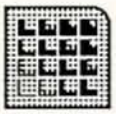

Forethought, Inc.

Presenter

Specification

May 22, 1986

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Introduction

This document is the External Reference Specification for *Presenter*. The current version is rather different from the previous version (August 19, 1985), primarily as a result of the experience we have had in implementing and using a portion of the product. All detailed material describes the product as it will exist on the Macintosh; where appropriate we discuss differences we anticipate for the MS-Windows version, but many details of its operation and appearance under Windows are not yet designed.

This specification is that used to construct the *Presenter* schedule also dated May 22, 1986. Changes to the specification and the schedule may no longer be made independently.

Remaining open issues in the specification are marked with an Eye of Horus in the left hand margin (like this paragraph). Issues may be open because we have not yet decided on what the correct user interface should be, or because there are uncertainties about the difficulty (or possibility) of implementation. All other paragraphs embody firm decisions, for which timely implementation is thought to be feasible.

Overview

Presenter is a program designed primarily for producing overhead slides (in color and in black and white), and can be used also for producing 35mm slides and video presentations. Its intended users are the many people who make frequent informal presentations, and who need to control their preparation. For these people, *Presenter* should be easier and faster to use than any other method of developing a presentation, and should give higher-quality results. *Presenter* is not intended for the corporate communications department to prepare color slides as a centralized service, far from the desks of the content-originators.

Presenter is distinguished from all other applications primarily by its sharp focus on the capabilities needed for presentations—not general drawing, general word processing, or general page layout. It has specialized drawing tools especially for the elements frequently drawn for presentations, and

greatly enhanced capabilities for handling multi-level lists which characterize presentation word charts. It includes:

- Paragraphs with mixed fonts, sizes, and styles
- Finely adjustable line spacing and placement
- Wide choice of typefaces and large sizes suitable for graphic displays
- Word-processor-like manipulation of text
- Special formatting support for making bulleted lists

It can draw diagrams and insert art from many sources (business charting programs, project scheduling programs, ...) and generates graphic text displays. (With the addition of text flowing into multiple elements, it would almost make a simple page layout program.)

Unlike other graphics programs, *Presenter* does not produce files or documents that contain a single picture. A *Presenter* document comprises an entire presentation, or perhaps a section of a very long presentation. There is no limit on the number of images (slides) in a presentation, but the product will not be designed to handle large volumes well, say over one hundred. When an actual presentation contains more than about one hundred images, it can be better handled by dividing it into sections, each in its own document. You can open multiple presentations at once, each in its own window. Other special features which make it especially suitable for preparing presentations:

Notes, and printing formats. Each image has up to about one page of notes (equivalent to a slide) associated with it. Notes are selectively visible. Images can be printed by themselves to make actual slides, or the they can be printed (in reduced size) along with their notes to make handouts, projectionist's directions, talking papers, memos for people who miss the presentation, etc. Reduced size printing with two, three, or six slides per page is available to make handouts for the audience.

Master slide. There is a special image called the master slide that adds common features to all images in the presentation. This allows for the addition of borders, logos, dates, and other material that appears on every image. The format of titles is also determined here, but unlike the other features, it can be changed on the individual images. Drawing, results of pasting art, text boxes, labels, and label boxes other than the title, all have their appearance superimposed on the other slides, not their structure.

Slide Sorter. The individual images are normally viewed one at a time, or one per window if multiple presentations are in use. In the slide sorter view,

however, up to about sixteen miniature images can be viewed in a single window. Although the actual images can be hard to distinguish in this view, their titles appear in readable type at the top of the display just under the menu bar whenever they are selected. Slides can be cut and pasted in order to reorder the presentation or to move slides between presentations. This view also provides a handy method of finding and viewing a particular image. An analogous view called Title Sorter has the same function, but shows only the slide titles instead of their images.

Slide show. Although most presentations are printed for final display, *Presenter* allows you to use the computer as a "projector" if you like. The images are shown one at a time on the computer's screen, without tools, menu bar, or other windows. The show can be presented manually, pressing the mouse button or some key(s) to change slides, or automatically timed.

To match the intended use, the drawing complexity of the program is less than that of MacDraw, MacDraft, and similar CAD programs. For example, *Presenter* has:

- No polygons or smoothing
- No free-hand curves
- No curved lines
- No stacking order changes
- No rotate or flip
- No grouping or locking
- No rulers along the window edges
- No elipses or circles

A user who needs complicated drawing needs all the appropriate tools for the job, and will move drawings from MacDraw or MacDraft into *Presenter,* in the same way that other users will move charts from Excel or Cricket, or Gantt charts from a scheduler.

Drawing Slide Images

Even though a presentation may be entirely text with no diagrams or other graphics, the slide images are still "drawn" to some extent. *Presenter* is, at its heart, a structured graphics editor. It works with objects such as lines and rectangles that can be moved, resized, and overlapped to produce many different effects. Text and pictures are held as the contents of objects, typically borderless rectangles.

Objects. There are two basic types of drawing objects: two-dimensional (boxes) and one-dimensional (lines). Lines have width, of course, and in fact they have a number of other attributes, but they do not have contents as boxes do. Boxes and lines both have location and dimensions that are specifiable with two points. The next section describes how to draw an object.

Any object may have its attributes changed. Below are attributes that can be selected by menu commands or other means.

Boxes

Shape: rectangle, round rectangle
Fill Type: hidden, outline, solid
Pattern: of outline or of entire box
Color: of outline or of entire box, and of contents (same color), or of background (different color)
Line Width: of outline
Contents: text or picture [or none or both]

Lines

Line Width: weight, or multi-line style
Pattern: (pen)
Color: (no background)
Form: plain, single- or double-headed arrows, braces

Drawing objects. To draw an object, you first select a drawing tool from the tool window by clicking on its button, determining the type of the object. (See the section "Tools" under "The *Presenter* Display" for a description of the various tools.) When a drawing tool is in use, the mouse pointer is a cross-hair (for the label tool, a bold I-beam with base line). To draw with the tool you normally position the mouse at one point and stretch (drag) to a second point. For lines the beginning and end of the drag determine the end points of the line, and for boxes they determine opposite corners of a rectangle. With the label tool, a click gives an insertion point.

If you draw while holding down the option key, the initial point is the center of the box or line and the object then stretches out around the center as you drag. If you hold down the shift key, rectangles are restricted to be squares and lines are restricted to be horizontal, vertical, or 45° angles.

After you draw an object, the drawing tool you used remains in use so that you may draw another object of the same type. When a drawing tool is in use

and you click anywhere without dragging, the selection tool (arrow) becomes current; depending on where you click, this may also select some object (see next section). With the label tool, click without dragging is the normal use, so for it click *with* dragging will give the selection tool, and may cause another selection.

Objects have a natural stacking order: objects drawn later are in front of objects drawn earlier. Items from the master slide are drawn below all objects drawn on the slide. Ordinarily this makes no difference, since all objects are transparent. In cases where it does make a difference, stacking order may be altered by cutting and pasting—pasted objects are inserted in front, as if they were newly drawn. There is no other way to control stacking order.

Selection

As is standard on the Macintosh, most *Presenter* operations act upon the current *selection*. The current selection is always exactly one of the following:

- A graphics selection
- A text selection
- No selection

A graphics selection is one or more drawn objects (lines or boxes). A text selection is either one or more consecutive characters or a text insertion point. A text selection is always entirely within the text contents of some single box, but a box containing a text selection is never itself graphically selected (because text selection and graphics selection are mutually exclusive).

You can select any object when the pointer is an arrow by clicking on it. When a box is (graphically) selected, a dotted box ("move fuzz") appears around it with four control points, or "handles," at the corners. When a line is selected, a dotted box surrounds the line and handles appear at both ends. Clicking selects the enclosing box whose border is closest to the pointer, or, if the pointer is "close" to a line, it selects the closest line; it also deselects whatever objects or text were previously selected.

[This has some problems, which are yet to be worked out; *e.g.*, if there is a box around the entire slide (slide border), that box is sometimes selected unintentionally.]

Whenever you click on any tool in the tools window, there is then no current selection; there is also no current selection if you click anywhere in the slide image that does not satisfy the above conditions for selecting an object. Whenever you draw any object other than a text box, that object becomes graphically selected.

Text selection is described in the section "Text selection and editing."

