure 2—The Coordinate Plane

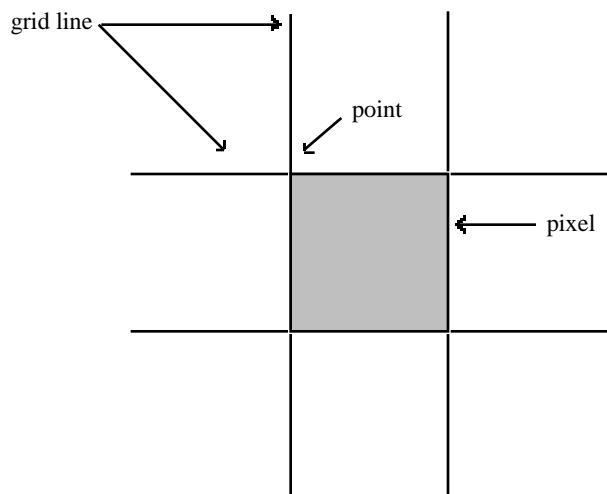


Figure 3—Points and Pixels

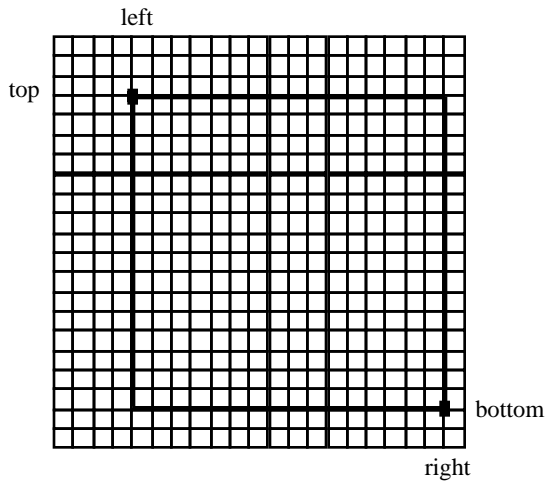


Figure 4-A Rectangle

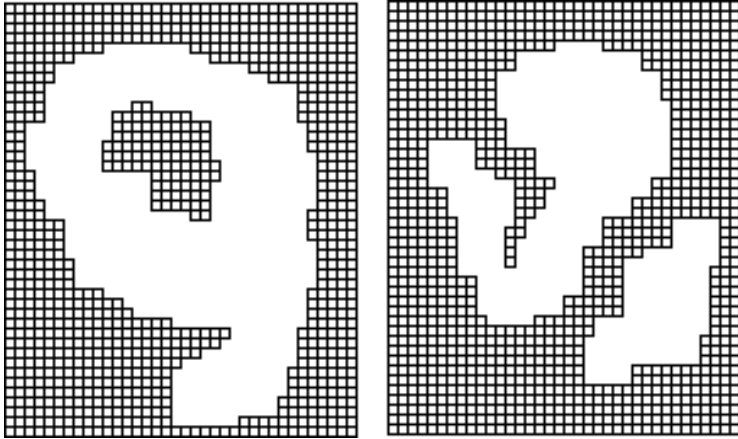


Figure 5–Regions

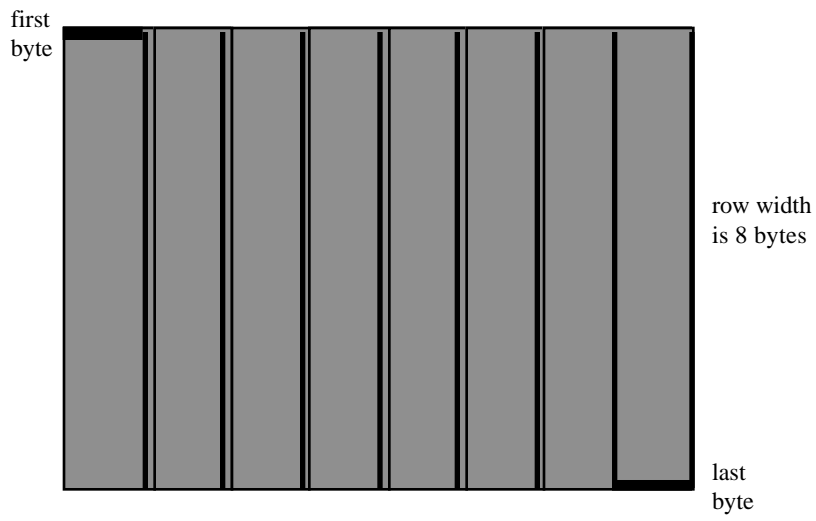


Figure 6–A Bit Image

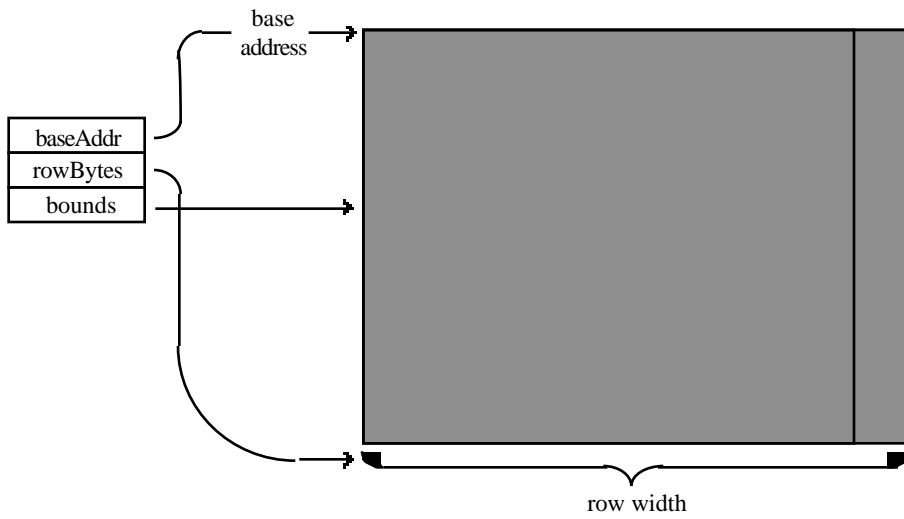


Figure 7-A Bit Map

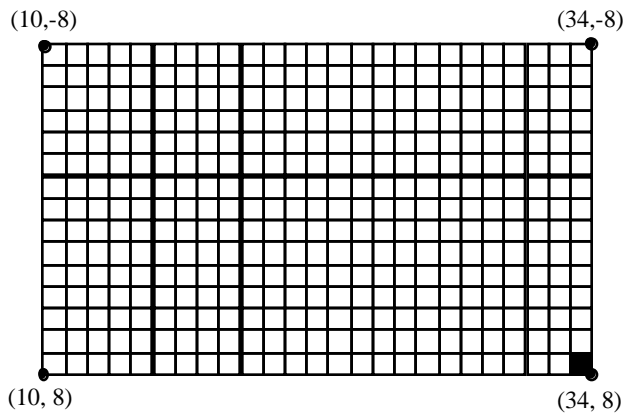


Figure 8—Coordinates and Bit Maps

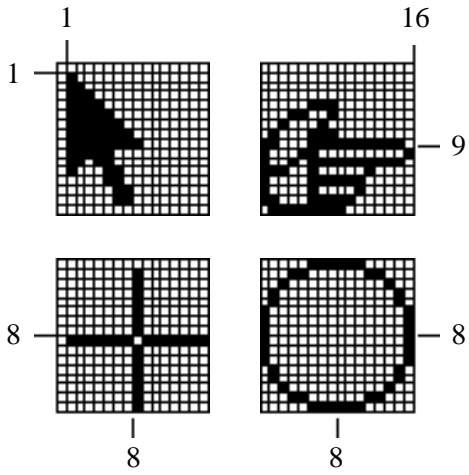


Figure 9-Cursors

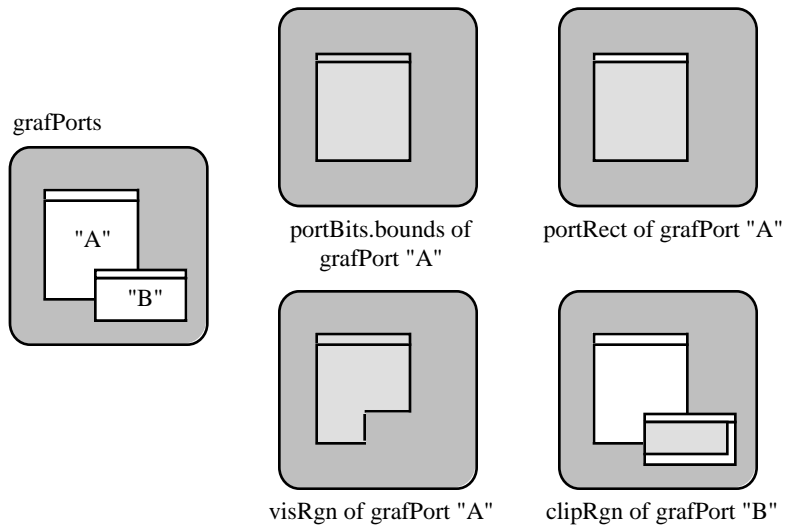


Figure 10–GrafPort Regions

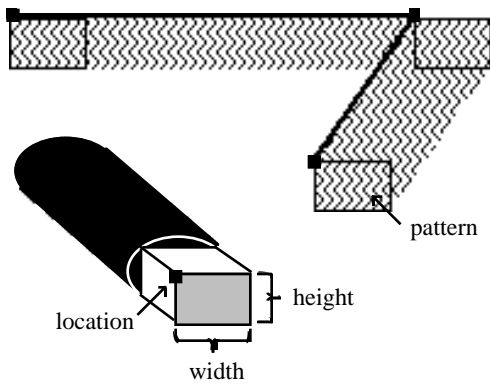


Figure 11-A Graphics Pen

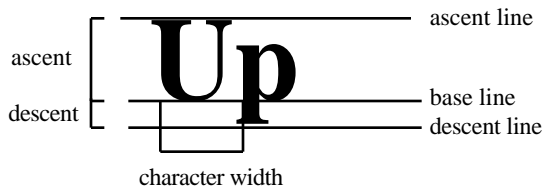


Figure 12—QuickDraw Characters

Plain Characters

Bold Characters

Italic Characters

Underlined Characters

Outlined Characters

Shadowed Characters

Bold Italic Characters

Outlined Characters

Figure 13—Stylistic Variations

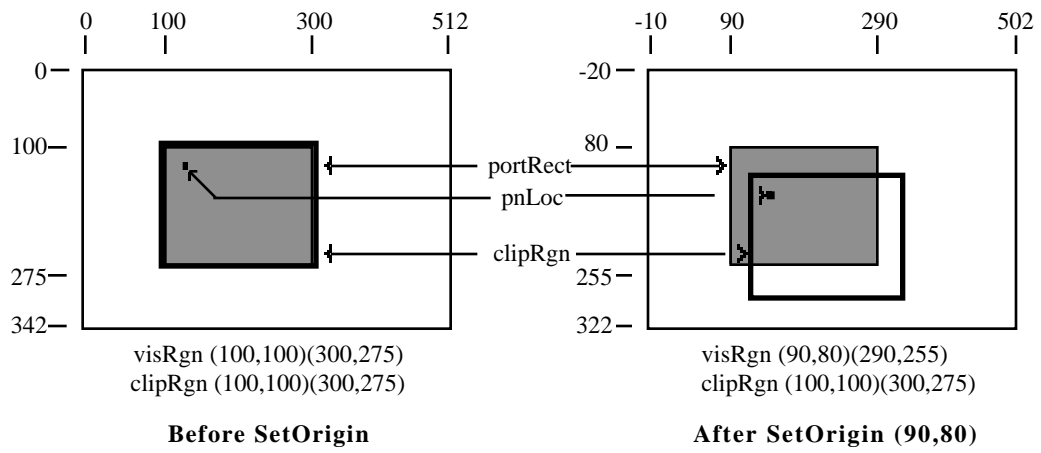


Figure 14—Changing Local Coordinates

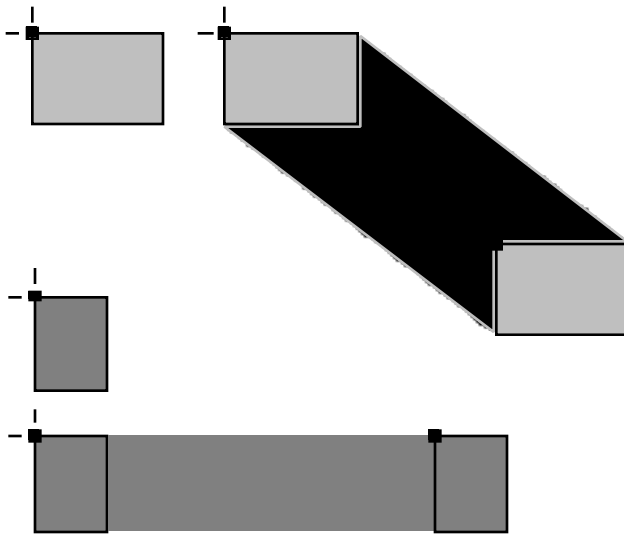


Figure 15–Drawing Lines

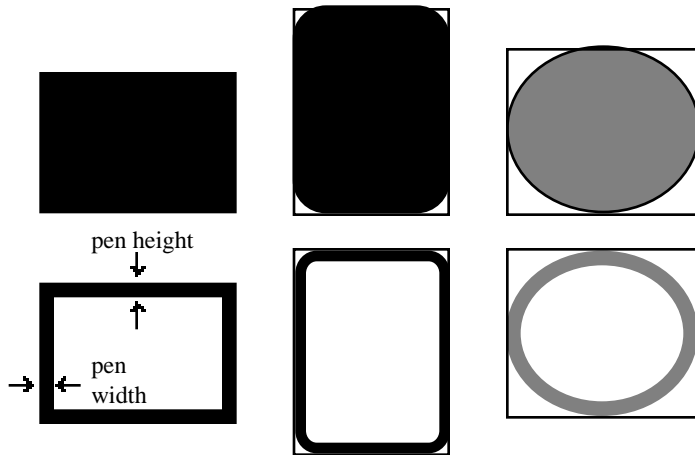


Figure 16—Solid Shapes and Framed Shapes

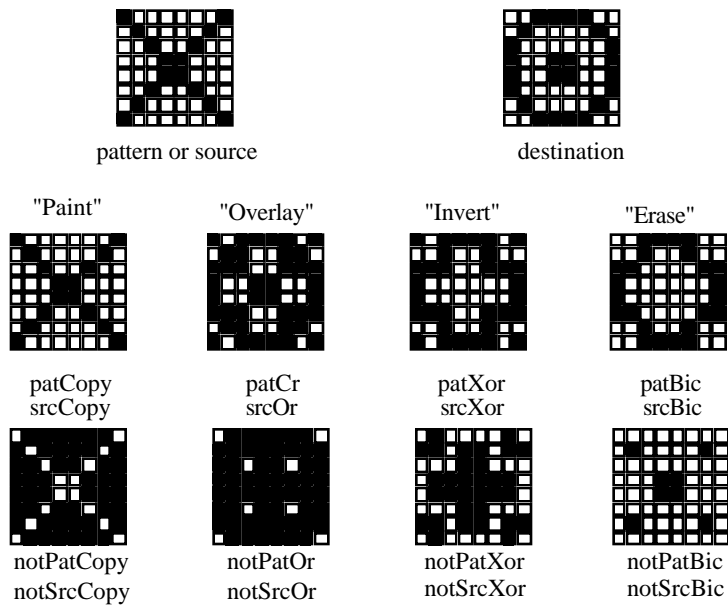


Figure 17--Transfer Modes



Figure 18–Polygons

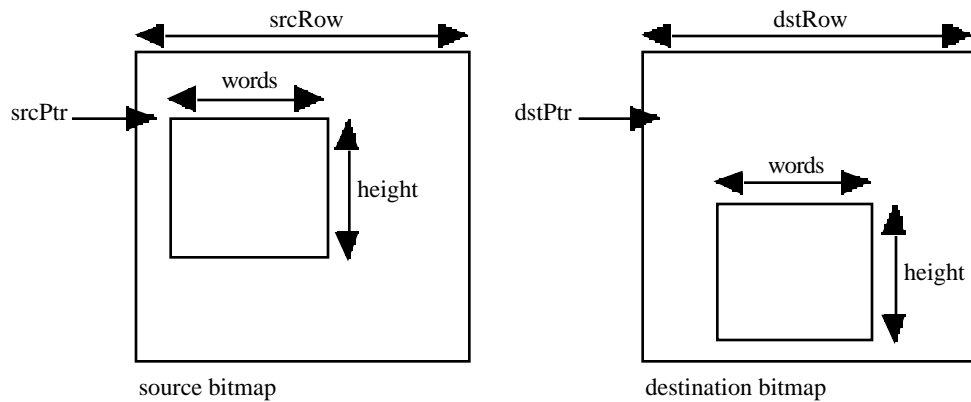


Figure 19—Parameters Used by SeedFill and CalcMask

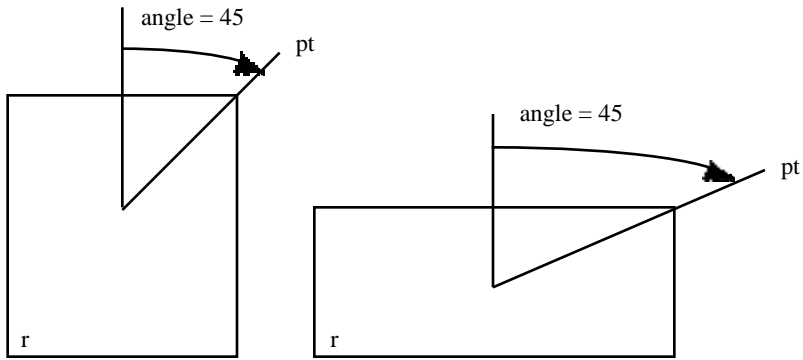


Figure 20-PtToAngle

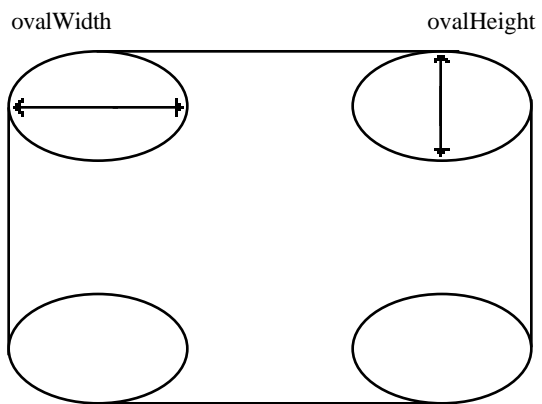


Figure 21—Rounded-Corner Rectangle

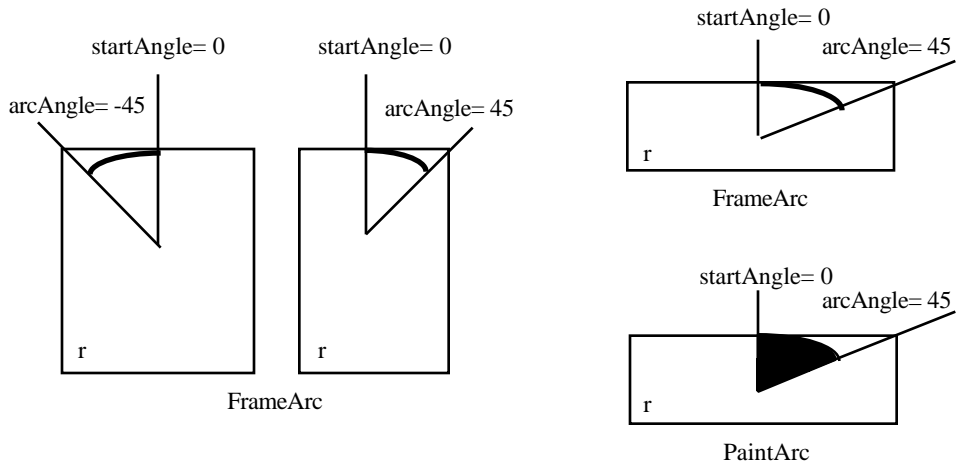


Figure 22—Operations on Arcs and Wedges

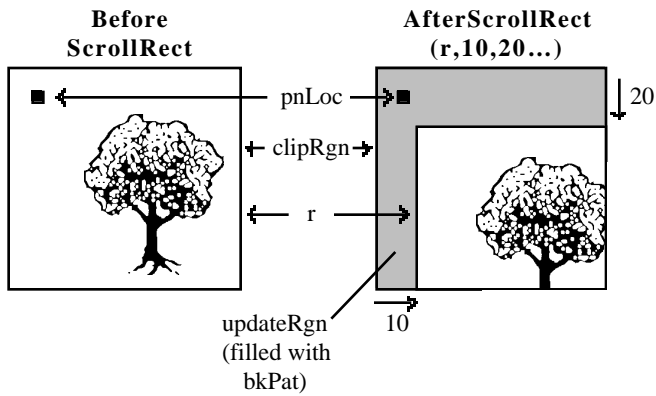


Figure 23-Scrolling

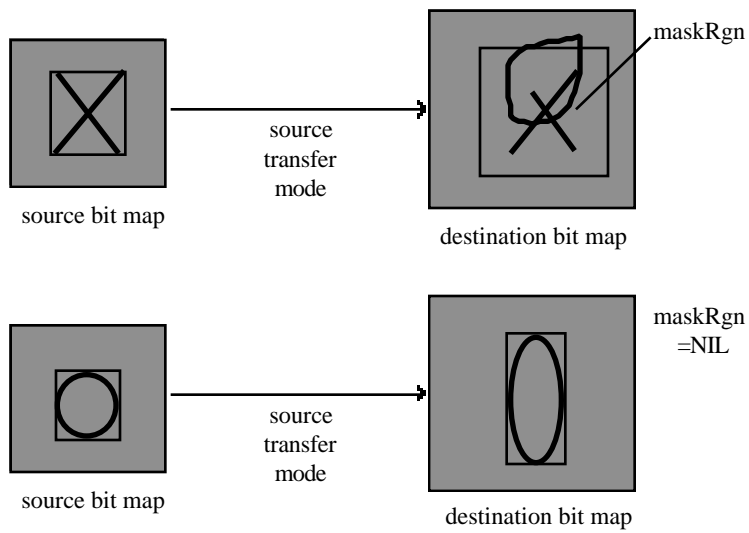
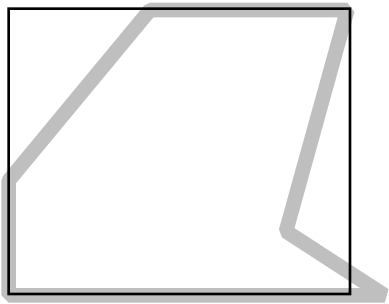
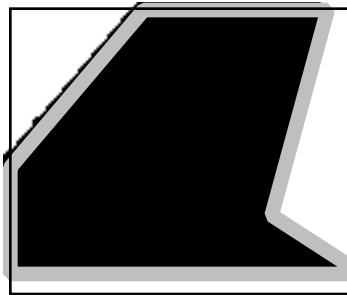


Figure 24—Operation of CopyBits



FramePoly



PaintPoly

Figure 25—Drawing Polygons

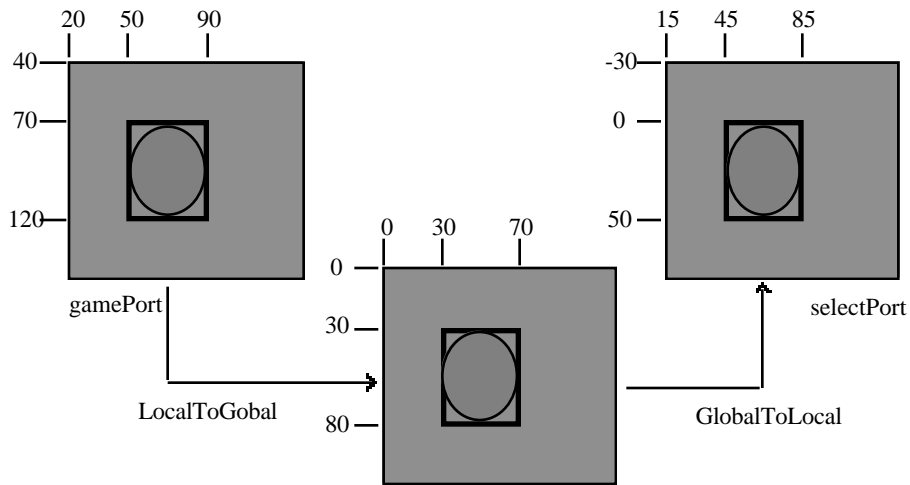
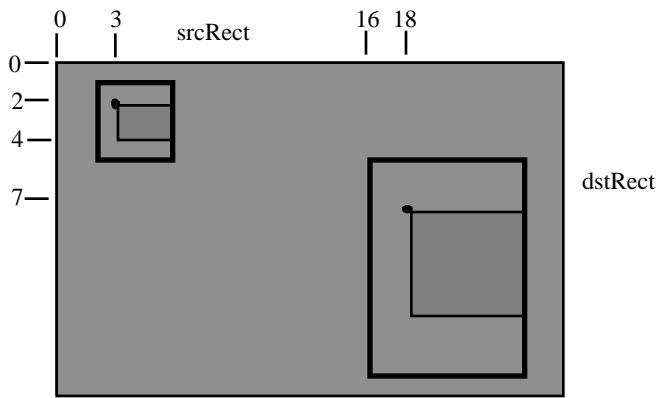


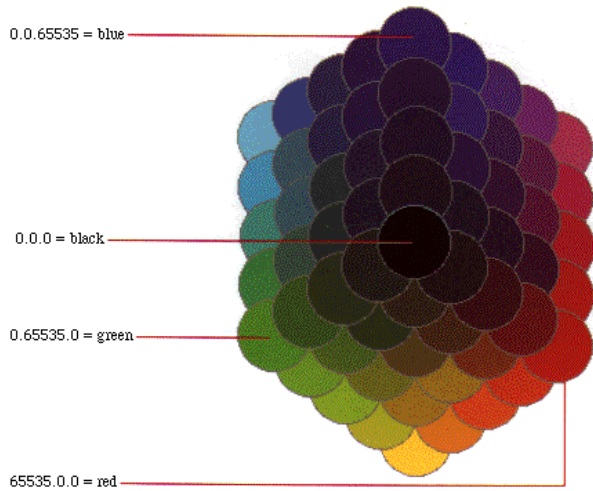
Figure 26—Converting between Coordinate Systems



ScalePt scales pen size (3,2) to (6,6)

MapPt maps size (3,2) to (18,7)

Figure 27—ScalePt and MapPt



65535.65535.65535 = white

Figure 1-RGB Color Cube (Color Version)

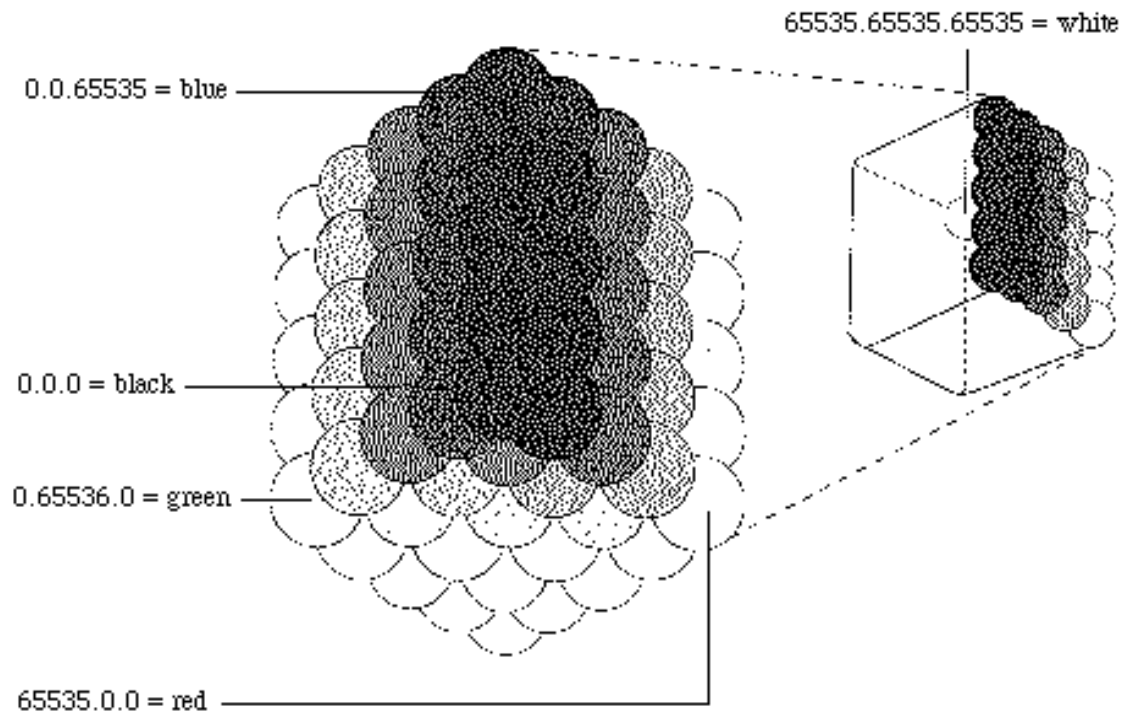


Figure 2—RGB Color Cube (B/W Version)

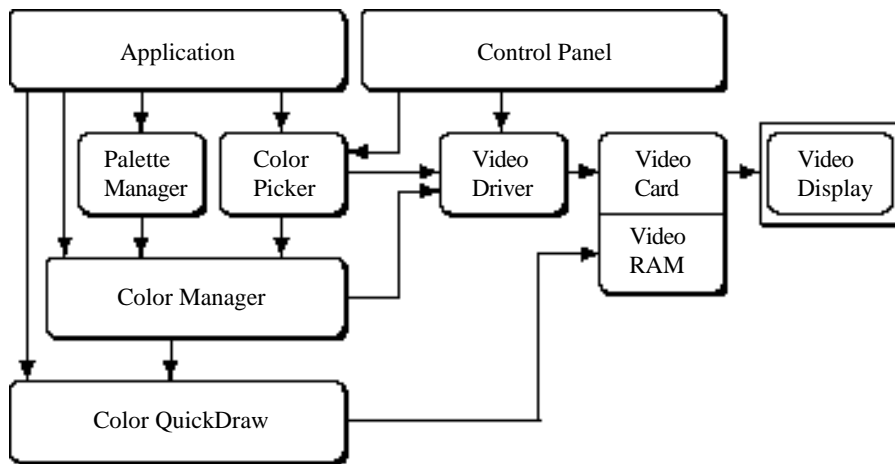


Figure 3—The Macintosh II Color System

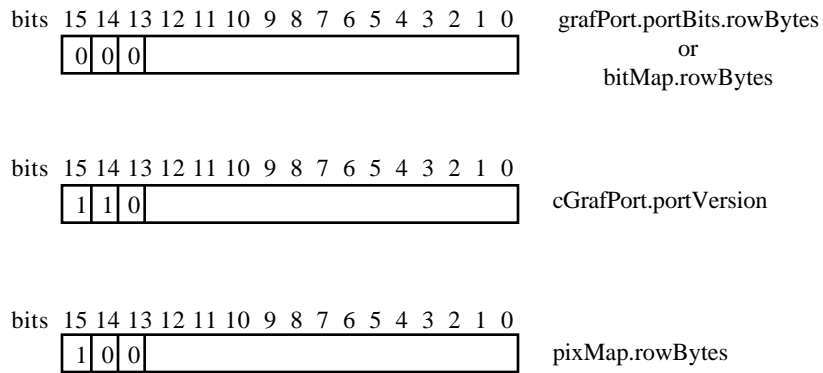


Figure 4—Color QuickDraw Fields

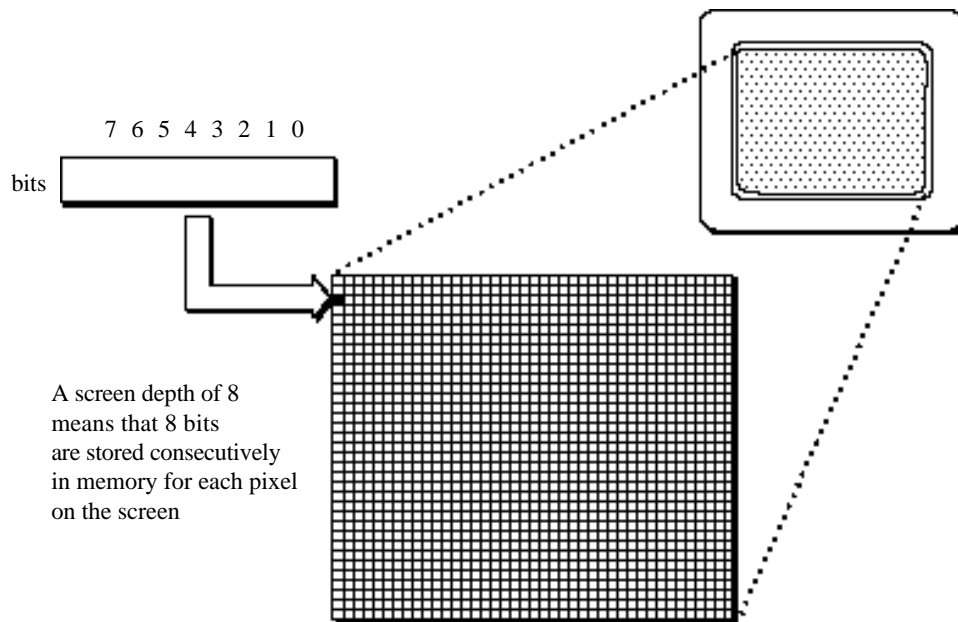
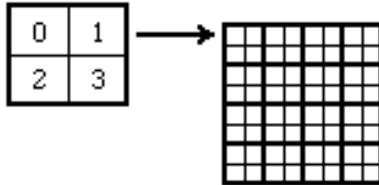


Figure 5-A Pixel Image

Value	RGB
0	computed RGB color
1	computed RGB color
2	computed RGB color
3	computed RGB color
4	RGBColor passed to MakeRGBPat routine



Each component of the 8 x 8 pattern is made up of the computed colors

Figure 6-RGB Pattern

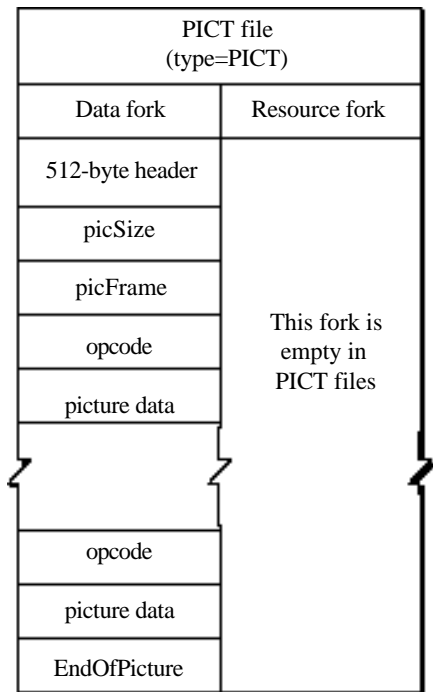


Figure 7-PICT file format

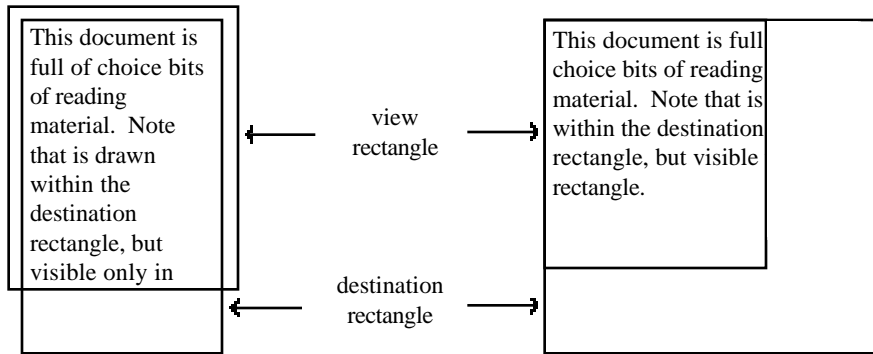
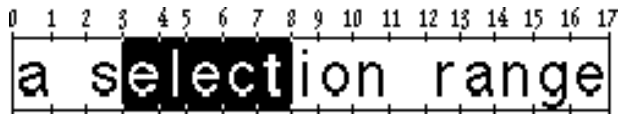
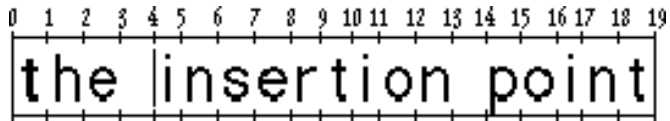


Figure 1—Destination and View Rectangles



selection range
beginning at position 3
and ending at position 8



insertion point
at position 4

Figure 2—Selection Range and Insertion Point

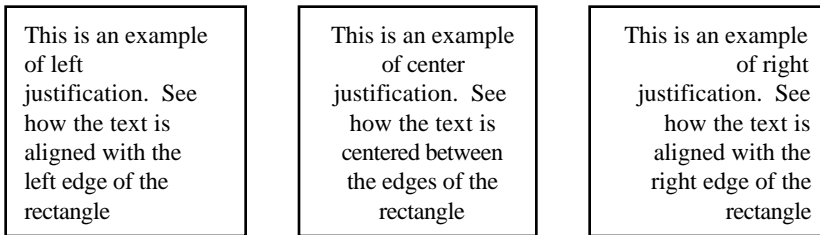


Figure 3–Justification

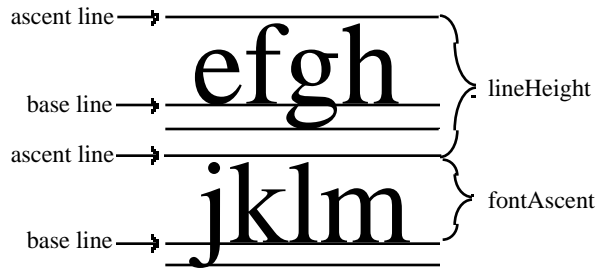


Figure 4—LineHeight and Font Ascent

There's a Return character at the end of this line.
But not at the end of this line. Or this line.