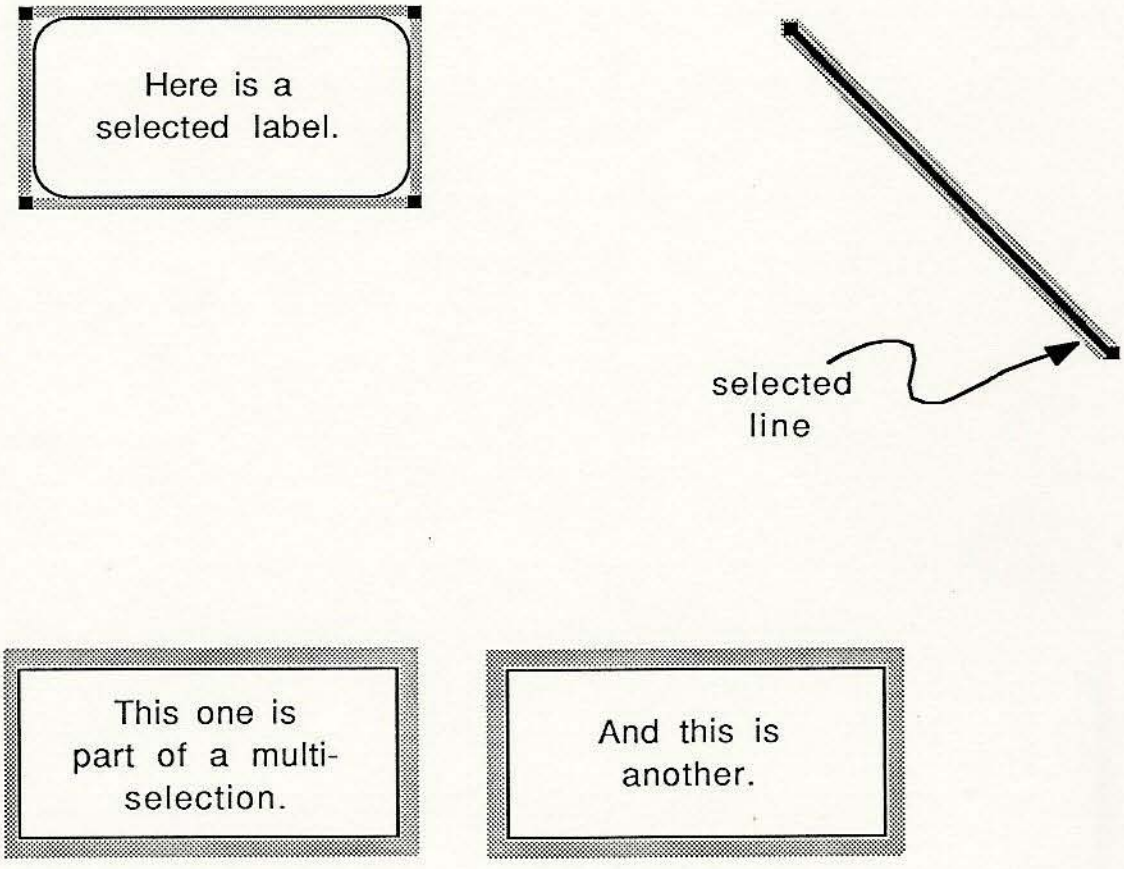


Figure 1. Selected Objects

Moving and resizing. You move a (graphically) selected object around the slide image by positioning the arrow pointer in the dotted selection box and dragging. You resize a selected object by dragging a resize handle; this picks up and moves the handle but (except as described in the next paragraph) the handle at the opposite corner (or opposite end for a line) is fixed, so the object must change size accordingly. An outline of the object is redrawn as the control point is dragged.

Shift and option keys. When moving an object, pressing the shift key constrains the direction of motion to horizontal or vertical. When resizing, the shift key constrains the object to be resized horizontally or vertically or, when the handle is dragged near a 45° angle, without changing its shape (aspect ratio). When resizing, the option key has the effect of anchoring the center of the object rather than the opposite control point; the effect is to change the size of the object without changing its position on the page. Shift and option can be used simultaneously.

Both keys are also effective when drawing an object, as described above under "Drawing objects." In all cases, you must press the shift and/or option key *before* pressing the mouse button in order for the key to have its effect.

Marquee selector. Selection of multiple objects is made with a marquee, and/or with shift-clicking, much as in other Macintosh applications. As in MacDraw, marquees select only objects that are completely within the box. This differs from the Finder convention of selecting any icon that is partially within the box. MacDraw's method seems designed to simplify selection when objects are stacked in various ways.

Multiple selections are shown with move bars around each selected object. They may all be moved as a group by clicking within the move bar of any object. It is not possible to resize multiple objects.

[It might be convenient to resize multiple objects, to create table-like repetitive constructs. We may well do this, if it seems necessary and if all the problems can be designed away.]

You will note that this scheme does not differ considerably from the MacDraw style. Its advantage is clarity. In MacDraw you often pick an object up when you meant to select another and vice versa. Here there is also no confusion about whether the shift key is being used for motion restriction or multiple selection: you must point to a gray move bar or a resize handle to get motion restriction.

Text Boxes

Text boxes are the most distinctive feature of *Presenter*, intended to bring a word processor into a drawing program. Within a text box the style of the word processor prevails, but the box as a whole can be moved and reshaped as a graphics object on the page. Text boxes can be placed side by side, have a border, contain art, or be placed within a drawing. In many ways their manipulation is more natural, more analogous to pencil and paper, than working with a word processor.

Paragraphs and characters. A text box contains a series of paragraphs, in the sense that MacWrite and MS-Word use the term: sections of automatically "word-wrapped" text, separated by return characters, with a special indent for the first line. All of the paragraphs within a box have the same line length and the same color of text. Each paragraph has its own alignment—flush left, flush right, centered, or justified—which can vary within a box. Character properties—font and style—can vary character by character within the paragraph, allowing emphasis of words, etc. Line breaks (no new paragraph) are shift-returns.

Text selection and editing. To make a text selection, you need an I-beam pointer which you get by selecting the box itself with the pointer. Whenever a single text box (or a label box which contains text) is graphically selected, or contains a text selection, the pointer turns into an I-beam when it is within the box. When you have an I-beam pointer, text selection and editing work in the usual Macintosh way. Resizing the box reformats the text to fit.

[A text box could later be defined to be expandable, so that when more text is inserted its bottom automatically moves down if necessary to make room for a new line (only if it does not have an outline or frame, does not have art pasted in and sized to the original box size, etc.). This is somewhat at odds with the use of text boxes to be standard formatting elements, since once expanded there is no way to tell where the original boundary was.]

When a text box is created, it is not graphically selected as other boxes are; rather, it is text selected with a blinking insertion point (and initially no text, of course). (The pointer is an arrow outside the box, an I-beam inside.) Whenever a single text box (or label box) is graphically selected—whether or not it already contains any text—if you just start typing without first making a text selection, the characters are inserted into the box and you get a

text selection consisting of an insertion point. A text-selected box with no outline gets a dotted-line outline while text-selected.

[If there was already text in the box, the new text should be inserted following it.]

Outlines and properties. Although we normally think of a paragraph containing running text, text boxes have special abilities for making paragraphs that form bulleted lists. (Next to titles, lists are the most common construction used in overhead slide presentations.) The lists generalize to outlines with up to five levels of indentation. Each level within a given text box has its own properties:

- Amount of indent for first line of an item at this level
- Amount of indent for subsequent lines of an item
- Text used as a bullet, if any, for an item
- Font, size, and style for initial run of text in an item
- Line spacing, within an item and between items

Ruler. All properties but the line spacing are set through a special ruler device that can be displayed at the top of any text box. The ruler has sliding markers to adjust outline indention. You make the ruler visible by using the **Show Indents** command; it becomes invisible whenever the box no longer contains a text selection or when you select the **Hide Indents** command.

The ruler is marked in inches or in centimeters, according to information returned from the international resources of the national system file. There is no other way to change the measuring units. Hence, the ruler will adjust to national preferences, but not to individual preferences.

Indention. Each dotted, offset line is an *indent marker*. Each marker defines the characteristics of paragraphs (list items) at its outline level. The ruler always has five indent markers, initially positioned in some default way. The indent markers can be slid back and forth on the ruler. The entire marker is dragged by its horizontal section. Its top section defines the indent of the first line of a paragraph; its bottom section defines the indent of subsequent lines. The top and bottom sections can be dragged independently.

When a marker is dragged so as to run into other markers, the other markers are then pushed along just ahead of the one being dragged, much as one coat hanger can push other hangers ahead of it when dragged. (When dragging a marker to the right, it is said to run into a second marker as soon as the rightmost section of the first marker reaches the leftmost section of the

second marker, and conversely when dragging left.) The markers being pushed always retain their shapes. In this way, both sections of a marker at an outer level are always to the left of both sections of a marker at an inner level.

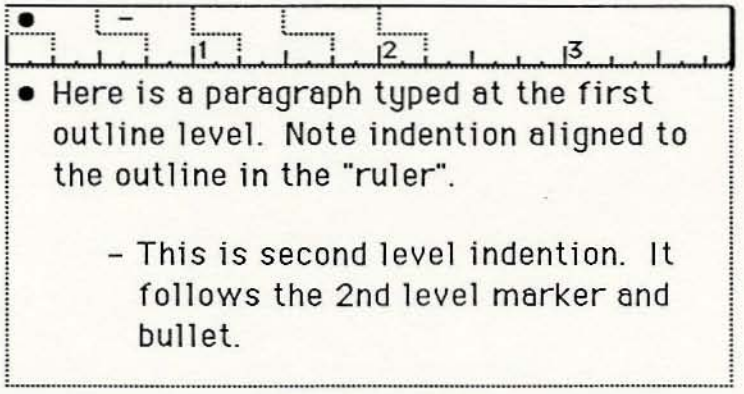


Figure 2. Text Box with Indent Ruler

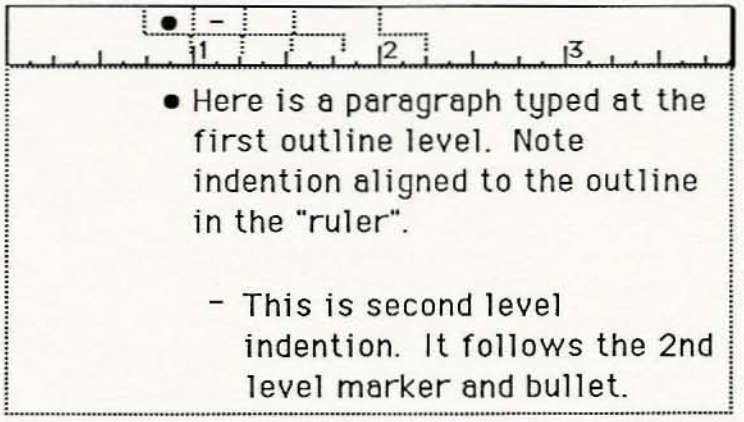


Figure 3. After Sliding Indent Markers

Bullets. Each indent marker can also define a default bullet to be used in lists at its outline level. A few characters can be typed at each indent marker. When you are typing in the text box, a Return starts a new list item (paragraph). As the paragraph is created, the bullet characters (if any) are automatically typed for you. The bullet can include a tab character in order to line up following text at the wrapped line indent. The last character of the

bullet text also determines the initial font and style for that outline level. If a default bullet is defined at level 1, the bullet characters are automatically typed when the text box is created. You may, of course, change the bullet on any individual item, or delete one entirely, using standard text editing.

If you edit the bullet characters on an indent marker, each list item at that level is searched to determine whether it "conforms" to the old bullet; that is, whether the beginning of the item matches the bullet, including characters, font and style. Each conforming item has its bullet changed to the new bullet for that level. Furthermore, if the font or style of the last character of the new bullet is changed, then the font or style of the text in the item is changed as well (up to the first explicit font or style change in the item). In this way, any item whose bullet was automatically typed when the item was created and not edited thereafter is converted to the new bullet.

There is no "auto-increment" feature to automatically number bulleted items.

Changing level. When a new paragraph (list item) is created by typing Return, it is at the same outline level as the previous paragraph. To change the outline level, type Command-L or Command-R (left or right) or use the corresponding menu commands. Existing paragraphs can have their level changed by selecting (multiple paragraphs may, of course, be selected) and giving the same command. Whenever the level of a paragraph is changed, its bullet is changed to that of the new level if the paragraph conforms to the bullet at the old level, as explained in the previous section.

Tabs. The tab character leaves space up to the next indent marker position after the insertion point. It does not alter the outline level, but acts as an ordinary word-processor-style tab using the markers as tab stops. The upper and lower section of a marker each define a tab stop. If tab is entered after the last tab stop, it ends the current line and takes you to the first tab stop on the next line. If an indent marker is later moved, the text is reformatted according to the new tab stops.

Line spacing. Line spacing can be adjusted both within paragraphs (intra-paragraph spacing) and between paragraphs (inter-paragraph spacing). As mentioned above, different spacing can be set for each level when the box is used as an outline. Spacing is set in a dialog box brought up from the **Line Spacing** menu command.

The spacing is set for a particular outline level, or for all levels, by selecting radio buttons. The leftmost button corresponds to the leftmost outline level.

Selecting a single level displays the current spacing for that level. Selecting all levels shows no values unless all levels are the same.

The number you enter for intra-paragraph spacing is the ratio of your desired spacing to the normal spacing for the font. A spacing of 1 means to use single spaced lines; 1.2 would mean to increase the spacing by twenty percent; 2 would mean double spacing. Numbers smaller than one reduce the amount of spacing and squeeze the lines together. The number you enter for inter-paragraph spacing is a ratio of the desired spacing to the total space between lines, after taking into account the intra-paragraph spacing. Thus a spacing of 1 here would mean the last line of one paragraph and the first line of the next are the same distance apart as two lines within a paragraph; 2 means there is room for one extra line between the paragraphs using the current intra-paragraph spacing.

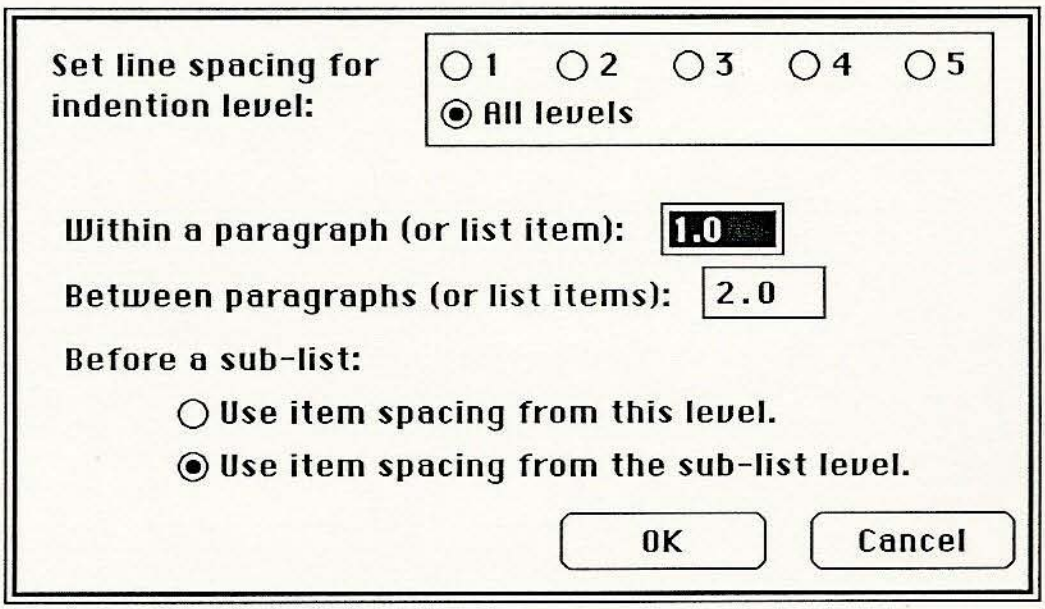


Figure 4. Line Spacing Dialog

Spacing between levels. When a sublist has different inter-paragraph spacing from its parent list, the final two buttons give you the opportunity to place it using the parent spacing or the sublist spacing.

Labels

Boxes used in drawing are usually label boxes, rather than text boxes. These have no indent rulers and are designed to serve as labels rather than lists or paragraphs. Typing is centered in the box vertically, and also centered horizontally by default (changeable to left or right). There is no word wrap; lines are broken by returns (or shift-returns).

Label boxes created with the rectangle or rounded rectangle tool have outlines by default. Label text is placed in a box by graphics-selecting the box and then typing (or pasting text). When a box has an outline, then when the text fills the box you can continue typing without losing anything, but the characters beyond the box are not seen. (The part of the text seen is the same as in the no-outline case, but clipped at the non-expanding outline.)

Text placed with the label tool creates a hidden label box around the insertion point. As the text fills the (invisible) box, the box will automatically expand to accommodate new text as it is typed. The box expands in the direction in which text expands: left-aligned text expands on the right, right-aligned text expands on the left, and centered text expands in both directions. Return characters can expand the box at the bottom and top, preserving vertical centering.

To edit the label text in a box, first get an I-beam pointer by selecting the whole box with the pointer. When a label box with text is selected, the pointer automatically changes to an I-beam when it is inside the box.

There is no way to convert a label box to a text box, or vice versa. To get the same effect, cut from one and paste into the other.

Pictures

In addition to its other characteristics, any box (including a text box) may have a picture pasted into it. Roughly speaking, a "picture" is a bitmap or a structured drawing as produced by MacPaint or MacDraw. You copy a picture to the clipboard, select a box in *Presenter*, and choose **Paste.** If exactly one box is selected, the picture is pasted into the center of the box, resizing the picture to fit. Otherwise, **Paste** creates a new box of the "natural" size for the picture, in the center of the slide, and pastes the picture

into it. If any box containing a picture is resized, the picture is resized to fit. Moving a box naturally moves its contained picture.

It is also possible to crop a picture in a box.. The cropped portions are never discarded, but can be brought back by recropping the picture larger.

[A likely way is that the Control key is held while dragging the resize handles (option and shift have their usual meanings as well) or the move fuzz (to move the viewing aperture over the picture below). Another way is to add crop handles to boxes containing pictures (something like arrows in the center of each side).]