new line at Return characters and edge of destination rectangle

There's a Return character
But not at the end of the

new line at Return characters only

Figure 5--New Lines

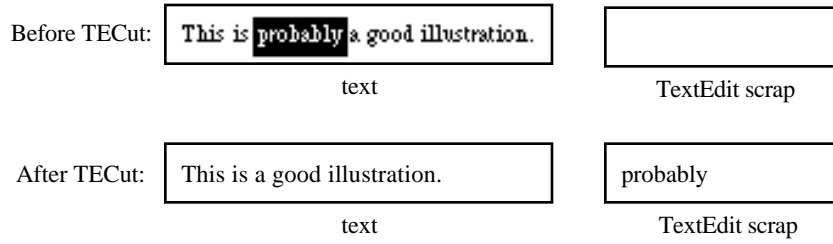


Figure 6–Cutting

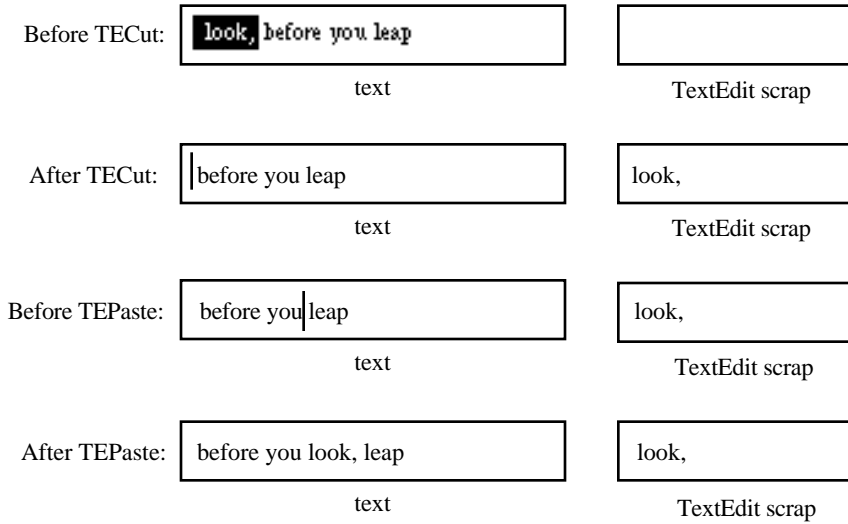


Figure 7–Cutting and Pasting

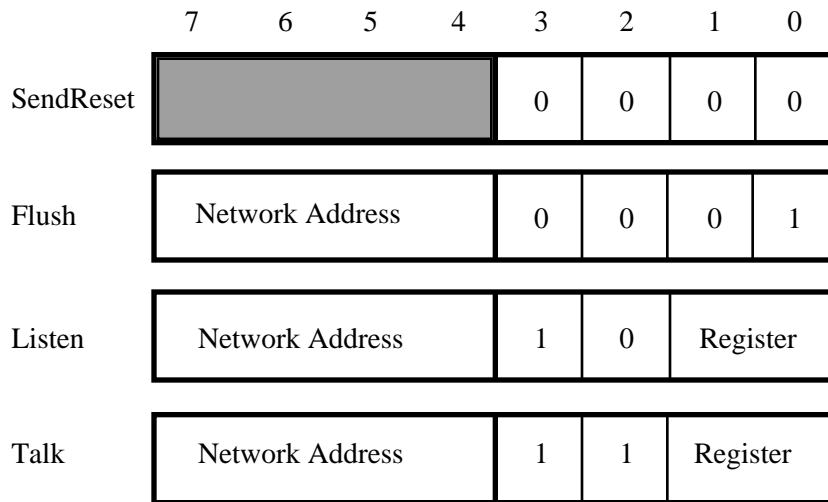


Figure 1-ADB Command Formats

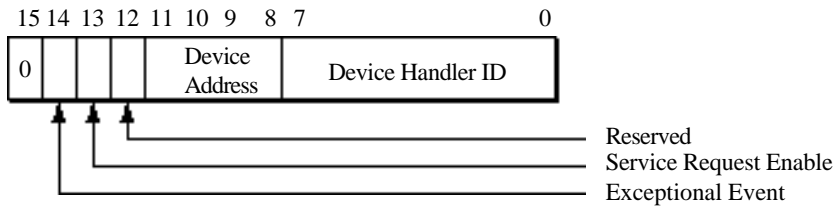


Figure 2--Format of Device Register 3

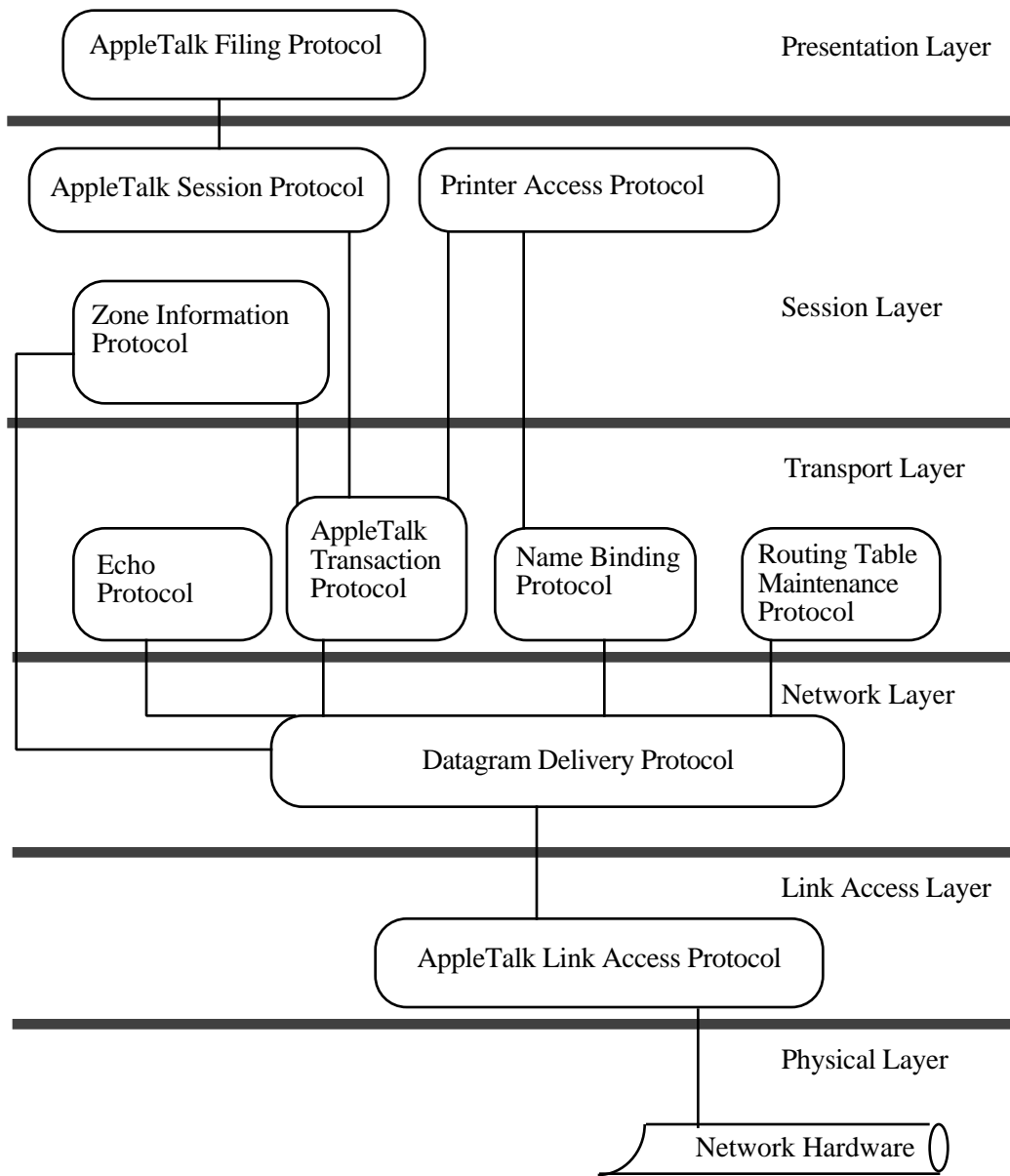


Figure 1—AppleTalk Protocols and OSI Network Layers

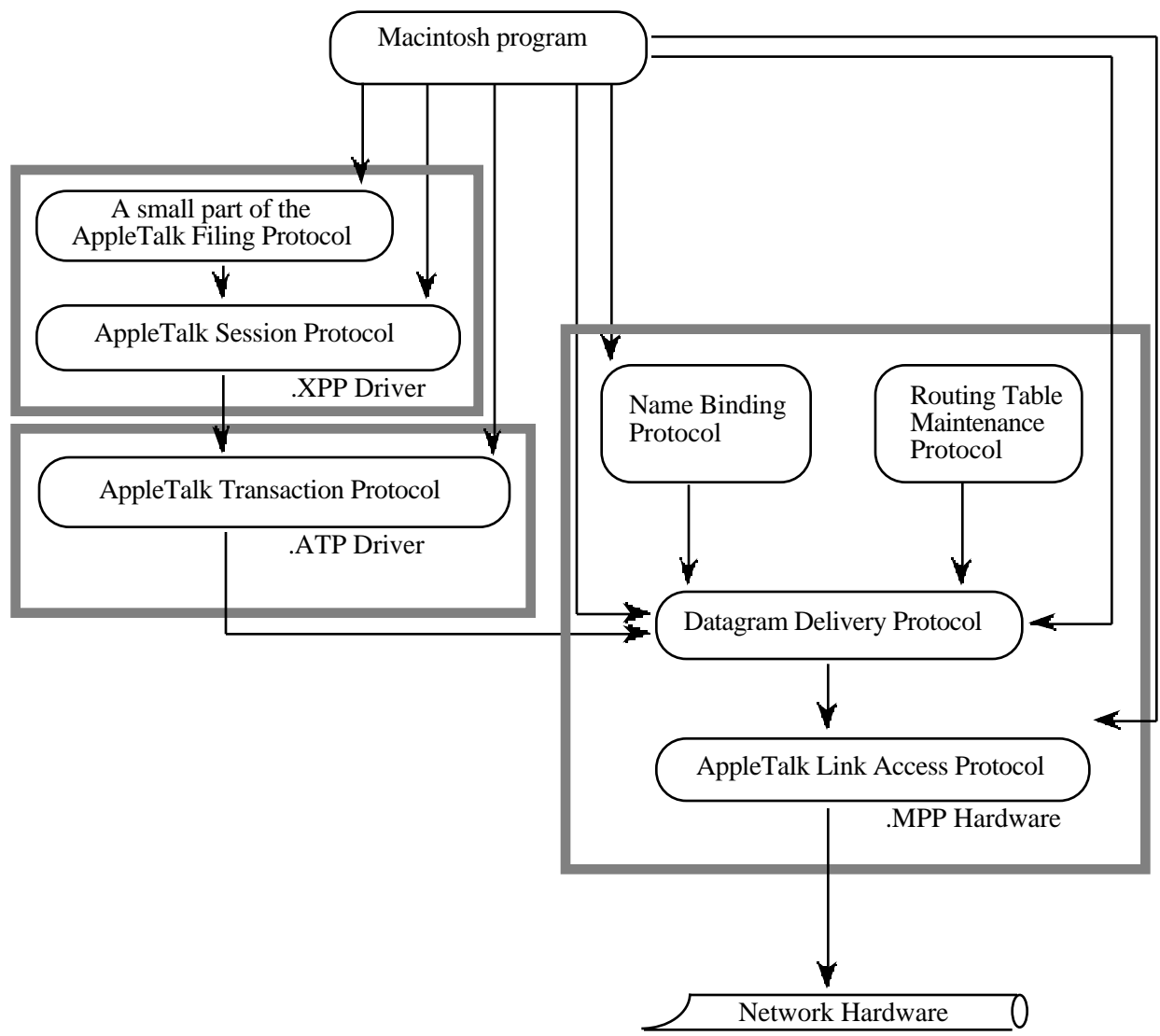


Figure 2—Macintosh AppleTalk Drivers

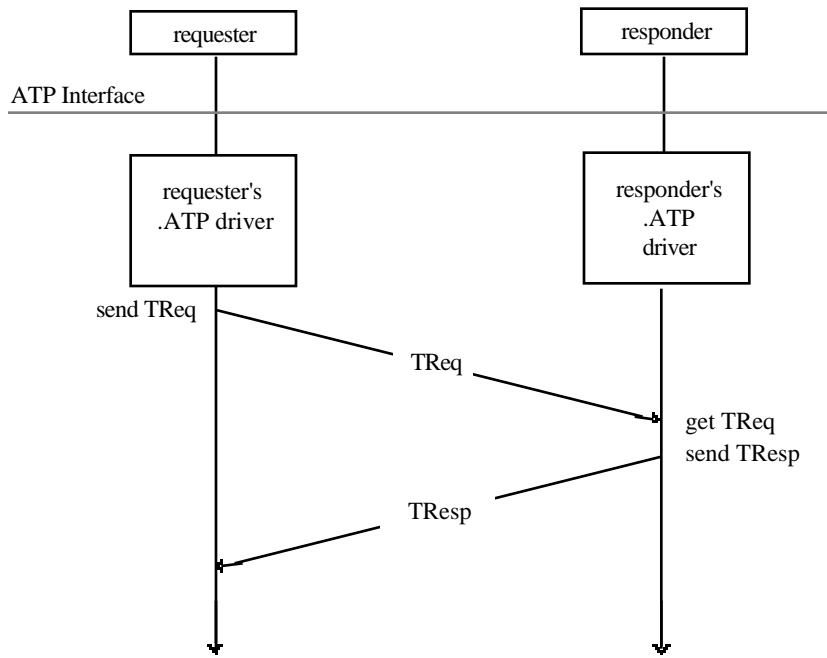


Figure 3-Transaction Process

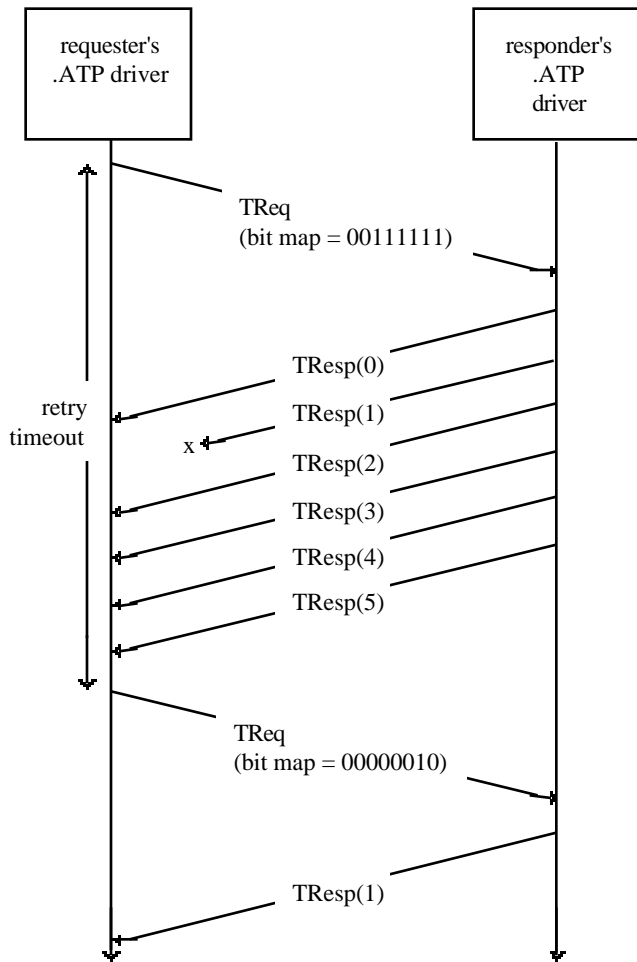


Figure 4-Datagram Loss Recovery

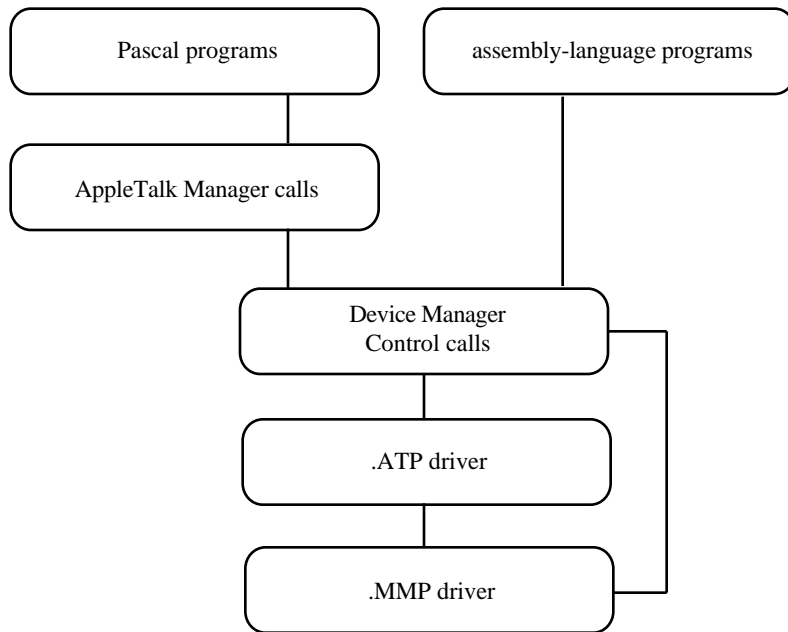


Figure 5—Calling the AppleTalk Manager

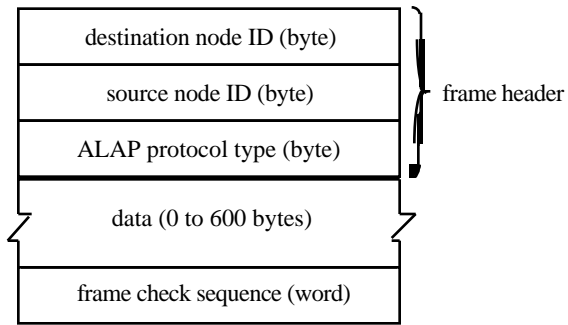


Figure 6-ALAP Frame

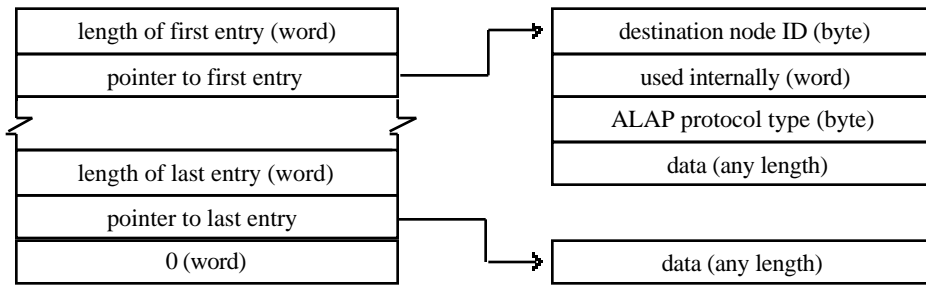


Figure 7—Write Data Structure for ALAP

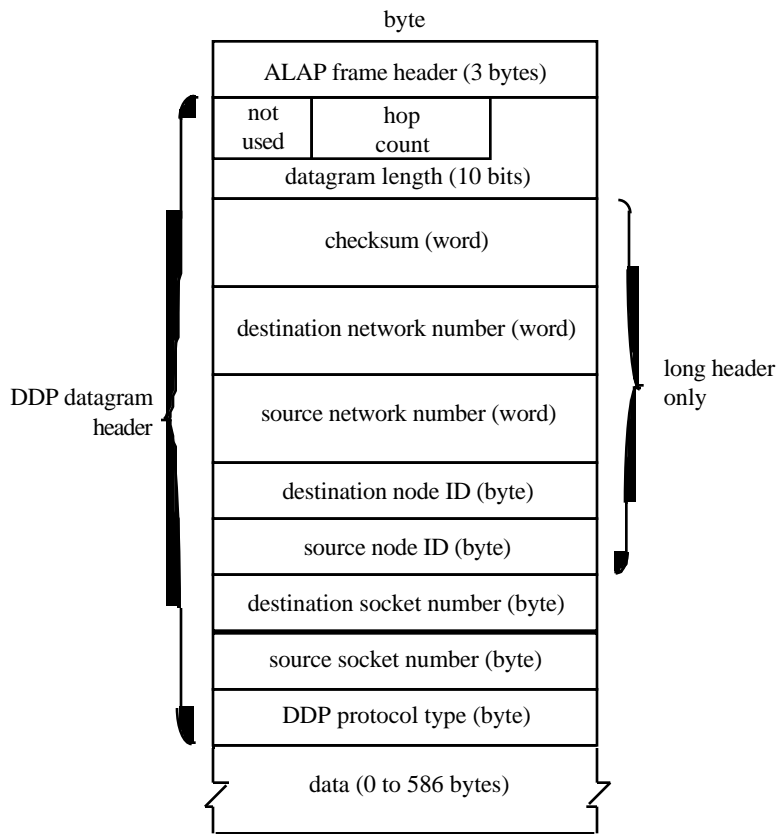


Figure 8-DDP Datagram

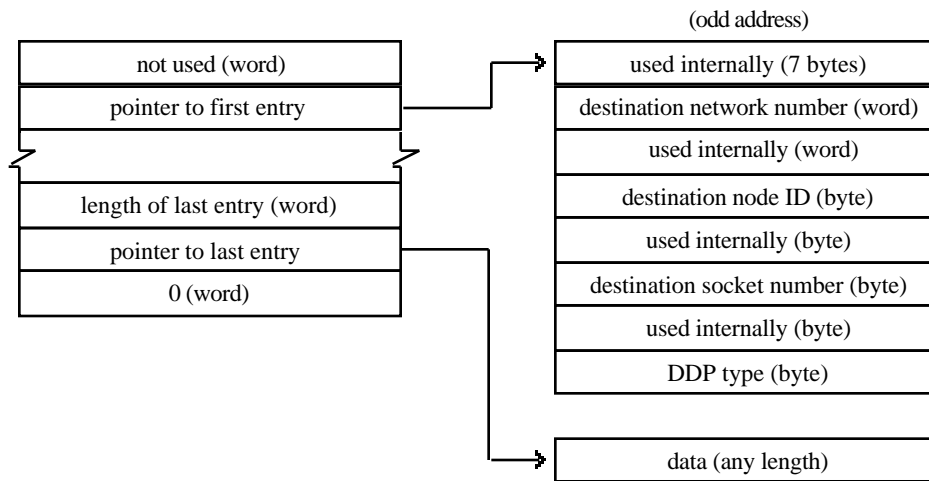


Figure 9—Write Data Structure for DDP

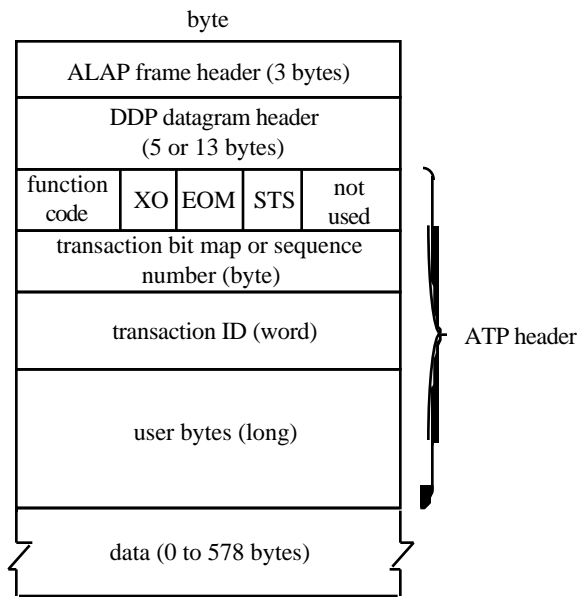


Figure 10-ATP Packet

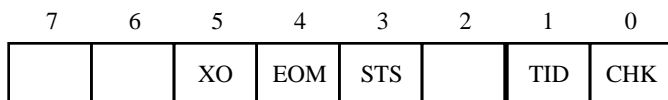


Figure 11-ATPFlags Field

network number (word)
node ID (byte)
socket number (byte)

Figure 12–Internet Address

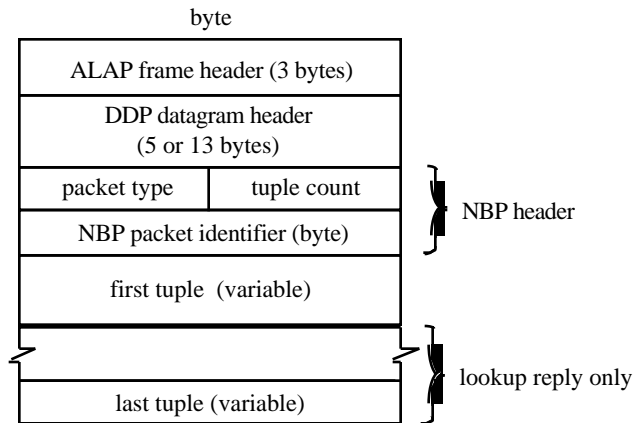


Figure 13–NBP Packet

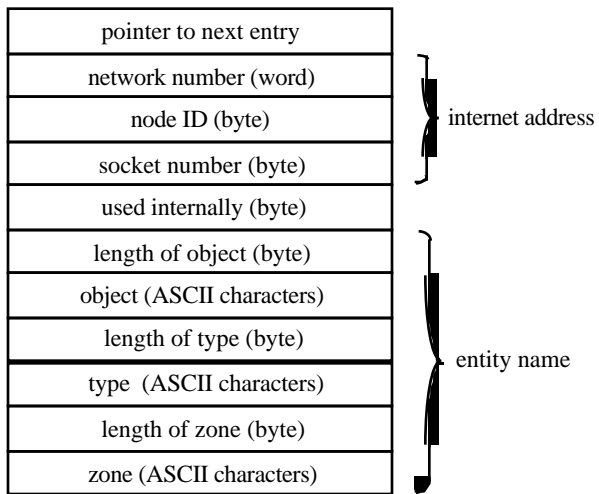


Figure 14—Names Table Entry

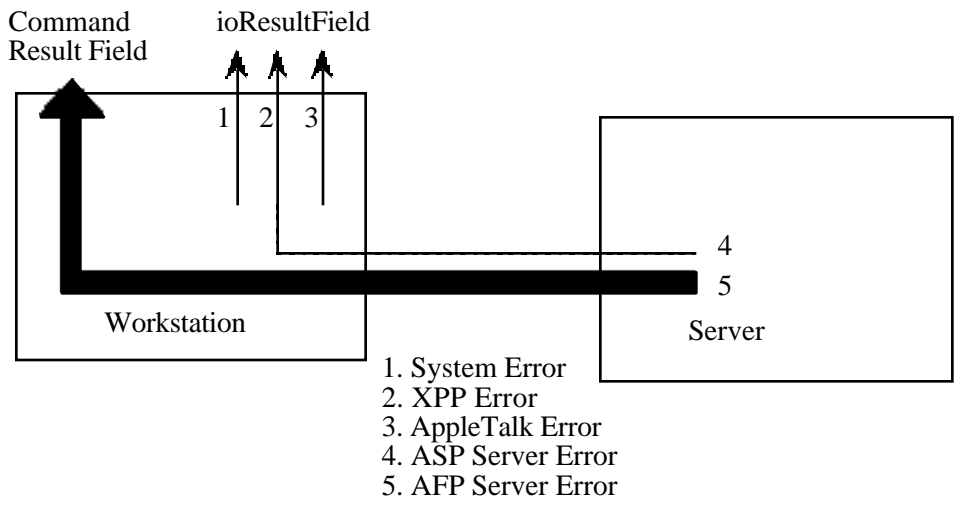


Figure 15–Error Reporting

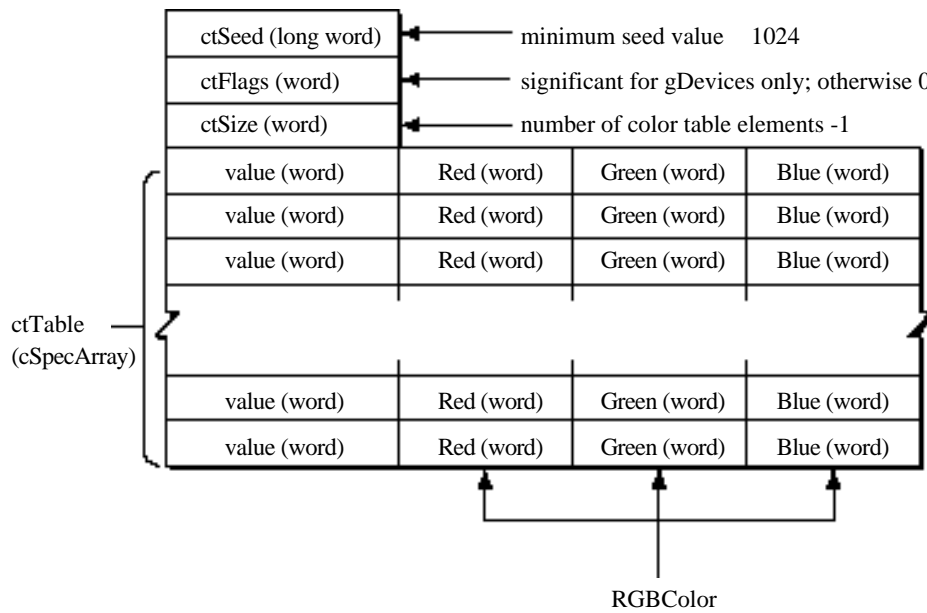


Figure 1-Color Table Format

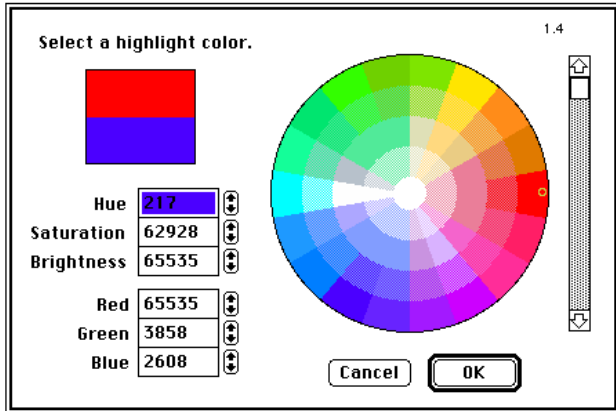


Figure 1-Color Picker Dialog Box (Color Version)

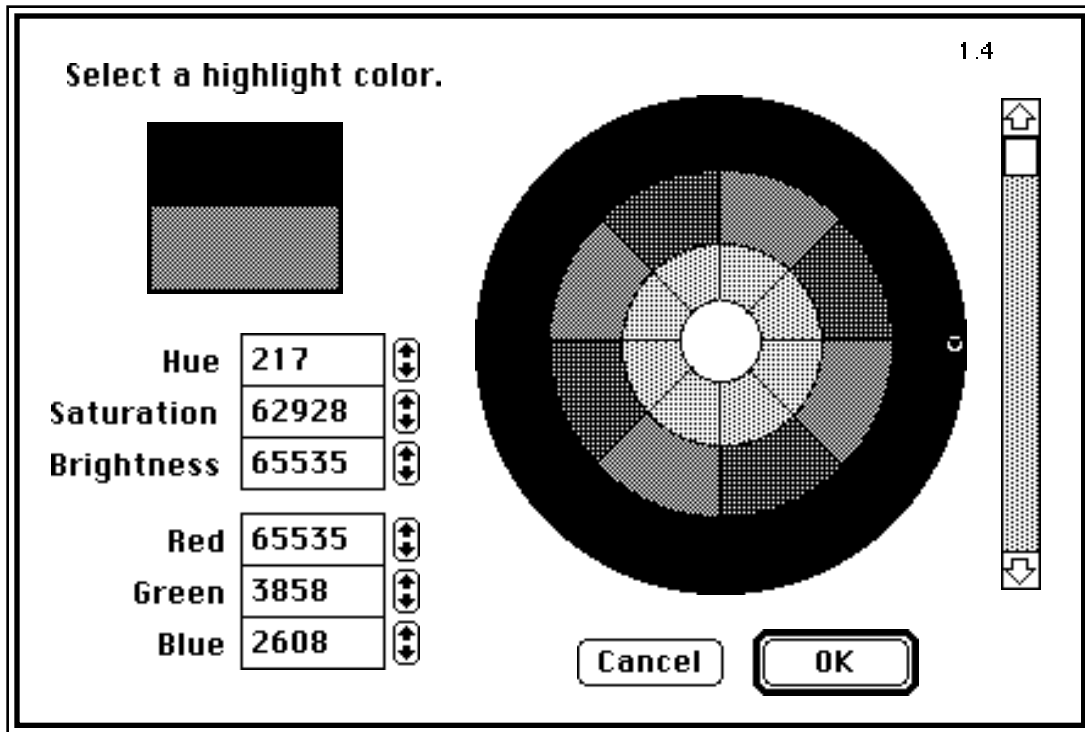


Figure 2–Color Picker Dialog Box (B/W Version)

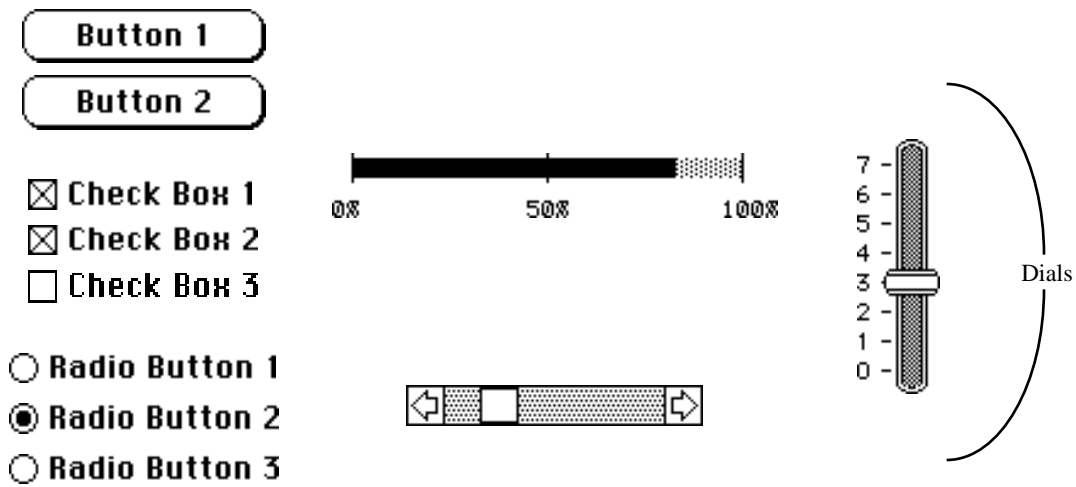


Figure 1-Controls

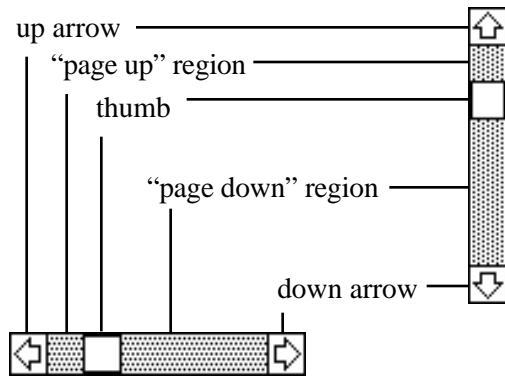


Figure 2—Parts of a Scroll Bar

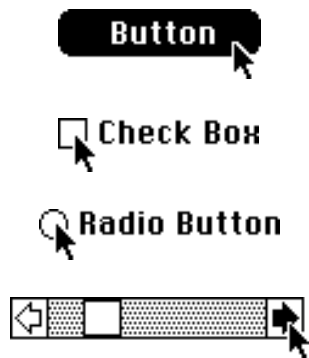


Figure 3—Highlighted Active Controls

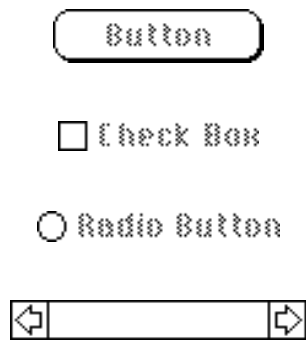


Figure 4—Inactive Controls

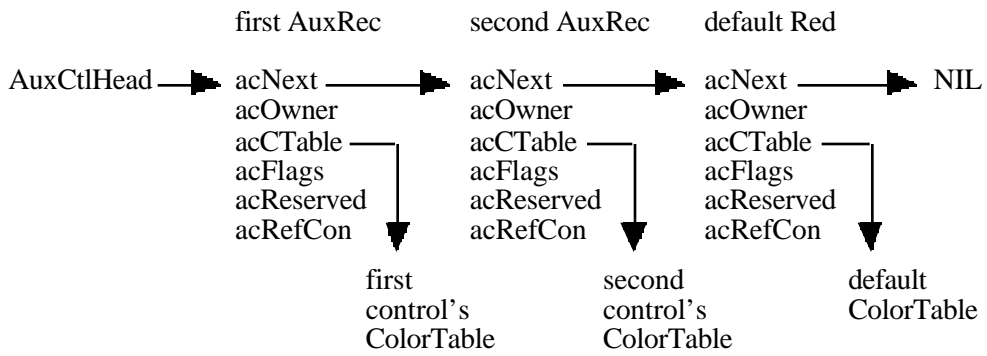


Figure 5-Auxiliary Control List

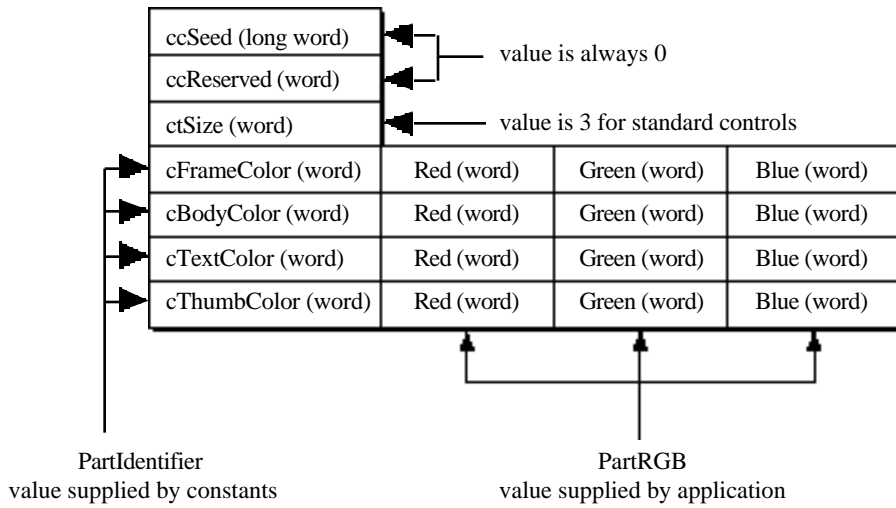
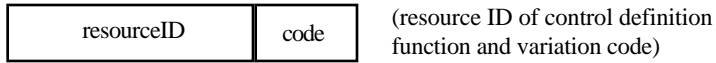


Figure 6–Control Color Table

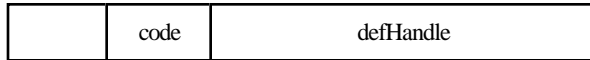
You supply the control definition ID:

15 4 3 0



The Control Manager calls the Resource Manager with
defHandle := GetResource ('CDEF', resourceID)

and stores into the contrlDefProc field of the control record:



The variation code is passed to the control definition function.

Figure 7–Control Definition Passing

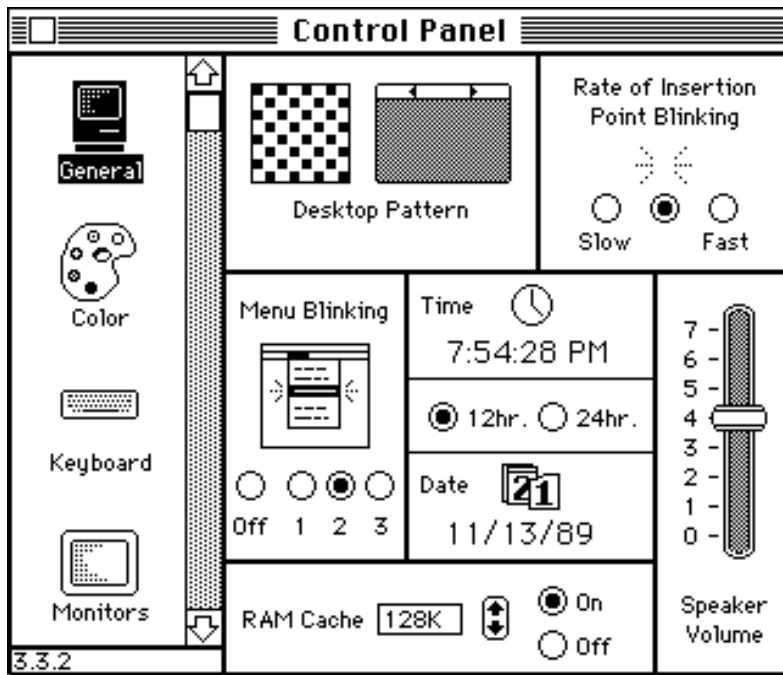


Figure 1—Extendible Control Panel

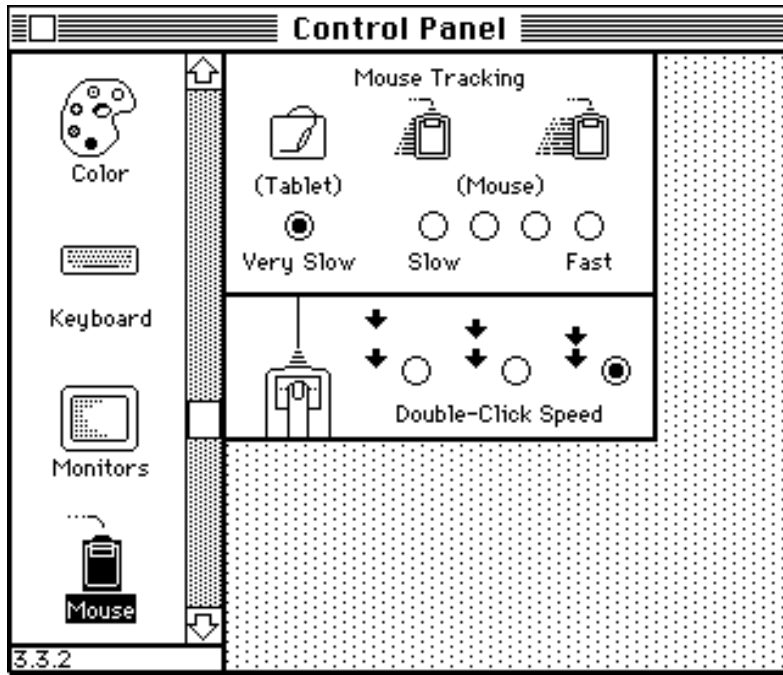


Figure 2-Dialog Items

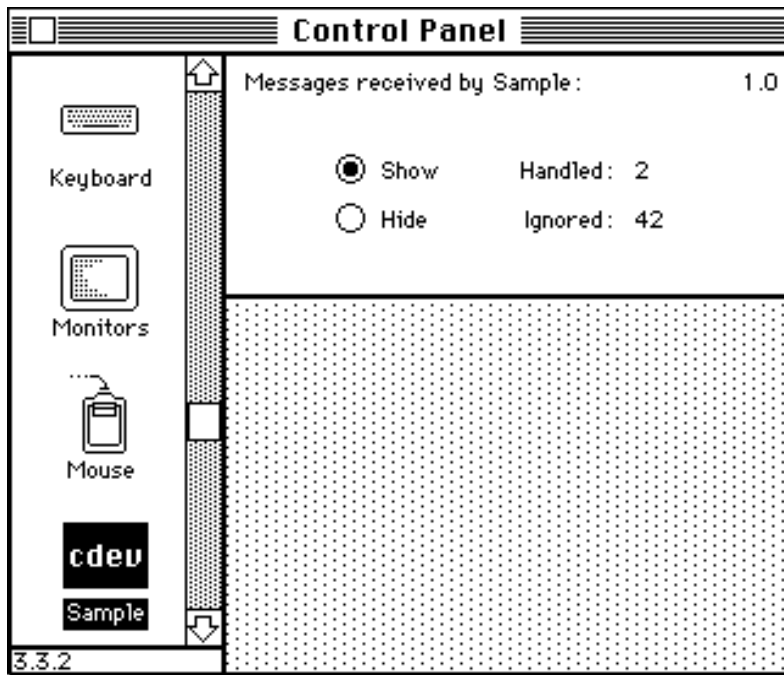


Figure 3-Sample cdev

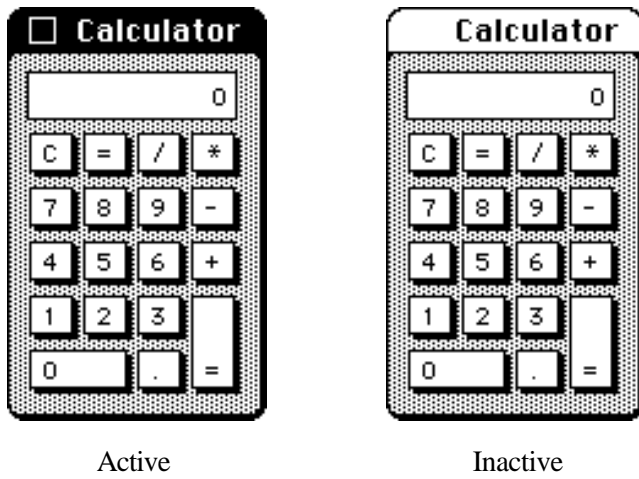
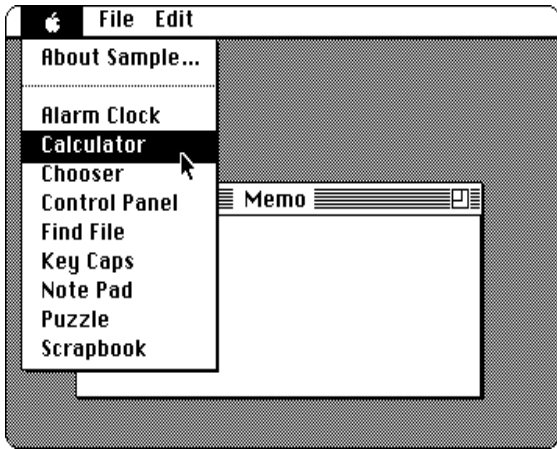
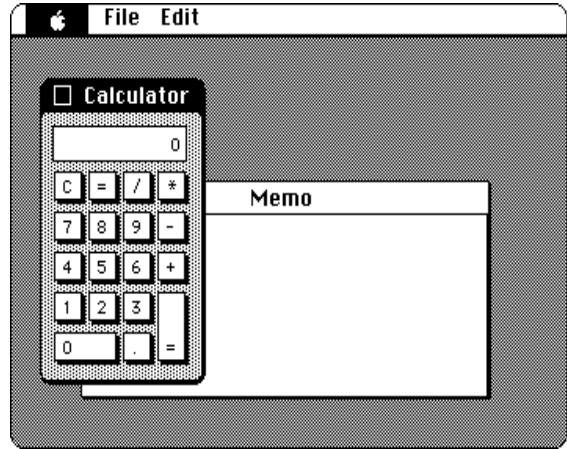


Figure 1—The Calculator Desk Accessory



An accessory is chosen from the Apple menu.



The accessory's window appears as the active window.