The Presenter Display

On the Macintosh, the display shows two windows: the "document window" in which slides are created and edited, and the "tools window" on the *right* containing drawing tools and other useful items. These windows can be independently positioned on the screen, but only the document window can be resized or scrolled (in the standard Macintosh ways). The tools window can be positioned on top of the document window, even when the document window is active; changes in the document window are then drawn so as to update the display except where hidden by the tools window.

[You move the tools window by positioning the mouse over its window bar and dragging. There is dissatisfaction with the word "Tools" which appears there now.]

When you have more than one presentation open, each viewed in a separate document window, at most one document window is active at a time; however, there is always only one tools window when *Presenter* is executing, and the tools window is always active if any *Presenter* document window is active. If a desk-top accessory window is active, you can make any *Presenter* document window active by clicking it; the tools window also becomes active at that point. (You cannot click the tools window in order to make it active.)

[At the top of the tool box is a button for going to a sorter. When looking at current slide or master slide, originally the toolbox contains a button for Slide Sorter. After going there, the button changes to Title Sorter. When in either, the button shows the other. After returning to a current slide or going to the Master Slide, the button shows the sorter from which you came, on the assumption that you would return there rather than to the opposite sorter. (Both are always available as menu items.) Design of appearance is incomplete.]

Image number. Below the sorter button, a slide number is shown as well as two buttons for going forward or backward by one slide. To go to a particular number, click on the current number and type the new one, terminated by Return or Enter. Going forward from the last slide or backward from the first slide is not permitted. (Inserting slides can be done with New Slide at any time.)

Tools. One of the six tools is always "current" or "in use," and its button is shown inverted. The arrow is the selection tool; when it is in use, the pointer is shaped like the arrow. The label tool (the letter 'A') is used for creating labels; when it is in use, the pointer is a bold-I-beam with base line. The other tools are used for drawing; when a drawing tool is in use, the pointer is a cross-hair. The four drawing tools are for rectangles, rounded rectangles, lines, and text boxes.

[It may be necessary to have some way to get circles and ellipses. Two choices (not mutually exclusive) are a new tool in the tool box for ellipses (restriction gives circles), or an ability on the **Rounded Corners...** menu option to round all the way to circular. In either case, the move fuzz and handles would be on the bounding rectangle, and text would work in terms of the bounding rectangle (not too bad, given the label default to center text both horizontally and vertically).]

There is one tool of each type, but you can add others, labeled with a letter—see the **Custom Tool...** command. Custom tools are like standard tools, but with defaults set. You can add enough custom tools to make two columns the full height of the display.

You select a tool by clicking on its button. If you double click on a tool, then instead of selecting a tool, an object of the sort drawn by the tool is drawn at a predetermined size and location. This is of modest utility for standard tools, but is essential for custom text boxes which play a critical role in standard slide formats. For custom tools, the size and location for a double-click is that of the object used to create a custom tool.

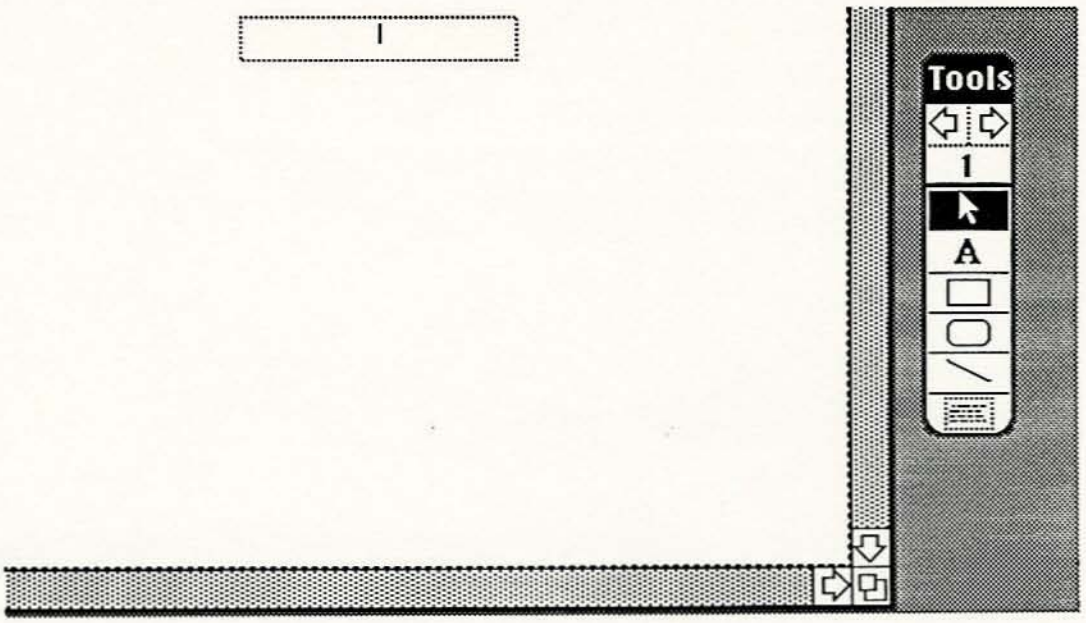


Figure 5. Toolbox Window on Presenter Display

Commands

[Many of the menu commands below will have command key equivalents as accelerators. Assignments have not yet been made, so none are shown in menus yet.]

The Apple Menu

File Edit Text Align View Line Shade Color Window

About Presenter...
Help...

Chooser
Alarm Clock
Calculator
Key Caps
Control Panel

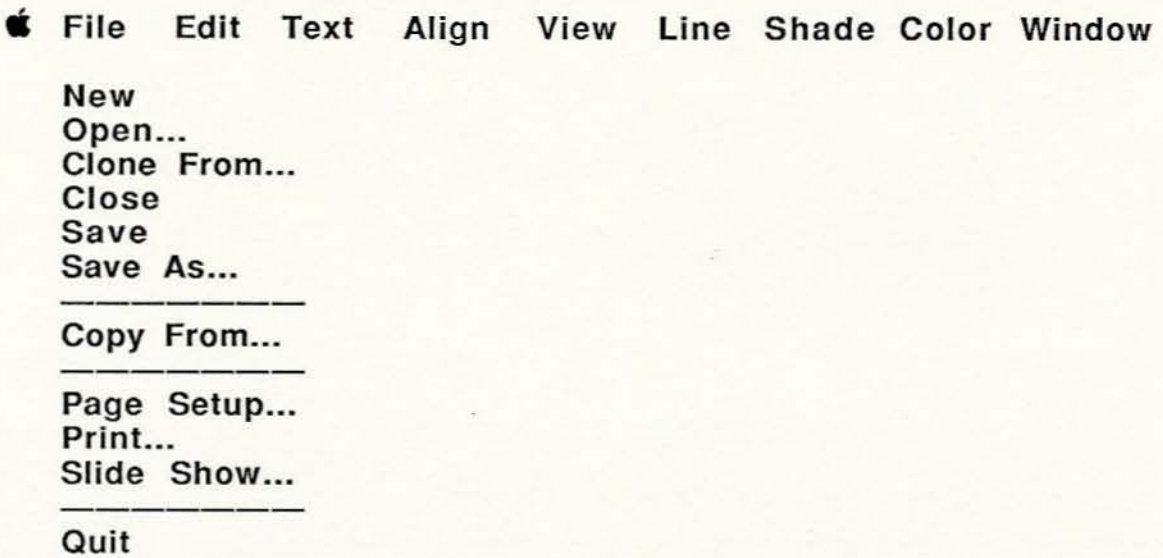
About... gives the explanation/version screen.

Help... brings up a screen explaining how to use help, and containing a help button. Clicking on that button opens a 'help presentation' to the title sorter view, with titles indicating help topics (double-click on one to go to its discussion).

[After help has been invoked in this way, its presentation remains open with the same context and is instantly available as the "help" window listed on the **Window** menu until the user closes it..]

Below these two items appear all the desk accessories installed by the user.

File Menu



The top of the **File** menu contains all the usual commands. Except for **New, Open..., Clone From...,** and **Quit,** all commands in this menu are active only when a presentation is open.

New creates a new (untitled) presentation. It then creates a new first slide, and leaves you at that first slide ready to insert text for the default title which is text-selected. (It would be misleading to put a user at the Master Slide automatically.)

Open... opens an existing presentation. It puts you at the first slide as current slide, if any. If the presentation is empty, it creates a new first slide and puts you there.

Each use of **Open...** or **New** creates a new *Presenter* document window containing an existing presentation loaded from disk or a new presentation, respectively. The dialog box for **Open...** does not offer any presentation already open, and hence each window is guaranteed to contain a different presentation.

[It is probably necessary, or perhaps only possibly nice, to see two parts of the same presentation at the same time. We have ruled out split windows because the implementation cost is too high, so this remains open. A good

way is the Excel-style **New Window** command on the **Window** menu, see below.]

[A useful convention (not widely used, but present in MS-Word) is to allow the user to open the file currently open. When this is attempted, a dialog box asks "do you mean to revert to last version saved?" and when answered affirmatively carries out the revert action. PageMaker contains a **Revert...** item on the File menu. We have removed **Revert...** from our File menu, but have not provided a way to achieve this action other than by choosing **Close** and refusing the offer to Save, then re-opening.]

In addition to offering presentations to be opened, the files dialog for **Open...** also offers files saved by some other products. If you choose one of these, a dialog box asks you to confirm that you want to convert that file into a presentation. If so, *Presenter* creates a new untitled presentation in a document window by converting the other product's data format (this does not result in the converted presentation being stored on disk until you save it). The new presentation has no custom tools, no defined fonts, and the default master slide—just as a presentation created by **New**—but it contains some number of slides created from the converted data.

At present we only plan to convert *ThinkTank* files: each top-level outline item will become the title of a new slide, and the material below that item in the outline will become the contents of the slide.

[Details of the current format are lacking. Simple outlines should probably go into one big text box, honoring up to five levels of indention and ignoring deeper. If too long for a single slide, continue onto another slide with the same textbox format as necessary. Need to decide what to do with objects pasted into *ThinkTank* files, such as pictures.]

Clone from... is similar to **Open...**, but does not load any of the actual images. It loads a presentation that has the custom tools, the chosen fonts, the color palette, the defaults, and the master slide, but it has no images. It then creates a new first slide, and puts you there. Its purpose is to make it easy to prepare presentations with the same style.

[There are still a few details about exactly which defaults are inherited by a clone. The ideal position is that every default is maintained.]

[A proposal is to simplify use of standard stationery by a special rule for opening documents used to clone from. If a user (at the finder) opens a

presenter document which is locked (or which contains no slides, or both) then what is opened is not the document but a clone of the document. A user can keep a gallery of masters, and double-click on any one to get a clone of it for use. May well be unnecessary.]

Close offers the opportunity to save, but only if necessary.

Save and **Save As...** work in the conventional way for word-processors.

Copy From... reads a file from disk and puts its contents into the clipboard, suitable for pasting into a presentation. It can handle a small number of specific file types, and displays a files dialog that offers all files of those types.

When pasted, the contents of the file (just like any clipboard contents) are drawn as one single object, which can only be resized as a whole. The individual micro-objects of the PICT file are not available for individual manipulation within *Presenter*.

[The precise set of types is not yet final, but will include PICT (pictures saved by MacDraw, MacDraft, Cricket, and other programs), MacPaint format, and, if possible, charts saved by Excel. It appears that Excel chart files may contain only parameters and data series (interpreted by Excel to redraw the chart) in which case this will not be possible. (Excel saves PICT format charts only to the clipboard via its Copy Chart command, from which they can be transferred on the scrapbook or by switcher.) No other strong candidates for file types to read are known. We do not yet know whether we will be able to change the color of drawings pasted in. Certainly all the colors present in a drawing when it is saved will be preserved. If color can be changed, only the entire monolithic object can be given a single color.]

Page Setup... determines page size and orientation. All slide images in a presentation have the same orientation (landscape or portrait) and the same aspect ratio (4:3 for overheads or video, 2:3 for 35mm). Once these choices are made for a new presentation (**New**, or **Open...** for a Thinktank file, puts up the Page Setup dialog box with defaults, as does PageMaker) they cannot be changed; thereafter they are grayed-out when the dialog box is displayed.

Paper size is chosen here as well.

[Once a paper size is selected, at the same time as orientation and aspect, then (just as in PageMaker) it cannot be changed and is grayed-out. To make a

presentation which can be printed on many printers, you must choose a page size which they share. Thus, if you choose US Letter, then you will get an image of about 10 inches by 7.5 inches for 4:3 aspect, of about 10 inches by 6.6 inches for 2:3 aspect, centered on the paper in both directions. This can be printed on an ImageWriter, a wide ImageWriter, or a LaserWriter. If you choose Computer Paper you can make huge slides on a Wide ImageWriter, but you cannot image them on a (narrow) ImageWriter or on a LaserWriter.]

[This all works for overheads. It also works for video derived from Slide Show, since we make the whole display fill the whole video signal. We need to find out how 35mm and video recorder device drivers will work. Clearly, a user cannot specify measurements and type sizes in terms of the teeny slide image area, nor in terms of the projected size. We would suggest that the nominal size be taken to be the size when proofed on letter-size paper (10 by 6.6 inches), facilitating both proofing and film recording.]

[Page Setup also collects a single-line header and single-line footer to be printed on every page. The model will likely be Excel, unless we can think of something better. A user can specify elements to be flush left, flush right, and centered. Conventions exist for inserting page number, time, and date. Elements may be marked italic or bold, but there is no direct way to choose font. (An appropriate size of the font used for page numbers on the Master Slide is used.) Header and footer do not change the page layout—if blank, space is left for them.]

The **Print...** command, in addition to the usual options, includes a choice of styles:

- One full-sized slide per page
- Two half-sized slides per page
- Six sixth-sized slides per page
- One full-sized slide per page, plus another full page with either notes for that slide or room for listener's notes
- One half-sized slide per page, with either notes for that slide or room for listener's notes
- Three sixth-sized slides per page, with either notes for each slide or room for listener's notes

For the half-sized formats, two landscape slides are printed on a portrait page, one below the other, or a landscape slide appears at the top with either notes or space below it in the same region where a second slide would appear.

If the slides have portrait orientation, they are printed side by side on a landscape page, or with a slide to the left and notes or space on the right. For the sixth-sized formats, six landscape slides are printed on a portrait page, in two columns of three slides each, or three landscape slides appear in the left column with either notes or space in the right column. If they have portrait orientation, they are printed in two rows of three slides each, or three slides in the top row and notes or space in the bottom row.

Note that this means the notes for a slide will be printed in landscape orientation if the slides are landscape, and in portrait orientation if the slides are portrait.

 [Open issues about notes printing appear in the section on Notes, below.]

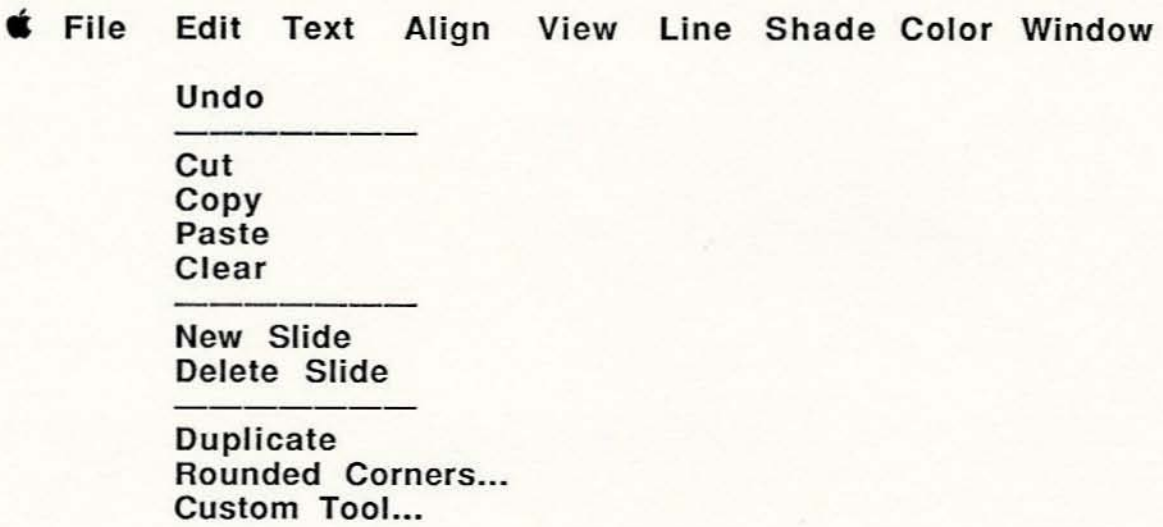
Slide Show... displays the images one at a time on the computer screen, beginning with the current slide. No window borders, scroll bars, menu bars, etc. are shown, only each individual slide. We will attempt to show the slides reduced to fit the screen, subject to the existence of font sizes into which we can scale the actual sizes so as to have a nice appearance. Some cropping may be necessary to fit on the screen, but it should be minimal unless the images have portrait orientation.

A dialog box offers a choice of slide changing control: automatically timed at a chosen interval, or by pressing the mouse button or some key(s). During an automatically-timed slide show, you may press command-period to abort the show.

 [We will define keys for moving forward, backward, or to a specific slide by number; for going to a list of titles (current slide selected), moving to next or previous title, and going to selected slide; and enabling/disabling display of the arrow pointer controlled by the mouse. In the future we may include support for remote control devices to do this, similar to hand-held controls for slide projectors, and support an analogous use of the keypad.]