Figure 2—Opening a Desk Accessory

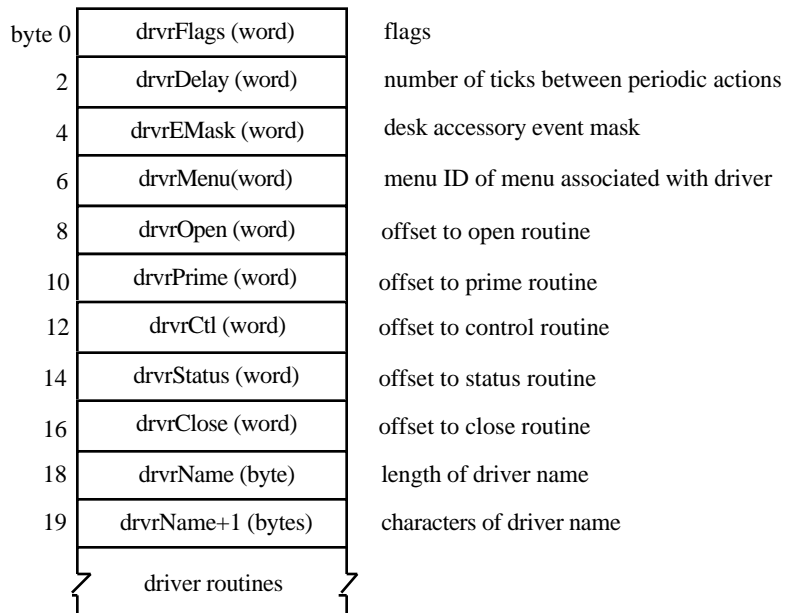


Figure 3–Desk Accessory Device Driver

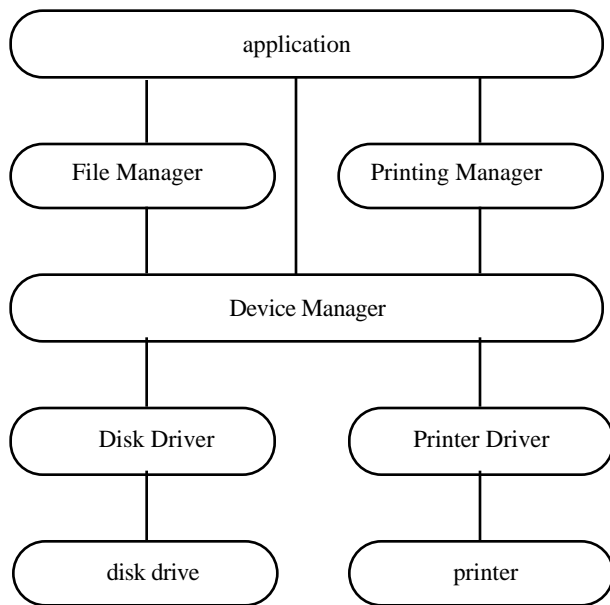


Figure 1—Communication with Devices

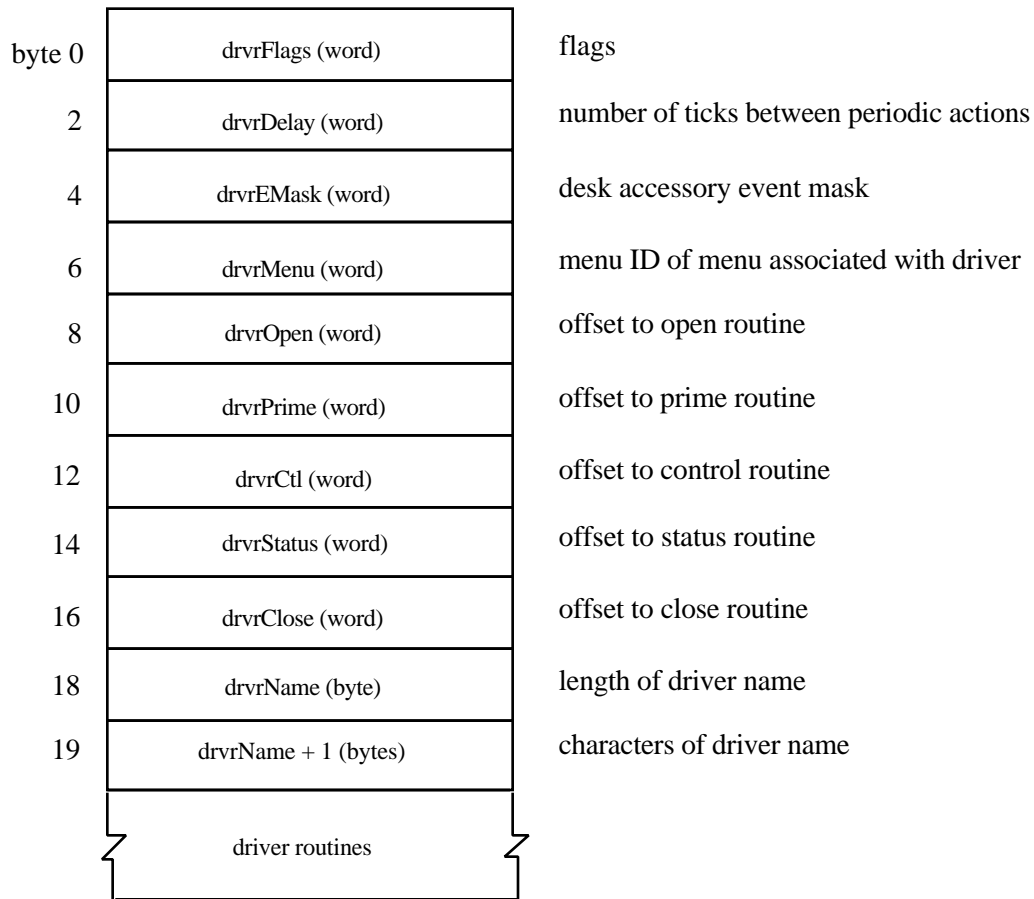


Figure 2–Driver Structure

byte 0	reserved	0 unit number
4	hard disk driver (XL only)	1
8	Printer Driver	2
12	Sound Driver	3
16	Disk Driver	4
20	Serial Driver port A input	5
24	Serial Driver port A output	6
28	Serial Driver port B input	7
32	Serial Driver port B output	8
36	AppleTalk .MPP Driver	9
40	AppleTalk .ATP Driver	10
44	reserved	11
48	Calculator	12
52	Alarm Clock	13
56	Key Caps	14
60	Puzzle	15
64	Note Pad	16
68	Scrapbook	17
72	Control Panel	18
	not used	
124	not used	31

Figure 3—The Unit Table

\$64	AutoInt1	vector to level-1 interrupt handler
\$68	AutoInt2	vector to level-2 interrupt handler
\$6C	AutoInt3	vector to level-3 interrupt handler
\$70	AutoInt4	vector to level-4 interrupt handler
\$74	AutoInt5	vector to level-5 interrupt handler
\$78	AutoInt6	vector to level-6 interrupt handler
\$7C	AutoInt7	vector to level-7 interrupt handler

Figure 4—Primary Interrupt Vector Table

byte 0	one-second interrupt	VIA's CA2 control line
4	vertical retrace interrupt	VIA's CA1 control line
8	shift-register interrupt	VIA's shift register
12	not used	
16	not used	
20	T2 timer: Disk Driver	VIA's timer 2
24	T1 timer: Sound Driver	VIA's timer 1
28	not used	

Figure 5–Level-1 Secondary Interrupt Vector Table

byte 0	channel B transmit buffer empty	
4	channel B external/status change	mouse vertical
8	channel B receive character available	
12	channel B special receive condition	
16	channel A transmit buffer empty	mouse horizontal
20	channel A external/status change	
24	channel A receive character available	
28	channel A special receive condition	

Figure 6–Level-2 Secondary Interrupt Vector Table

byte 0	channel B communications interrupt
4	mouse vertical interrupt
8	channel A communications interrupt
12	mouse horizontal interrupt

Figure 7–Level 2-External/Status Vector Table

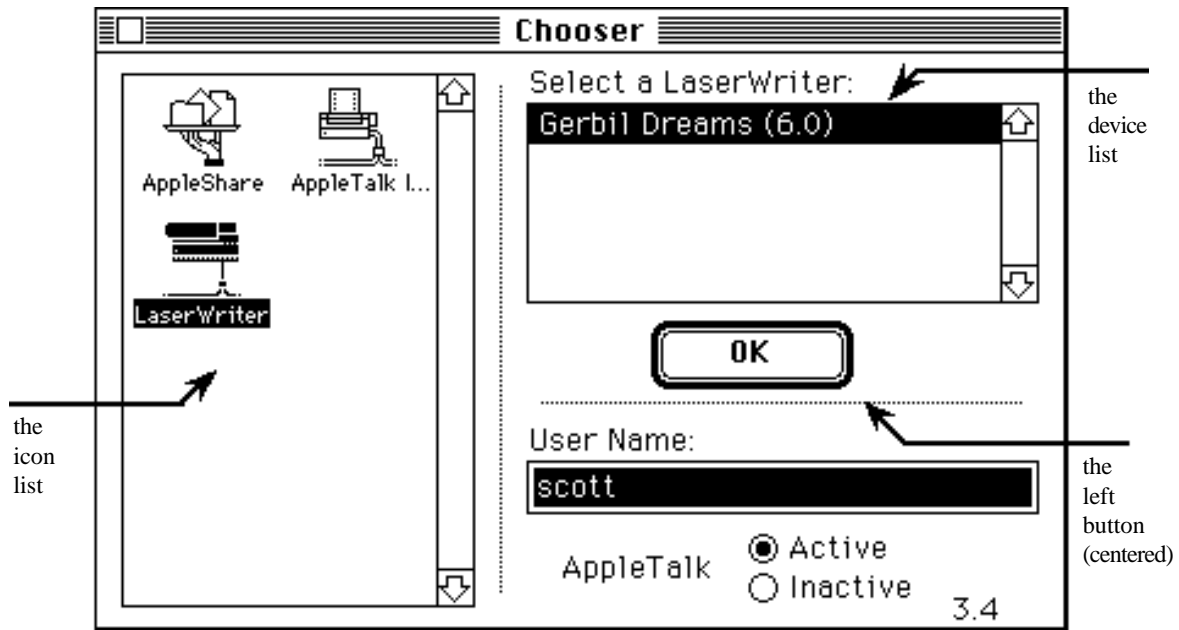


Figure 8—The Chooser Window

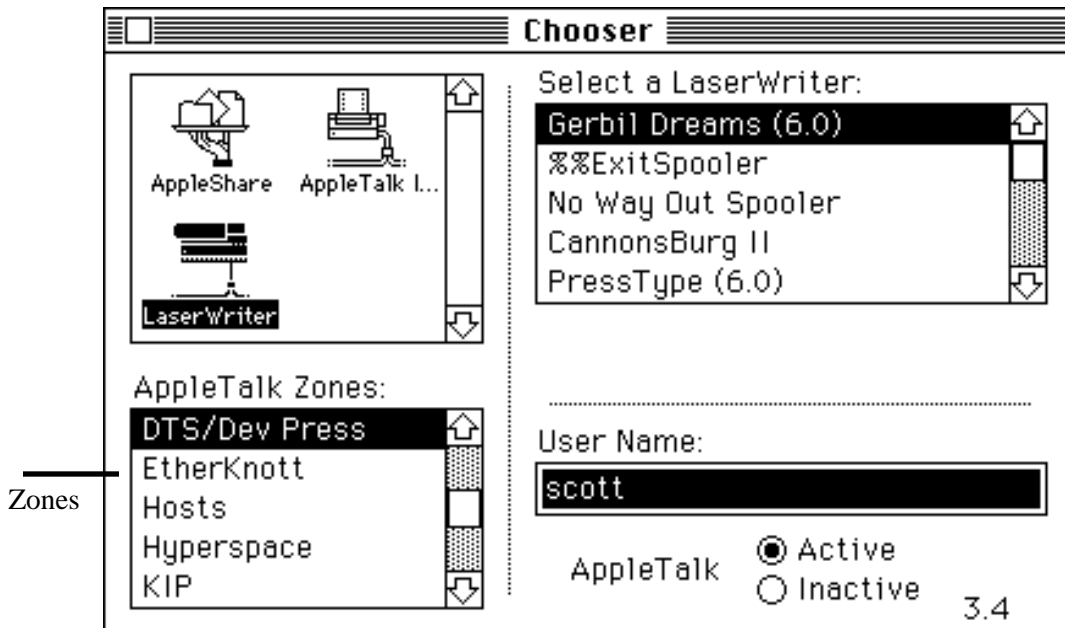


Figure 9—The Chooser Displaying Zones

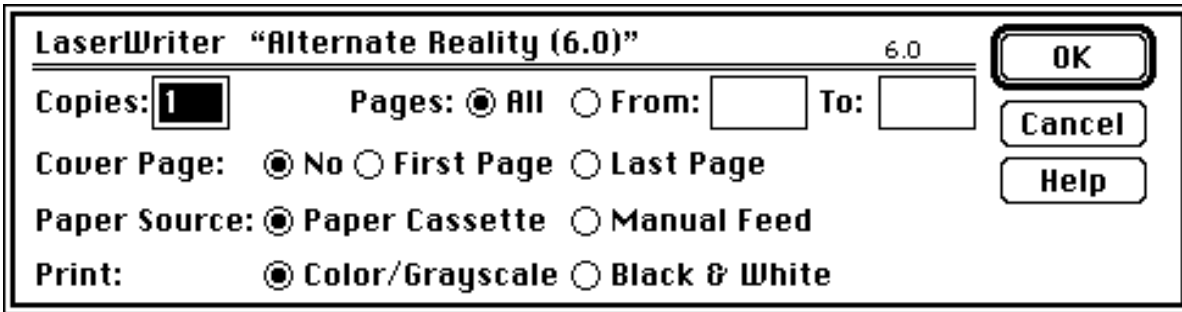


Figure 1-A Typical Dialog Box

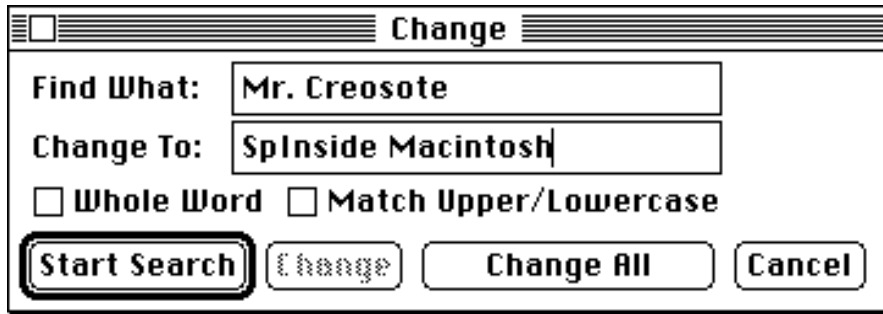
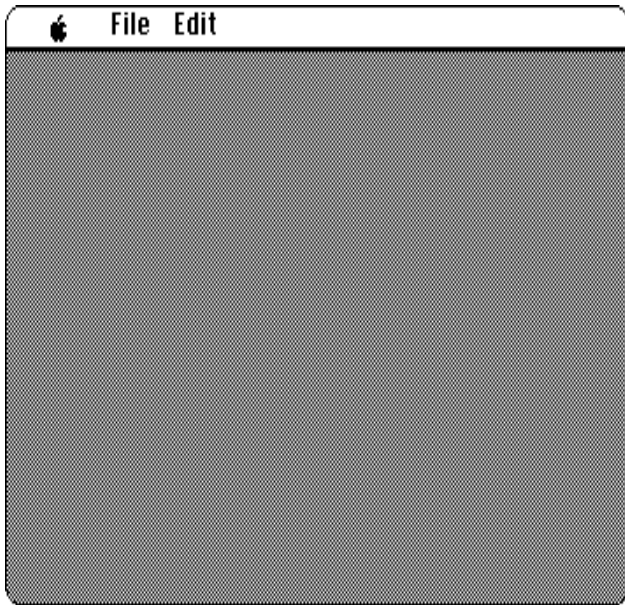


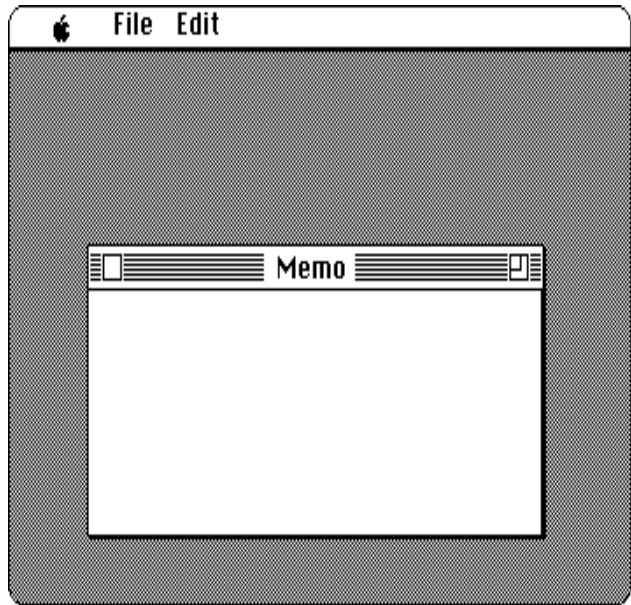
Figure 2-A Modeless Dialog Box



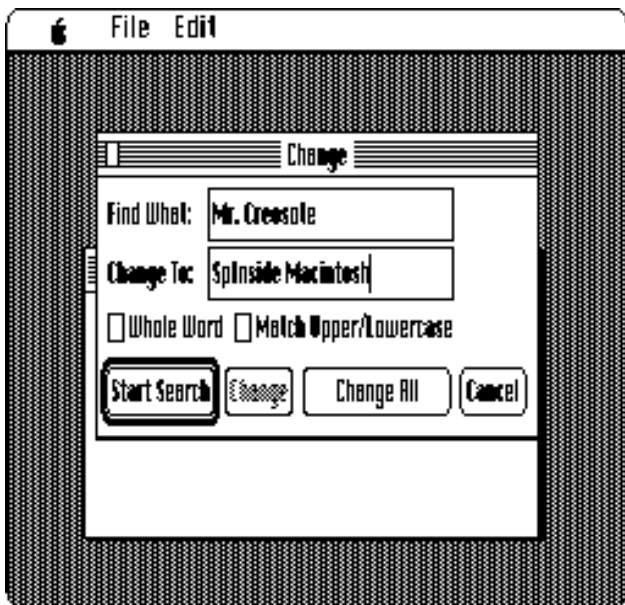
Figure 3-A Typical Alert Box



menu bar and desktop



document window on desktop



dialog window
in front of document window



alert window
in front of dialog window

Figure 4—Dialog and Alert Windows

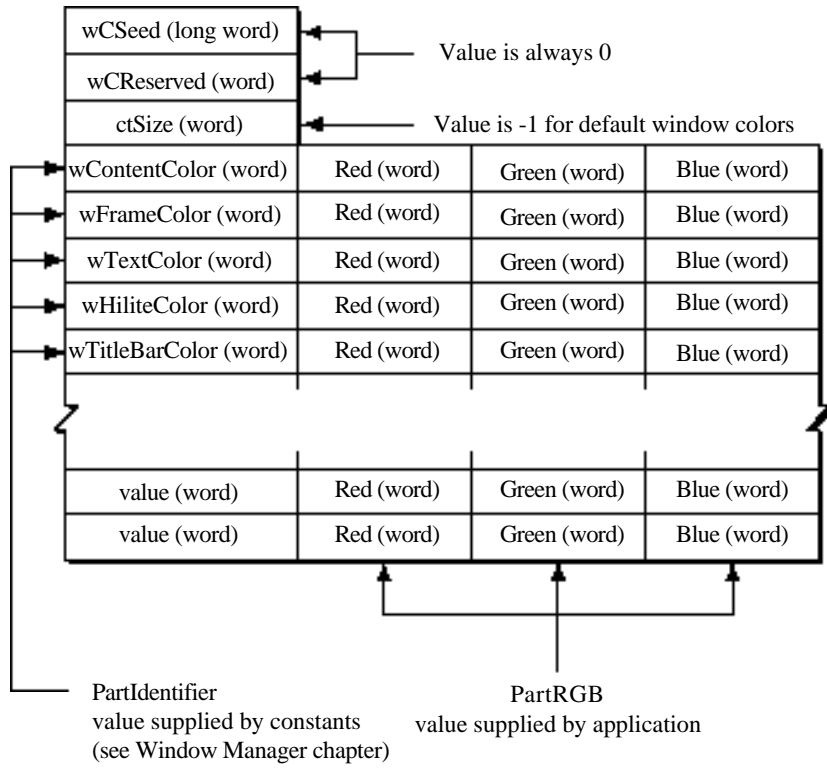


Figure 5—Color Table for Dialogs and Alerts

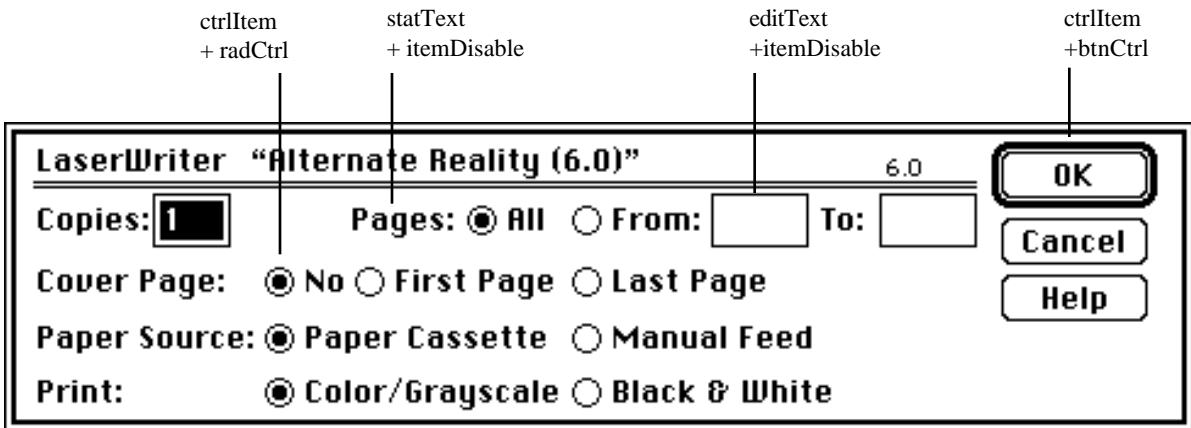


Figure 6-Item Types

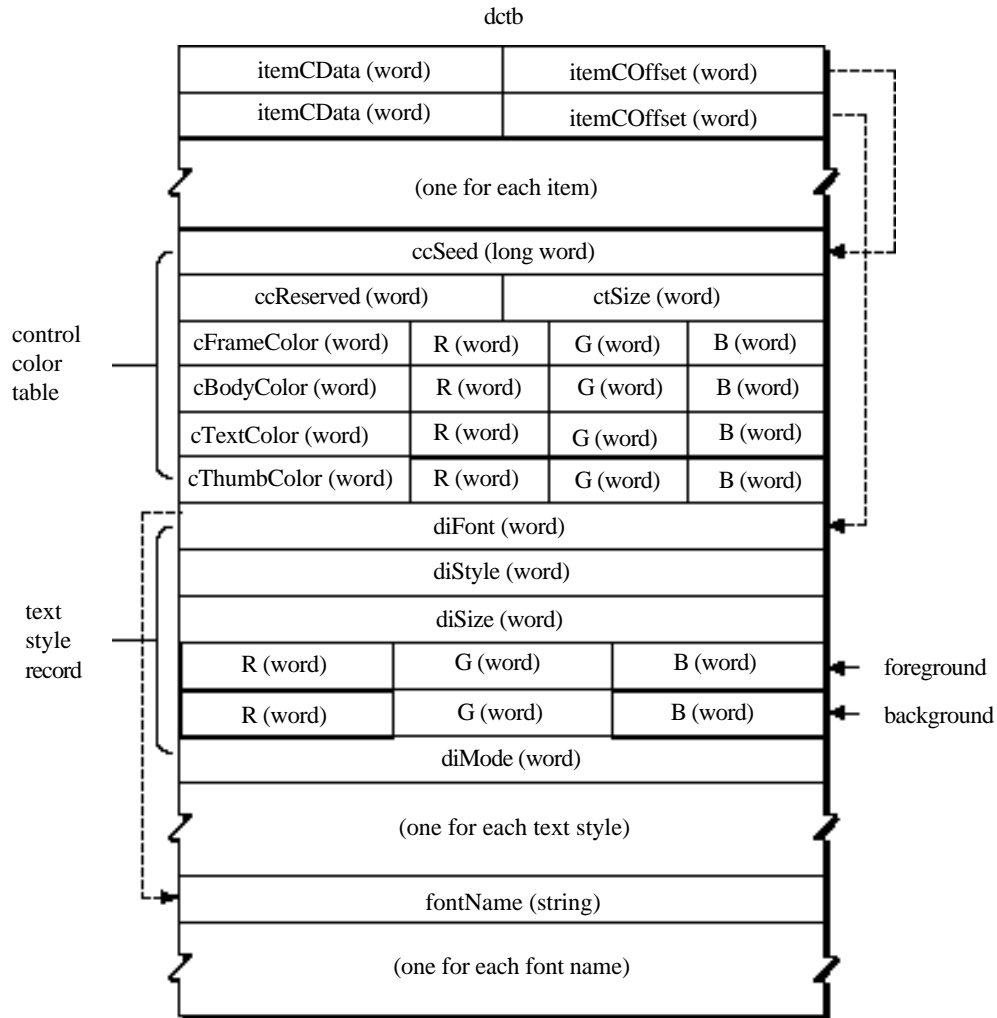


Figure 7—Color Table for Dialogs and Alerts

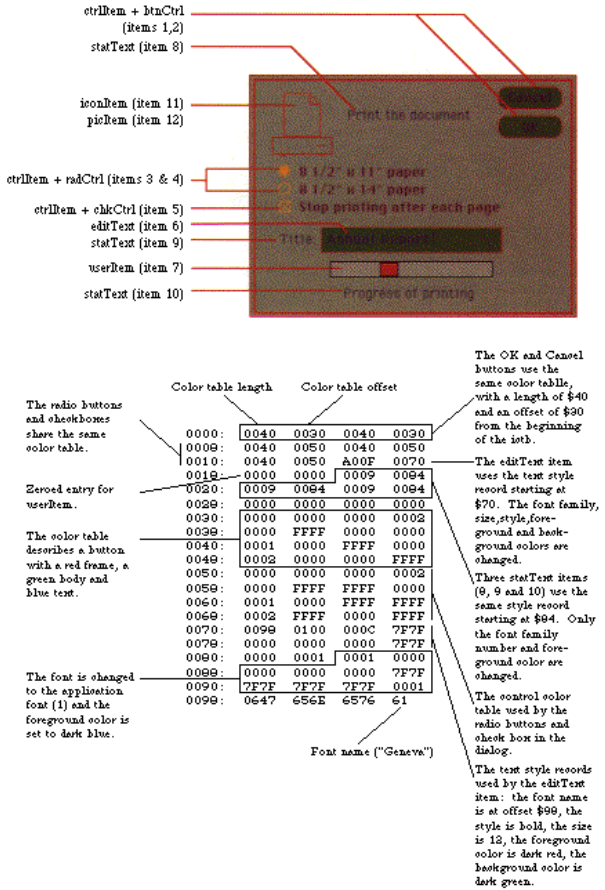


Figure 8--Sample Dialog with Color Dialog Items (Color Version)

SplInside Macintosh -- May 1992 -- Figures

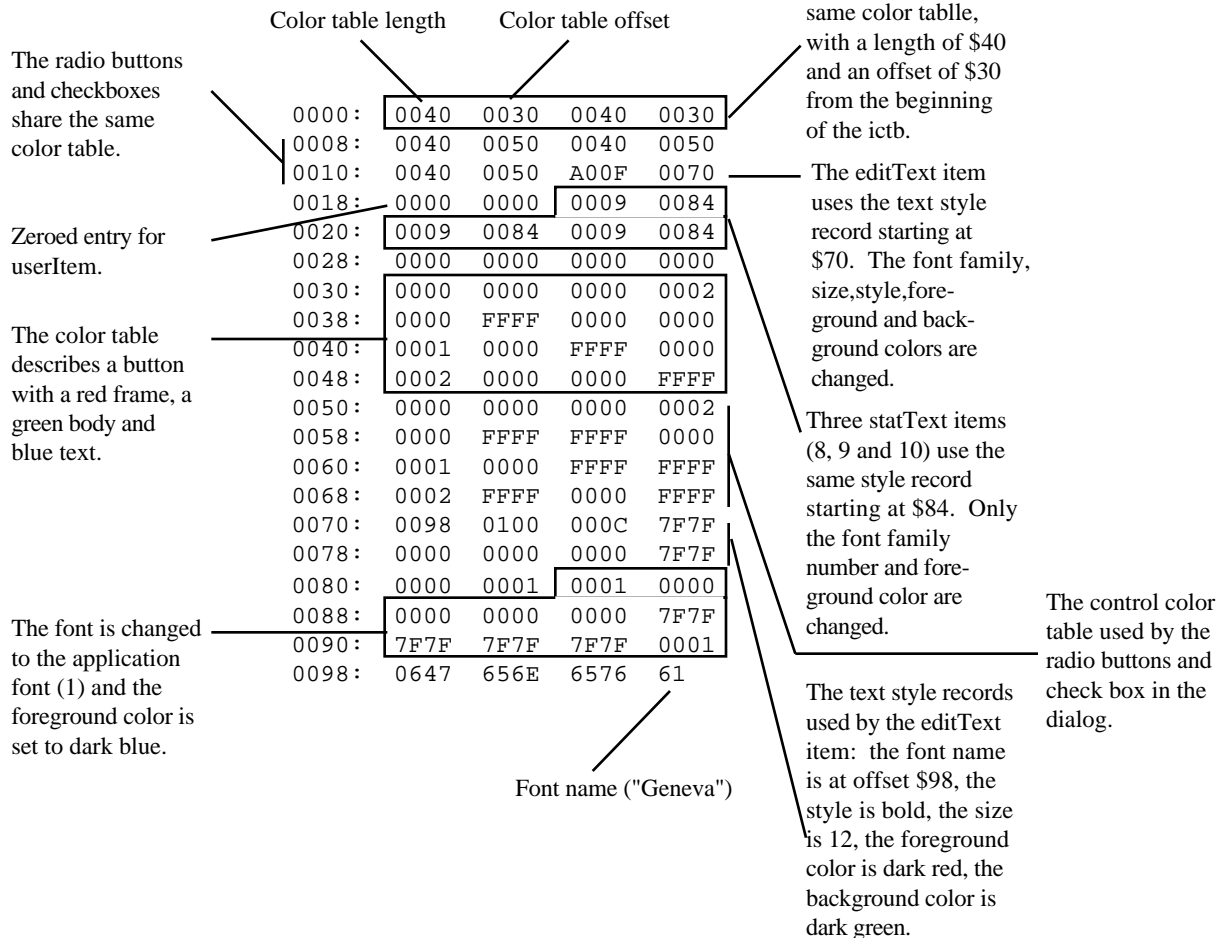
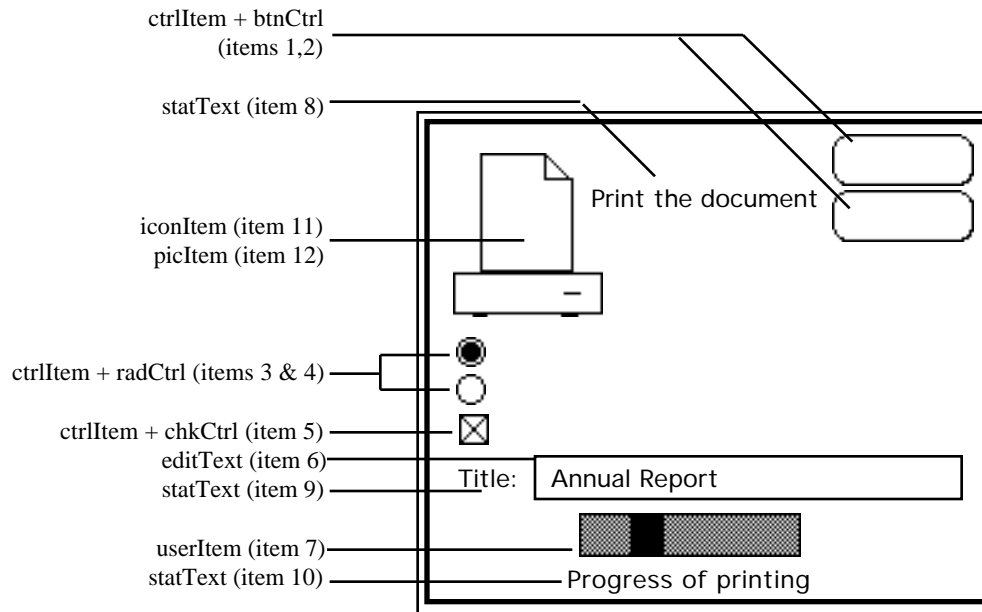



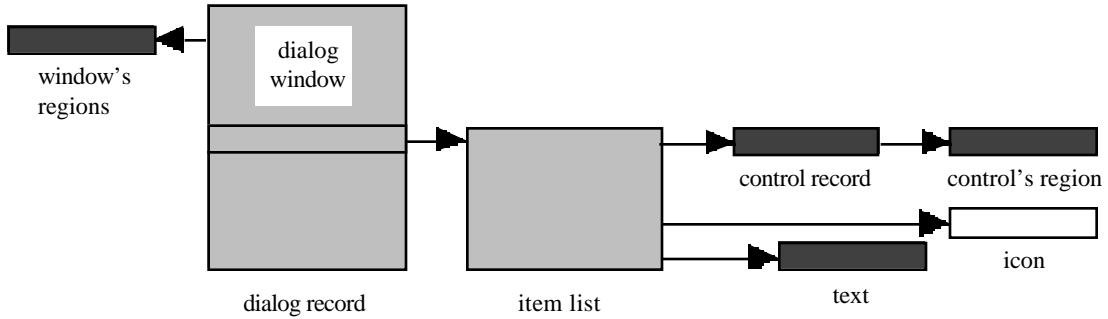


Figure 9—Sample Dialog with Color Dialog Items (B/W Version)

CloseDialog releases only those areas marked 
 DisposeDialog releases the areas marked  and 

If you created the dialog with NewDialog:



If you created the dialog with GetNewDialog:

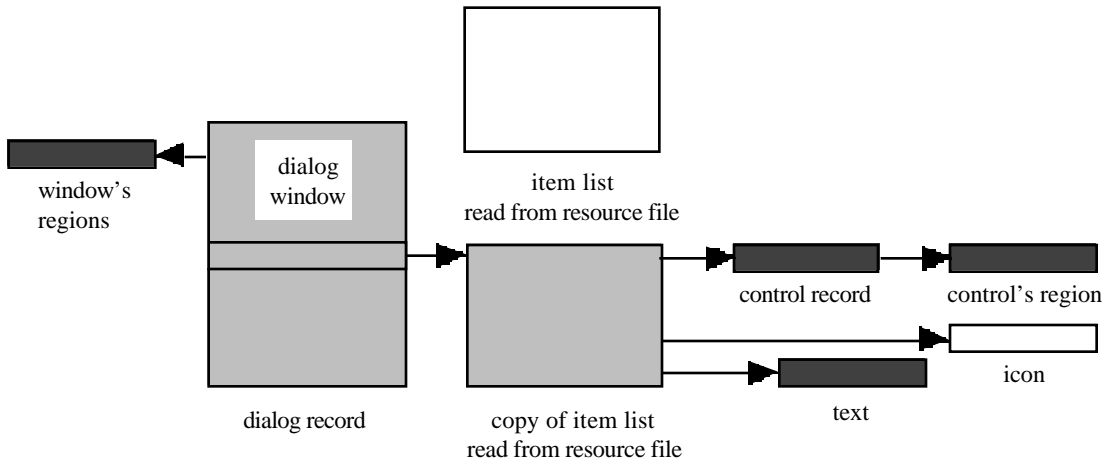


Figure 10—CloseDialog and DisposDialog



Stop

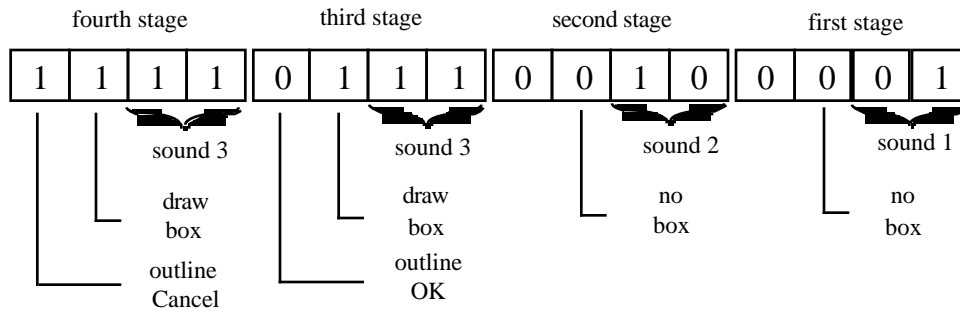


Note



Caution

Figure 11—Standard Alert Icons



(value: hexadecimal F721)

Figure 12—Sample Stages Word



Figure 1–Disk Initialization Dialog for IOErr



Figure 2—Initialization Failure Dialog



Figure 3–Dialog for Naming a Disk

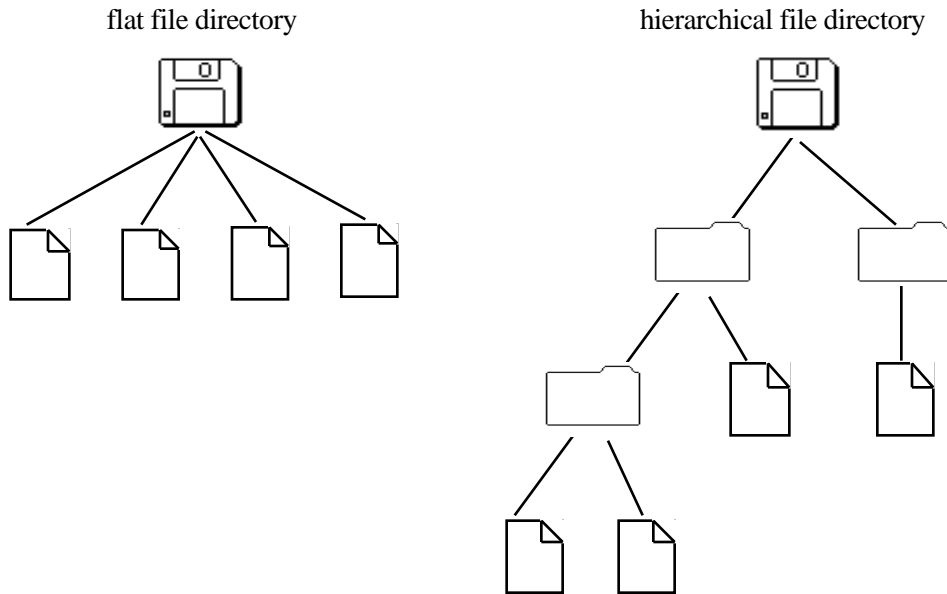


Figure 1—Flat and Hierarchical Directories

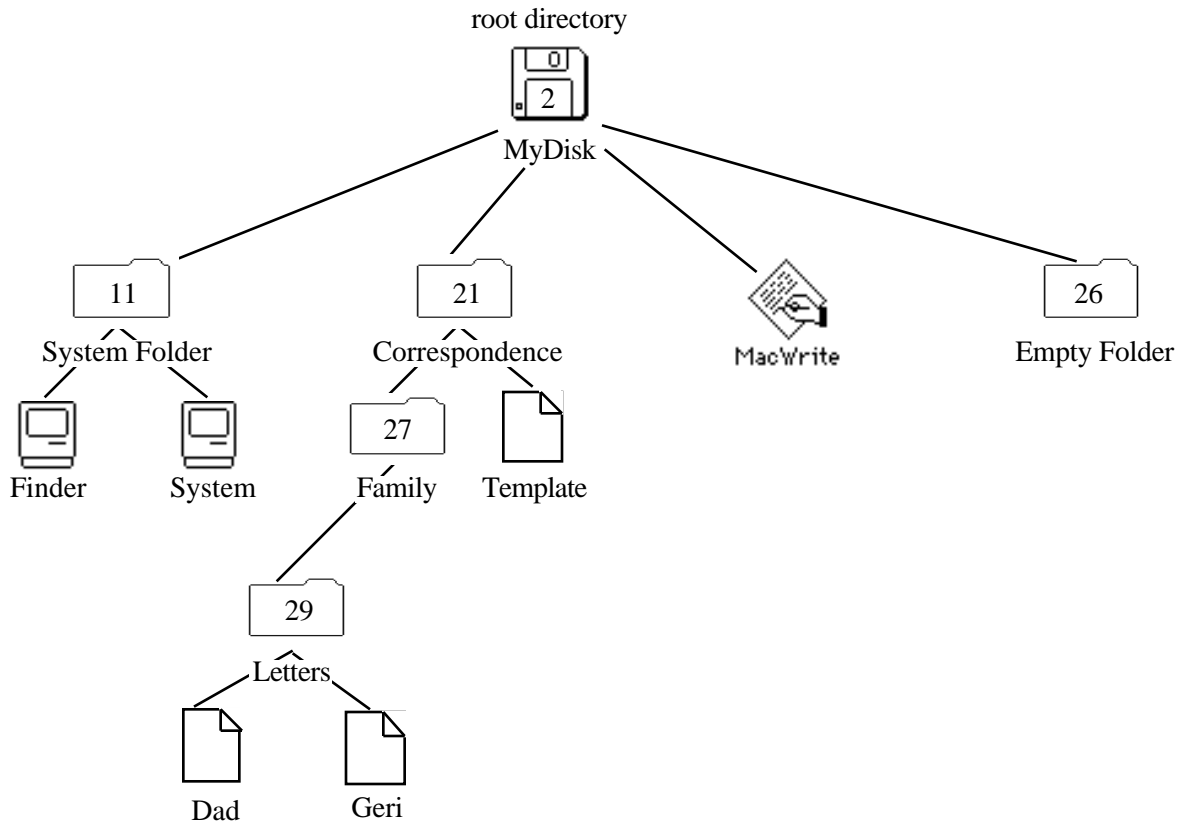


Figure 2-A Hierarchical Volume



Figure 3–Disk-Switch Dialog

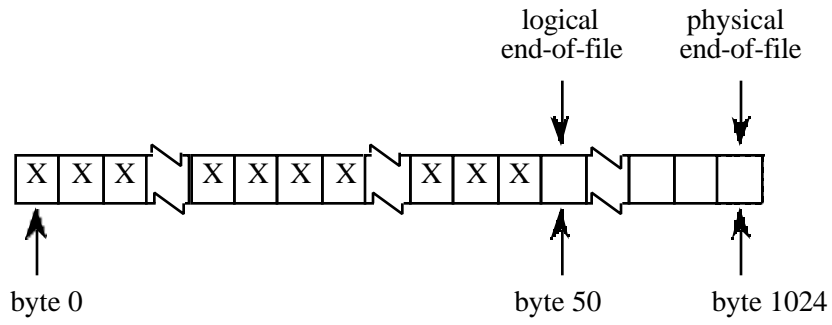


Figure 4—Logical and Physical End-of-File

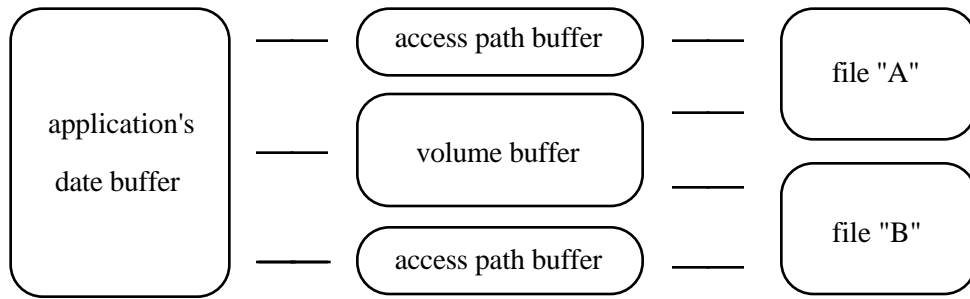


Figure 5—Buffers for Transferring Data

browsing only	none allowed	read/ deny write	no
exclusive access (one at a time)	read/write deny read/deny write	none allowed	no
single writer, multiple readers	read/write/ deny write	read	yes
shared (many writers)	read/write	read	yes

Figure 6—Opening Files

Standard HFS Permissions	Deny-Mode Permissions
fsRdPerm (read only)	browsing (read/deny write)
fsRdWrPerm (read/write) fsWrPerm (write only) fsCurPerm (whatever's available)	exclusive (read/write/deny read/deny write) or browsing (read/deny write)
fsRdWrShPerm (shared read/write)	shared (read/write/deny none)

Figure 7—Access Mode Translations

		Single User (private)	Multi-User (shared)
		<p>The single launch / single user application follows</p> <ul style="list-style-type: none"> ■ Only one user at a time to launch and use a single copy of the application ■ Only one user at a time to make changes to a file 	<p>The single launch / single user application follows</p> <ul style="list-style-type: none"> ■ Only one user at a time to launch and use a single copy of the application ■ Two or more users to cocurrently make changes to the same file
		<p>The multi-launch / single user application follows</p> <ul style="list-style-type: none"> ■ Two or more users to concurrently launch and use a single copy of the application ■ Only one user at a time to make changes to the file 	<p>The multi-launch / single user application follows</p> <ul style="list-style-type: none"> ■ Two or more users to concurrently launch and use a single copy of the application ■ Two or more users to concurrently make changes to the same file

Figure 8–Sharing Applications

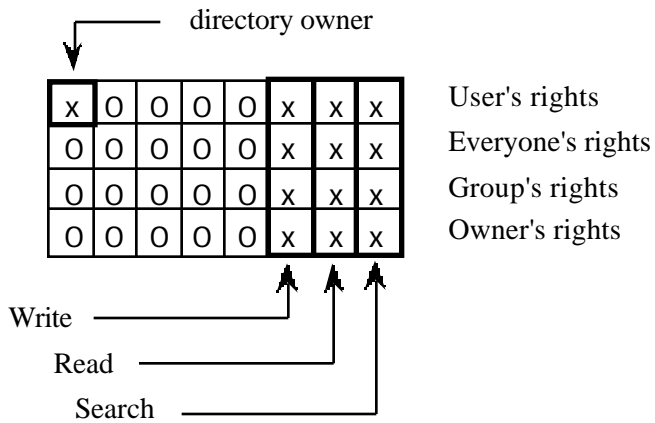


Figure 9—Access Rights in IoACAccess

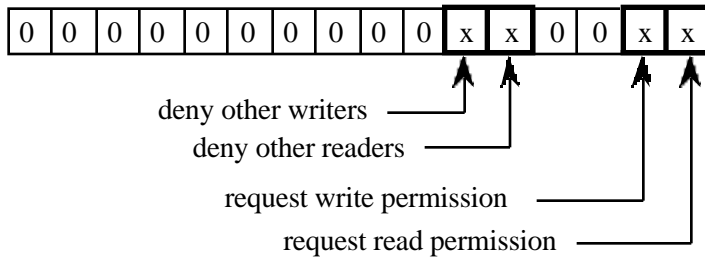


Figure 10—Permission Bits

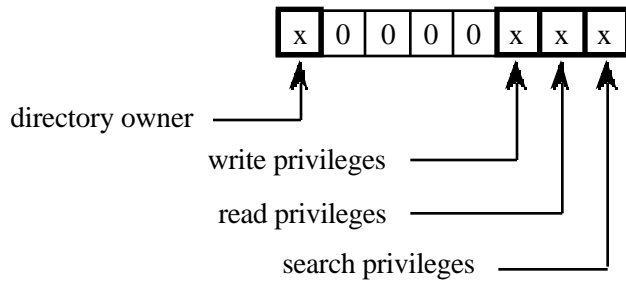


Figure 11—Access Rights to ioACUser

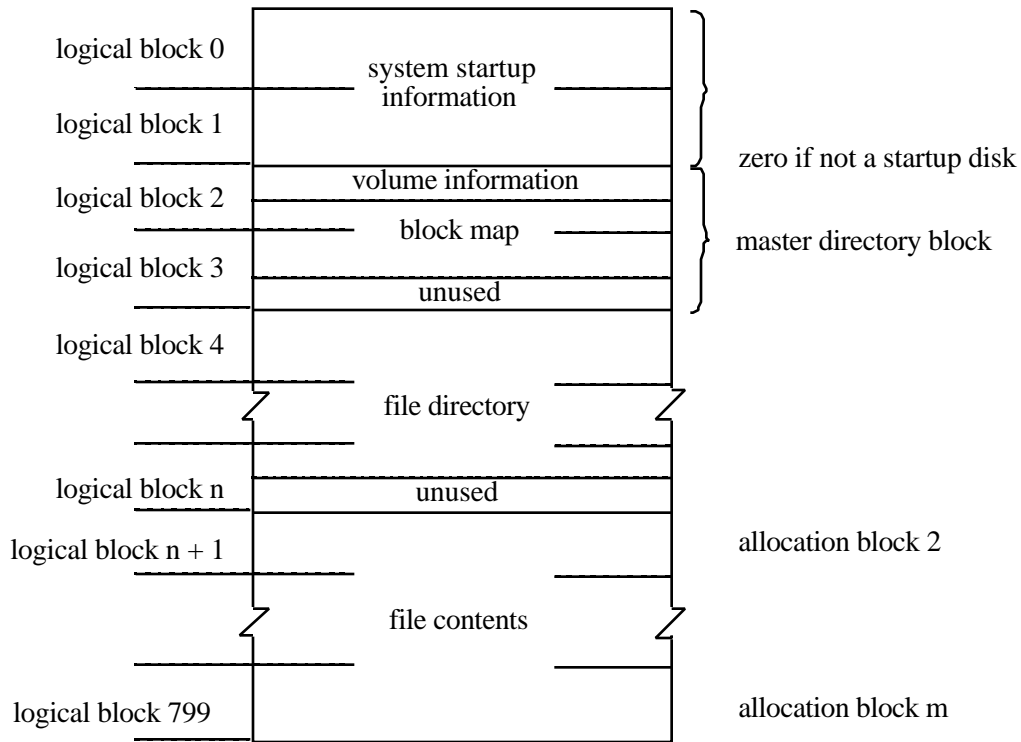


Figure 12–A 400K Volume With 1K Allocation Blocks

byte 0	drSigWord (word)	always \$D2D7
2	drCrDate (long word)	date and time of initialization
6	drLsBkUp (long word)	date and time of last modification
10	drAtrb (word)	volume attributes
12	drNmFls (word)	number of files in directory
14	drDirSt (word)	first block of directory
16	drBILen (word)	length of directory in blocks
18	drNmAlBlks (word)	number of allocation blocks
20	drAlBlkSiz (long word)	allocation block size
24	drClpSiz (long word)	number of bytes to allocate
28	drAlBlSt (word)	first allocation block in block map
30	drNxtFNum (long word)	next unused file number
34	drFreeBks (word)	number of unused allocation blocks
36	drVN (byte)	length of volume name
37	drVN + 1 (bytes)	characters of volume name

Figure 13—Volume Information on Flat Directory Volumes

byte 0	flFlags (byte)	bit 7 = 1 if entry used; bit 0 = 1 if file locked
1	flTyp (byte)	version number
2	flUsrWds (16 bytes)	information used by the Finder
18	flFInum (long word)	file number
22	flStBlk (word)	first allocation block of data fork
24	flLgLen (long word)	logical end-of-file of data fork
28	flPyLen (long word)	physical end-of-file of data fork
32	flRStBlk (word)	first allocation block of resource fork
34	flRLgLen (long word)	logical end-of-file of resource fork
38	flRPyLen (long word)	physical end-of-file of resource fork
42	flCrDat (long word)	date and time of creation
46	flMdDat (long word)	date and time of last modification
50	flNam (byte)	length of file name
51	flNam + 1 (bytes)	characters of file name