 [We are considering the ability to create a diskette containing the (uneditable) slide images and a small program to show the slides; this program could not create or modify presentations, but would simply be the slide show feature extracted from *Presenter* to enable one to make on-screen slide presentations. (This would include all the abilities of VideoShow except transitions and progressive disclosure.) We are also considering audio output to read the notes while viewing the slides. Time for neither of these is included in the current schedule.]

Edit Menu



The **Edit** menu is mostly standard.

Undo will work after any editing operation, either from the edit menu or from resizing/reshaping with the selection pointer. It can also cancel any change of attributes such as fill, font, etc.

Cut, **Copy**, and **Paste** work in standard ways.

Both text and graphics may be cut and pasted. When text selected with the I-beam pointer is cut or copied, it goes to the clipboard along with its character attributes. When the clipboard contains only text, pasting into a text selection inserts or replaces the text in the standard way, pasting into a single graphically selected box adds the text as though you had typed it, and pasting when there is no selection or multiple objects selected will create a new, borderless label box in the center of the slide to contain the text.

When one or more graphics objects are selected, they may be cut or copied to the clipboard. When the clipboard contains graphics objects, they may be pasted only when there is no text selection. They are pasted in as new objects centered on the screen which you may then move as you wish.

In addition to cutting and pasting within a single slide or between two slides of the same or different presentations, graphics and text can also be cut and

pasted between *Presenter* and other applications. Standard formats for structured graphics (PICT), text (using the MacWrite standard for typeface/style/size), and bitmaps are supported.

Between *Presenter* documents, whole slides can be cut and pasted together with their notes. This can only be done in Slide Sorter and Title Sorter views (see below). No other data types can be cut and pasted in sorter views.

A presentation contains an environment consisting of the master slide, an orientation, and an aspect ratio. When a slide is copied from one presentation into another, it acquires these characteristics from its new environment; they are not carried across from the source. The set of fonts and the colors used by the copied slide *are* carried across. After copying a slide to a presentation with a different orientation or aspect ratio, you may have to reformat some things, although *Presenter* will try to show every element of the slide "reasonably," and will not make objects invisibly out of view.

Clear deletes the selected objects or text, much like **Cut**, but does not affect the clipboard; the deleted objects are not saved anywhere. Backspace is always a shortcut for **Clear**, even in graphics selections.

New Slide is for inserting a new slide into a presentation. It adds a slide after the current one, or if slide sorter or title sorter are in use, at the selected position, and makes that new slide the current slide. To get a new first slide, you must insert it into one of the sorter views (as a convenience, **New Slide** also adds a new first slide if issued while at the Master Slide, to create a first slide in an empty presentation).

Delete Slide deletes the current slide, after first asking for confirmation. It leaves you at the following slide, if one exists, else in a suitable place.

Duplicate creates an exact copy of an object, or group of objects, offset by a small amount. If the duplicate is immediately moved and a second duplicate is made, the new duplicate will be positioned like the one that was manually moved. This feature, borrowed from MacDraw, is useful for creating rows and columns of objects, for example. The text of any duplicated objects is copied to the duplicate.

The **Rounded Corners...** command allows changing the roundness of a box. A dialog allows changing the radius of a box's corners, or converting a round-corner box to a rectangle or vice versa.

Custom Tool... is the command that installs a custom drawing tool, particularly useful for text boxes. You can draw a text box, display its ruler, and adjust its properties as you like. Then you use **Custom Tool** to turn that box into a drawing tool. A dialog box gives you the opportunity to identify it with a letter such as 'O' for outline. The dialog box also allows you to discard tools you no longer want. Any text box, regardless of the tool that was used to create it, can be altered to suit the circumstances. Custom tools are provided solely as a convenience to object creation.

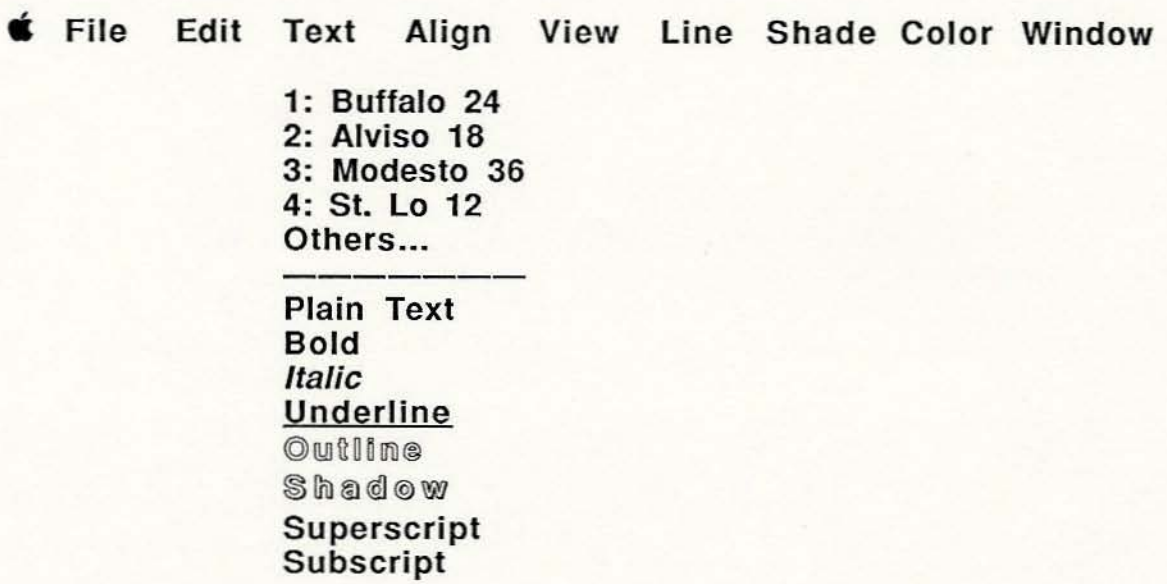
Objects created by any tool can be turned into a custom tool. The tool retains all the properties of its exemplar. For example, a line made wide, arrow style, and red can be customized into a tool which makes wide, red, arrows. Double click for original position and size, single click for a tool to set position and size.

[Tools with a default color are shown in that color. Tools with a line style or fill should retain some indication of those properties, but there is a problem with the tiny size of a tool.]

Any group of objects can also be customized. Select the objects and then give the **Custom Tool...** command to install the new tool. When you double click on a custom tool, the object(s) are immediately drawn at the same location and in the same size that they had when canonized. This makes it easy to repeat a common feature on many slides. When you single-click, you get a special tool which lets you create a hidden box of any size and position into which the object(s) are drawn.

[It may turn out to be best to restrict custom tools to being custom variants of standard (single) tools. Then for multiple-object groups we would need a glossary mechanism, to name and recall groups of objects. The use of names for these is attractive. Choosing a name would always be the equivalent of double-clicking a custom tool. This is in essence a custom scrapbook which is part of the presentation, and that would also be an alternative.]

Text Menu



The **Text** menu controls properties of individual characters. The bottom group of the menu shows the type styles exactly like the top of the **Style** menu in MacWrite, permitting bold, italic, etc. The top of this menu, however, is more unusual.

Unlike Macintosh applications where the font menu in fact offers a list of typefaces, the *Presenter* menu offers actual fonts—size and default style included. The list contains whatever fonts you have installed (see below); initially it contains a default font set. Each presentation document contains its own fonts, which are shown on the menu when that presentation is open and active. If different presentations have different fonts and are open at the same time, then the menu will change depending on which presentation is currently active. The fonts are numbered, and the numbers correspond to the slots in the dialog box below.

Fonts can be added to the menu, or changed or removed, with the **Others...** command. It brings up a dialog box which works somewhat like the font selection in Microsoft Word. You select a typeface, a size, and a default style from the left half of the dialog; all typefaces installed on the system are shown. Clicking the Install button replaces the highlighted font in the box at the right with your selections. A spare slot (number 4 in this case) is always

available at the end of the font list so you can add new ones. You can also select a font from the list and remove it. Removed fonts do not appear in the **Text** menu, and the remaining fonts are renumbered. You can continue updating the font list until you are satisfied, and then click Done to install the new list.

Any time you modify one of the numbered slots that already had a font installed, text throughout the presentation is modified; for example, if Install is selected when slot 3 has been changed from Modesto 36 to Monaco 22, then that menu item is changed from Modesto 36 to Monaco 22, and all uses of Modesto 36 throughout the presentation are changed to Monaco 22. Removing a font from the list does not affect the text in the presentation, although it does make it harder to create new text of that font. When the dialog box is opened, the typeface, size, and style of the current text selection are initially selected in the dialog box, if there is a current text selection and if the entire selection has the same typeface, size, or style. By installing that font in the spare slot, you can easily redefine a font that was previously removed but still in use.

When slides are inserted from another presentation, they retain their fonts (face, size, style) from the source, even if that font is not installed in this presentation. The fonts corresponding to this text are not automatically installed in the destination presentation.