Figure 14–A File Directory Entry

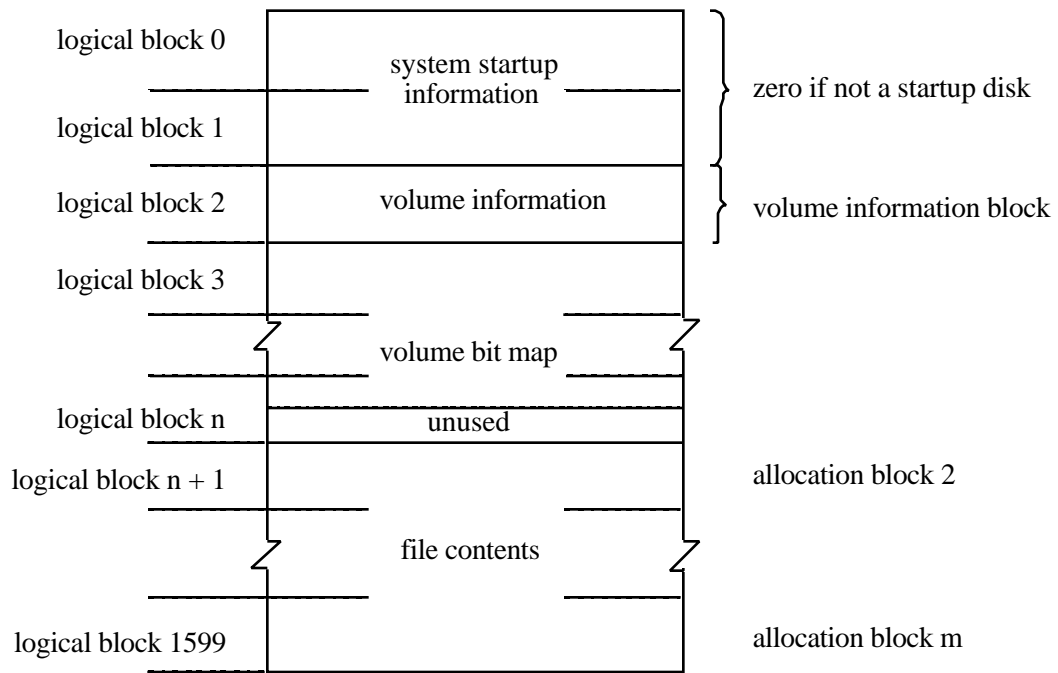


Figure 15—An 800K Volume With 1K Allocation Blocks

byte 0	drSigWord (word)	always \$4244
2	drCrDate (long word)	date and time of initialization
6	drLsMod (long word)	date and time of last modification
10	drAtrb (word)	volume attributes
12	drNmFls (word)	number of files in directory
14	drVBMSt (word)	first block of volume bit map
16	drAllocPtr (word)	used internally
18	drNmAlBlks (word)	number of allocation blocks
20	drAlBlkSiz (longword)	allocation block size
24	drClpSiz (long word)	default clump size
28	drAlBlSt (word)	first block in bit map
30	drNxtCNID (long word)	next unused directory ID or file number
34	drFreeBks (word)	number of unused allocation blocks
36	drVN (byte)	length of volume name
37	drVN + 1 (bytes)	characters of volume name
64	drVolBkUp (long word)	date and time of last abackup
68	drVSeqNum (word)	used internally
70	drWrCnt (long word)	volume write count
74	drXTClpSiz (long word)	clump size of extents tree file
78	drCTClpSiz (long word)	clump size of catalog tree file
82	drNmRtDirs (word)	number of directories in root
84	drFilCnt (long word)	number of files on volume
88	drDirCnt (long word)	number of directories on volume
92	drFndrInfo (32 bytes)	information used by the Finder
124	drVCSiz (word)	used internally
126	drVCBMSiz (word)	used internally
128	drCtlCSiz (word)	used internally
130	drXTFlSiz (long word)	length of extents tree (LEOF and PEOF)
134	drXTExtRec (12 bytes)	extent record for extents tree
146	drCTFlSiz (long word)	length of catalog tree (LEOF and PEOF)
150	drCTExtRec (12 bytes)	first extent record for catalog tree

Figure 16—Volume Information on Hierarchical Directory Volumes

key length (1 byte)	key (up to 255 bytes)	data or pointer (limited only by size of node)
------------------------	--------------------------	---

Figure 17-A B*-Tree Node Record

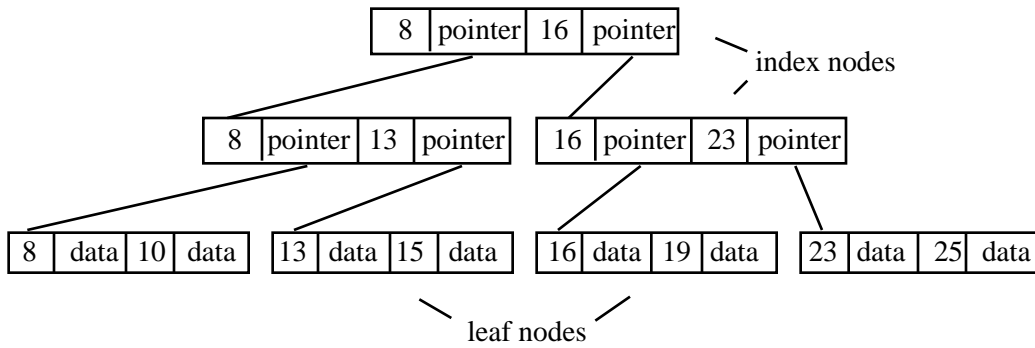


Figure 18–A Sample B*-Tree

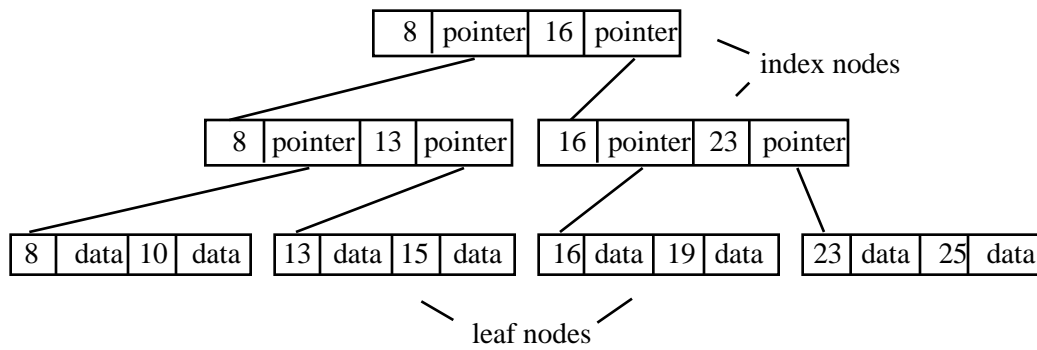


Figure 19-A Sample B*-Tree

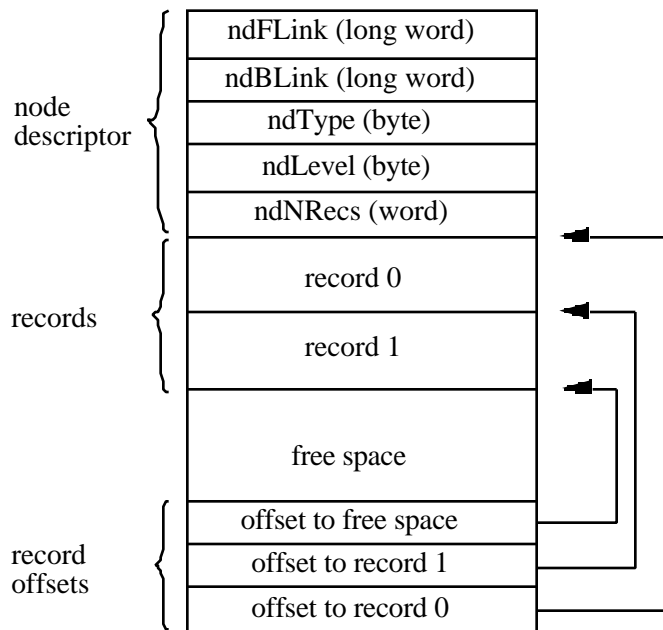


Figure 20—Structure of a B*-Tree Node

number of extent's first allocation block (word)
--

number of allocation blocks in extent (word)
--

Figure 21—Extent Descriptor

byte 0	xkrKeyLen (byte)	key length in bytes
1	xkrFkType (byte)	\$00 for data fork; \$FF for resource fork
2	xkrFNum (long word)	file number
6	xkrFABN (word)	allocation block number within file

Figure 22—Extents Key

byte 0	ckrKeyLen (byte)	key length in bytes
1	ckrResrv1 (byte)	used internally
2	ckrParID (long word)	parent ID
6	ckrCName (bytes)	file or directory name

Figure 23–Catalog Key

byte 0	cdrType (byte)	always 2 for file records
1	cdrResrv2 (byte)	used internally
2	filFlags (byte)	bit 7 = 1 if record used; bit 0 = 1 if file locked
3	filTyp (byte)	file type
4	filUsrWds (16 bytes)	information used by the Finder
20	filFInum (long word)	file number
24	filStBlk (word)	first allocation block of data fork
26	filLgLen (long word)	logical end-of-file of data fork
30	filPyLen (long word)	physical end-of-file of data fork
34	filRStBlk (word)	first allocation block of resource fork
36	filRLgLen (long word)	logical end-of-file of resource fork
40	filRPyLen (long word)	physical end-of-file of resource fork
44	filCrDat (long word)	date and time of creation
48	filMdDat (long word)	date and time of last modification
52	filBkDat (long word)	date and time of last backup
56	filFndrInfo (16 bytes)	additional information used by the Finder
72	filClpSize (word)	file clump size
74	filExtRec (12 bytes)	first extent record for data fork
86	filRExtRec (12 bytes)	first extent record for resource fork
98	filResrv (long word)	used internally

Figure 24–File Record

byte 0	cdrType (byte)	always 1 for directory records
1	cdrResrv2 (byte)	used internally
2	dirFlags (word)	flags
4	dirVal (word)	valence
6	dirDirID (long word)	directory ID
10	dirCrDat (long word)	date and time of creation
14	dirMdDat (long word)	date and time of last modification
18	dirBkDat (long word)	date and time of last backup
22	dirUsrInfo (16 bytes)	information used by the Finder
38	dirFndrInfo (16 bytes)	additional information used by the Finder
54	dirResrv (16 bytes)	used internally

Figure 25—Directory Record

byte 0	cdrType (byte)	always 3 for thread records
1	cdrResrv2 (byte)	used internally
2	thdResrv (8 bytes)	used internally
10	thdParID (long word)	parent ID of associated directory
14	thdCName (bytes)	name of associated directory

Figure 26--Thread Record

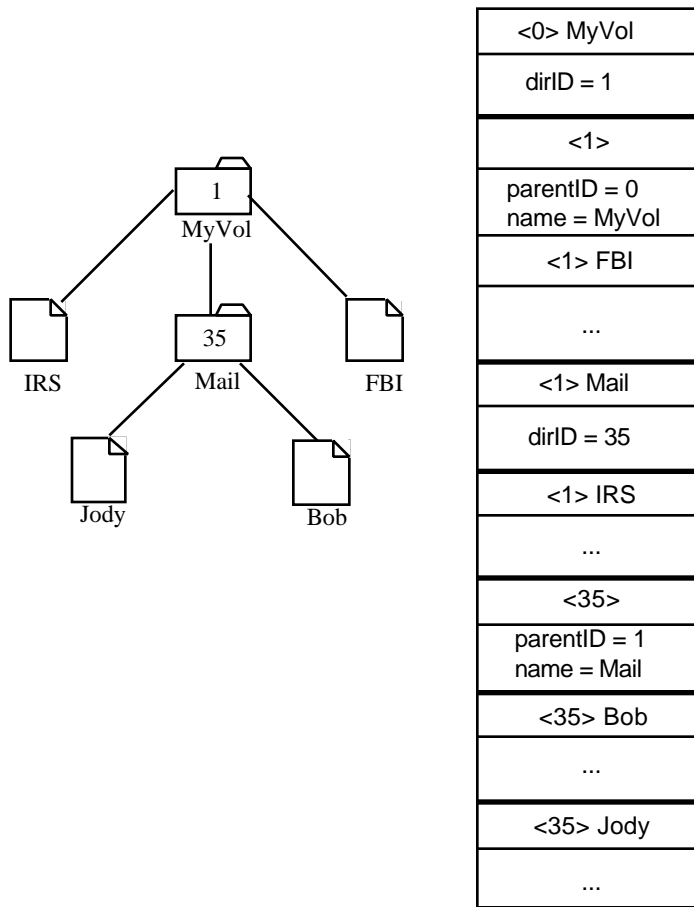


Figure 27—Sample Tree, with Catalog Tree Records

byte 0	fcfFINum (long word)	file number
4	fcfMdRByt (byte)	flags
5	fcfTypByt (byte)	version number
6	fcfSBlk (word)	first allocation block of file
8	fcfEOF (long word)	logical end-of-file
12	fcfPLen (long word)	physical end-of-file
16	fcfCrPs (long word)	mark
20	fcfVPtr (pointer)	pointer to volume control block
24	fcfBfAdr (pointer)	pointer to access path buffer
28	fcfFIPos (word)	used internally
30	fcfClmpSize (long word)	file clump size
34	fcfBTCBPtr (long word)	pointer to B*-tree control block
38	fcfExtRec (12 bytes)	first three file extents
50	fcfFType (long word)	file's finder type bytes
54	fcfCatPos (long word)	used internally
58	fcfDirID (long word)	file's parent ID
62	fcfCName (bytes)	name of open file

Figure 28–A File Control Block



Application



Document

Figure 1—The Finder’s Default Icons



Icon



Mask

Figure 2—Icon and Mask

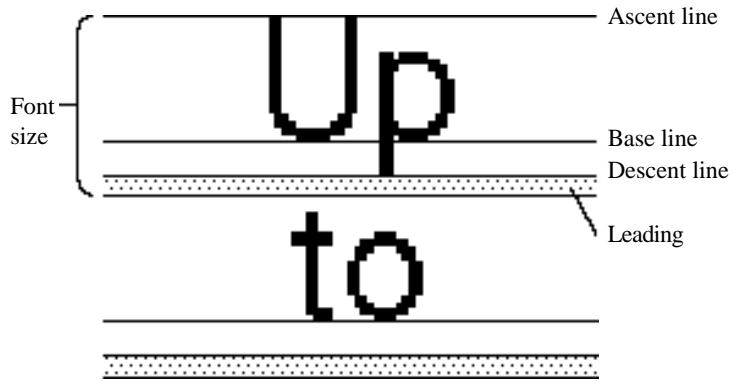


Figure 1-Font Size

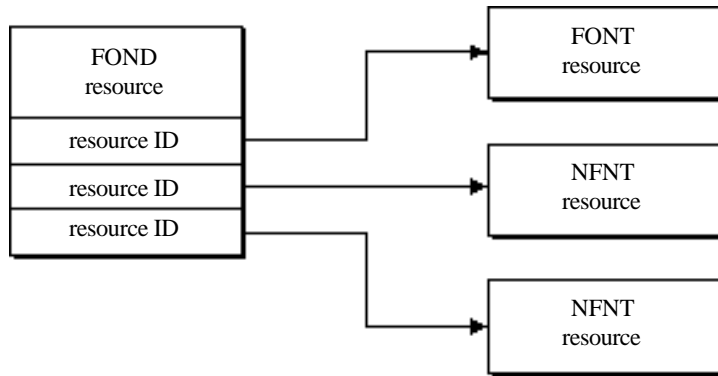


Figure 2—Font Manager Resources

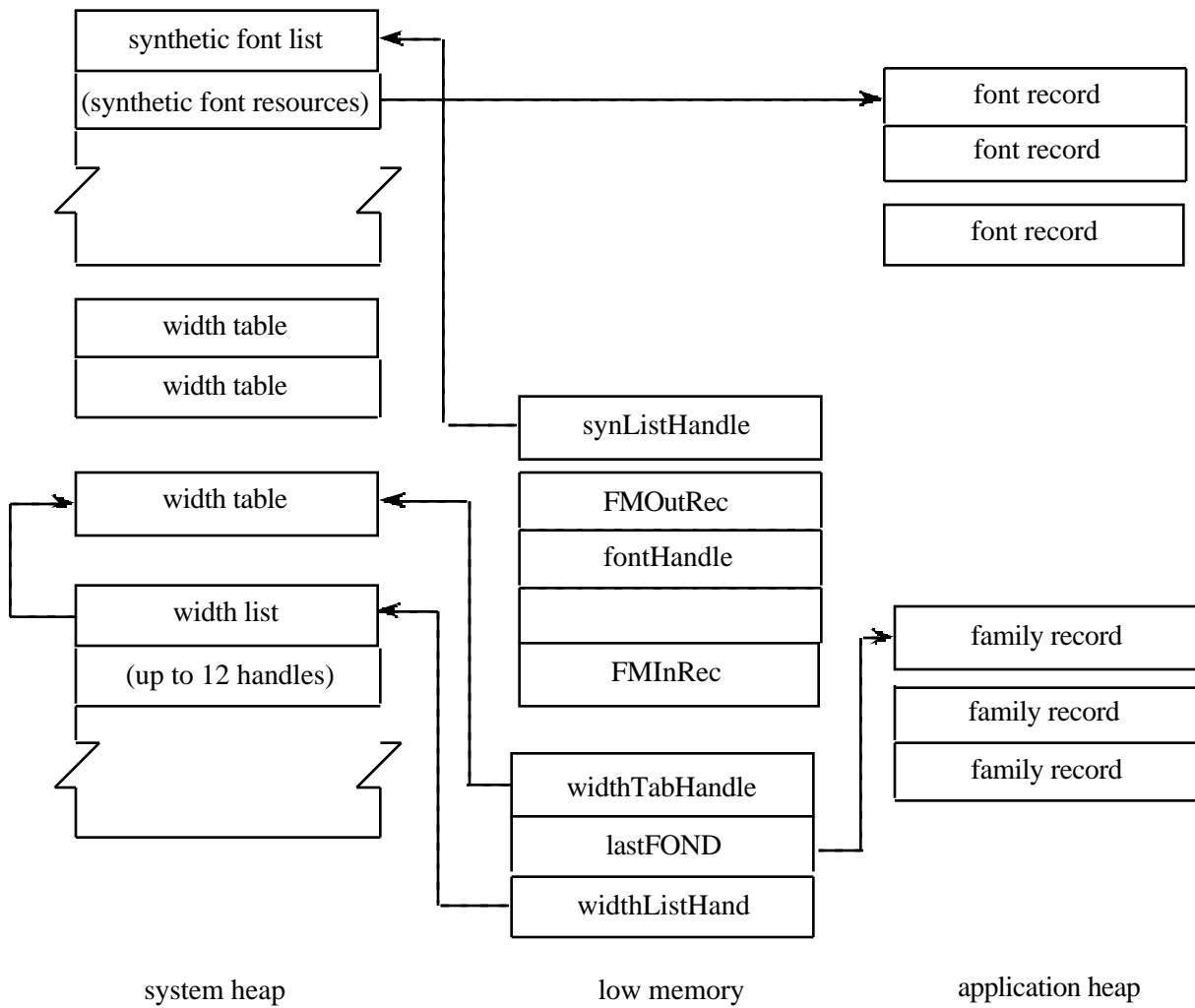


Figure 3-Font Manager Data Structures

Handle to font record (long word)
Resource ID of font (word)
Foreground color (8 bytes)
Background color (8 bytes)

Figure 4—Synthetic Font List Entry

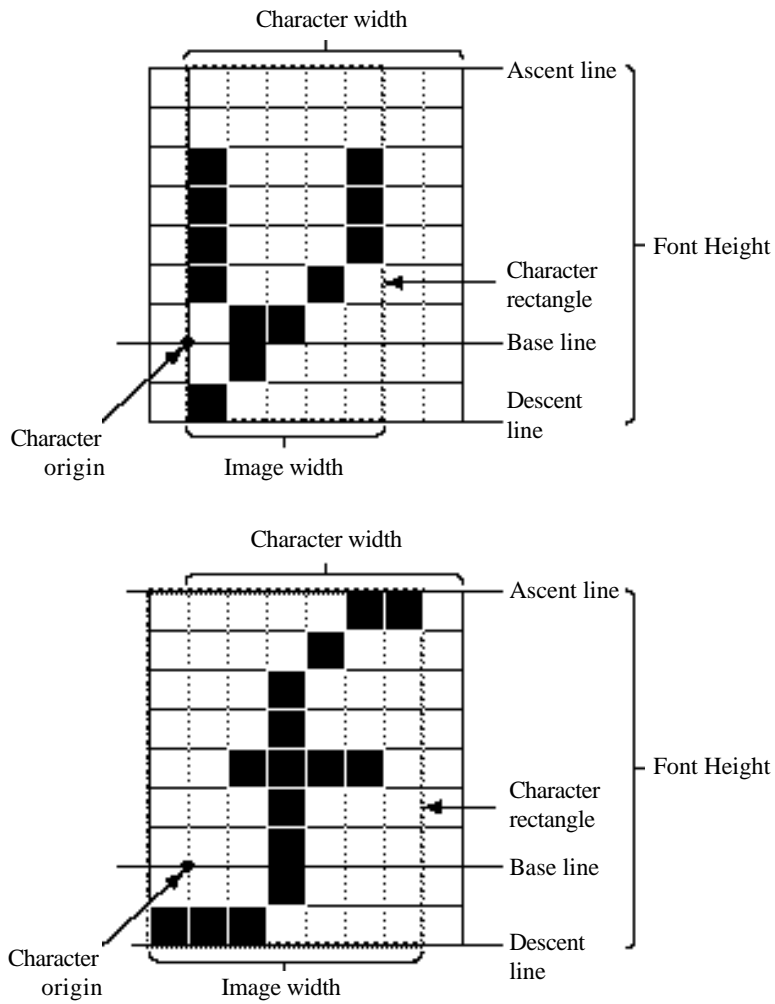


Figure 5-Character Images

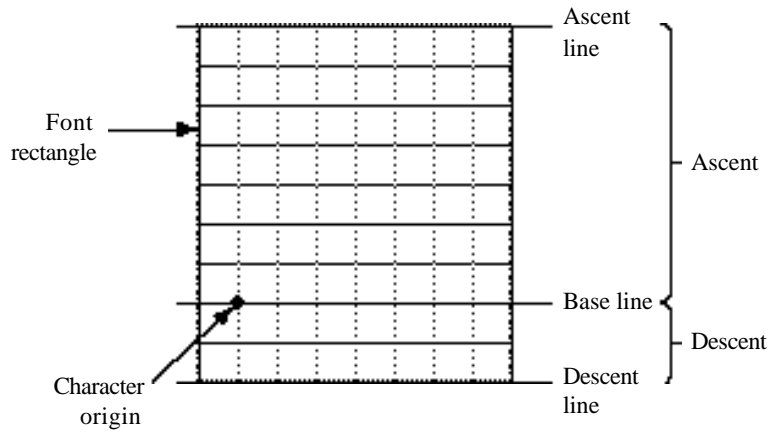


Figure 6—Features of Fonts

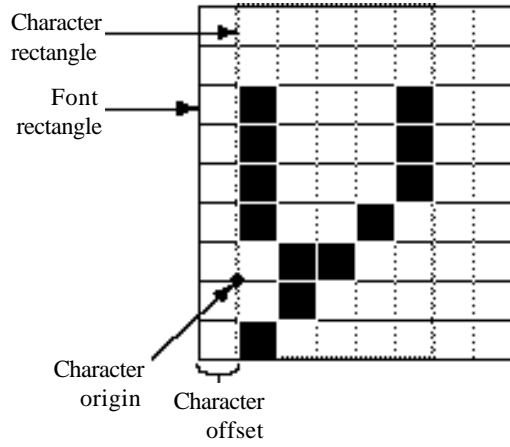


Figure 7-Character Offset

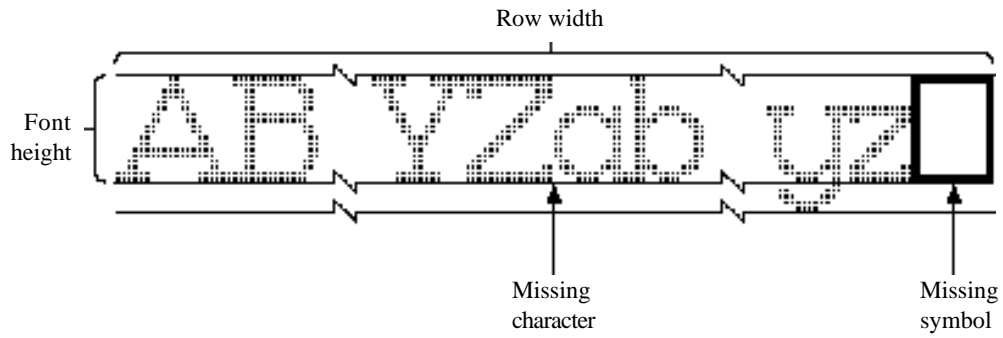


Figure 8—Partial Bit Image for a Font

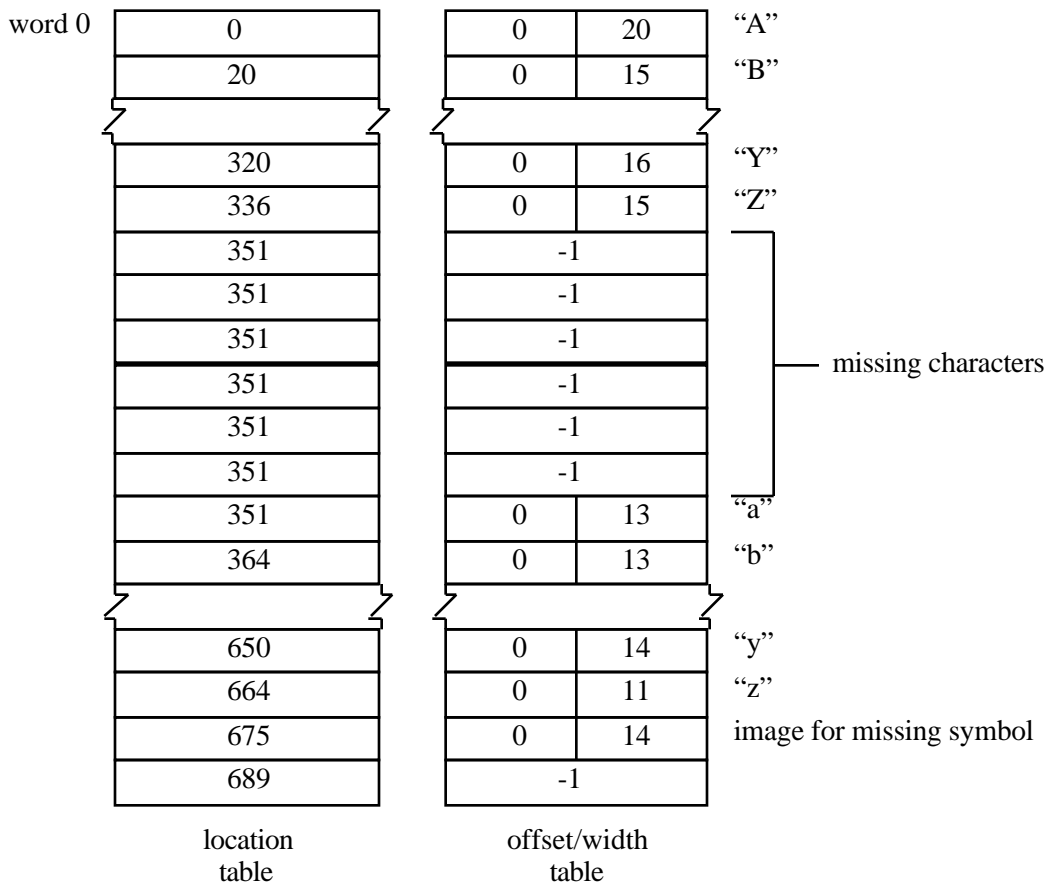


Figure 9—Sample Location Table and Offset/Width Table

Extra width for Plain text - set to 0 (word)
Extra width for Bold text (word)
Extra width for Italic text (word)
Extra width for Underline text (word)
Extra width for Outline text (word)
Extra width for Shadow text (word)
Extra width for Condensed text (word)
Extra width for Extended text (word)
Not used - set to 0 (word)

Figure 11–Family Style-Property Table

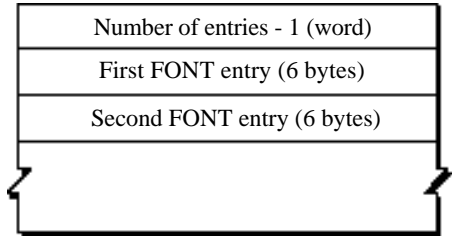


Figure 12—Font Association Table

Font style (word)
Font sytle (word)
Resource ID of associated FONT resources (word)

Figure 13–Font Association Table Entry

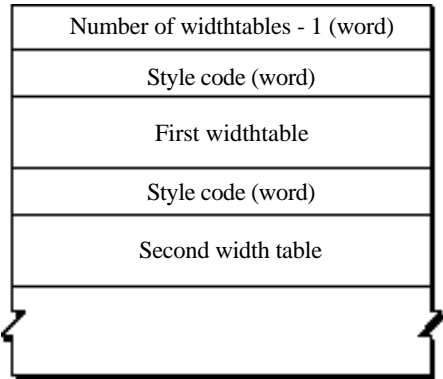


Figure 14—Family Character-Width Table

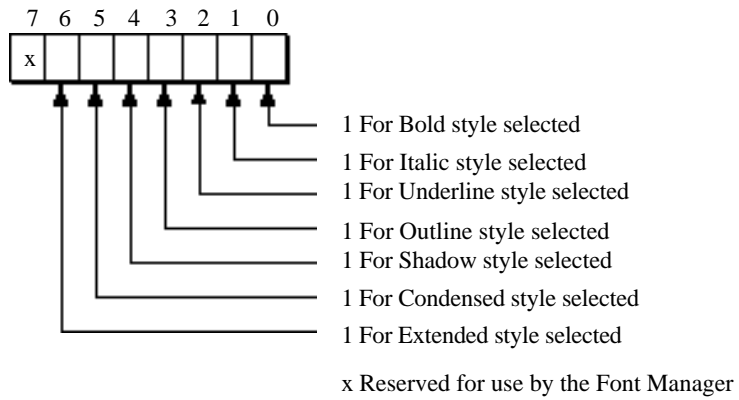


Figure 15–Style Codes

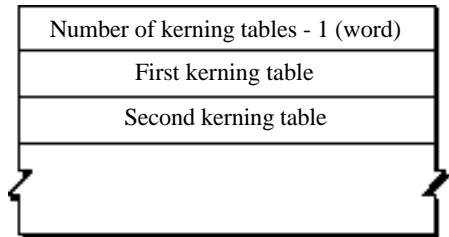


Figure 16–Kerning Table

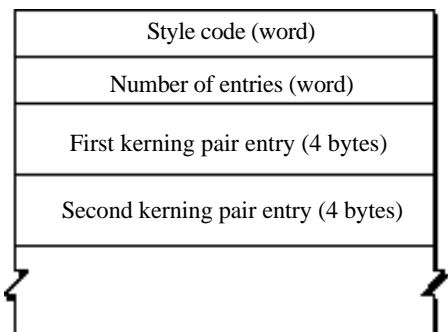


Figure 17--Structure of a Kerning Table

First character of kerning pair (byte)
Second character of kerning pair (byte)
Kerning offset (word)

Figure 18–Kerning Table Entry

7	Purple
6	Fuchsia
5	Foreground color
4	Gold
3	Yellow
2	1/2 foregd, 1/2 backgd
1	Background color
0	Red

Figure 19–Hypothetical Font Color Table Entries

Second digit ↓	First Digit															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			Space	0	@	P	`	p	Ä	ê	†		ı	—		
1			!	1	A	Q	a	q	Å	ë	°	±	ı	—		
2			"	2	B	R	b	r	Ç	í	¢		¬	“		
3			#	3	C	S	c	s	É	ì	£			”		
4			\$	4	D	T	d	t	Ñ	î	§	¥	f	‘		
5			%	5	E	U	e	u	Ö	ï	•	µ		’		
6			&	6	F	V	f	v	Ü	ñ	¶			÷		
7			'	7	G	W	g	w	á	ó	ß			«		
8			(	8	H	X	h	x	à	ò	®			»	ÿ	
9			)	9	I	Y	i	y	â	ô	©			...		
A			*	:	J	Z	j	z	ä	ö	™			⏟		
B			+	;	K	[	k	{	ã	õ	´	ª	À			
C			,	<	L	\	l	|	å	ú	¨	º	Ã			
D			-	=	M	]	m	}	ç	ù			Õ			
E			.	>	N	^	n	~	é	û	Æ	æ	Œ			
F			/	?	O	_	o		è	ü	Ø	ø	œ			

⏟ stands for a nonbreaking space, the same width as a digit.
 The first four characters are only in the system font (Chicago).
 The shaded characters are not in all fonts.
 Codes \$D9 through \$FF are reserved for future expansion.

Figure 20—Font Characters

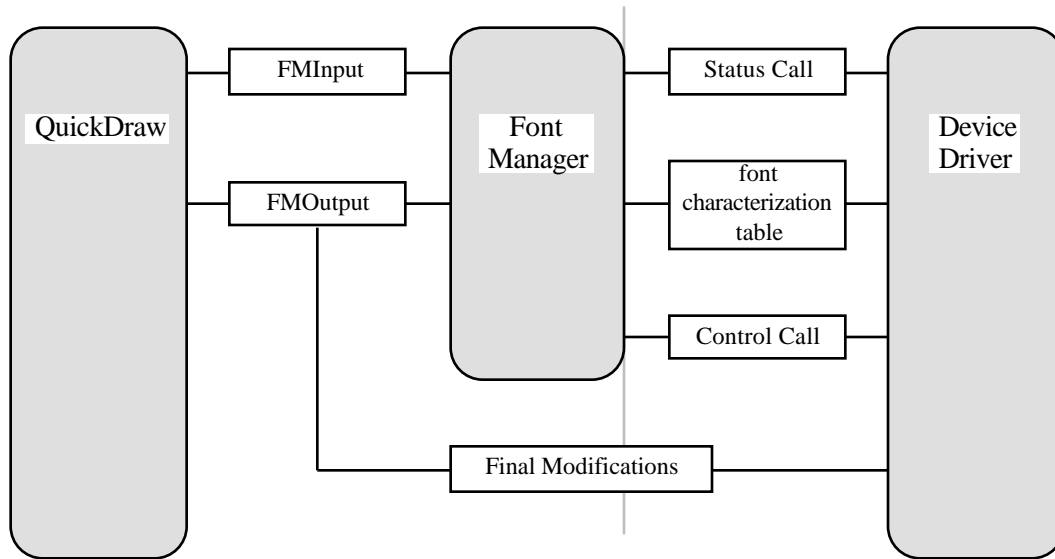


Figure 21—Communication About Fonts

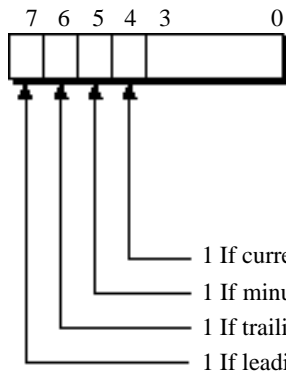
Byte 0	Dots per vertical inch on device	80
2	Dots per horizontal inch on device	80
4	Bold characteristics	0, 1, 1
7	Italic characteristics	1, 8, 0
10	Not used	0, 0, 0
13	Outline characteristics	5, 1, 1
16	Shadow characteristics	5, 2, 2
19	Condensed characteristics	0, 0, -1
22	Extended characteristics	0, 0, 1
25	Underline characteristics	1, 1, 1

Figure 22–Font Characterization Table

SplInside Macintosh -- May 1992 -- Figures

	United States	Great Britain	Italy	Germany	France
Numbers	1,234.56	1,234.56	1.234,56	1.234,56	1 234.56
List separator	.	,	.	.	.
Currency	\$0.23 (\$0.45) \$345.00	£0.23 (£0.45) £345	L. 0,23 L. -0,45 L. 345	0,23 DM -0,45 DM 345,00 DM	0,23 F -0,45 F 325 F
Time	9:05 AM 11:30 AM 11:20 PM 11:20:09 PM	09:05 11:30 23:20 23:20:09	9:05 11:30 23:20 23:20:09	9:05 Uhr 11:30 Uhr 23:20 Uhr 23:20:09 Uhr	9:05 11:30 23:20 23:20:09
Short date	12/22/85 2/1/85	22/12/1985 01/02/1985	22-12-1985 1-02-1985	22.12.1985 1.02.1985	22.12.85 1.02.85
		Unabbreviated		Abbreviated	
Long date	United States Great Britain Italy Germany France	Wednesday, February 1, 1985 Wednesday, February 1, 1985 mercoledì, 1 Febbraio 1985 Mittwoch, 1. Februar 1985 Mercredi 1 fevrier 1985		Wed, Feb 1, 1985 Wed, Feb 1, 1985 mer, 1 Feb 1985 Mit, 1. Feb 1985 Mer 1 fev 1985	

Figure 1—Standard International Formats



Example of effect	
If 1	If 0
\$3.00	3 F
-0,45 F	(\$0.45)
\$325.00	325 F
\$0.25	\$.25

Figure 2–CurrFmt Field

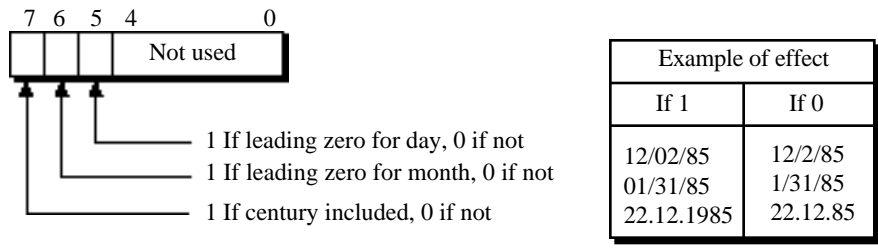


Figure 3—ShrtDateFmt Field

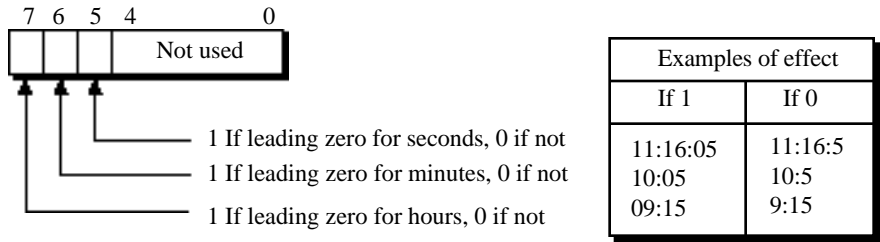


Figure 4–TimeFmt Field

IngDateFmt	st10	st1	st2	st3	st4	Sample result
0	"	;	;	..	"	Mittwoch, 2. Februar 1989
250	"	;	..	;	"	Wednesday, February 1, 1989

Figure 5—Long Date Formats

\$00	ASCII NUL	
...		
\$1F	ASCII US	
\$20	space nonbreaking space	
\$21	!	
\$22	" « » “ ”	
\$23	#	
\$24	\$	
\$25	%	
\$26	&	
\$27	' ‘ ’	
\$28	(
...		
\$40	@	
\$41	A À Ä Ã Å a á à â ä å ã å	] letters not shown are like "B b"
\$42	B b	
\$43	C Ç c ç	
\$45	E É e é è ê ë	
\$49	I i í î ï	
\$4E	N Ñ n ñ	
\$4F	O Ö Õ Ø o ó ò ô ö õ ø	
\$55	U Ü u ú ù û ü	
\$59	Y y ÿ	
\$5B	[
\$5C	\	
\$5D]	
\$5E	^	
\$5F	~	
\$60	˘	
\$7B	{	
\$7C	|	
\$7D	}	
\$7E	~	
\$7F	ASCII DEL	
\$A0	†	
...		
\$AD		
\$AE	Æ æ Œ œ (see remarks about ligatures)	
\$B0		
...	...	
\$BD		
\$C0	ı	
...		
\$C9	...	
\$D0	—	
\$D1	—	
\$D6	÷	
\$D7		

Figure 6. International Character Ordering

Built-in ordering:

AE Æ ae æ

OE Œ oe œ

German ordering:

AE Ä Æ ae ä æ

OE Ö Œ oe ö œ

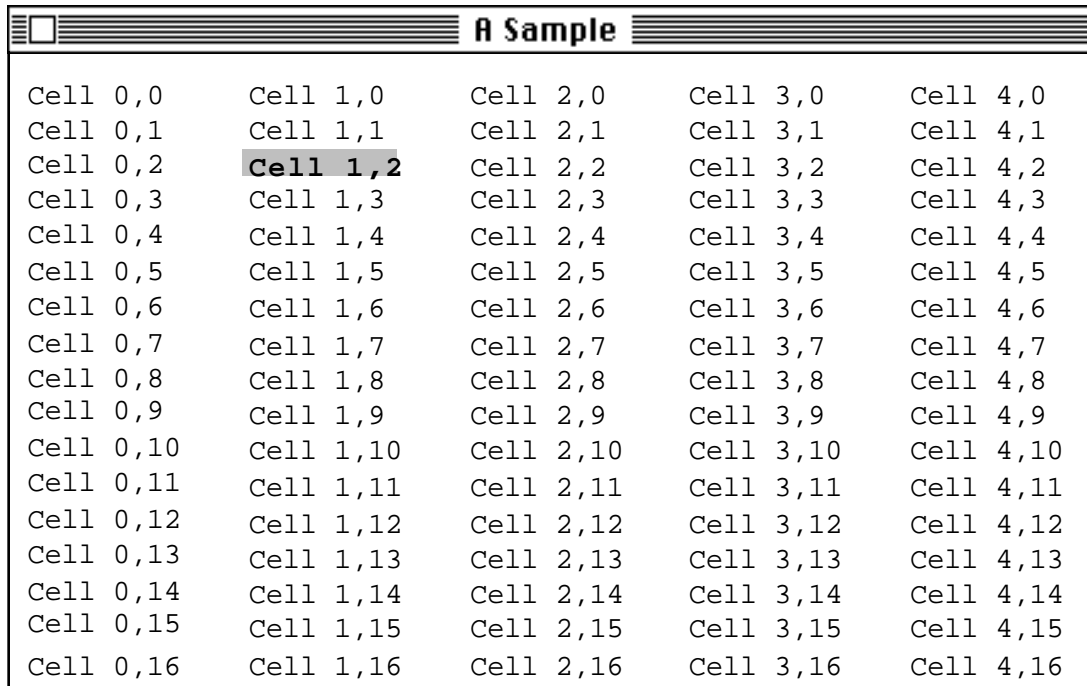
ss ß

UE Ü ue ü

Figure 7—Ordering for Special Characters

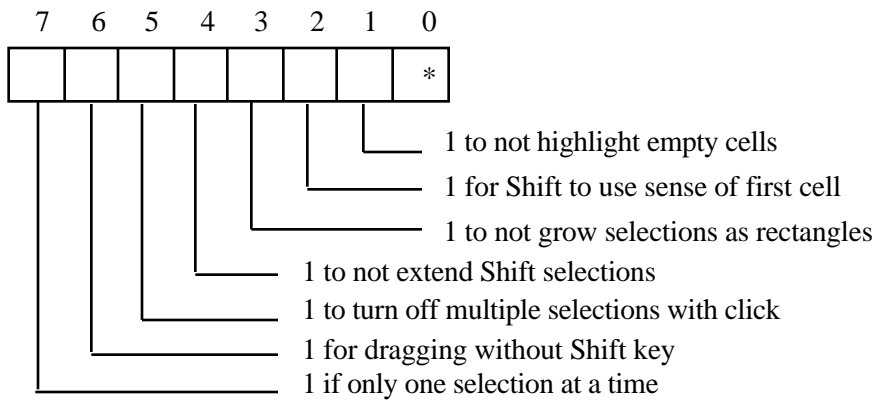
\$22 " « » “ ”
\$A3 £
\$23 #

Figure 8—Special Ordering for Great Britain



A Sample				
Cell 0,0	Cell 1,0	Cell 2,0	Cell 3,0	Cell 4,0
Cell 0,1	Cell 1,1	Cell 2,1	Cell 3,1	Cell 4,1
Cell 0,2	Cell 1,2	Cell 2,2	Cell 3,2	Cell 4,2
Cell 0,3	Cell 1,3	Cell 2,3	Cell 3,3	Cell 4,3
Cell 0,4	Cell 1,4	Cell 2,4	Cell 3,4	Cell 4,4
Cell 0,5	Cell 1,5	Cell 2,5	Cell 3,5	Cell 4,5
Cell 0,6	Cell 1,6	Cell 2,6	Cell 3,6	Cell 4,6
Cell 0,7	Cell 1,7	Cell 2,7	Cell 3,7	Cell 4,7
Cell 0,8	Cell 1,8	Cell 2,8	Cell 3,8	Cell 4,8
Cell 0,9	Cell 1,9	Cell 2,9	Cell 3,9	Cell 4,9
Cell 0,10	Cell 1,10	Cell 2,10	Cell 3,10	Cell 4,10
Cell 0,11	Cell 1,11	Cell 2,11	Cell 3,11	Cell 4,11
Cell 0,12	Cell 1,12	Cell 2,12	Cell 3,12	Cell 4,12
Cell 0,13	Cell 1,13	Cell 2,13	Cell 3,13	Cell 4,13
Cell 0,14	Cell 1,14	Cell 2,14	Cell 3,14	Cell 4,14
Cell 0,15	Cell 1,15	Cell 2,15	Cell 3,15	Cell 4,15
Cell 0,16	Cell 1,16	Cell 2,16	Cell 3,16	Cell 4,16