[A side-effect of this mechanism seems to be that we must disallow duplication of items in the font list (unless they have different default styles?). The exact interface is not defined.]

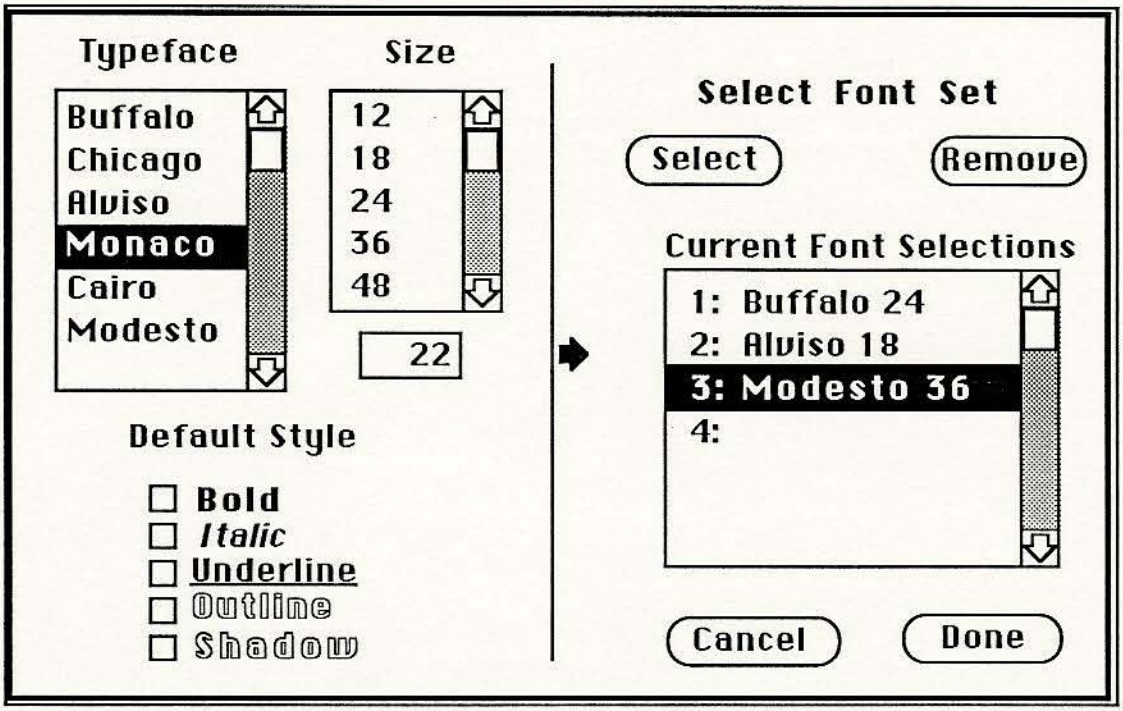
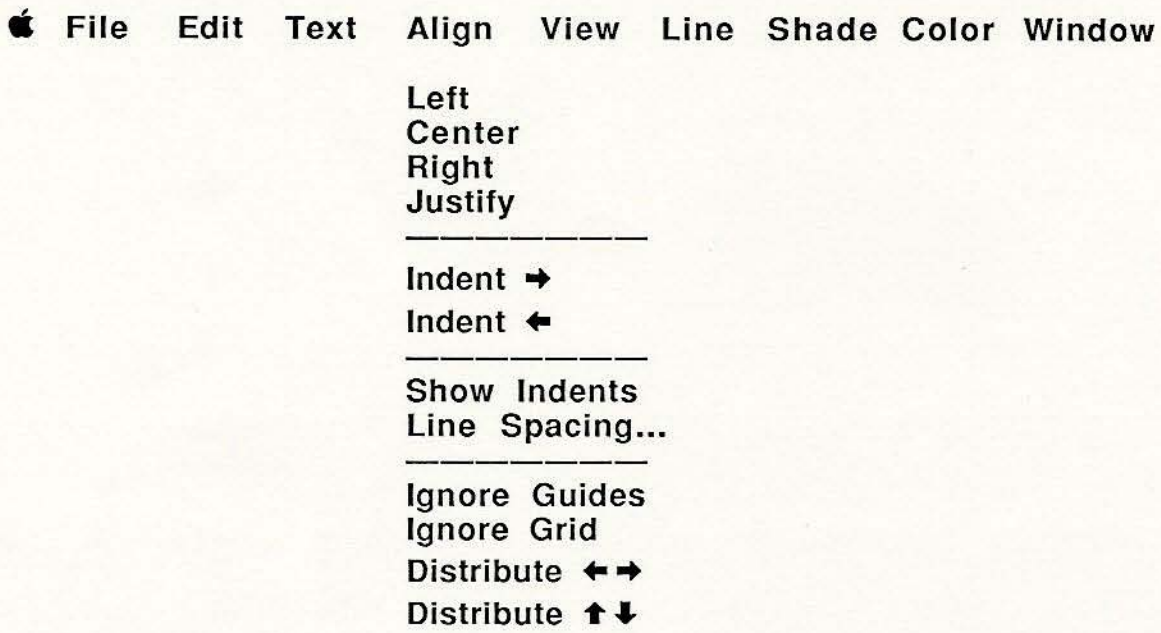


Figure 6. Font Dialog

Align Menu



The **Align** menu moves, arranges, and aligns objects on a slide or text within an object.

Left, Right, Center, and **Justify,** the first four items, control the alignment of paragraphs of text in the usual way. They apply to all paragraphs containing any portion of the current text selection within a text box, or to the entire text box if it is graphically selected or is a label box. Justify applies only to text boxes, not label boxes.

The **Indent** commands change the outline level of a paragraph (key equivalents will be command-L and command-R). They are enabled only when there is a text selection in a text box. They work on the paragraph containing the selection. If the selection spans multiple paragraphs, all the selected paragraphs are affected. The command has no effect on any paragraphs already at the outermost or innermost level, respectively, which can't be moved further.

Show Indents brings up the indent ruler on the selected text box. It can be used only when a single text box is selected. It is a toggle, which becomes

Hide Indents when the ruler is showing. The ruler is made invisible whenever the box no longer contains a text selection.

Line Spacing allows inter-line leading to be finely controlled. It brings up the dialog box discussed earlier in the section *Text Boxes*.

The next two commands are toggles that enable two alignment gadgets. Both grid and guides are on by default, but their state is carried with the document.

Ignore Grid turns off an invisible 1/18 inch grid. New objects are constrained to have their centers and sides, or end points in the case of lines, lie on the grid. Note that this means that the objects will be an *even* number of grid divisions vertically and horizontally; dimensions are thus in multiples of 1/9 inch. When an object is moved, its center can only be moved to a grid point. When an object is resized, the handles can only be moved to grid points. When moving groups, selection rectangle remains grid-aligned. In normal use, a user would almost never turn the grid off. When the grid is off, the command is toggled to **Snap to Grid** to turn it back on.

Ignore Guides removes the gravitation which pulls objects to guide lines. When on, the edges and centers of objects are attracted to invisible vertical and horizontal lines running (initially) down and across the center of the page. These guides can be made visible (without changing their properties), and when visible can be moved with a continuous read-out of their distance from the center (in the same national units used on rulers). There is a single guide for each direction (like FileMaker T-squares). When drawing or moving an object, its edge or center will snap to the guide line if it lies within about 1/4 inch (or 1/4 the length of the object, if smaller than one inch). When guides are off, the command is toggled to **Snap to Guides** to turn them back on.

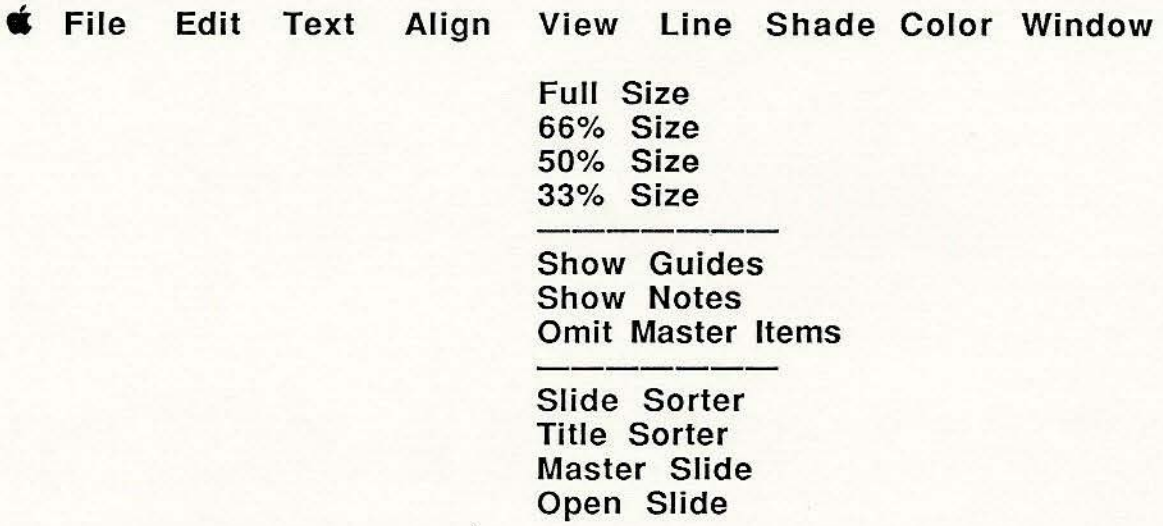
The snap-to-guide effect is more powerful than the snap-to-grid. If an object is not grid aligned, moving it normally aligns its center on-grid. If a guide line attracts the edge of such an object, the edge will will be aligned even if its center goes off-grid.