Figure 1-A Sample List



* reserved for use by the List Manager

Figure 2—Selection Flags

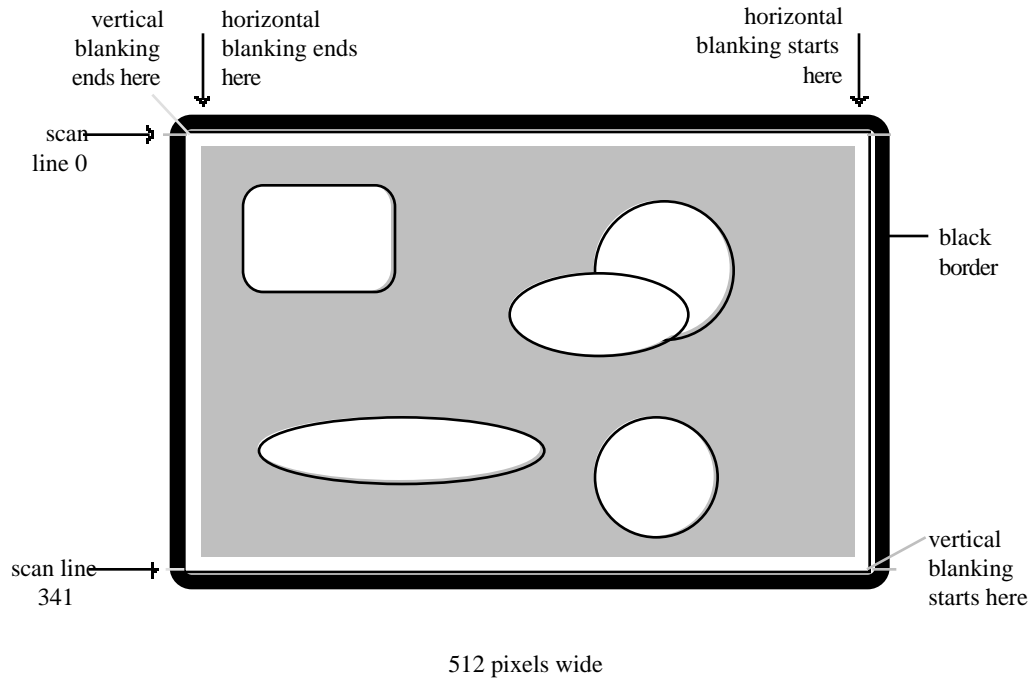


Figure 1–Video Scanning Pattern

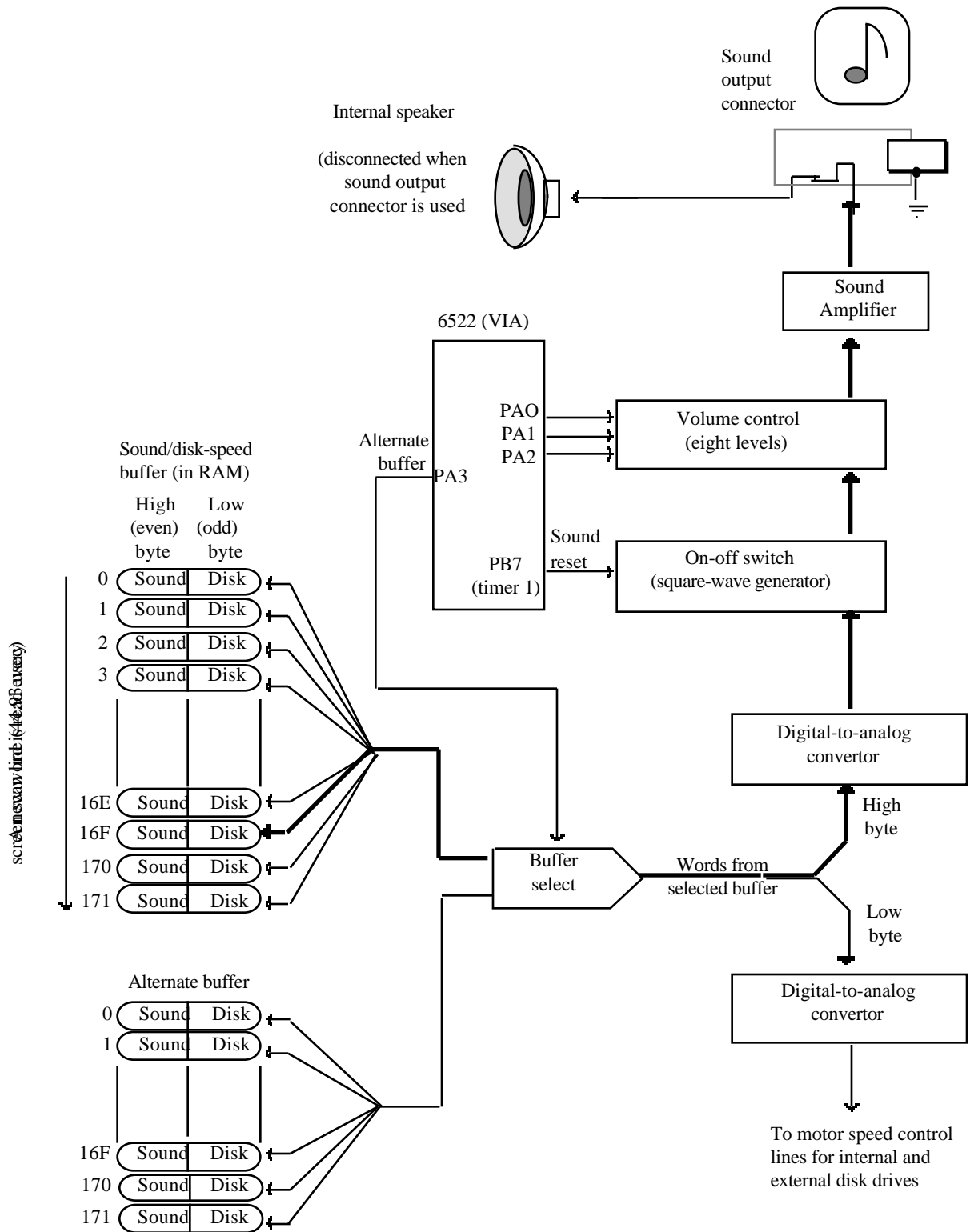
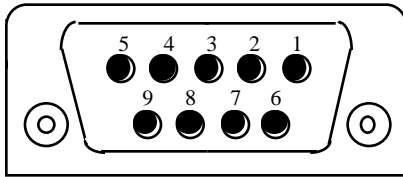
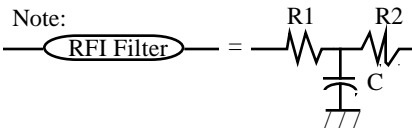
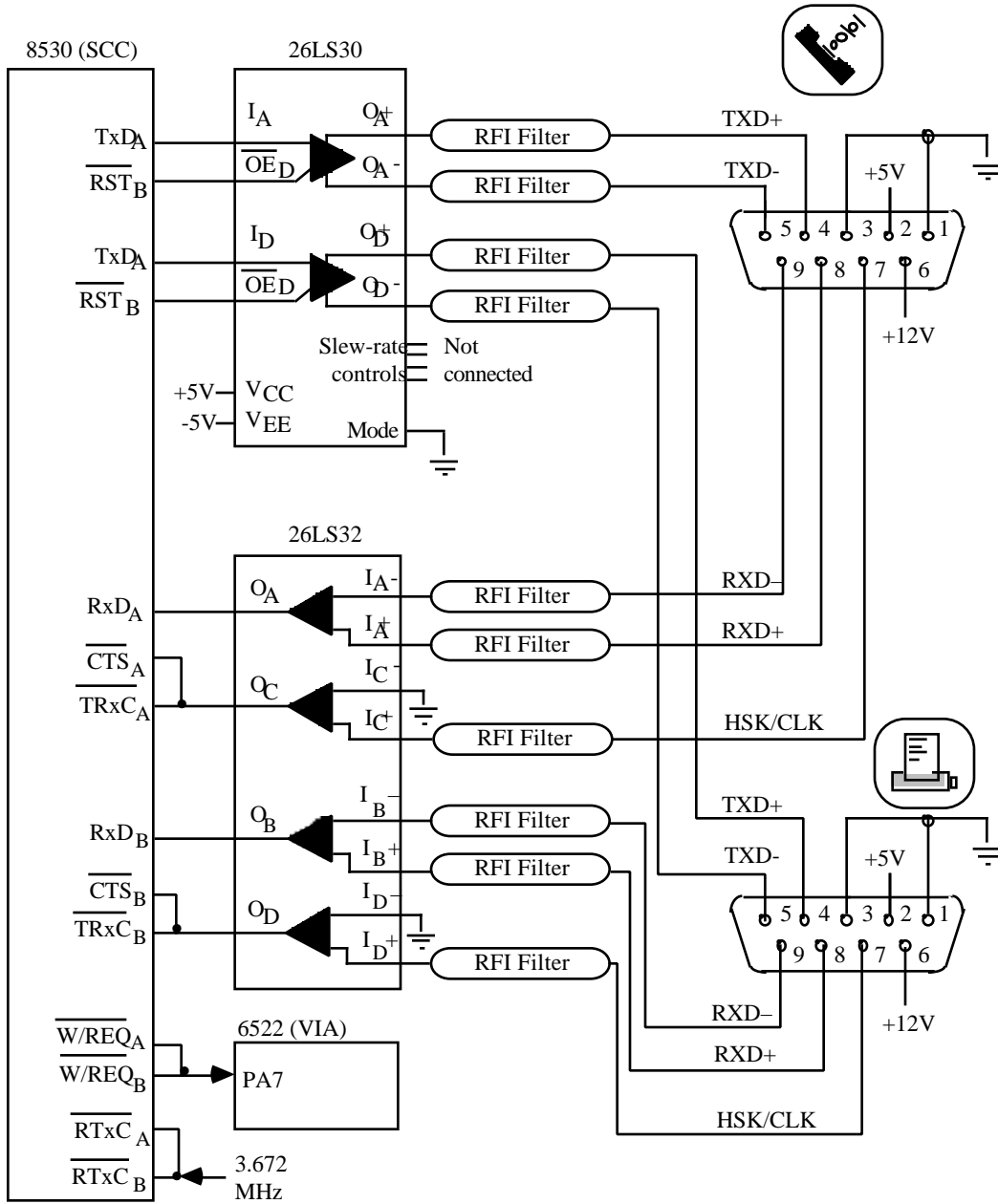


Figure 2—Diagram of Sound Port



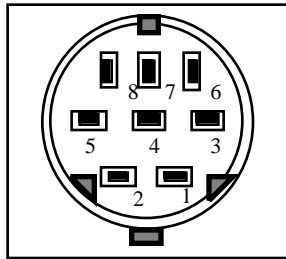
- 1 Ground
- 2 +5 volts
- 3 Ground
- 4 Transmit data +
- 5 Transmit data -
- 6 +12 volts
- 7 Handshake/external clock
- 8 Receive data +
- 9 Receive data -

Figure 3—Pinout for SCC Output Jack



(R1+R2 = 40 to 60 ohms,
C = 150 to 300 pF)

Figure 4—Diagram of Serial Ports



- 1 Output handshake
- 2 Input handshake / external clock
- 3 Transmit data -
- 4 Ground
- 5 Receive data -
- 6 Transmit data +
- 7 (not connected)
- 8 Receive data +

Figure 5—Pinout for SCC Serial Connectors

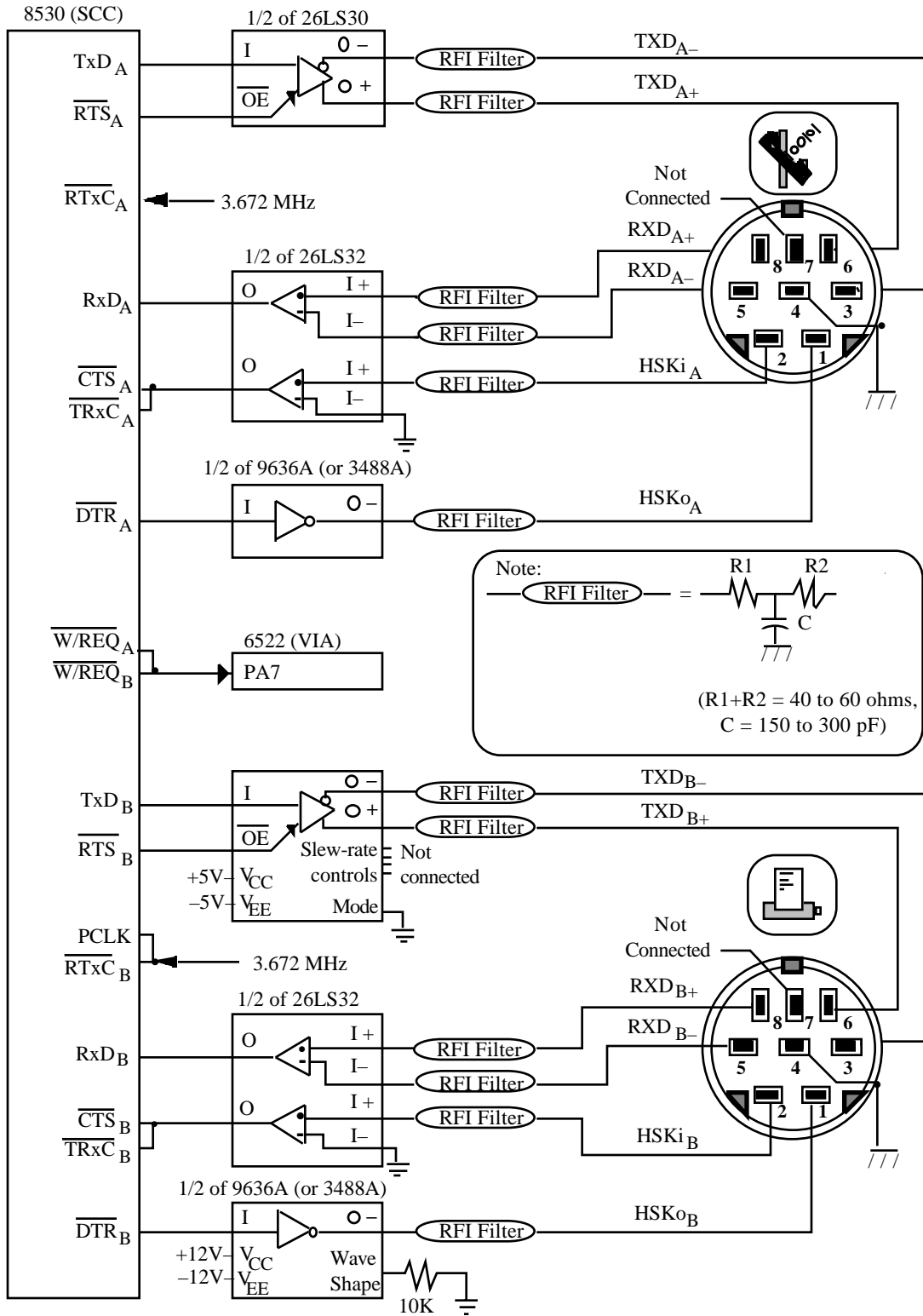


Figure 6-Circuit Diagram for the Macintosh Plus Serial Ports

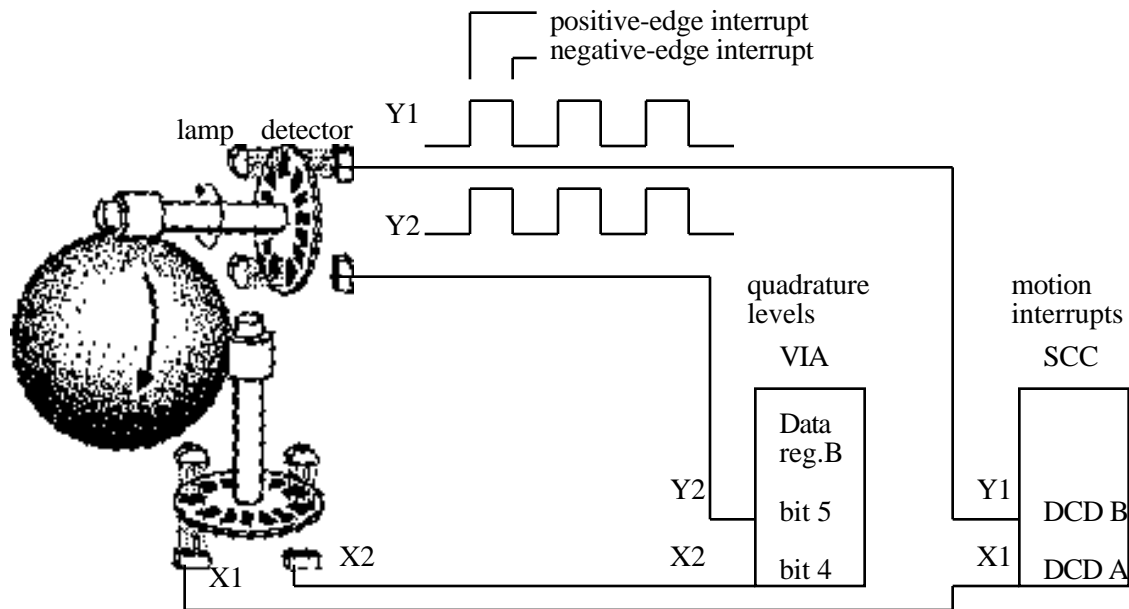
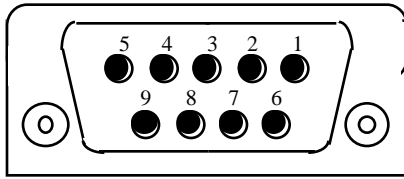


Figure 7—Mouse Mechanism



- 1 Ground
- 2 +5 volts
- 3 Ground
- 4 Mouse X2 (VIA quadrature signal)
- 5 Mouse X1 (SCC interrupt signal)
- 6 (not connected)
- 7 Mouse switch
- 8 Mouse Y2 (VIA quadrature signal)
- 9 Mouse Y1 (SCC interrupt signal)

Figure 8—Pinout for Mouse Jack

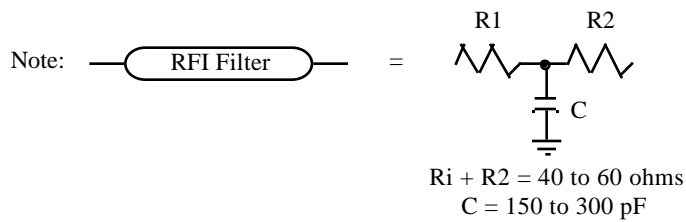
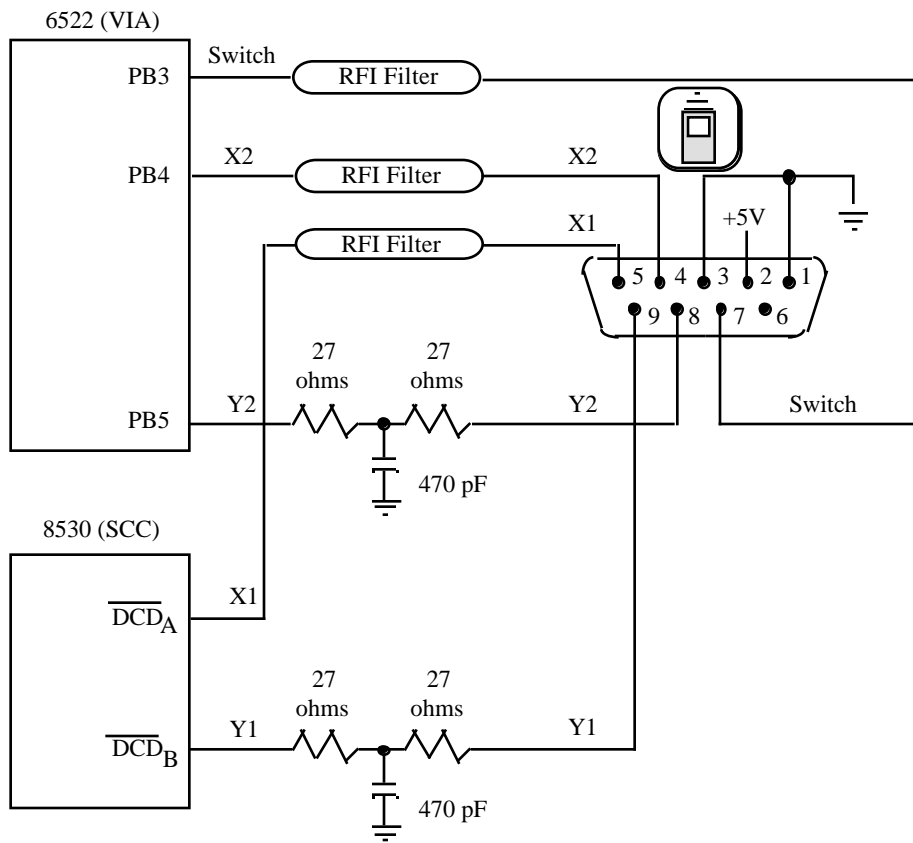
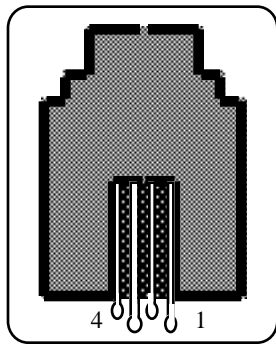


Figure 9—Diagram of Mouse Port



- 1 Ground
- 2 Clock
- 3 Data
- 4 +5 volts

Figure 10—Pinout for Keyboard Jack

`	1	2	3	4	5	6	7	8	9	0	-	=	Backspace
65	25	27	29	2B	2F	2D	35	39	33	3B	37	31	67
Tab	Q	W	E	R	T	Y	U	I	O	P	[]	\
61	19	1B	1D	1F	23	13	41	45	3F	47	43	3D	55
CapsLock	A	S	D	F	G	H	J	K	L	;	'	Return	
73	01	03	05	07	0B	09	4D	51	4B	53	4F	49	
Shift	Z	X	C	V	B	N	M	,	.	/		Shift	
71	0D	0F	11	13	17	5B	5D	57	5F	59		71	
Option	⌘											Enter	Option
75	6F											69	75

U.S. Keyboard

5	1	2	3	4	5	6	7	8	9	0	-	=	←
65	25	27	29	2B	2F	2D	35	39	33	3B	37	31	67
→	Q	W	E	R	T	Y	U	I	O	P	[]	↵
61	19	1B	1D	1F	23	21	41	45	3F	47	43	3D	
⇧	A	S	D	F	G	H	J	K	L	;	'	\	
73	01	03	05	07	0B	09	4D	51	4B	53	4F	49	55
⇧	\	Z	X	C	V	B	N	M	,	.	/	⇧	
71	0D	0F	11	13	17	5B	5D	57	5F	59	15	71	
⌘	⌘											↵	⌘
75	6F											69	75

International Keyboard (Great Britain Key Caps shown)

`	1	2	3	4	5	6	7	8	9	0	-	=	Backspace
65	25	27	29	2B	2F	2D	35	39	33	3B	37	31	67
Tab	Q	W	E	R	T	Y	U	I	O	P	[]	
61	19	1B	1D	1F	23	21	41	45	3F	47	43	3D	
CapsLock	A	S	D	F	G	H	J	K	L	;	'	Return	
73	01	03	05	07	0B	09	4D	51	4B	53	4F		
Shift	Z	X	C	V	B	N	M	,	.	/		Shift	
	0D	0F	11	13	17	5B	5D	57	5F	59		71	1B
Option													
75	6F												

Clear	=	/	*
0F	11	1B	05
7	8	9	-
33	37	39	1D
4	5	6	+
2D	2F	31	0D
1	2	3	Enter
27	29	2B	
0	.		
25	03	19	

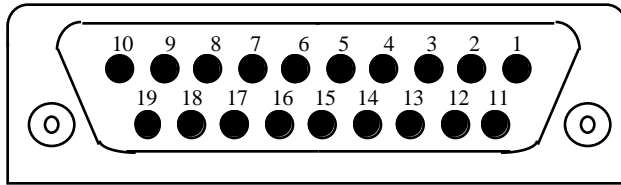
Macintosh Plus U.S. and International Keyboards

Figure 11—Key-Down Transitions

Clear 0F	~ 1D	⌘ 0D	⌥ 05
7 33	8 37	9 39	⌘ 1B
4 29	5 2F	6 31	⌘ 11
1 27	2 28	3 2B	Enter
0 25	- 03	⌘ 19	

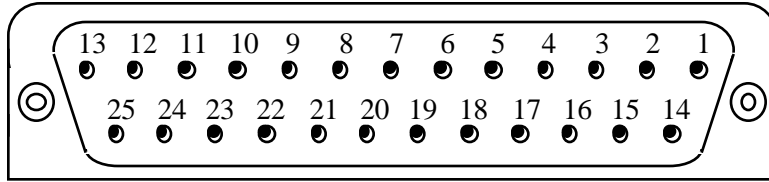
Keypad (U.S. Key Caps shown)

Figure 12–Key-Down Transitions



1	Ground	11	CA0
2	Ground	12	CA1
3	Ground	13	CA2
4	Ground	14	LSTRB
5	-12 volts	15	Write request
6	+5 volts	16	SEL
7	+12 volts	17	External drive enable
8	+12 volts	18	Read data
9	(not connected)	19	Write data
10	Motor speed control		

Figure 13—Pinout for Disk Jack



1 $\overline{\text{REQ}}$	14 Ground
2 $\overline{\text{MSG}}$	15 $\overline{\text{C/D}}$
3 $\overline{\text{I/O}}$	16 Ground
4 $\overline{\text{RST}}$	17 $\overline{\text{ATN}}$
5 $\overline{\text{ACK}}$	18 Ground
6 $\overline{\text{BSY}}$	19 $\overline{\text{SEL}}$
7 Ground	20 $\overline{\text{DBP}}$
8 $\overline{\text{DD0}}$	21 $\overline{\text{DB1}}$
9 Ground	22 $\overline{\text{DB2}}$
10 $\overline{\text{DB3}}$	23 $\overline{\text{DB4}}$
11 $\overline{\text{DB5}}$	24 Ground
12 $\overline{\text{DB6}}$	25 (not connected)
13 $\overline{\text{DB7}}$	

Figure 4. Pinout for SCSI Connector

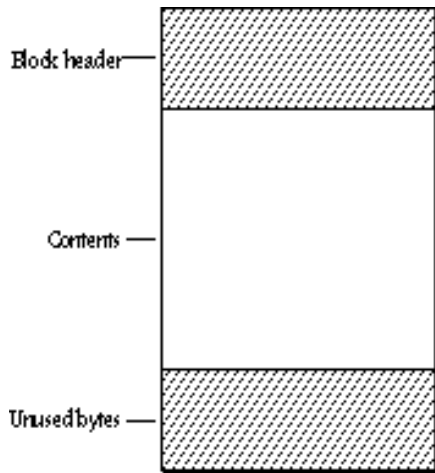


Figure 2-A Block

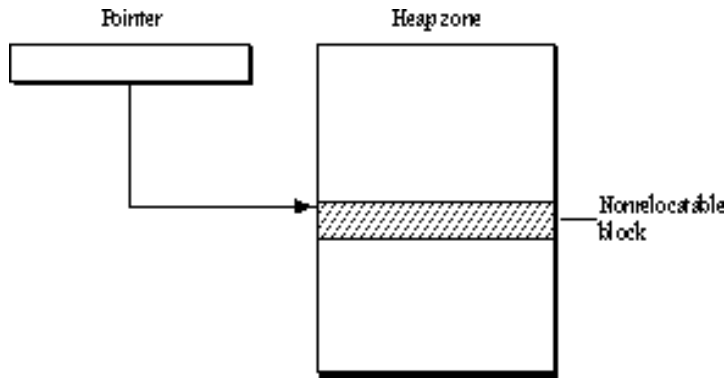


Figure 3–A Pointer to a Nonrelocatable Block

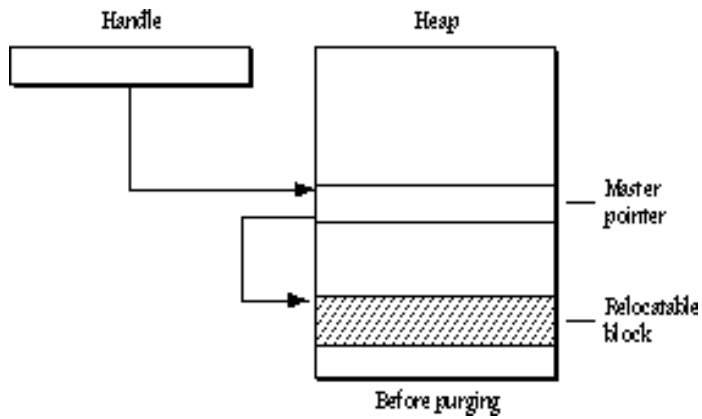


Figure 4-A Handle to a Relocatable Block

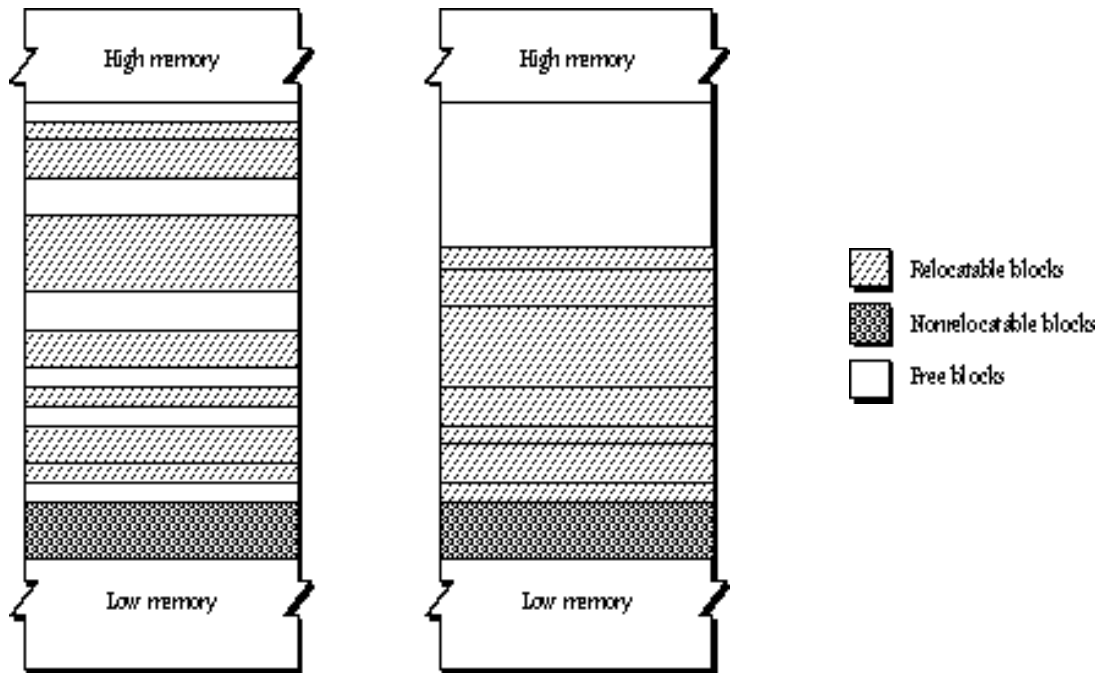


Figure 5-Heap Compaction

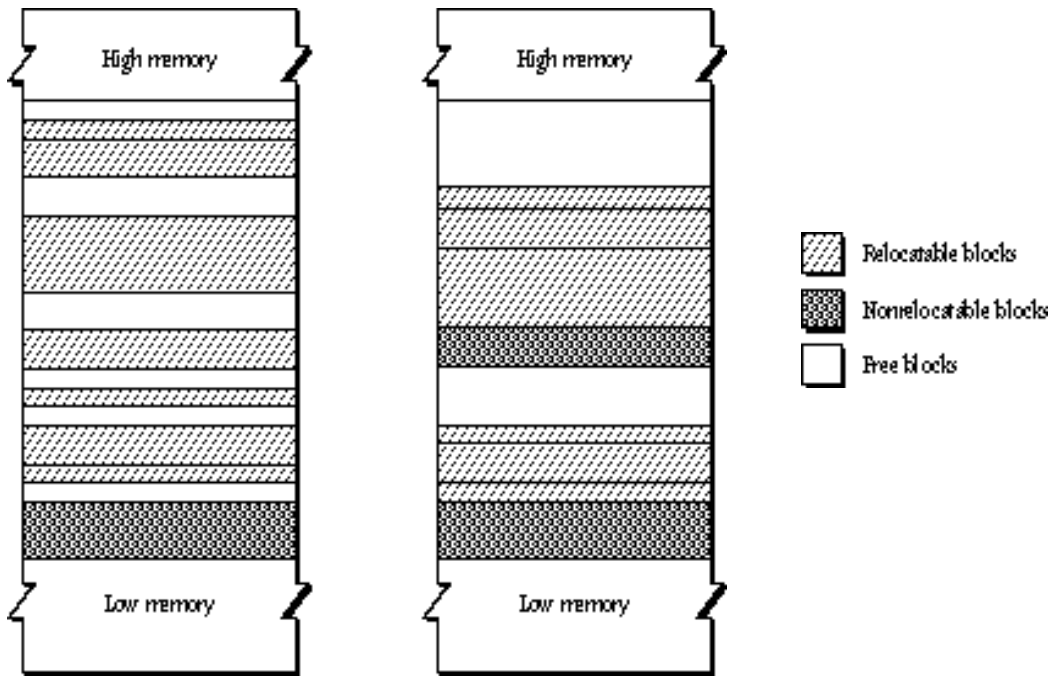


Figure 6—Fragmentation of Free Space

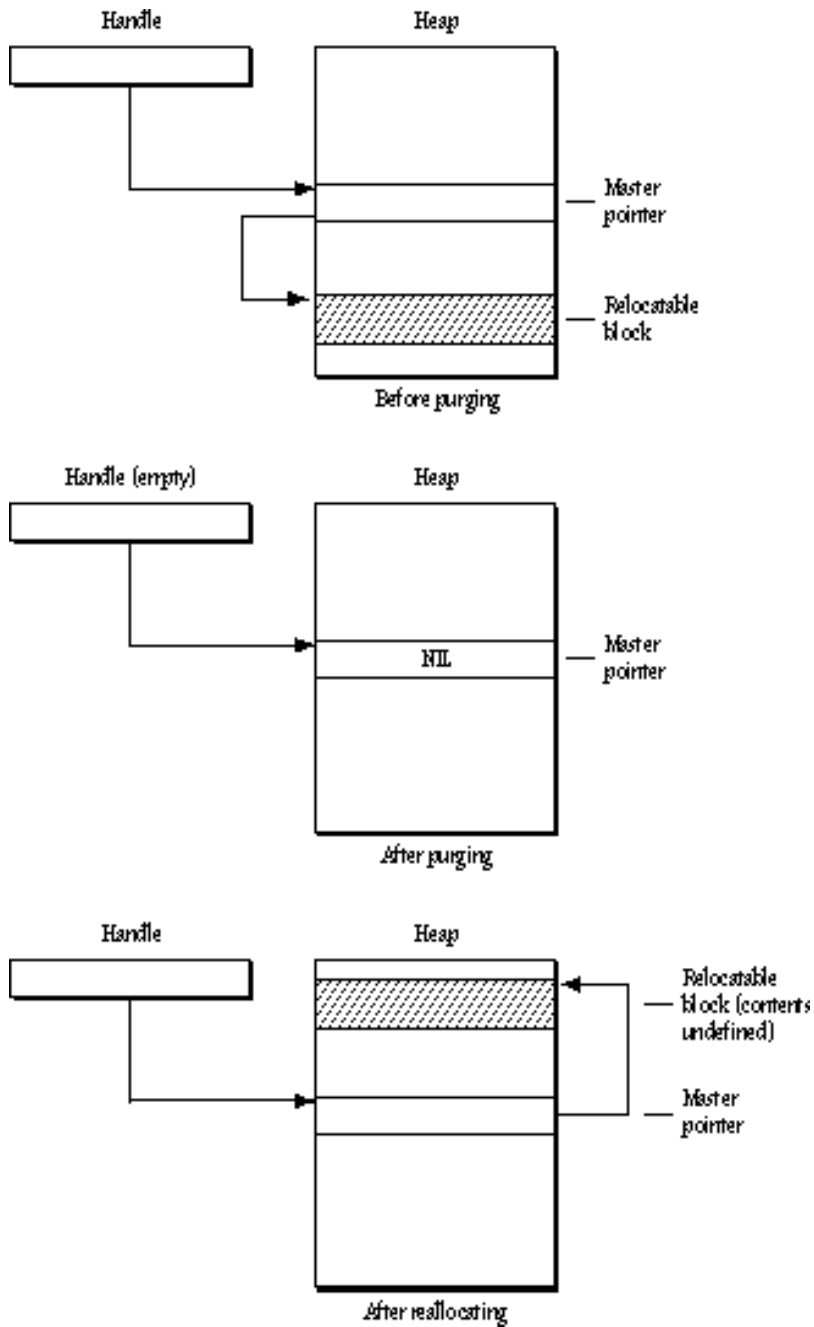


Figure 7—Purging and Reallocating a Block

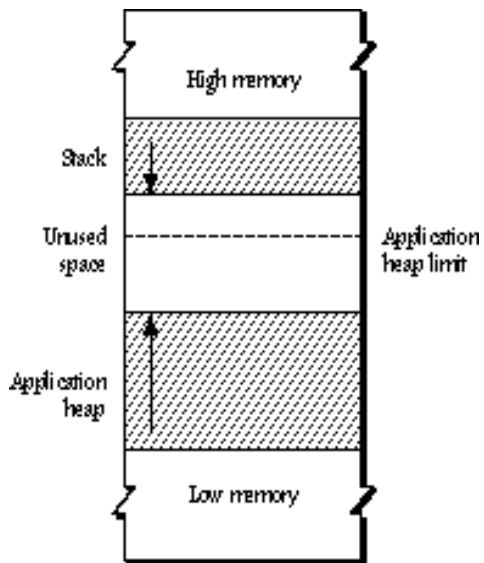


Figure 8—The Stack and the Heap

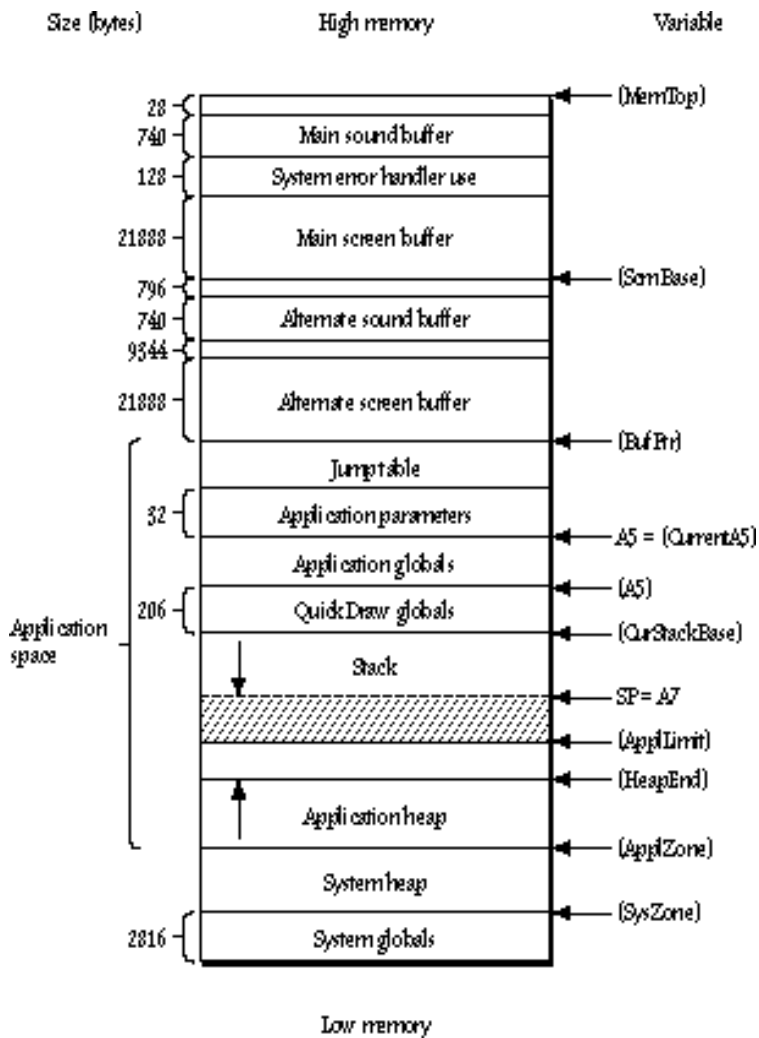


Figure 9—Macintosh 128K and 512K RAM

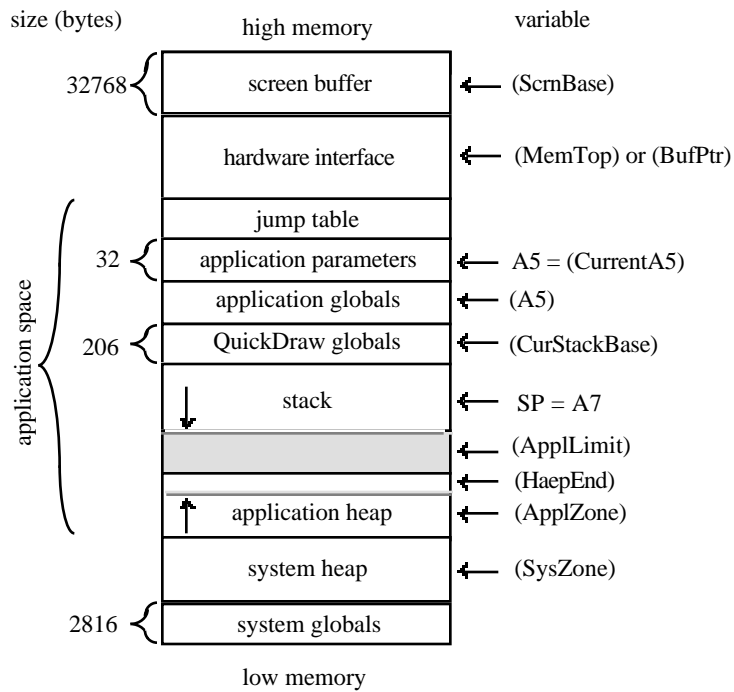


Figure 10-Macintosh XL RAM

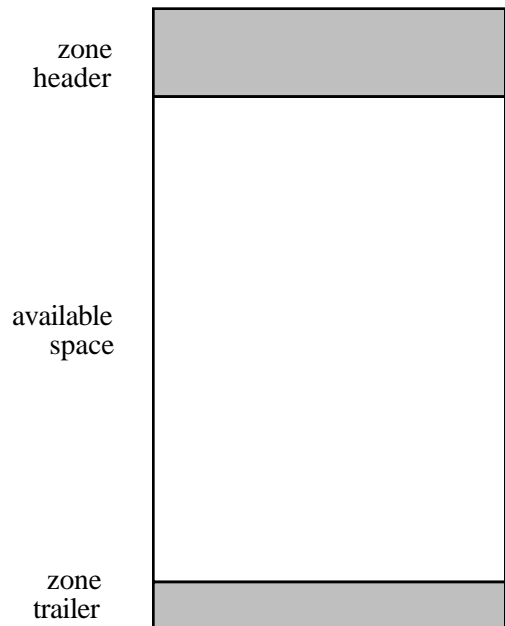


Figure 11—Structure of a Heap Zone

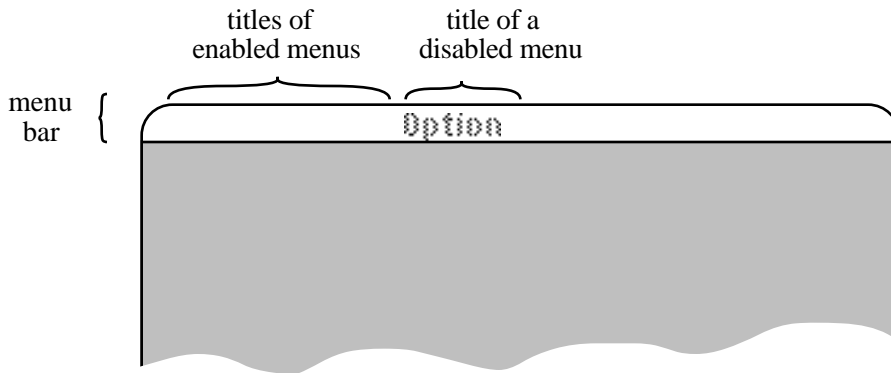


Figure 1—The Menu Bar

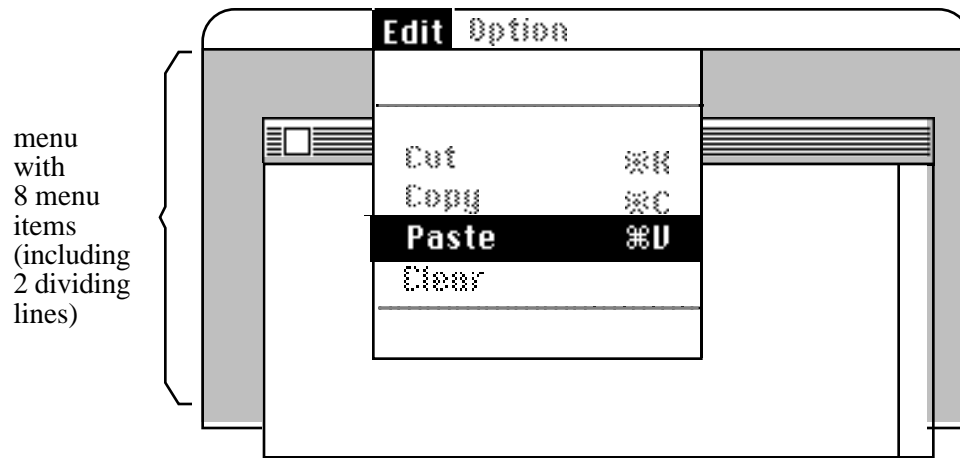
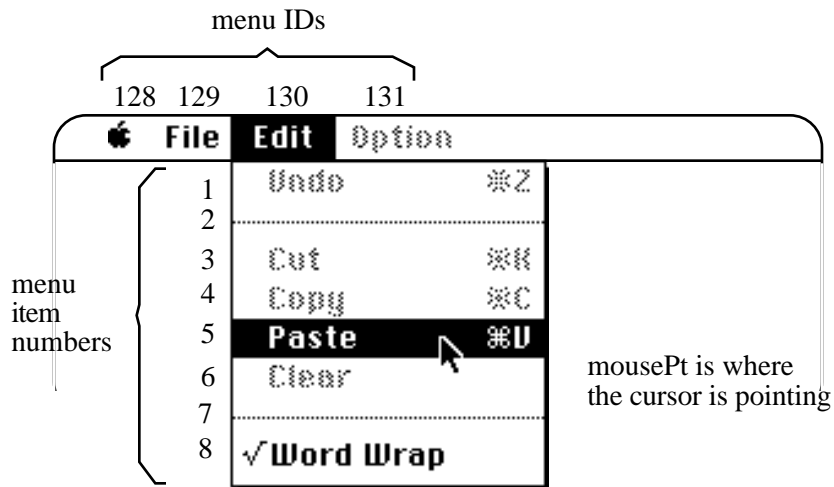


Figure 2-A Standard Menu

Menu Elements	Menu Color Table Entries						
	ID	Item	RGB1	RGB2	RGB3	RGB4	Reserved
Menu bar	0	0	Default title	Default background	Default items	Bar color	Reserved
Title	MC>0	0	Title color	Bar color	Default items	Background color	Reserved
Item	MC>0	MC>0	Mark color	Name color	Command color	Background color	Reserved
Last entry	-99	Reserved	Reserved	Reserved	Reserved	Reserved	Reserved

Figure 3—Menu Color Information Table



MenuSelect(mousePt) or MenuKey('V') returns:

130	5
high-order word	low-order word

Figure 4—MenuSelect and MenuKey

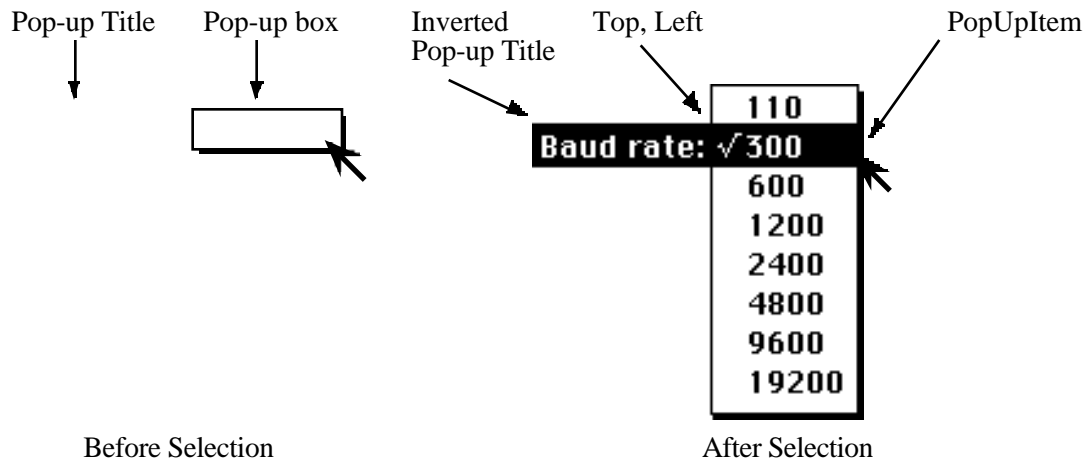


Figure 5—Pop-up Box Parameters

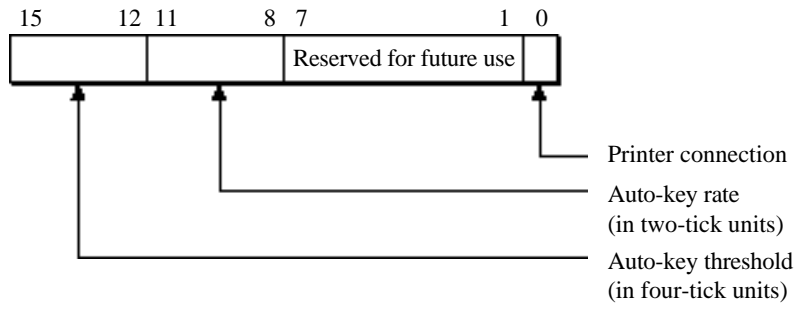


Figure 1—The KbdPrint Field

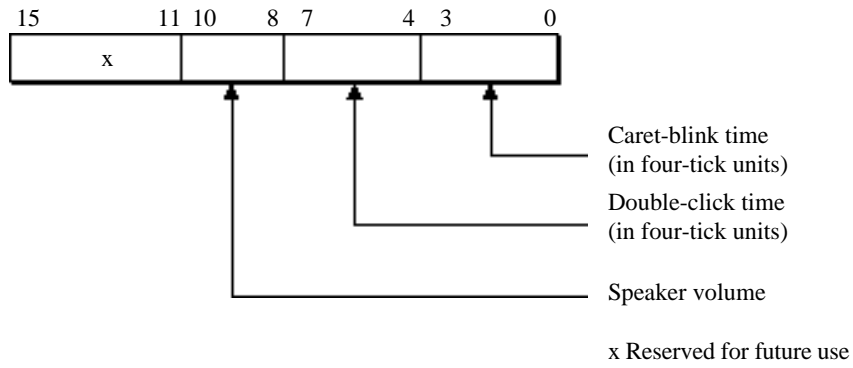


Figure 2—The VolClik Field

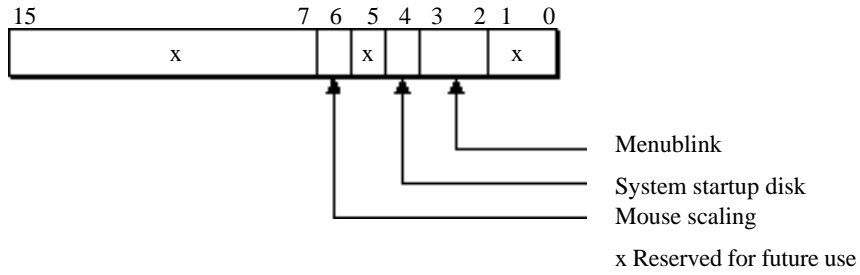


Figure 3—The Misc Field

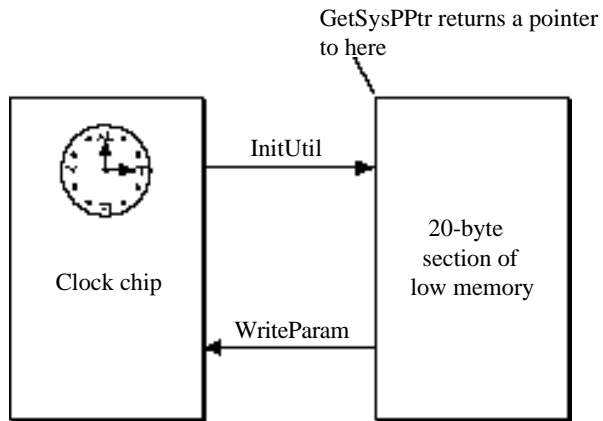


Figure 4—Parameter RAM Routines

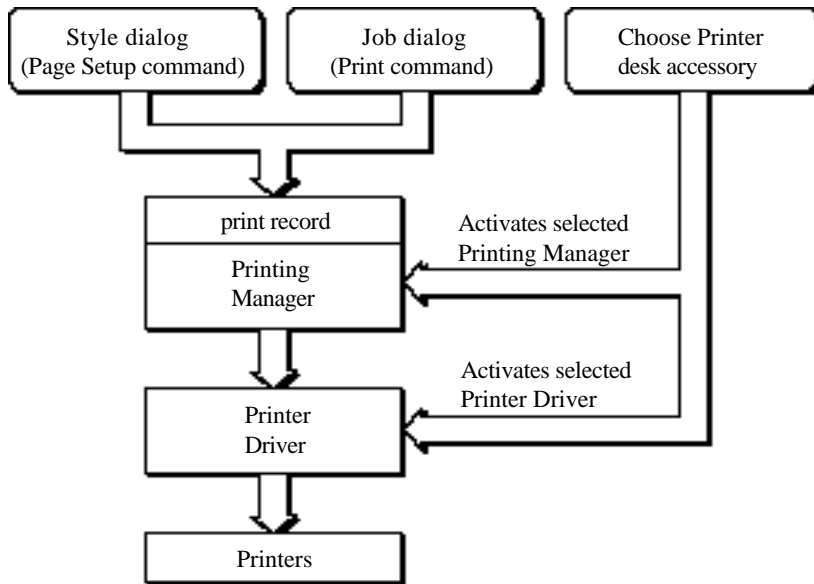


Figure 1-Printing Overview

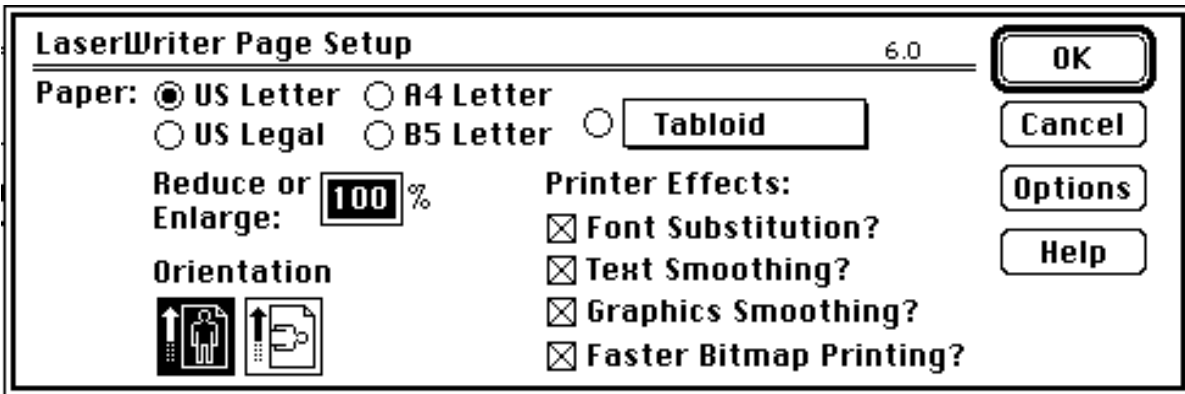


Figure 2—The Style Dialog

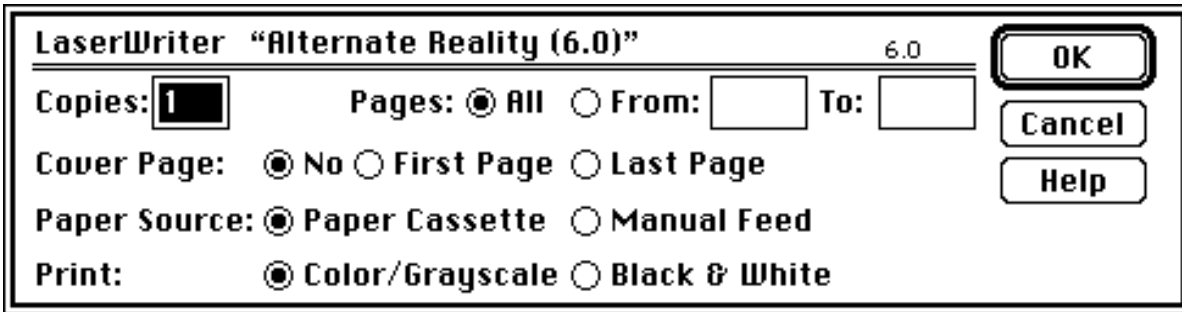


Figure 3–The Job Dialog

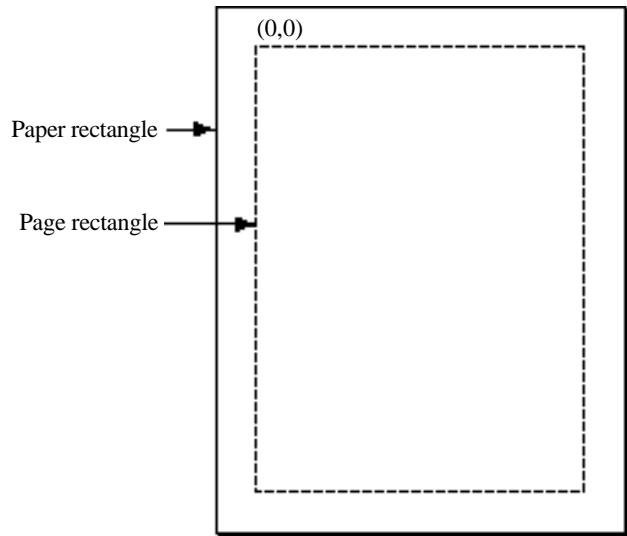


Figure 4—Page and Paper Rectangles

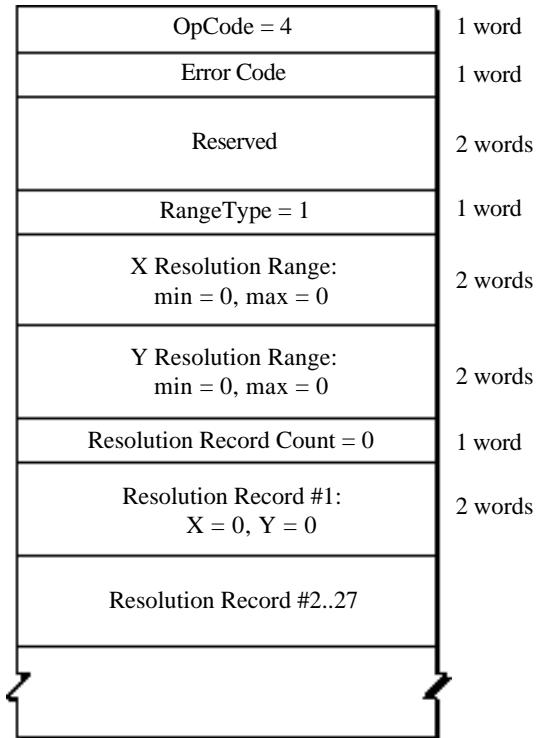


Figure 5–Data Block for PrGeneral

OpCode = 4	1 word
Error Code (0 = okay)	1 word
Reserved	2 word
RangeType = 1	1 word
X Resolution Range: min = 72, max = 1500	2 word
Y Resolution Range: min = 72, max = 1500	2 word
Resolution Record Count = 1	1 word
Resolution Record #1: X = 300, Y = 300	2 word

Figure 6—Data Block Returned by LaserWriter

OpCode = 4	1 word
Error Code (0 = okay)	1 word
Reserverd	2 words
RangeType = 1	1 word
X Resolution Range: min = 0, max = 0	2 words
Y Resolution Range: min = 0, max = 0	2 words
Resolution Record Count = 4	1 word
Resolution Record #1: X = 72, Y = 72	2 words
Resolution Record #2: X = 144, Y = 144	2 words
Resolution Record #3: X = 80, Y = 72	2 words
Resolution Record #4: X = 160, Y = 144	2 words

Figure 7–Data Block Returned by ImageWriter

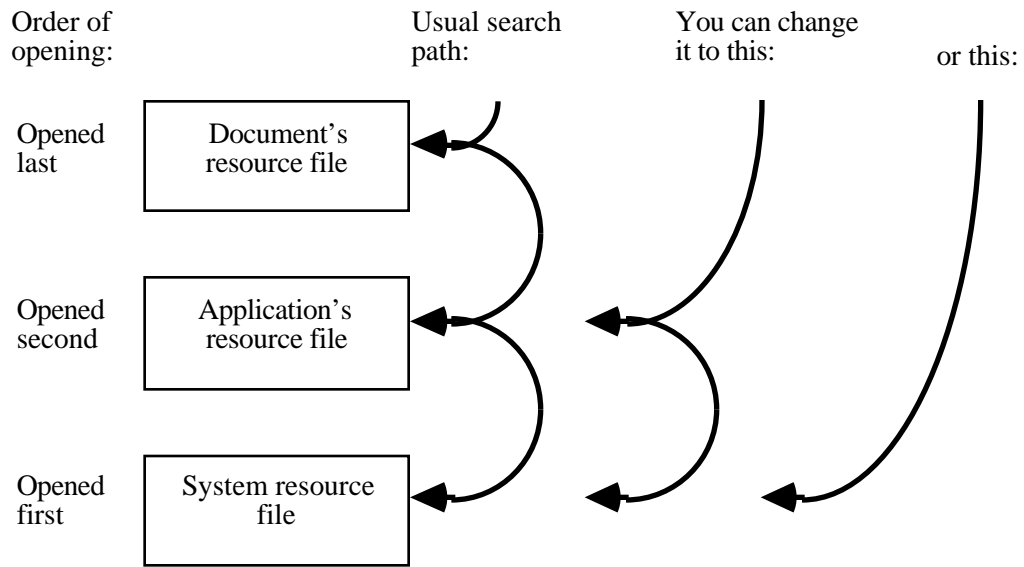


Figure 1—Resource File Sharing

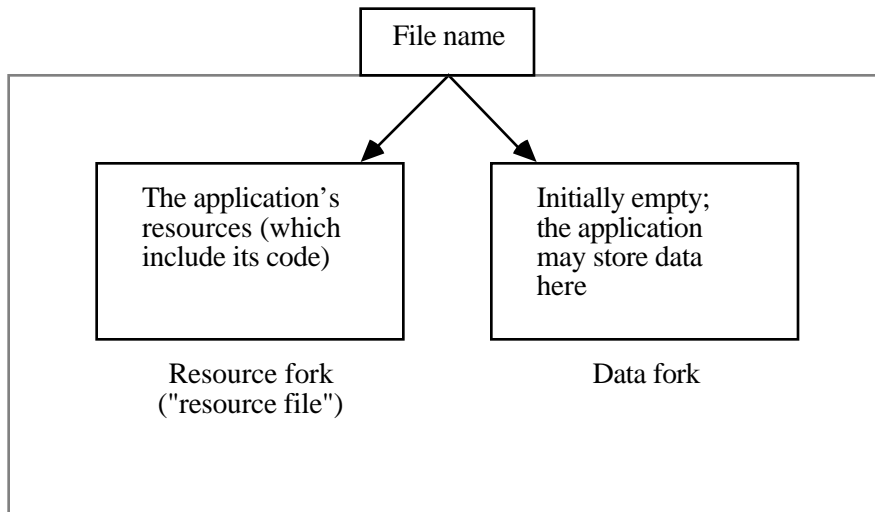


Figure 2—An Application File

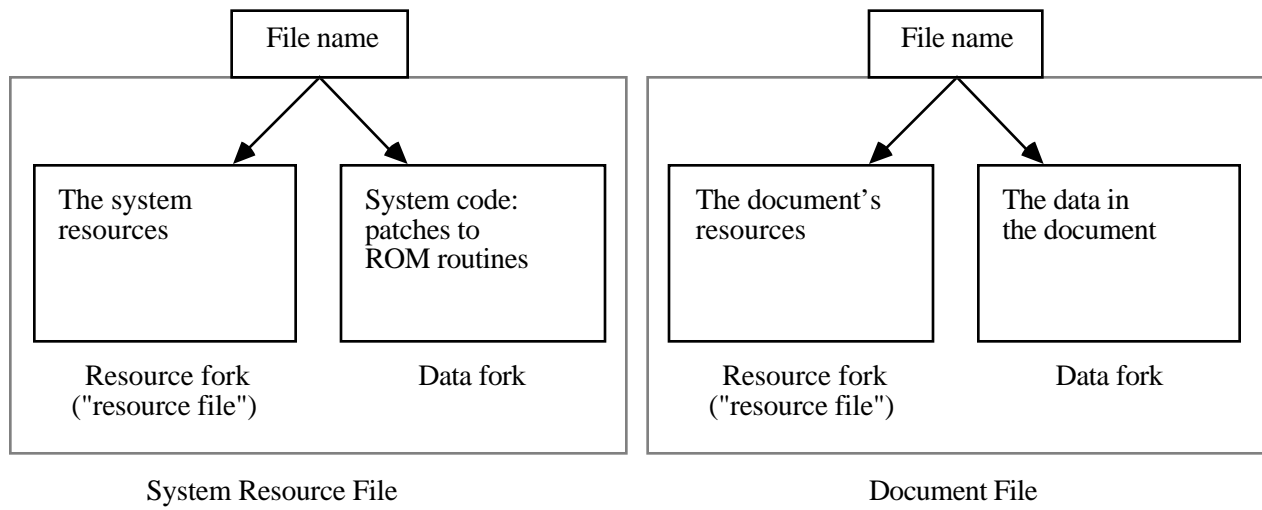


Figure 3-Other Files

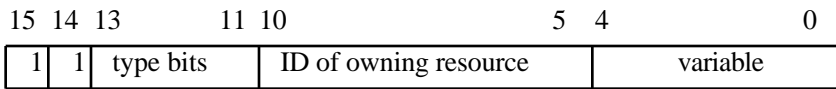


Figure 4—Resource ID of an Owned System Resource

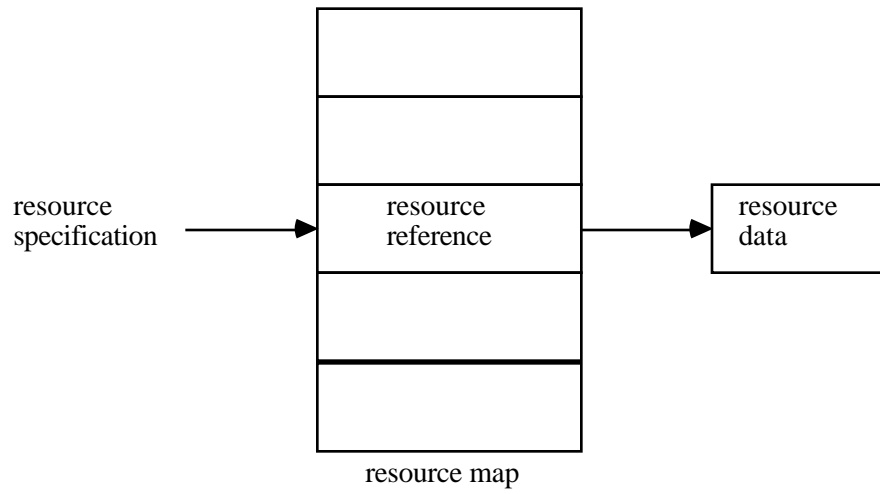
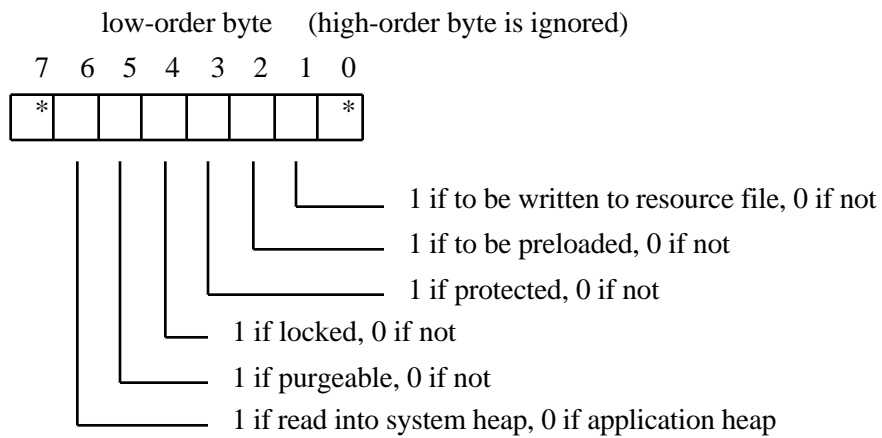


Figure 5—Resource References in Resource Maps



* reserved for use by the Resource Manager

Figure 6—Resource Attributes

RomMapInsert (byte)	TmpResLoad (byte)
---------------------	-------------------

Figure 7–RomMapInsert and TmpResLoad

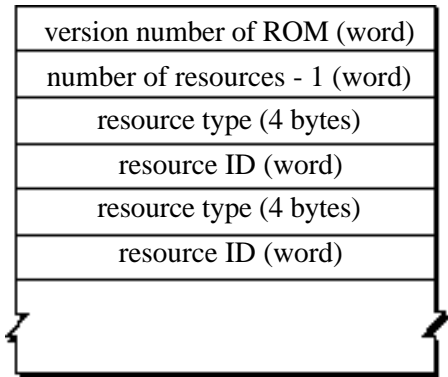


Figure 8—Structure of an 'ROv#' Resource

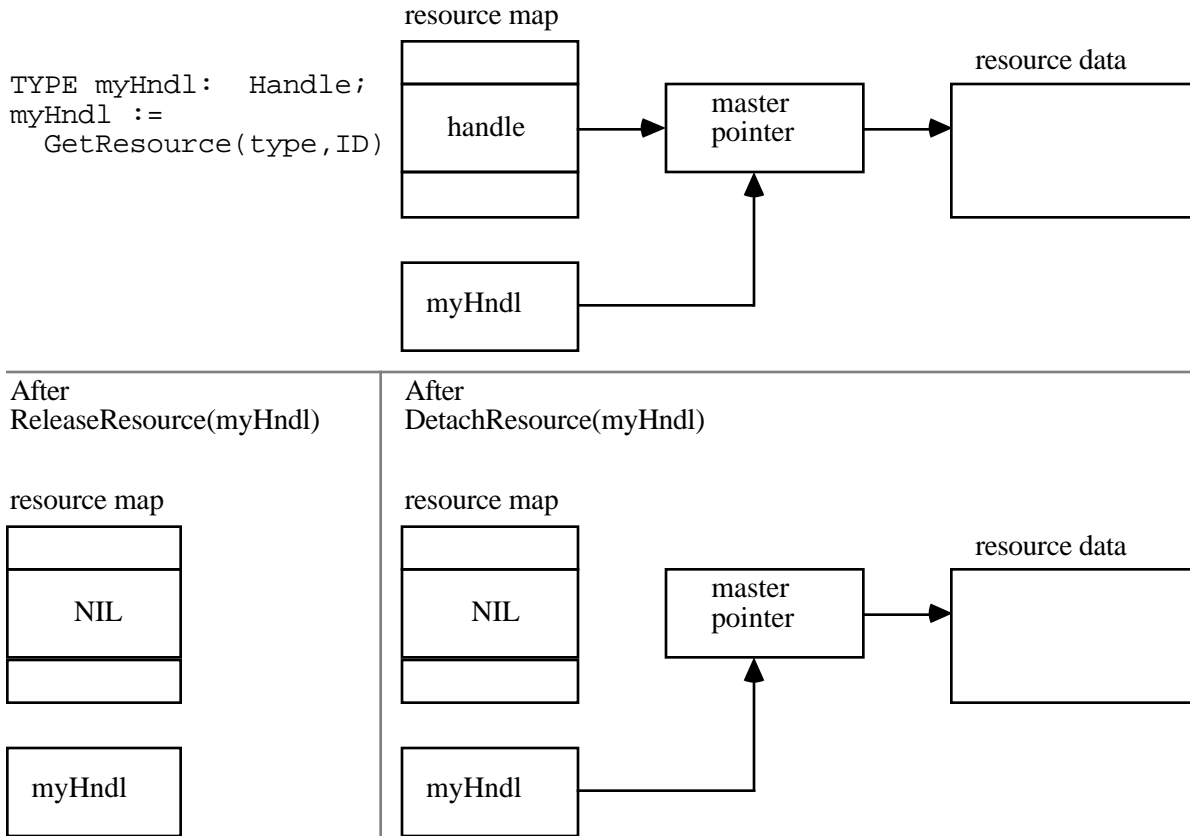


Figure 9—ReleaseResource and DetachResource

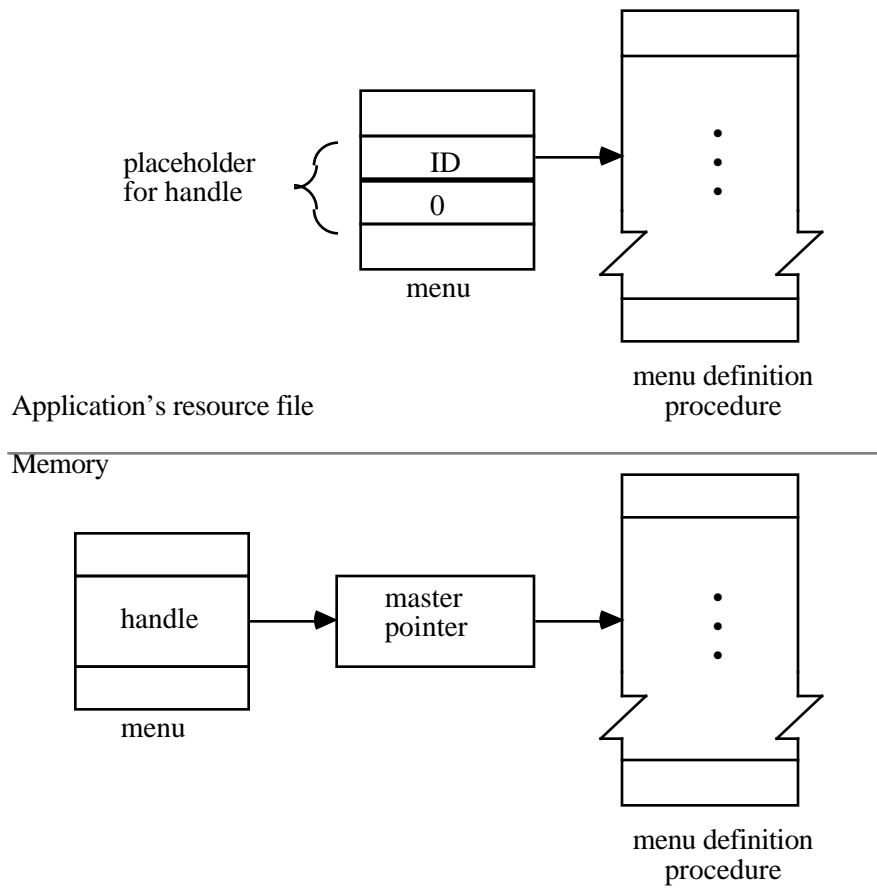


Figure 10—How Resources Point to Resources

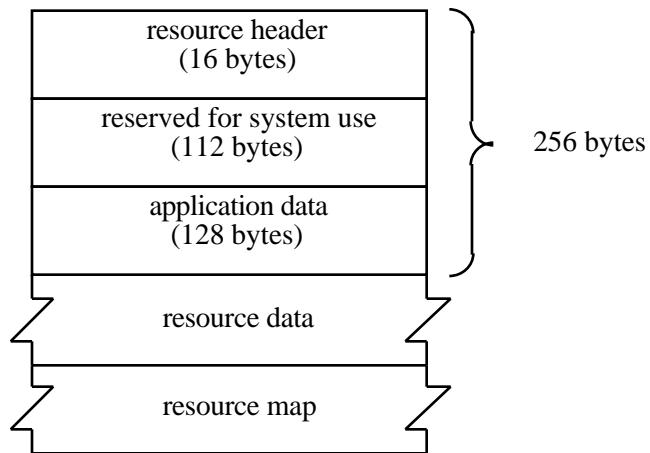


Figure 11—Format of a Resource File

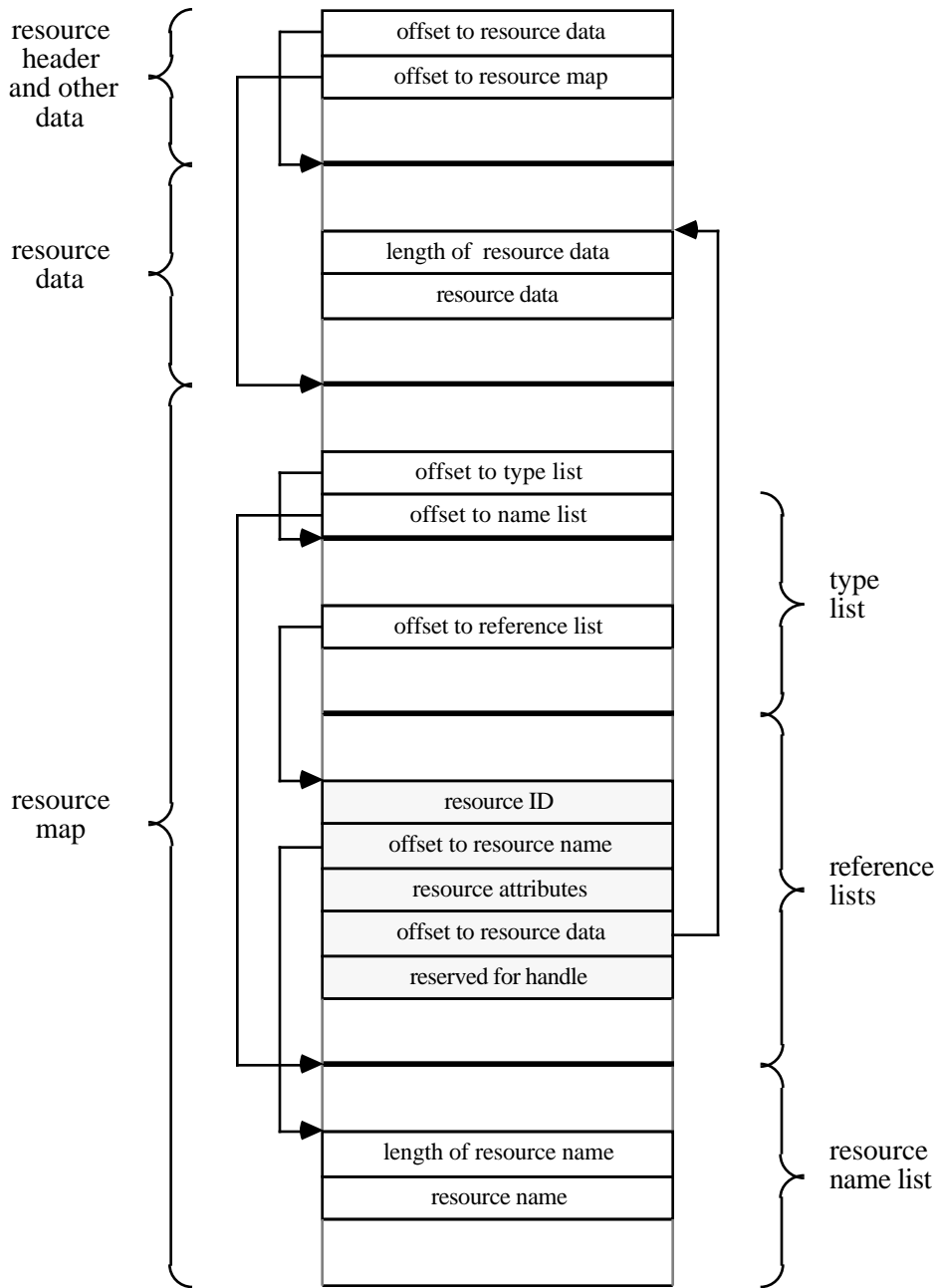


Figure 12—Resource Reference in a Resource File

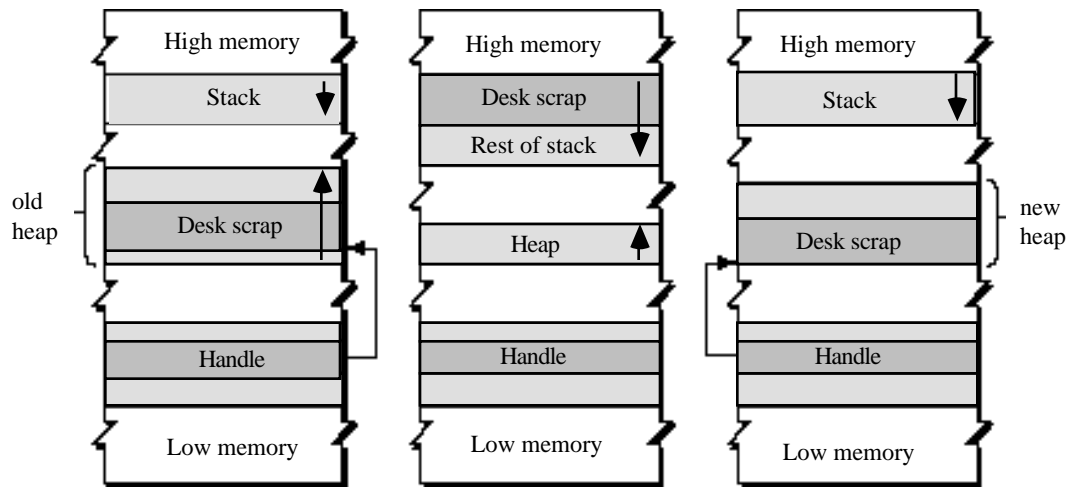


Figure 1—The Desk Scrap at Application Startup

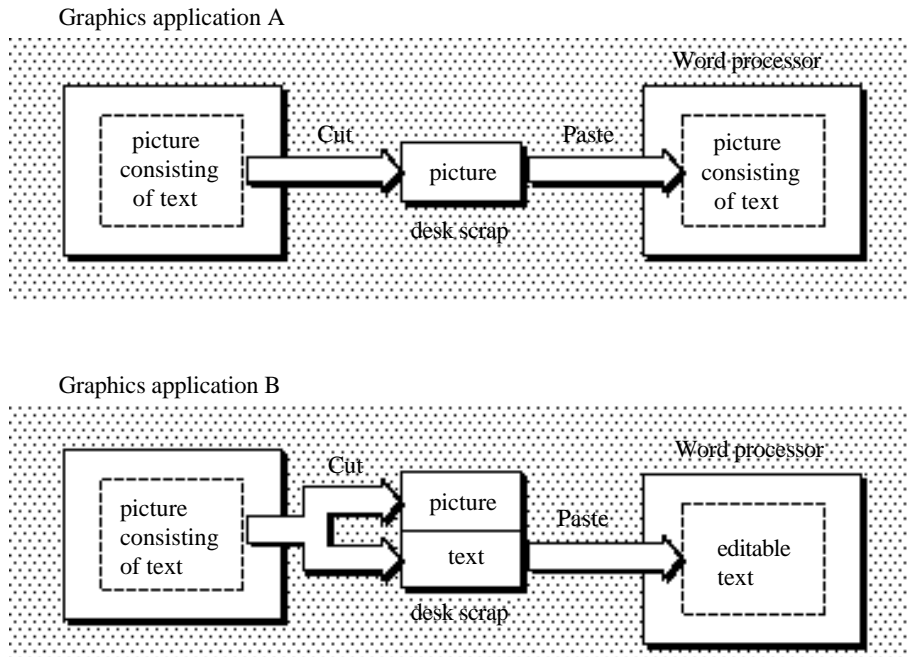


Figure 2—Inter-Application Cutting and Pasting

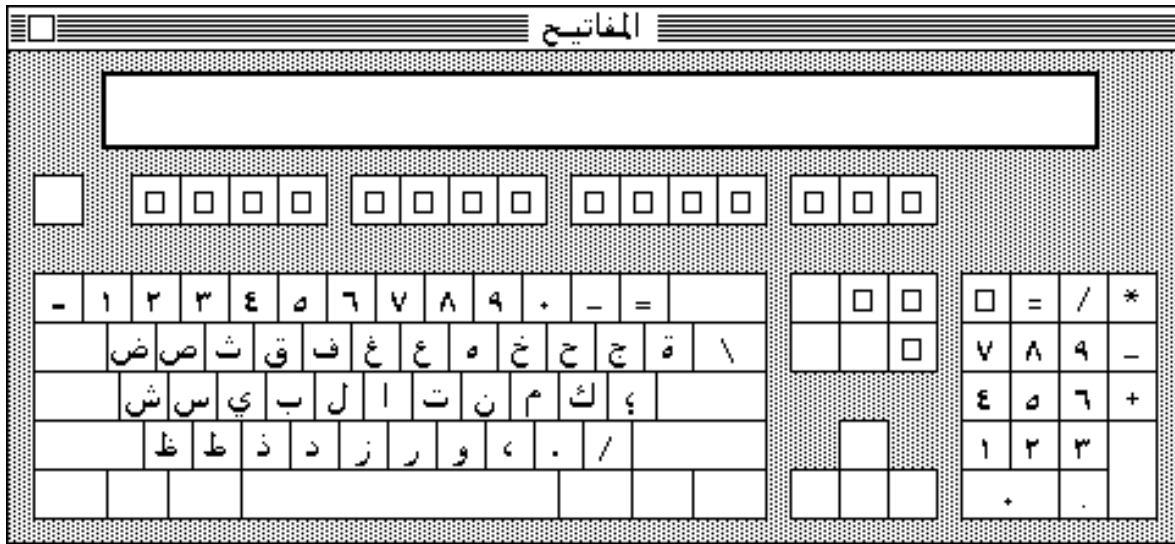


Figure 1–Key Caps in Arabic Script

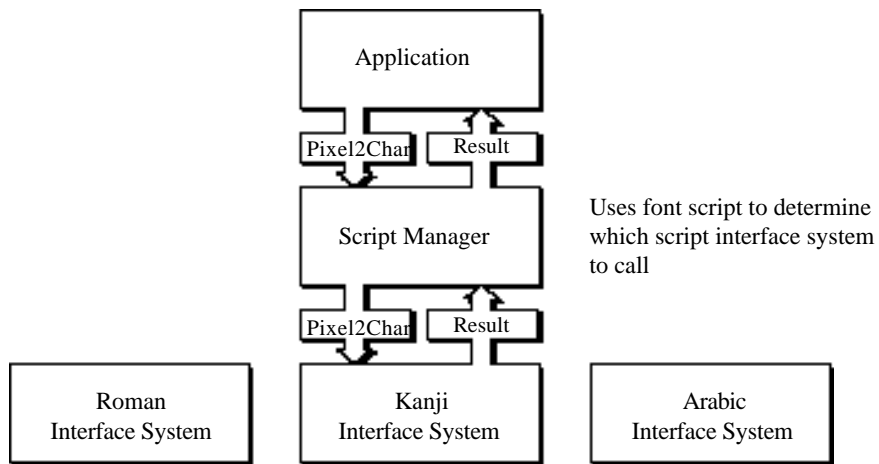


Figure 2—Example of a Procedure Call

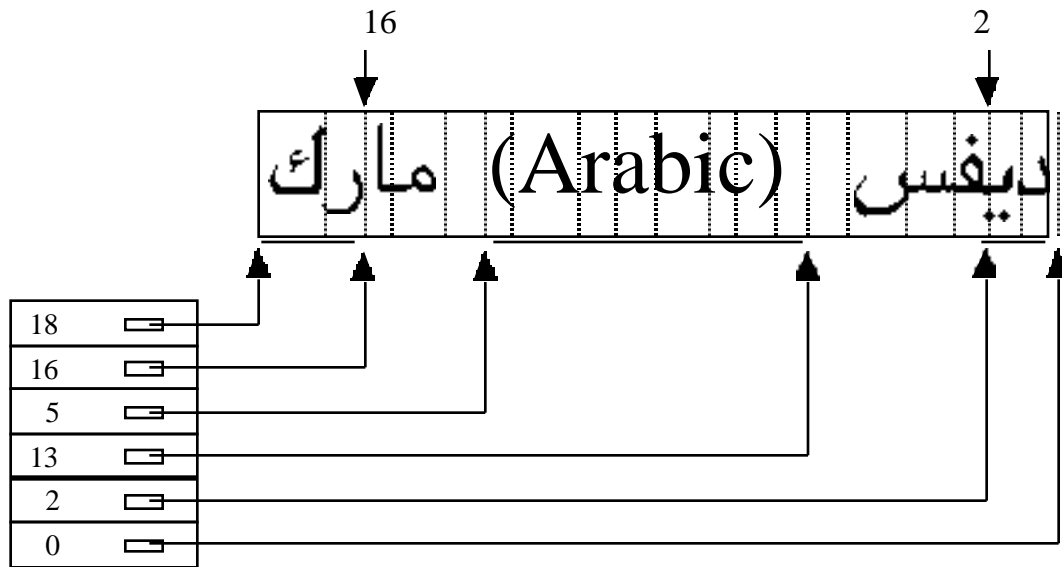


Figure 3—Example of Bidirectional Selection

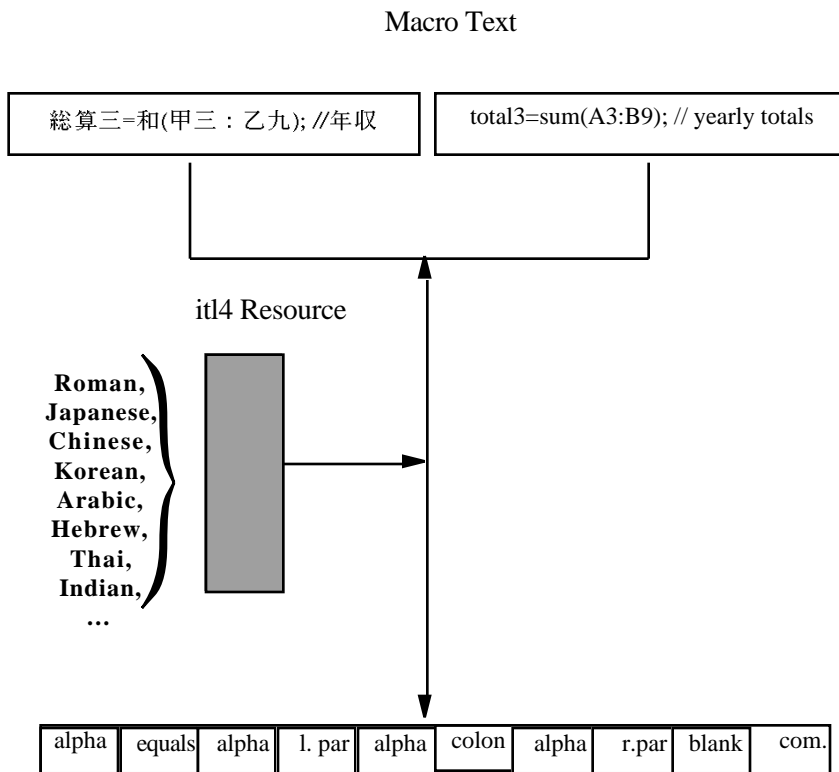


Figure 4-IntlTokenize

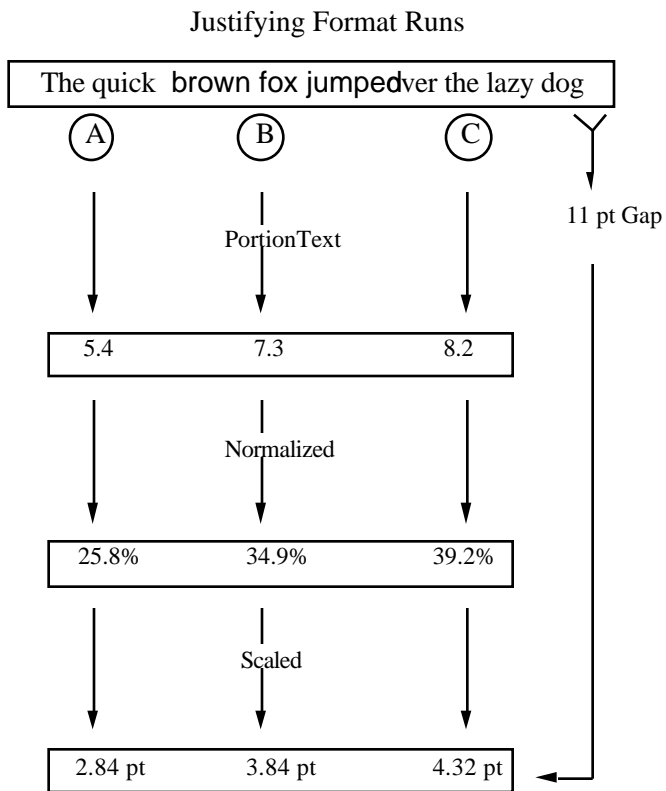


Figure 5-PortionText

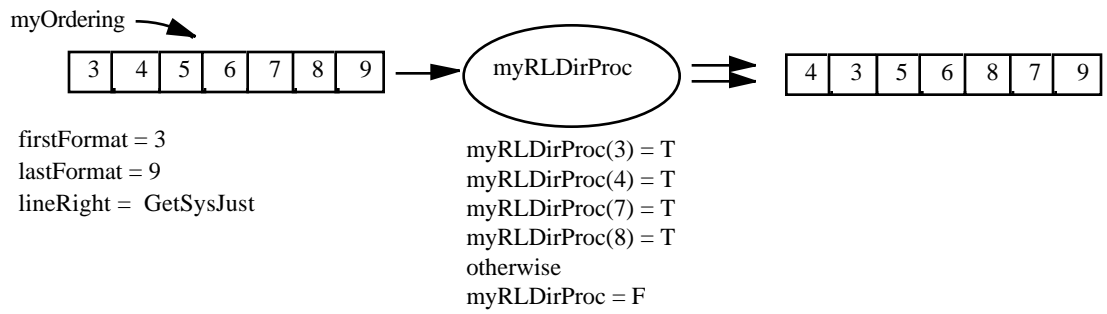


Figure 6-GetFormatOrder

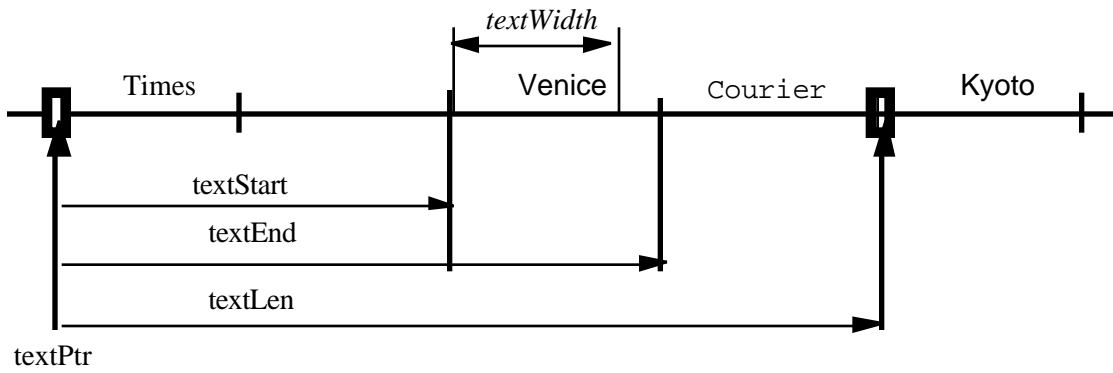


Figure 7-StyledLineBreak

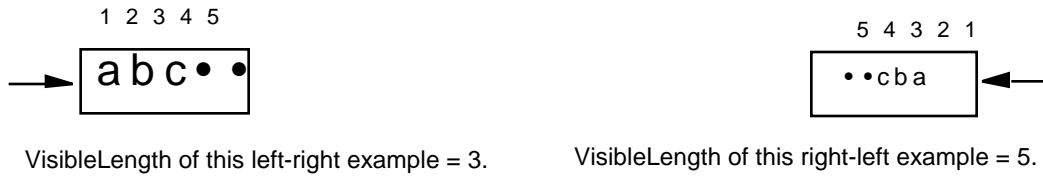


Figure 8–VisibleLength

- “The quick brown fox jumped over the lazy dog”
- A. Identical “The quick brown fox jumped over the lazy dog”
- Last Char
- B. Unequal “The quick brown fox jumped over the lazy doX”
- C. Similar “The quick brown fox jumped over the lazy doG”
- First Char
- D. Unequal “Xhe quick brown fox jumped over the lazy dog”
- E. Similar “the quick brown fox jumped over the lazy dog”
- All Chars
- F. Similar “THÉ QÛİÇK BRØWÑ FÖX JÜMPÉD ØVÉR THÉ LÅZY DÖG”

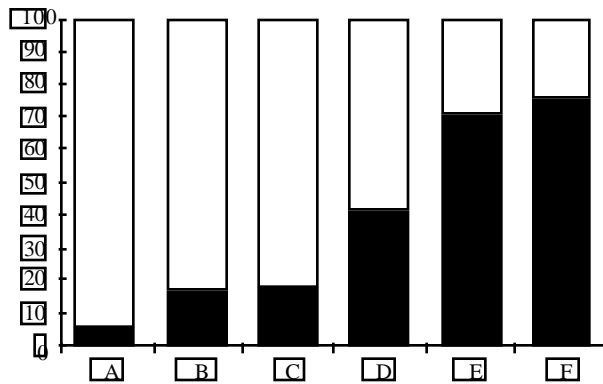


Figure 9–International Text Comparison

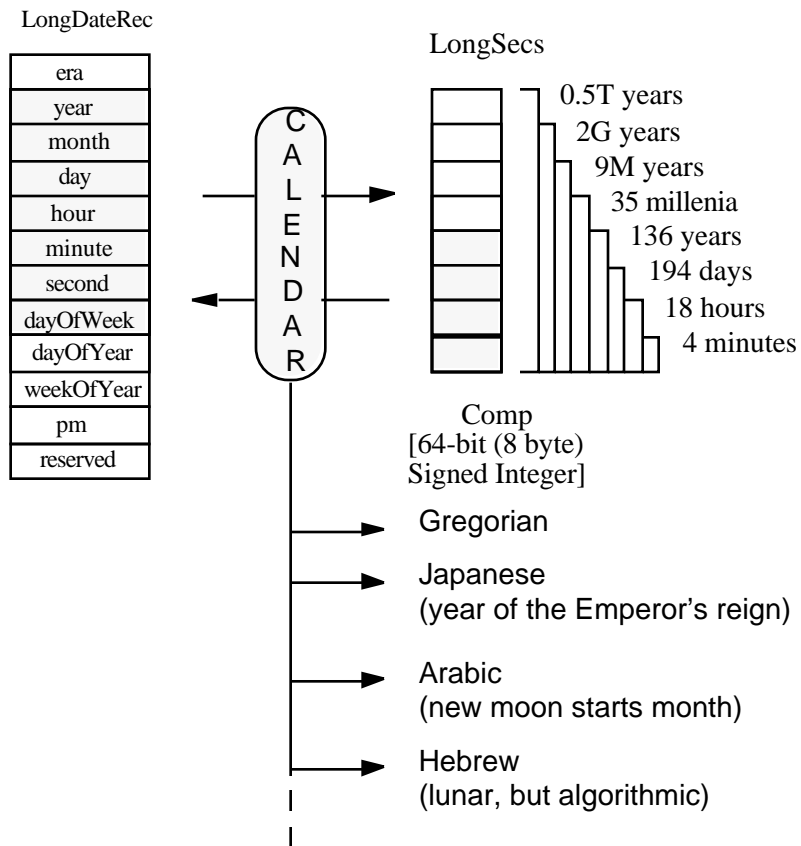


Figure 10-Long Date <-> String

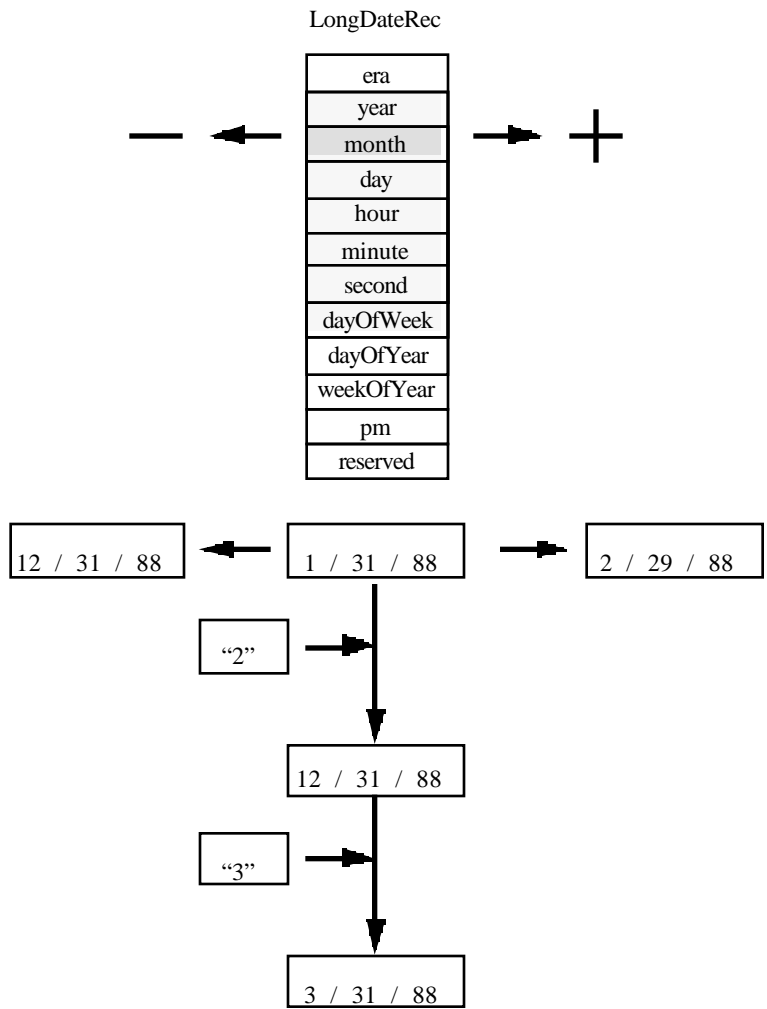


Figure 11-ToggleDate

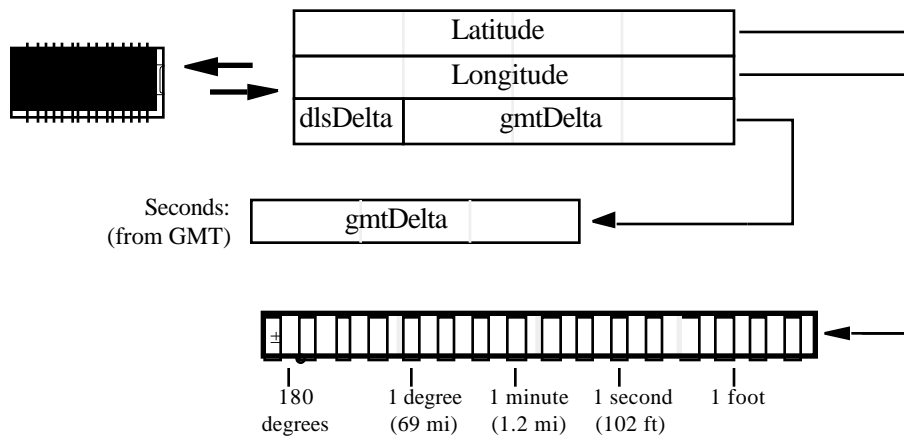


Figure 12—Locations

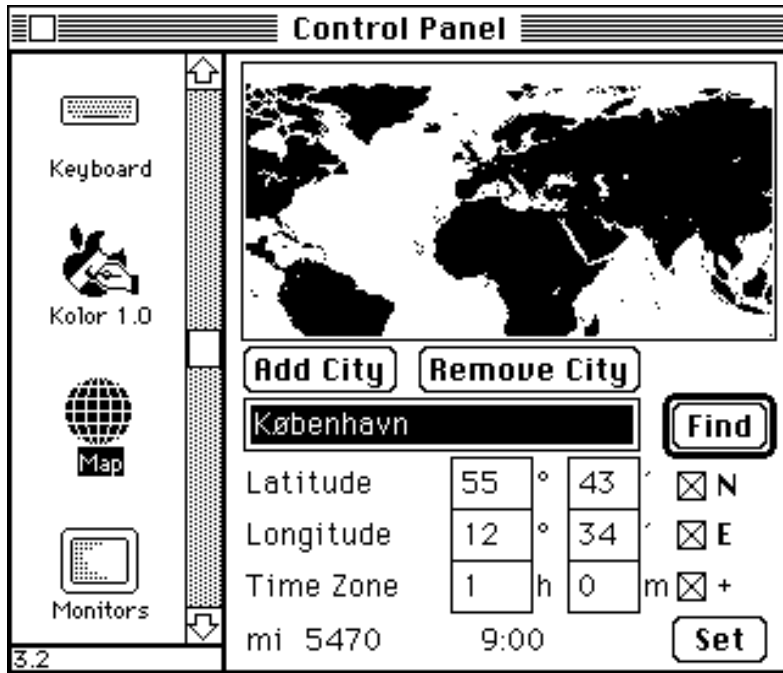


Figure 13-Map

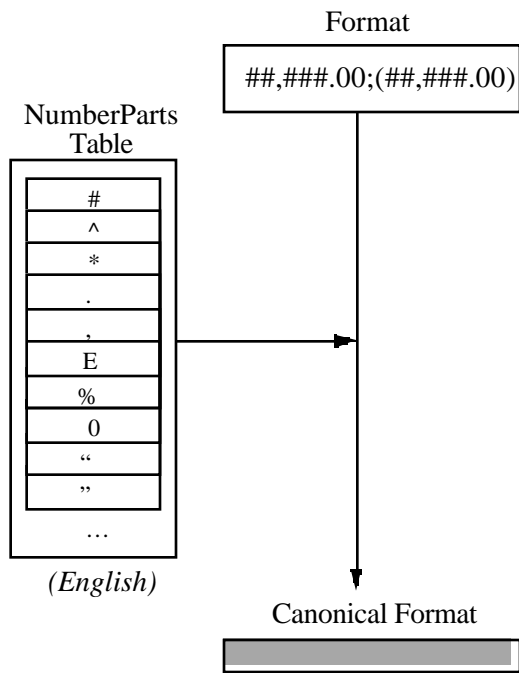


Figure 14–Str2Format

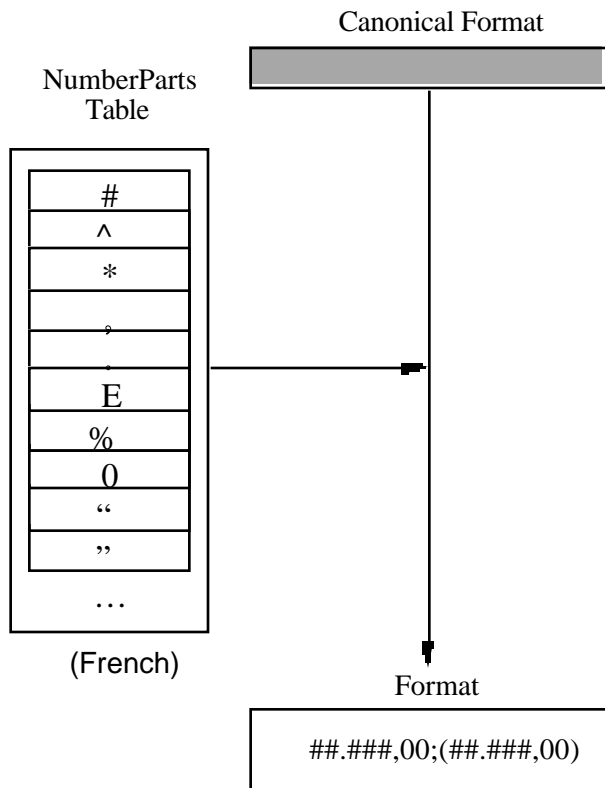


Figure 15-Format2Str

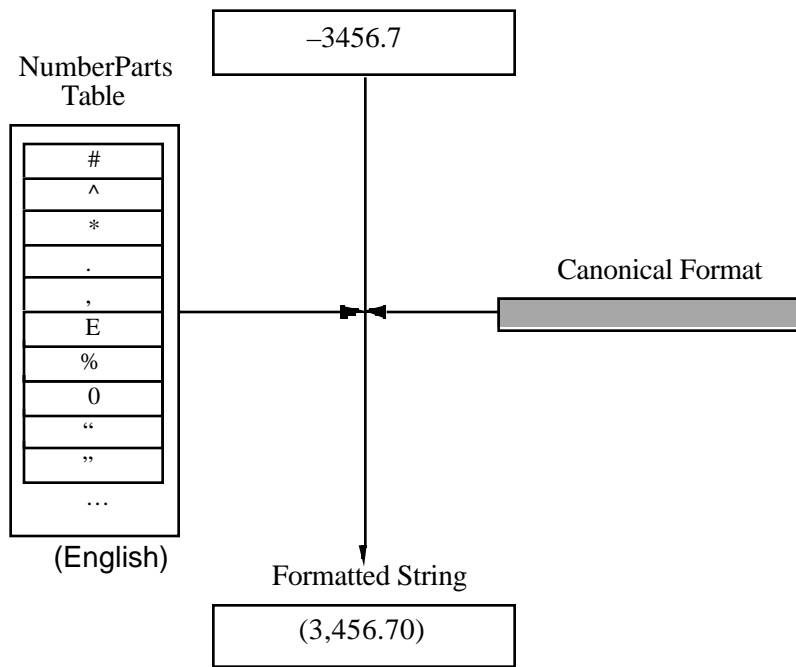


Figure 16-FormatX2Str

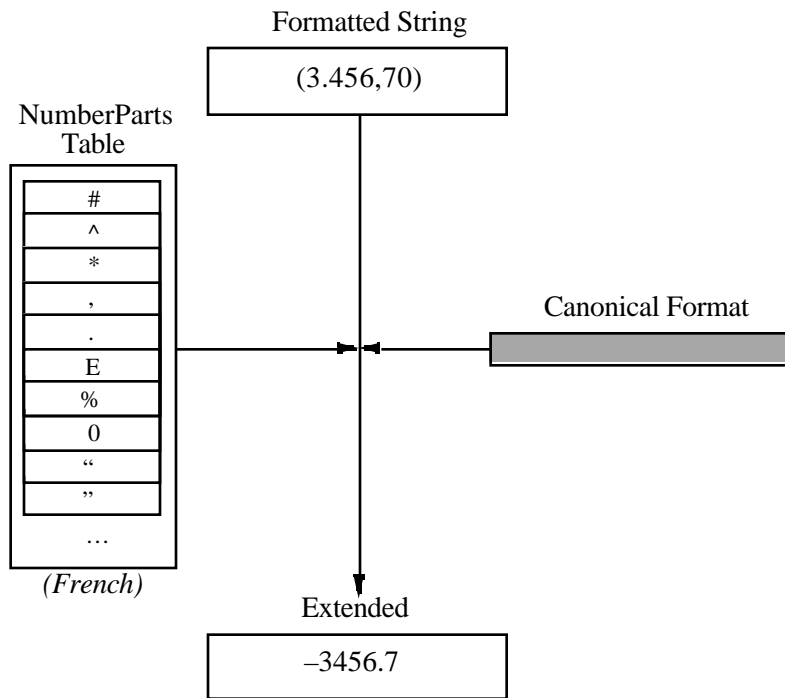


Figure 17-FormatStr2X

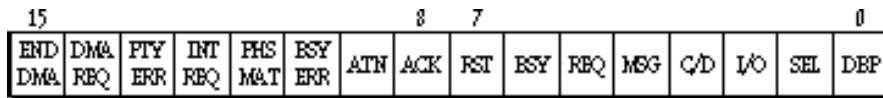


Figure 1-SCSI Control and Status Bits

	sbSig (word)	Always \$4552
	sbBlockSize (word)	Block size of device
	sbBlkCount (long word)	Number of blocks on device
	sbDevType (word)	Used internally
	sbDevID (word)	Used internally
	sbData (long word)	Used internally
	sbDevCount (word)	Number of driver descriptions
First driver descriptor	ddBlock (long word)	First block of driver
	ddSize (word)	Driver size in blocks
	ddType (word)	System type (1 for Macintosh)

Figure 2—Driver Descriptor Map



Figure 3—Device Partition Map

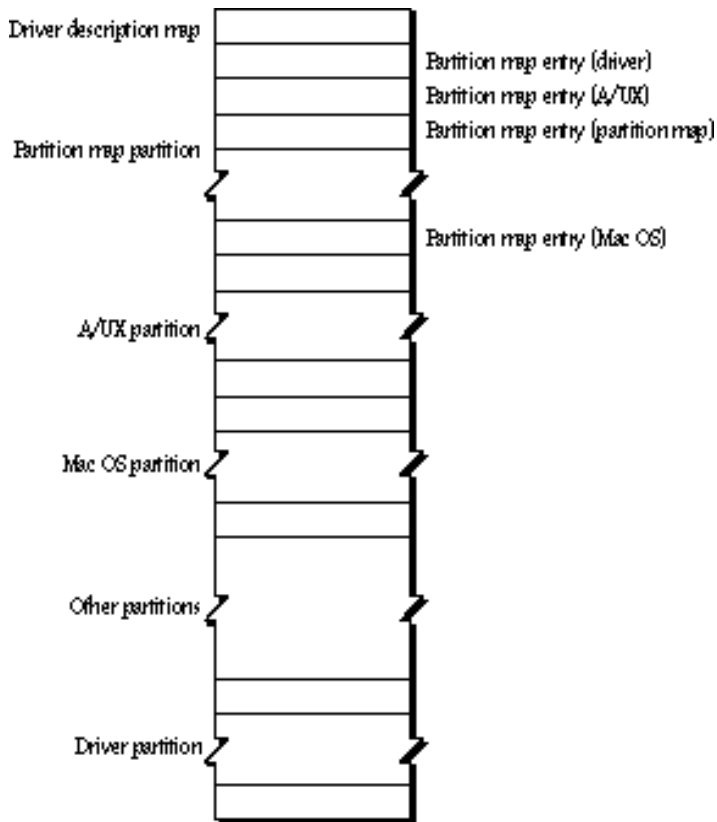


Figure 4—An Example of Disk Partitioning

Byte	0*	pmFig (word)	Always \$504D
	2	pmFigPad (word)	Reserved for future use
	4*	pmMapBlkCnt (long word)	Number of blocks in map
	8*	pmPyPartStart (long word)	First physical block of partition
	C*	pmPartBlkCnt (long word)	Number of blocks in partition
	10*	pmPartName (32 bytes)	Partition name
	30*	pmPartType (32 bytes)	Partition type
	50	pmLgDataStart (long word)	First logical block of data area
	54	pmDataCnt (long word)	Number of blocks in data area
	58	pmPartStatus (long word)	Partition status information
	5C	pmLgBootStart (long word)	First logical block of boot code
	60	pmBootSize (long word)	Size in bytes of boot code
	64	pmBootAddr (long word)	Boot code load address
	68	pmBootAddr2 (long word)	Additional boot load information
	6C	pmBootEntry (long word)	Boot code entry point
	70	pmBootEntry2 (long word)	Additional boot entry information
	74	pmBootChecksum (long word)	Boot code checksum
	78	pmProcessor (16 bytes)	Processor type
	88	(128 bytes)	Boot-specific arguments

Figure 5-Partition Map Entry

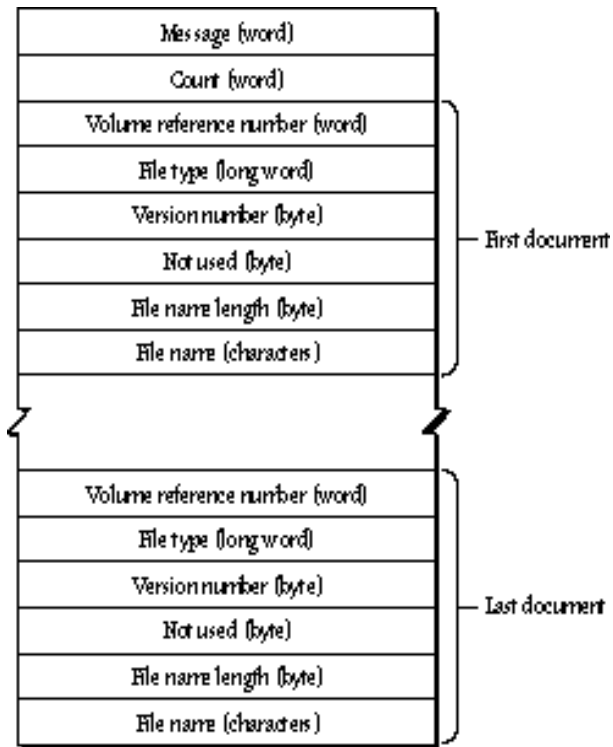


Figure 1-Finder Information

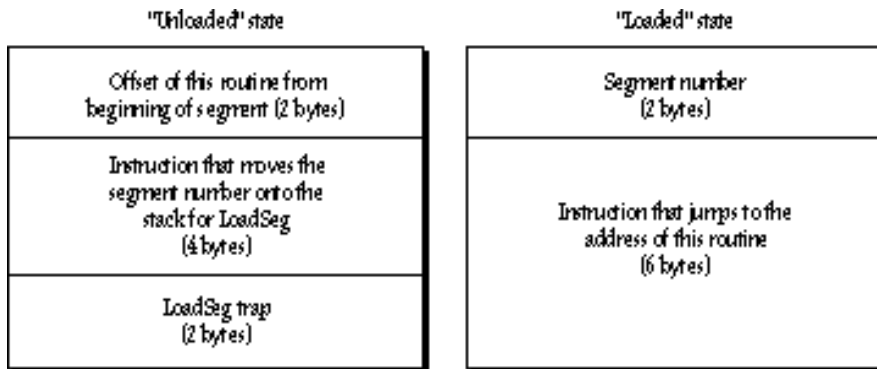


Figure 2—Format of a Jump Table Entry

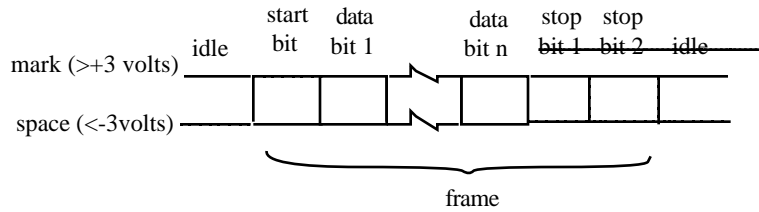


Figure 1—Asynchronous Data Transmission

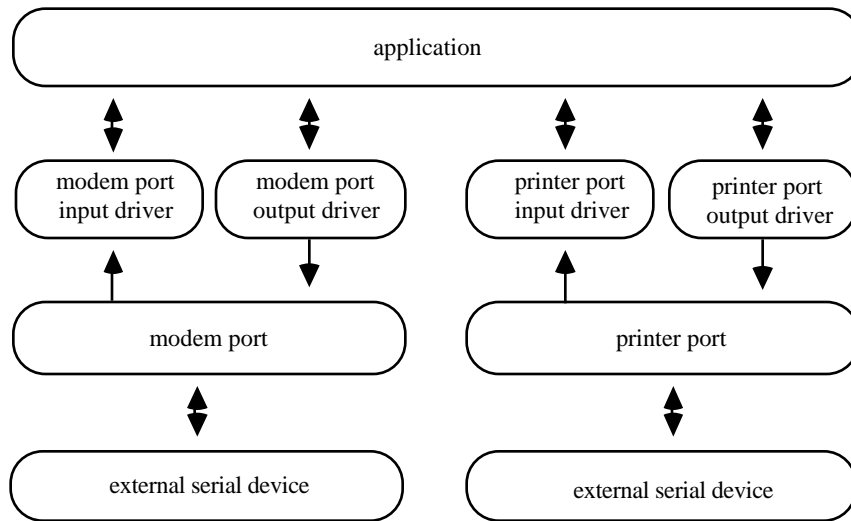


Figure 2—Input and Output Drivers of a Serial Driver

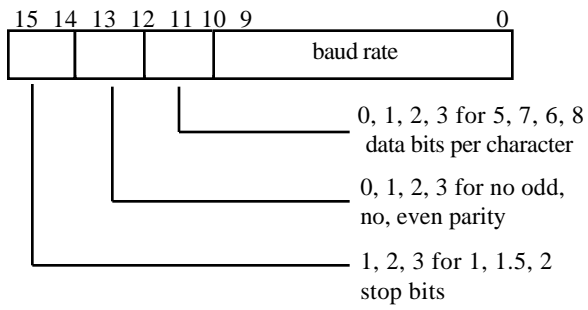
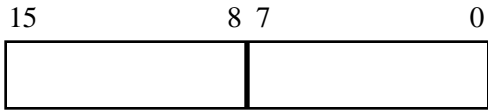
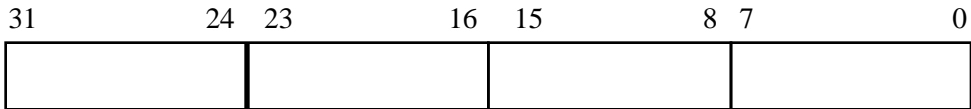


Figure 3—Driver Reset Information

Word:



Long:



sBlock:

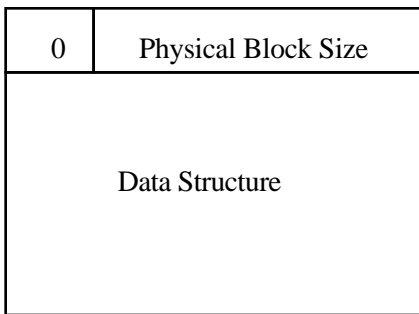


Figure 1—Word, Long, and sBlock Data Types

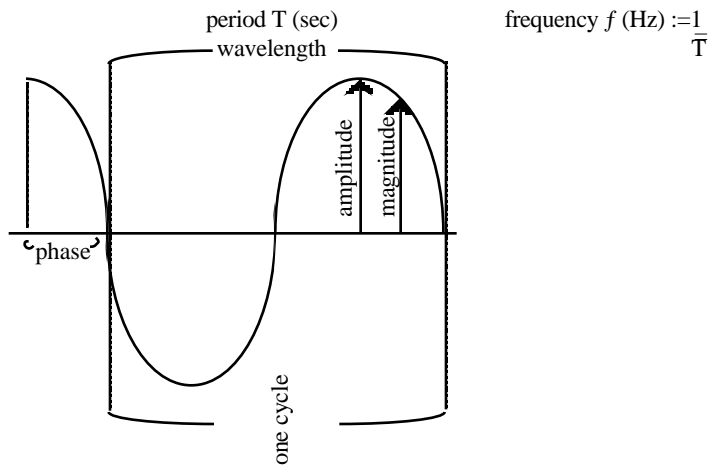
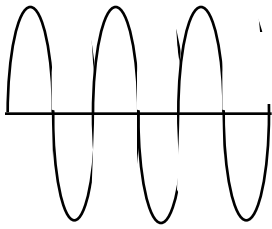
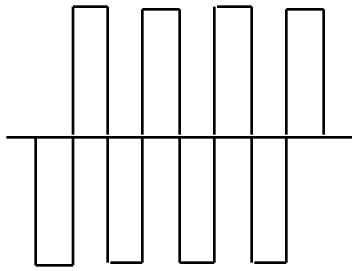


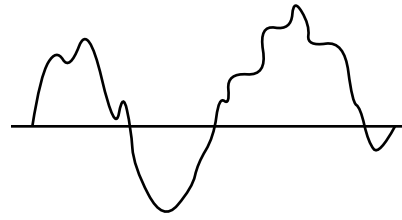
Figure 1-Waveform



sine wave



square wave



free-form wave

Figure 2—Types of Waveforms

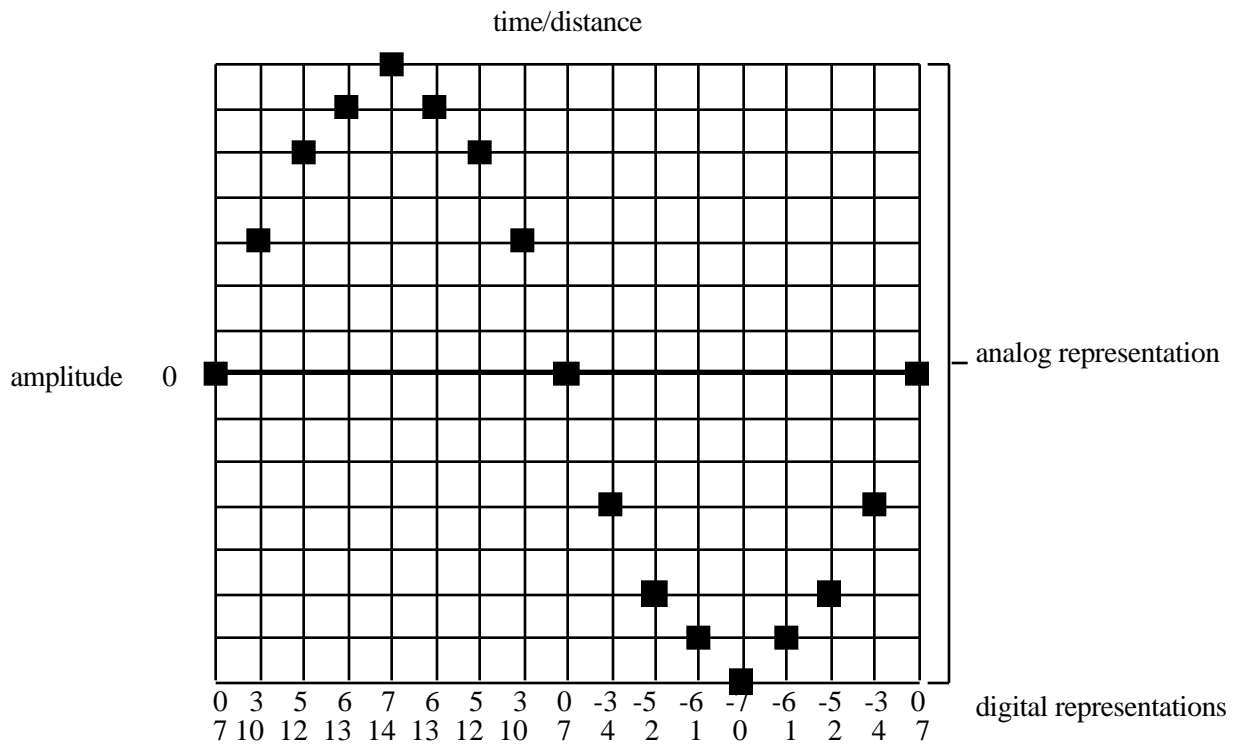


Figure 3—Analog and Digital Representations of a Waveform

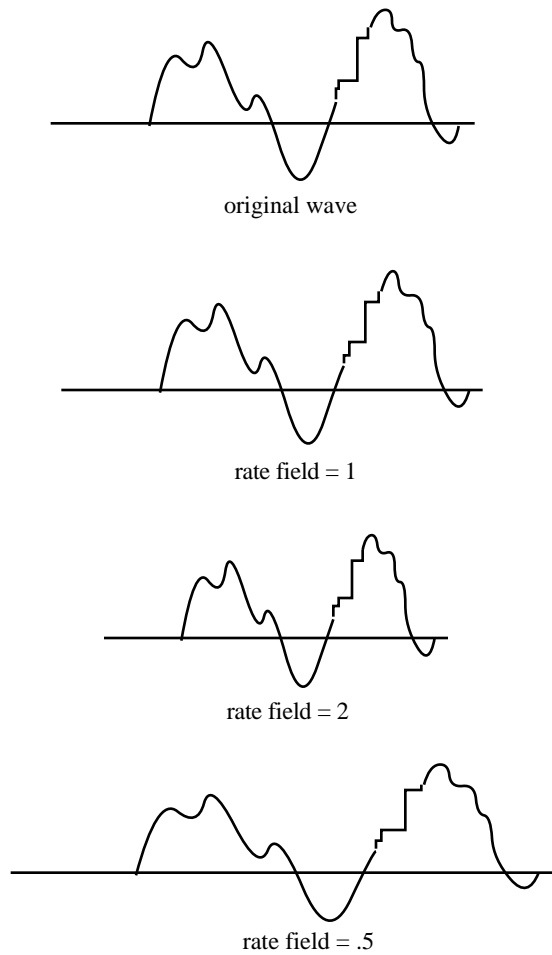


Figure 4—Effect of the Rate Field

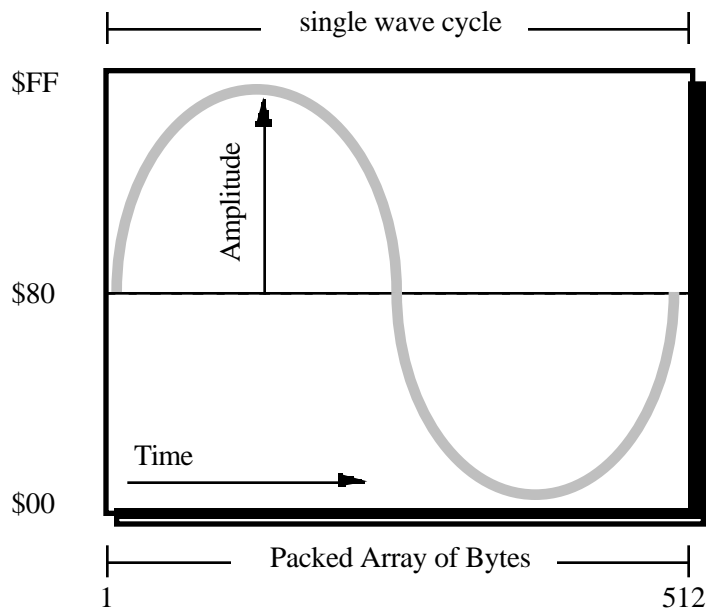


Figure 1-Graph of a Wave Table

Name	Type
samplePtr	Pointer
length	LongInt
sampleRate	Fixed
loopStart	LongInt
loopEnd	LongInt
encode	Byte
baseNote	Byte
sampleArea	Packed Array [1..n] OF Byte

Figure 2—Sampled Sound Header

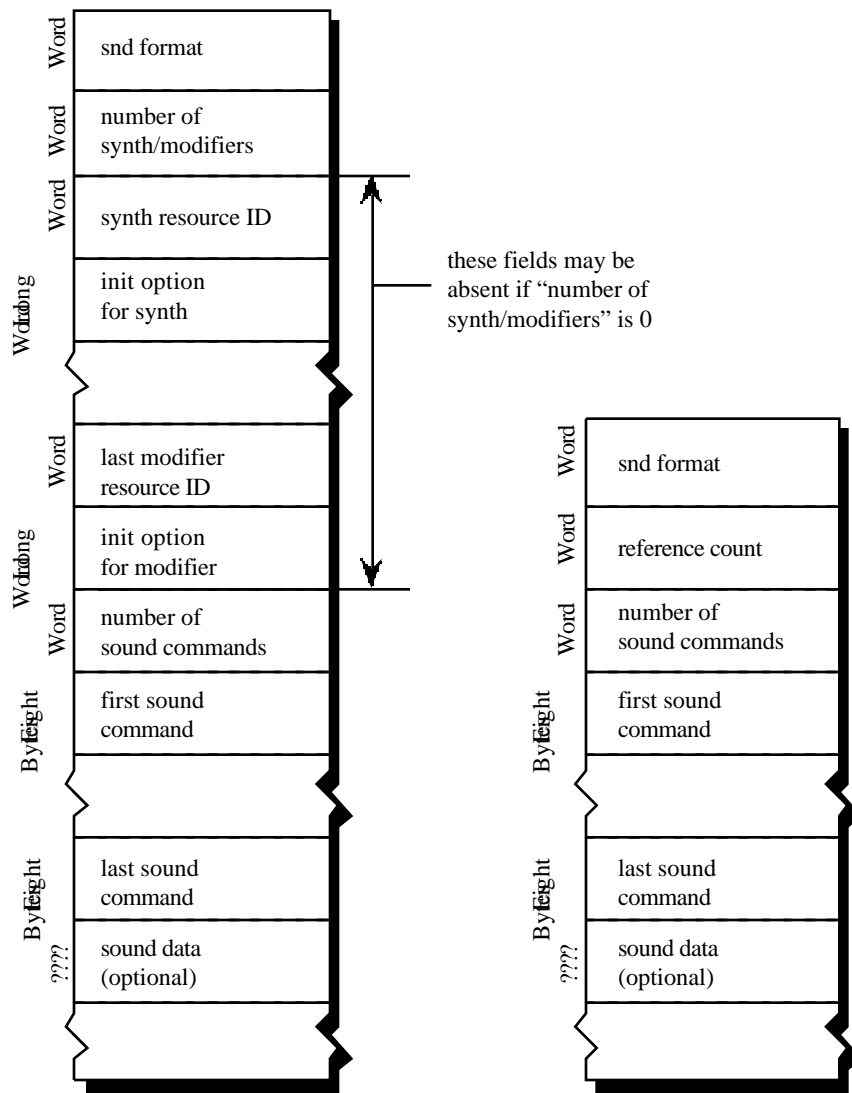


Figure 3-'snd ' Resource Layout

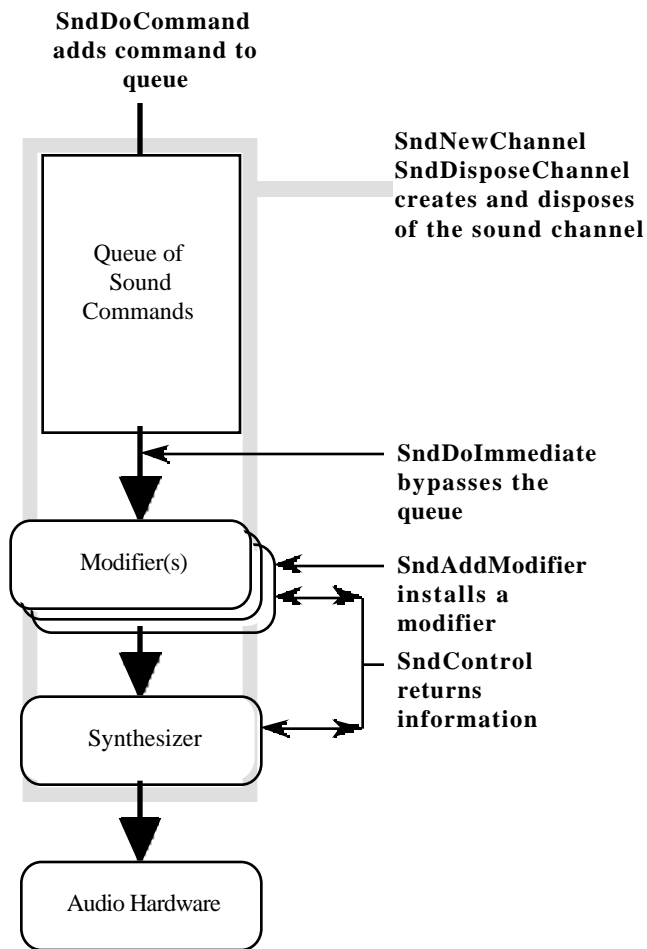


Figure 4—Sound Channel and Routines

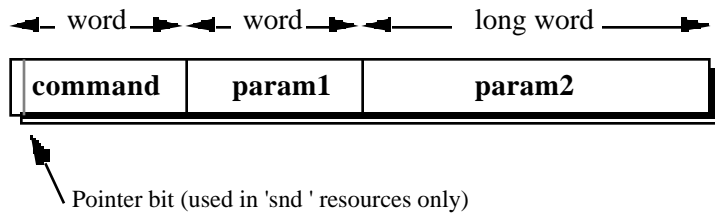


Figure 5--Generic Command Format

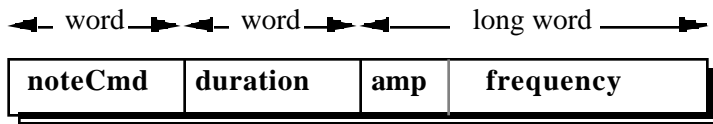


Figure 6—noteCmd Format

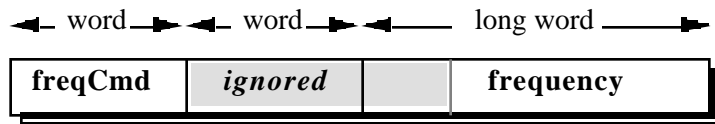


Figure 7—freqCmd Format

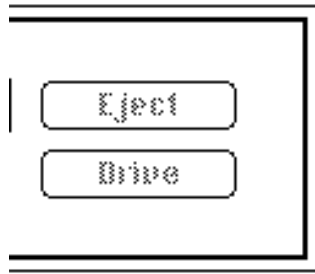


Figure 1—Partial Dialog Box

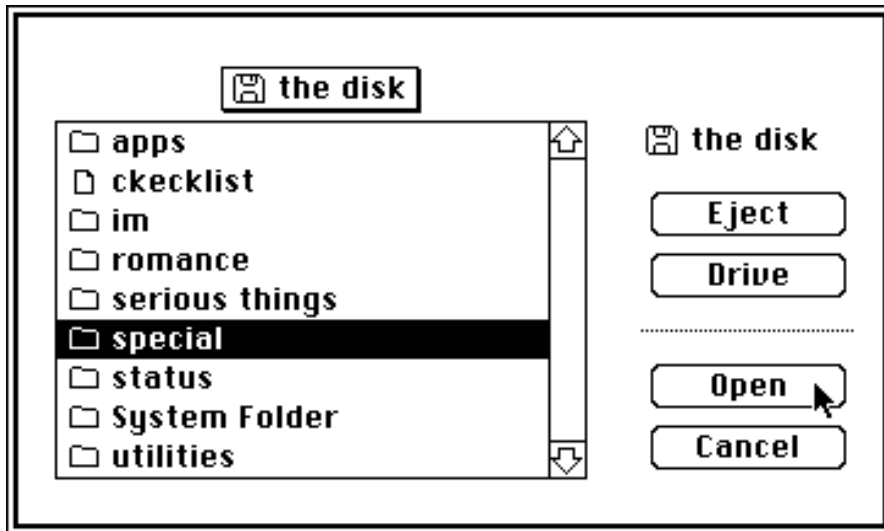


Figure 2–Open Dialog (at the Desktop Level)

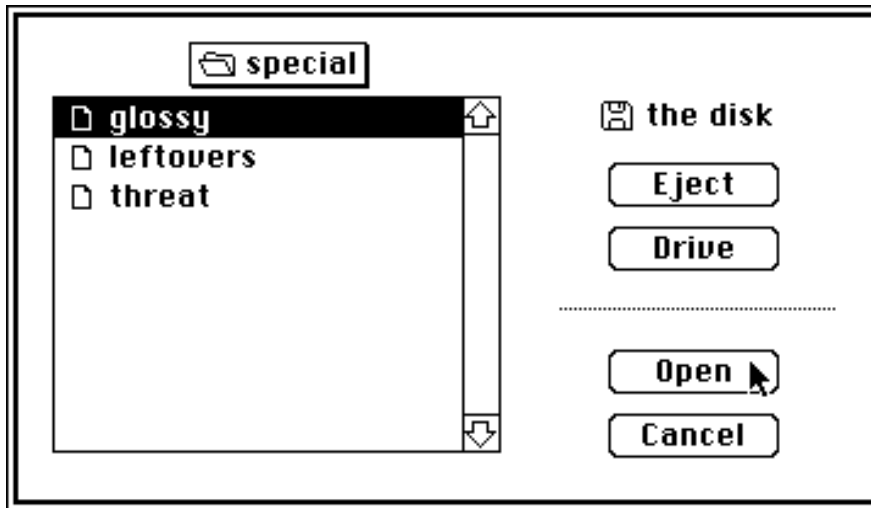


Figure 3–Open Dialog (at a Folder Level)

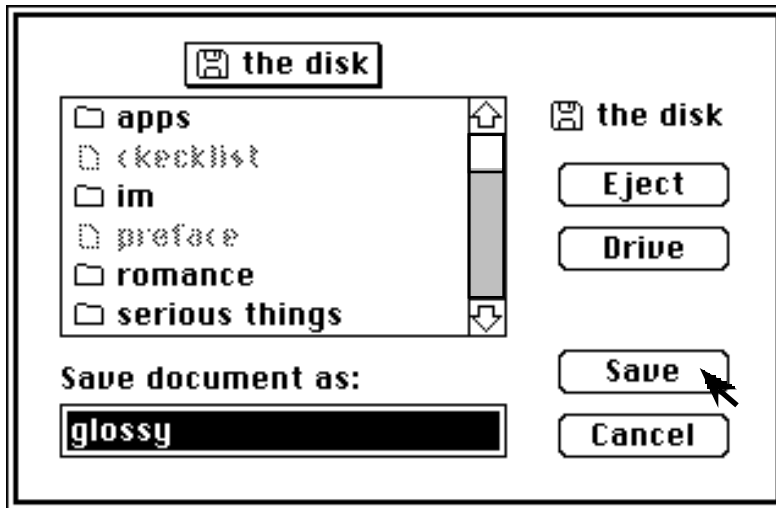


Figure 4–Save Dialog Box (at the Desktop Level)



Figure 5—Alert for Existing File



Figure 6–Alert for Locked Disk

Byte 0	System startup information ID (word)
2	Entry point of boot code (long word)
6	System startup version number (word)
8	Used internally - should be 0 (word)
A	Name of system resource code file (bytes)
1A	Name of system shell (bytes)
2A	Name of debugger (bytes)
3A	Name of debugger (bytes)
4A	Name of system startup screen (bytes)
5A	Name of first program to run (bytes)
6A	Name of scrap file on disk (bytes)
7A	Number of file control blocks (word)
7C	Number of events in event queue (word)
7E	System heap size for 128K system (long word)
82	Reserved (long word)
86	System heap size for 512K system (long word)

Figure 1—System Startup Information



Figure 1–System Startup Alert

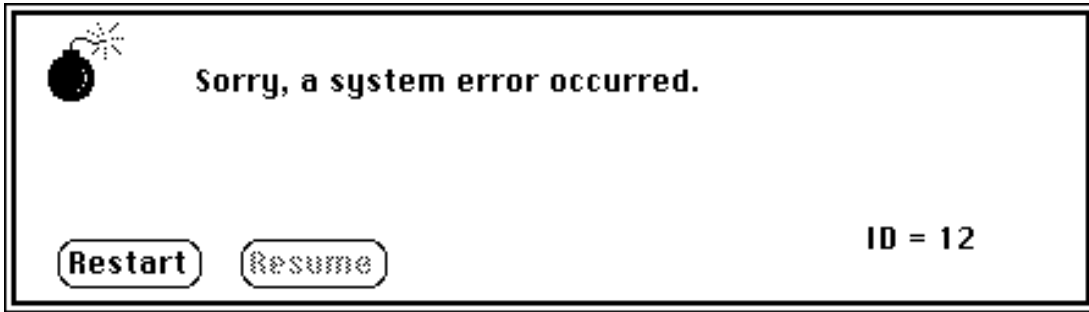


Figure 8—Strings Drawn in Routines

System error ID (word)
Length of rest of definition (word)
Primary text definition ID (word)
Secondary text definition ID (word)
Icon definition ID (word)
Procedure definition ID (word)
Button definition ID (word)

Figure 3—Alert Definition

Text definition ID (word)
Length of rest of definition (word)
Location (point)
Text (ASCII characters)
NUL character (byte)

Figure 4—Text Definition

Icon definition ID (word)
Length of rest of definition (word)
Location (rectangle)
Icon data (128 bytes)

Figure 5-Icon Definition

Procedure definition ID (word)
Length of rest of definition (word)
Procedure code

Figure 6–Procedure Definition

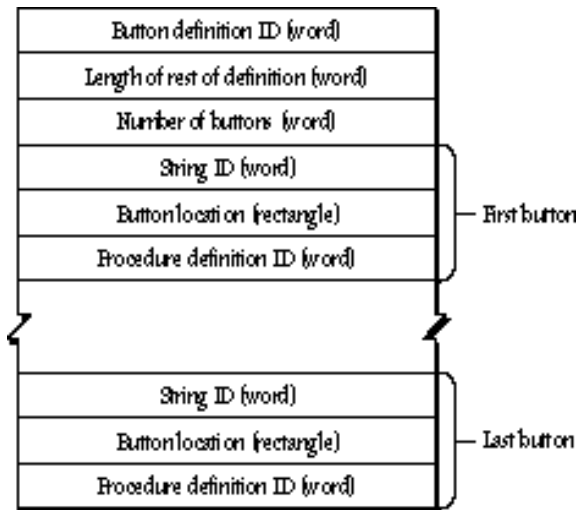


Figure 7-Button Definition

String ID (word)
Length of string (word)
Text (ASCII characters)

Figure 8—Strings Drawn in Buttons

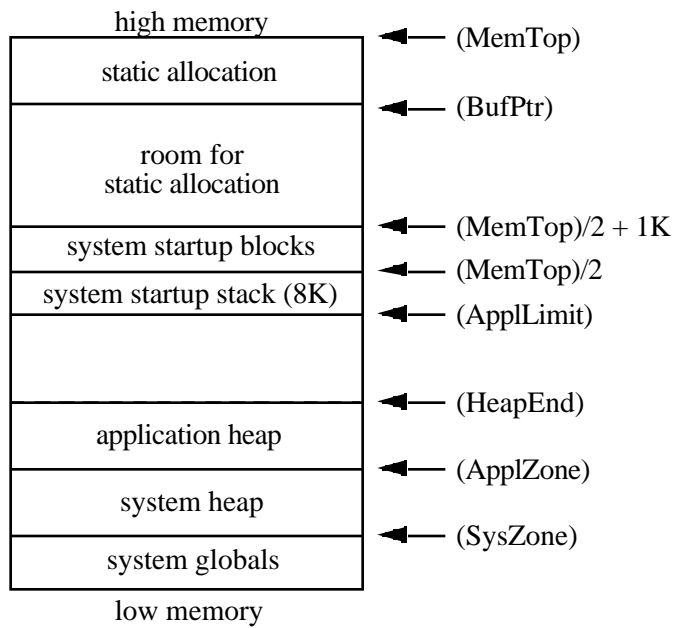


Figure 1—Macintosh Plus RAM at System Startup

Second digit ↓	First Digit															
	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	NUL	DLE	Space	0	@	P	`	p	Ä	ê	†		ı	—		
1	SOH	DC1	!	1	A	Q	a	q	Å	ë	°	±	ı	—		
2	STX	DC2	"	2	B	R	b	r	Ç	í	¢		¬	“		
3	ETX	DC3	#	3	C	S	c	s	É	ì	£			”		
4	EOT	DC4	\$	4	D	T	d	t	Ñ	î	§	¥	f	‘		
5	ENQ	NAK	%	5	E	U	e	u	Ö	ï	•	μ		’		
6	ACK	SYN	&	6	F	V	f	v	Ü	ñ	¶			÷		
7	BEL	ETB	'	7	G	W	g	w	á	ó	ß			«		
8	BS	CAN	(	8	H	X	h	x	à	ò	®			»	ÿ	
9	HT	EM	)	9	I	Y	i	y	â	ô	©			...		
A	LF	SUB	*	:	J	Z	j	z	ä	ö	™			⏟		
B	VT	ESC	+	;	K	[	k	{	ã	õ	´	ª	À			
C	FF	FS	,	<	L	\	l	|	å	ú	¨	º	Ã			
D	CR	GS	-	=	M	]	m	}	ç	ù			Õ			
E	SO	RS	.	>	N	^	n	~	é	û	Æ	æ	Œ			
F	SI	US	/	?	O	_	o	DEL	è	ü	Ø	ø	œ			

⏟ stands for a nonbreaking space, the same width as a digit.
 The shaded characters cannot normally be generated from the
 Macintosh keyboard or keypad.

Figure 1—Macintosh Character Set

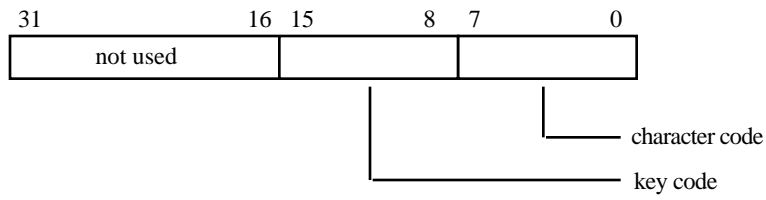


Figure 2—Event Message for Keyboard Events

`	1	2	3	4	5	6	7	8	9	0	-	=	Backspace
50	18	19	20	21	23	22	26	28	25	29	27	24	51
Tab	Q	W	E	R	T	Y	U	I	O	P	[]	\
48	12	13	14	15	17	16	32	34	31	35	33	30	42
Caps Lock	A	S	D	F	G	H	J	K	L	;	'	Return	
57	0	1	2	3	5	4	38	40	37	41	39	36	
Shift	Z	X	C	V	B	N	M	,	.	/		Shift	
56	6	7	8	9	11	45	46	43	47	44		56	
Option	⌘		space								Enter	Option	
58	55		49								52	58	

U.S. Keyboard

§	1	2	3	4	5	6	7	8	9	0	-	=	↵
50	18	19	20	21	23	22	26	28	25	29	27	24	51
↵	Q	W	E	R	T	Y	U	I	O	P	[]	↵
48	12	13	14	15	17	16	32	34	31	35	33	30	42
⇧	A	S	D	F	G	H	J	K	L	;	'	`	
57	0	1	2	3	5	4	38	40	37	41	39	36	
⇧	\	Z	X	C	V	B	N	M	,	.	/	⇧	
56	6	7	8	9	11	45	46	43	47	44	10	56	
⇧	⌘		space								⇧	⇧	
58	55		52								49	58	

International Keyboard (Great Britain Key Caps shown)

Clear	-	⌘	⌘
71	78	70	66
7	8	9	⌘
89	91	92	77
4	5	6	⌘
86	87	88	72
1	2	3	Enter
83	84	85	
0	.		
82	65		76

Keypad (U.S. Key Caps shown)

Figure 3–Key Codes

SplInside Macintosh -- May 1992 -- Figures

`	1	2	3	4	5	6	7	8	9	0	-	=	Delete
32	12	13	14	15	17	16	1A	1C	19	1D	1B	18	33
Tab	Q	W	E	R	T	Y	U	I	O	P	[]	
30	0C	0D	0E	0F	11	10	20	22	1F	23	21	1E	
Caps lk	A	S	D	F	G	H	J	K	L	;	|	Return	
39	00	01	02	03	05	04	26	28	25	29	27	24	
Shift	Z	X	C	V	B	N	M	,	.	/	Shift	↵	
38	06	07	08	09	0B	2D	2E	2B	2F	2C	38	4D	
Option					Space				\	←	→	⏏	
3A		37			31				2A	46	42	48	

Clear	=	/	*
47	48	4D	42
7	8	9	+
59	5B	5C	46
4	5	6	-
56	57	58	4E
1	2	3	Enter
53	54	55	4C
0			
52	.		
	41		

Figure 4-Macintosh Plus Keyboard

SplInside Macintosh -- May 1992 -- Figures

Esc 35	1 12	2 13	3 14	4 15	5 17	6 16	7 1A	8 1C	9 19	0 1D	- 1B	= 18	Delete 33
Tab 30	Q 0C	W 0D	E 0E	R 0F	T 11	Y 10	U 20	I 22	O 1F	P 23	[21	] 1E	
Control 3B	A 00	S 01	D 02	F 03	G 05	H 04	J 26	K 28	L 25	; 29	| 27	Return 24	
Shift 38	Z 06	X 07	C 08	V 09	B 0B	N 2D	M 2E	, 2B	. 2F	/ 2C	Shift 38		
CAP lock 39	Opt 3A		\ 2A	Space 31				\ 2A	← 7B	→ 7C	▼ 7D	▲ 7E	

Clear 47	= 51	/ 4B	* 43
7	8	9	+
59	5B	5C	45
4	5	6	-
56	57	58	4E
1	2	3	Enter
53	54	55	4C
0	.		
52	41		

Figure 5–Macintosh II Keyboard

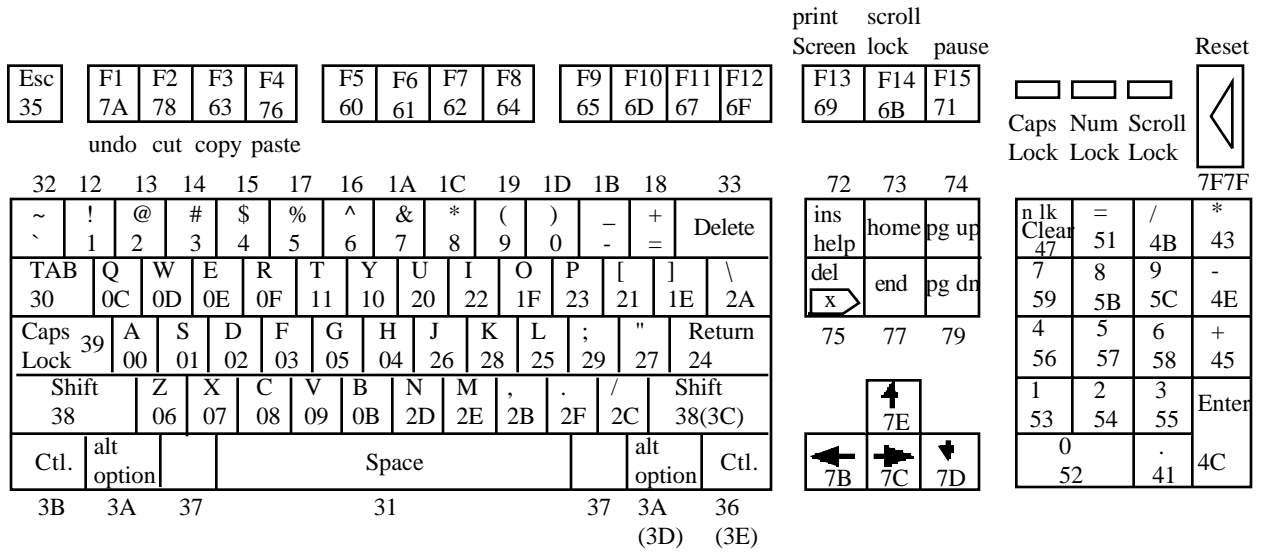


Figure 6--Apple Extended Keyboard

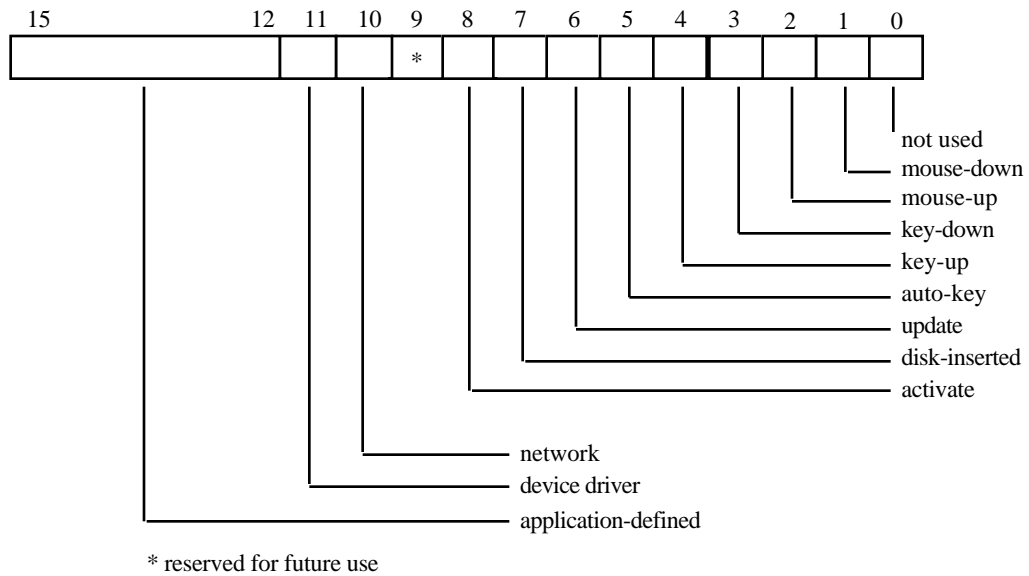


Figure 8—Event Mask

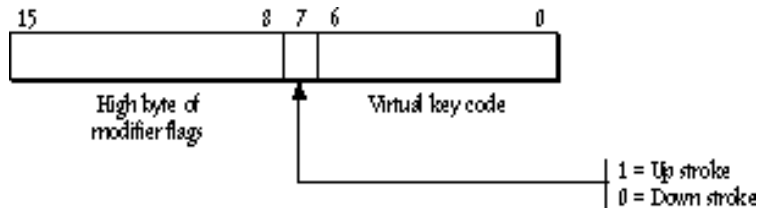


Figure 9—Keycode Parameter Structure

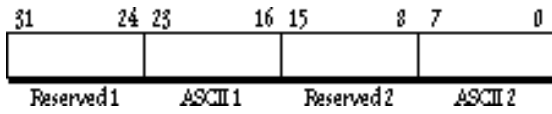


Figure 10–KeyTrans Return Structure

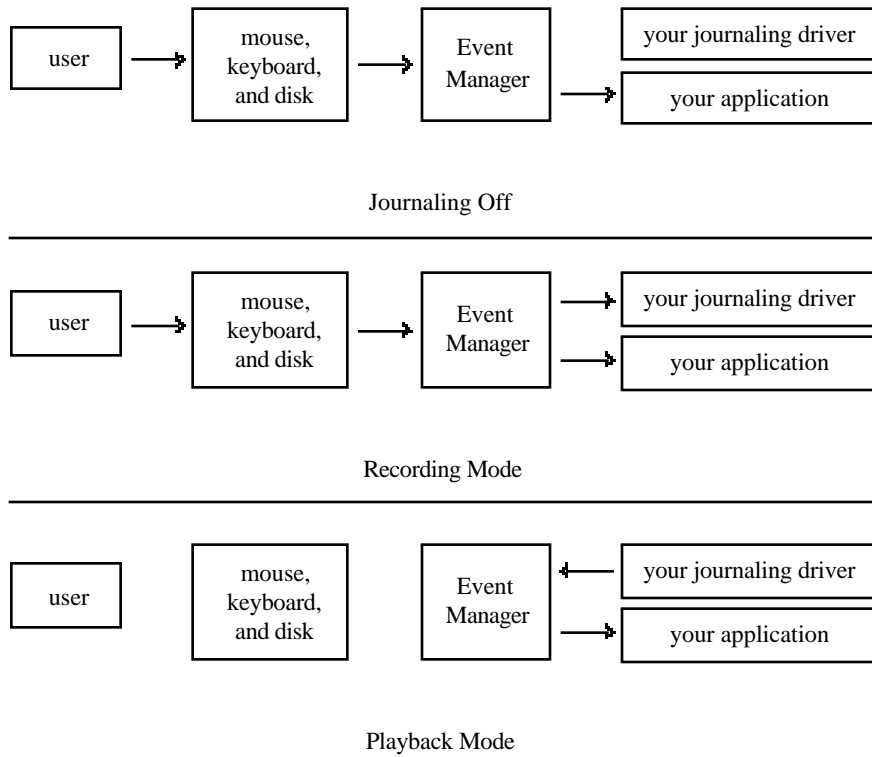


Figure 11—The Journaling Mechanism

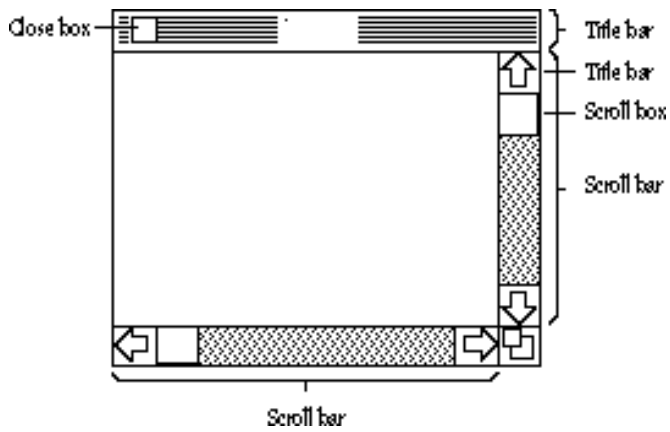


Figure 1—An Active Document Window

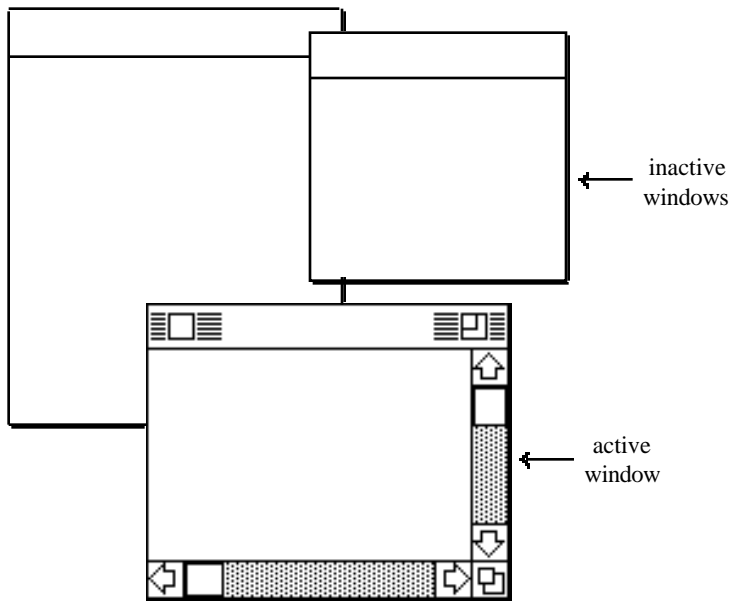


Figure 2—Overlapping Document Windows

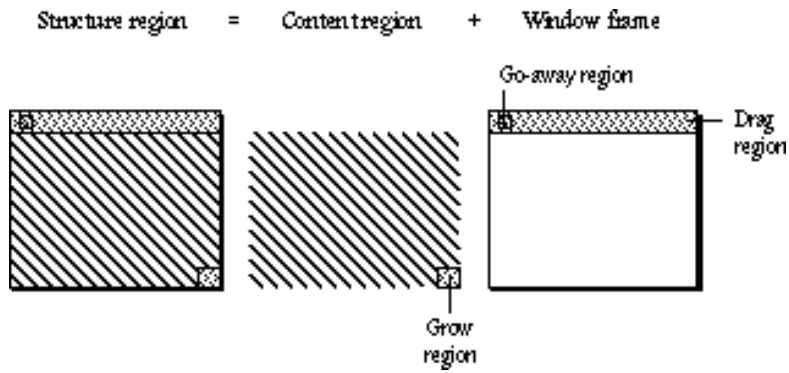


Figure 3—Document Window Regions and Frame

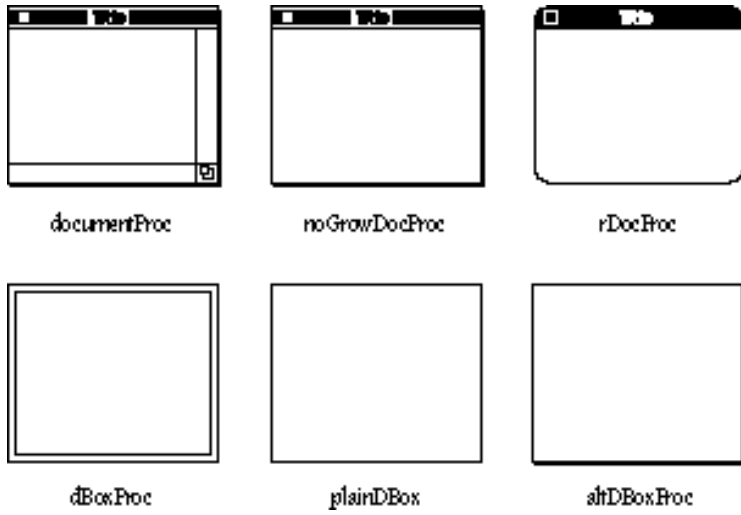


Figure 4—Standard Types of Windows

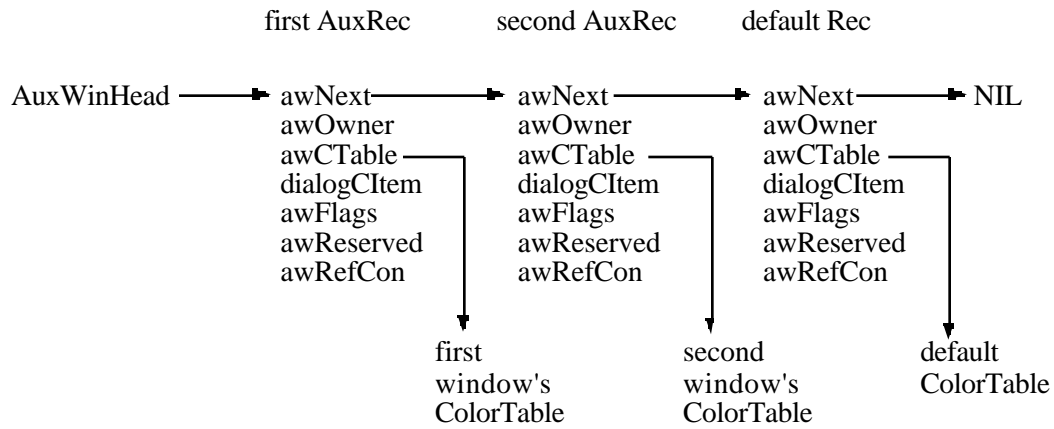


Figure 5—An AuxWinList Structure

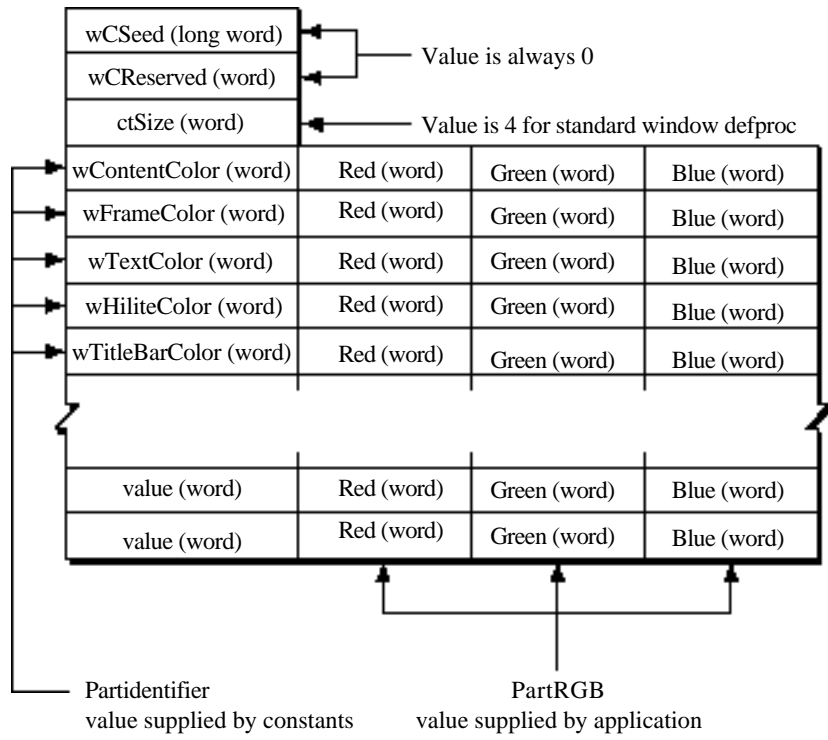


Figure 6-A Window Color Table

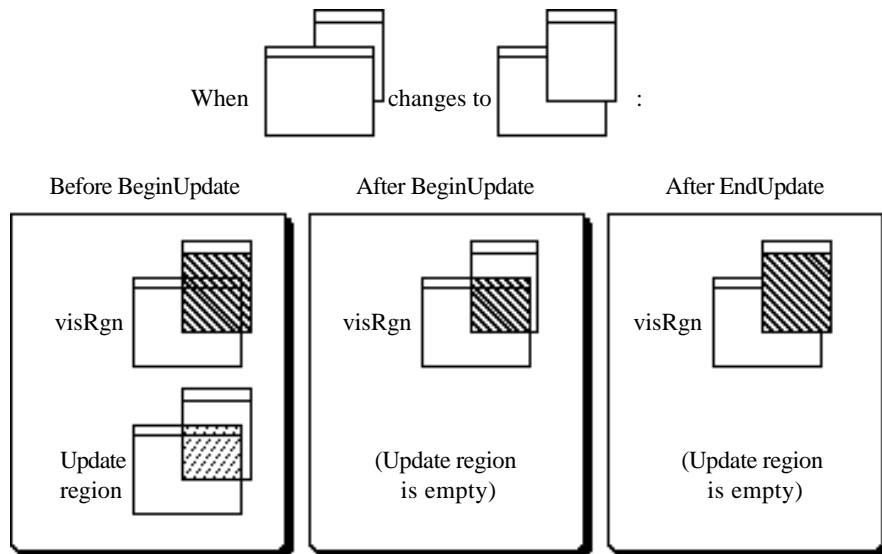
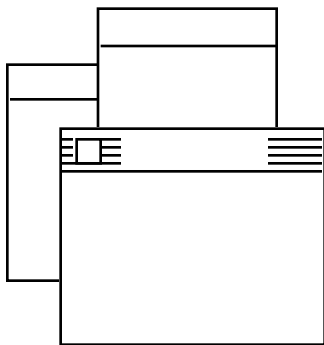
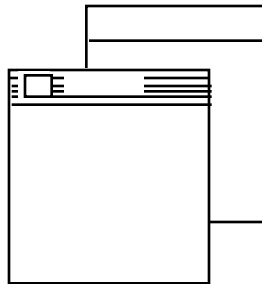


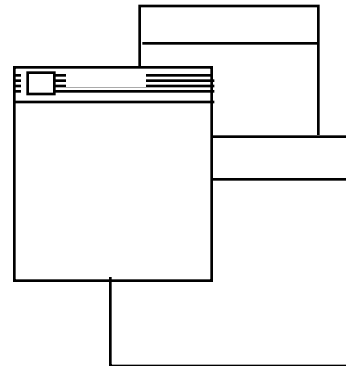
Figure 7—Updating Window Contents



wPtr points to the frontmost window



After HideWindow(wPtr)



After ShowWindow(wPtr)

Figure 8—Hiding and Showing Document Windows



Unhighlighted close box



Highlighted close box

Figure 9–A Document Window’s Close Box

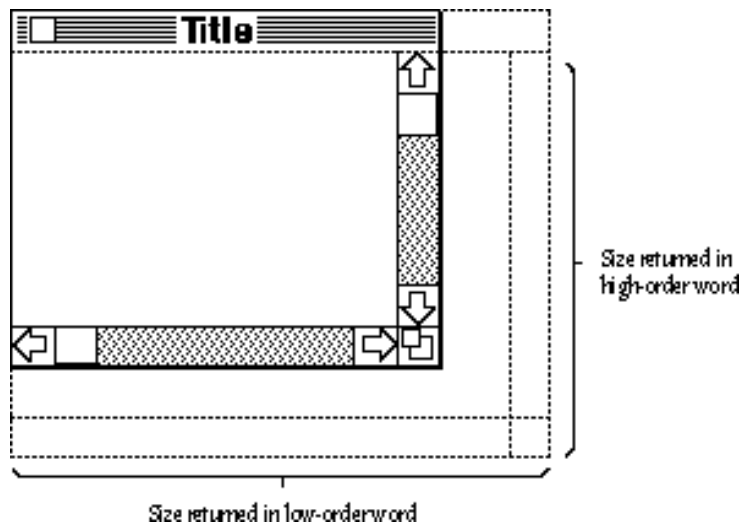


Figure 10—GrowWindow Operation on a Document Window

After `SizeWindow(wPtr,w1,h1,TRUE)`

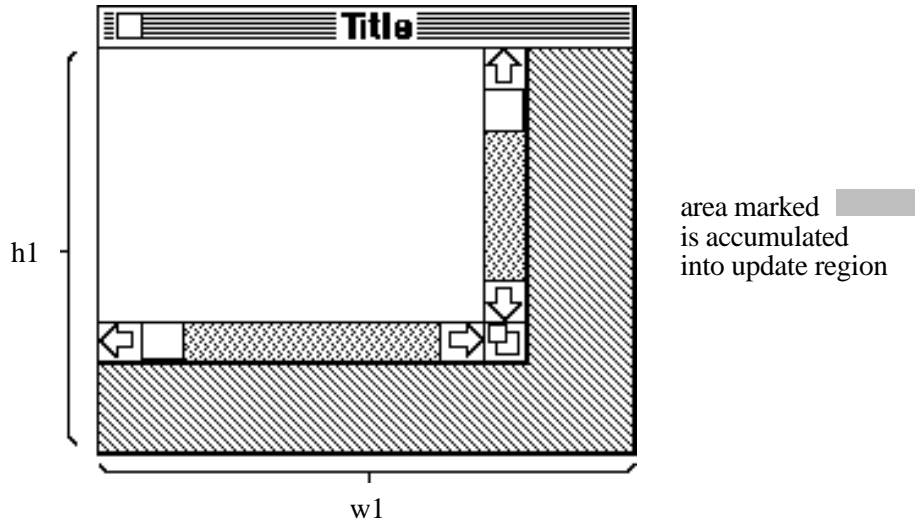
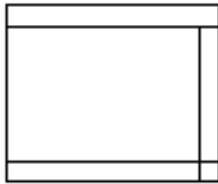


Figure 11—SizeWindow Operation on a Document Window

Before `SizeWindow` with `invalidate = TRUE`:



The original window

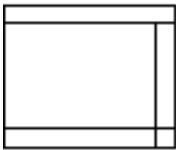
In case the window is enlarged,

call `InvalRect` for

and



After `SizeWindow`:



The new window

In case the window was made smaller,

call `InvalRect` for

and



Figure 12—Update Region Maintenance with `InvalRect`

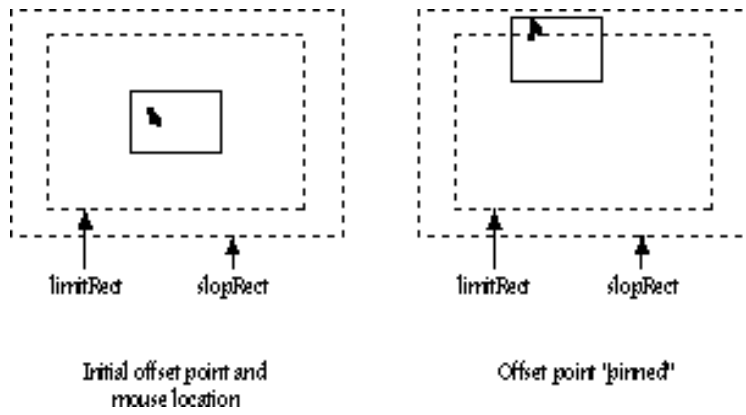
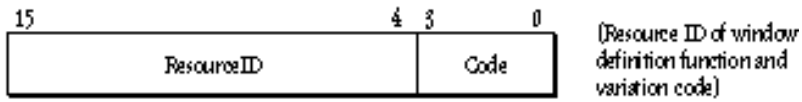


Figure 13—DragGrayRgn Operation on a Rectangular Region

You supply the window definition ID:



The Window Manager calls the Resource Manager with:
`defHandle := GetResource ("WDEF", resourceID)`

and stores into the `windowDefProc` field of the window record:



The variation code is passed to the window definition function.

Figure 14—Window Definition Handling

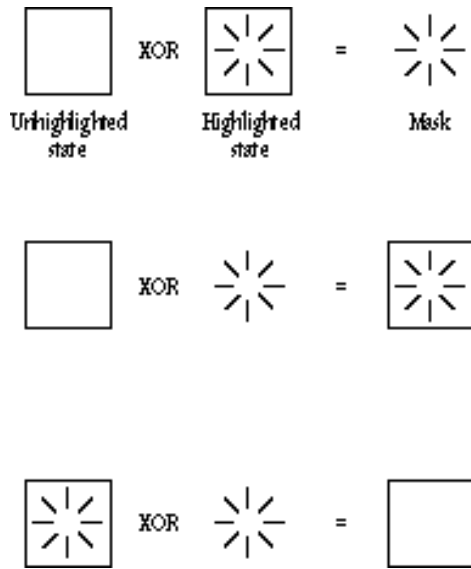
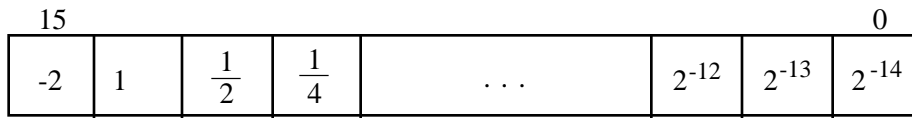
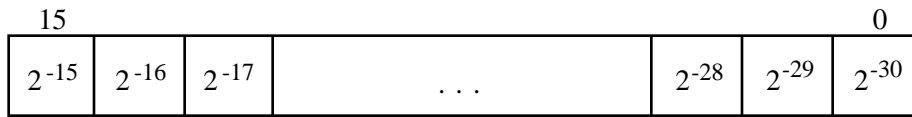


Figure 15—Toggling the Go-Away Region



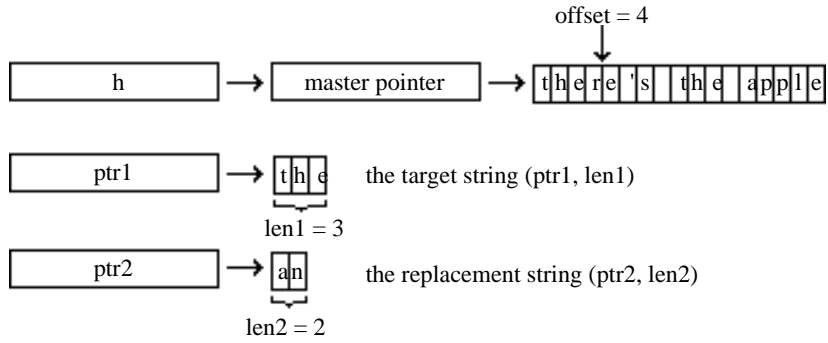
high-order word



low-order word

Figure 1-A Fract Number

Given:



Munger (h,offset,ptr1,len1,ptr2,len2) yeilds:

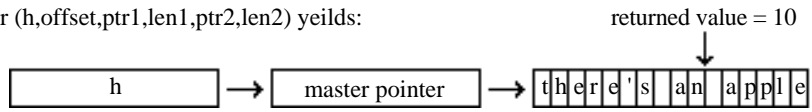


Figure 2–Munger Function

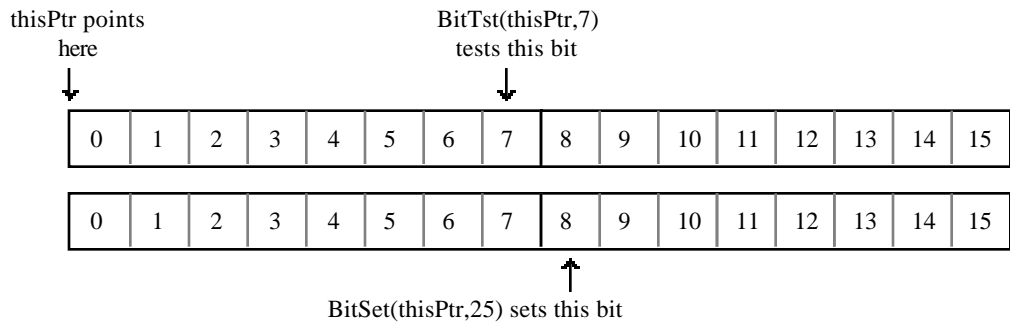


Figure 3—Bit Numbering for Utility Routines

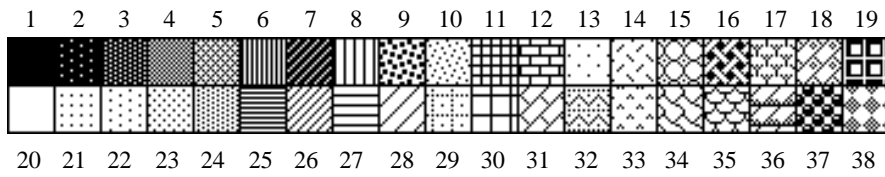


Figure 4–Standard Patterns

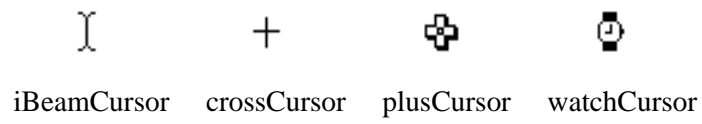
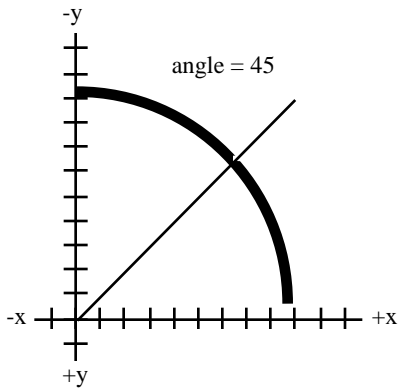


Figure 5—Standard Cursors



SlopeFromAngle(45) = \$FFFF0000

AngleFromSlope(\$FFFF0000) = 45

(\$FFFF0000 is -1.0)

Figure 6—SlopeFromAngle and AngleFromSlope