The two **Distribute** commands are for evenly spacing a group of objects, either horizontally or vertically. To see how the commands work, we'll look at the horizontal version; the vertical is the same except for orientation. First select the group of objects, then give the command.

The leftmost and rightmost objects do not move. The other objects have their horizontal position adjusted so that the amount of space between each pair is

the same. Their ordering from left to right is unchanged and their vertical positions are unchanged. You should note that the leftmost and rightmost objects may be the same object, say when one of the objects is a box enclosing the others. In that case the objects are distributed across the box. If only one object and its containing box are selected, this has the effect of centering it in the box. A useful special case comes up if the group contains only one object: the object is simply centered on the page.

View Menu



The **View** menu handles scaling of the image to the window, and is also the key to several unique ways of viewing a presentation.

Full Size, **66% Size**, **50% Size**, and **33% Size**, the first four commands, are mutually exclusive, and the selected one is indicated by a checkmark. **Full Size** shows the image on the screen at the full size that it will be printed—all fonts are shown at their true point size; the inches marked on the indent ruler are full inches on the screen; etc. The other three commands reduce the image. Depending on the orientation of the slide, at least one of these commands will show an entire slide on the screen (if the window is made sufficiently large). The initial size for a new presentation is the largest which will show an entire slide on the display. Scaling to reduced sizes is not absolutely perfect—for example, objects or characters may touch each other when reduced that do not in full size—but with the new Macintosh ROMs (in every machine currently being sold) it is very good.

Show Guides displays guide lines like FileMaker's T-squares. Default position is centered in each direction. The numeric position of each guide is shown at the ends of its lines. Position is shown relative to center of page, not upper left corner. If the grid is on, guides can only be moved to grid lines. When the guides are displayed (they are initially off), the command is toggled to **Hide Guides** to hide them.

The **Show Notes** command opens a new window in which to view and edit the notes accompanying the current slide. You may switch between the document window and the notes window, and may move and resize them independently. If you change the current slide (for example, using buttons in the the tools window), then the notes for that slide are displayed in the notes window. You can go to Title or Slide Sorter views and back without effecting the notes window (changing the selected slide in a sorter view will show its notes). When the notes window is displayed, the command becomes **Hide notes**, which you can select to remove the notes window; alternatively, you can close the notes window by clicking in its close button. If you have more than one presentation open, then it is possible to have several notes windows, each corresponding to a document window. If you close a document window, then its corresponding notes window is closed automatically.

[The notes could consist of a single text box of the same size and shape as the slide image itself. The text box can be altered in any way, but cannot be deleted. No other objects can be created in the notes window. If so, it is hard to see how the text box defaults could be set, since setting text box defaults on Master elements is not inherited.]

[Alternatively, the notes area can be treated as essentially just another slide. Any objects can be created there, art can be pasted, etc. Tools from the tool box can be used to create standard text boxes, for the same Notes format with every slide. Show Notes while looking at the Master Slide shows you the Master Notes. Here you can add elements, just as on the master slide, to be repeated in each notes block.]

[The notes window may be scaled (full, 66%, 50%, or 33%) automatically by rescaling the slide window, and be contrained to be the same, or it may be that every window—notes or slide—can be scaled independently.]

[For any presentation, it is likely that its notes are designed for just one of the three possible printing formats, and cannot be designed to be reasonable in more than one format. To get the same slides with usable notes in more than one style, you have to make more than one presentation (copying the slides). If this is so, we could perhaps make it easier to do the right thing by always working on notes at the size of the printed paper (always use 12-point type if you want 12-point notes on the paper) regardless of how the accompanying slides will be printed. This has the advantage of restoring some of "what you see is what you get," since now all you can get is one kind of notes This would require fixing the notes printing format at Page Setup time.]

If you select **Omit Master Items**, the appearance of all of the objects from the master slide are removed from the current slide (including the title and the page number, if any). If objects from the master slide have been omitted from the current slide, this command is toggled to **Include Master Items** to include them. You cannot edit these objects on any slide (except the title), nor selectively include them—they are either all there as on the master slide, or all omitted. (If you need to change items slightly on one slide, you can always copy the items from the master slide, paste them into the current slide, edit them slightly, and omit master items.) When omitted master items are restored, they reassume their stacking order at the bottom.

The current view within any document window is always one of four things: the slide sorter, the title sorter, the master slide, or the current slide. Four mutually exclusive commands control this, with the current view indicated by a checkmark.

Title Sorter changes the window to a scrolling list of slide titles. Double click a title to display that slide. Single click a title to make it the current slide, but not switch from the title sorter view. Continuous selections of multiple titles can be made by dragging or by shift-click extension at the extremities. Selected titles can be cut, copied, cleared, or duplicated, with the same effect on the slides they represent. Paste inserts titles (and slides) cut from this or another presentation. Selected titles can be dragged to an insertion point, on the model of dragging icons to the trash. This mode allows the same operations as the slide sorter view discussed below, but works on titles instead of miniature images.

The **Slide Sorter** command brings up a multi-slide view of the document, allowing slides to be viewed together and rearranged. About 12 to 16 miniature slides should be viewable at one time. They are arranged in the window in rows, the number in each row depending on the width of the window. A vertical scroll bar permits scrolling through the entire presentation. Individual slides are selected by pointing and clicking. Double-click goes to a view of that slide. Selecting the slide pops up its title (on a line under the menu bar) to help identify the miniature image. A continuous group of slides is selected by clicking and dragging or shift-click extention. Clicking between slides selects an insertion point between slides. The slides can be cut, copied, and pasted, or a selected group dragged to an insertion point.

Both sorters come up with the current slide selected, and approximately centered in the window. Only slides can be manipulated in either of the

sorters. No other type of data can be acted on, even if it is from *Presenter*, but slides can be freely copied or moved between presentations. Among other things, this means that the objects on all slides can never change while in the sorter views.

Master Slide brings up the master slide for this document that contains such things as borders, logos, page numbers, and a title box. Features of the master slide are shown, but are not editable, on the actual slides. They are drawn on the master in the same way they would be on an ordinary slide (tools, or cut and paste). All art, drawing, labels, and textboxes have their appearance superimposed on each slide in the presentation, but none of their structure (they cannot be selected or changed).

The master slide contains an indestructable label box containing the words "Master Slide". You can change the characteristics of the box to suit your taste—position, typeface, etc. An empty copy of this box (with those properties as defaults) will appear on every new slide you create. The text you type into it, if any, will be the title for that slide.The title may have its size, position, characters, font, size, and style changed on any individual slide. If it is reduced to minimum size after entering, nothing will show on the image but a title will be available for use in the title sorter.

The slide number is simply a label box containing the text "##". When a slide is printed, the two characters are replaced by the slide number. The font, etc. is determined by the font of the "##" on the master slide..

When viewing the master slide, you can view a specific slide by editing the image number in the tools window, or by going to a sorter.

[We need to be sure that all the defaults handled by "slide formats" in other programs have a reasonable treatment, without the need to inherit any defaults from the master slide. For example, background color (proposal is to inherit from background color when new slide is created),and text boxes (proposal is to use custom tools).]

From any view, you can return to viewing the current slide by selecting the **Open Slide** command.

Line Menu

File Edit Text Align View Line Shade Color Window

(Custom Menu)

The **Line** menu is a custom menu contains two groups, each mutually exclusive.

The top group offers a choice of line widths. We plan to have five or six widths, from narrow to bold.

[It would be very desirable to have compound lines (thick and thin elements) like PageMaker. It may be necessary to have dotted line types, again like PageMaker.]

The bottom group offers a plain line, arrow types, and braces. Arrow types are single head at first point, single head at second point, and double head (at both points). Braces are offered in mirror images from point one to point two.

Line width affects the edges of an box as well as lines. The arrows and braces are only available for line objects; boxes always have plain line edges.

If one or more objects is selected, these commands change the selected objects. If there is no selected object, then these commands change the default. If one object is selected, checkmarks show its properties. If several objects are selected, checkmarks show their properties if all are the same, else there are no checkmarks. If no object is selected, checkmarks show the current default.

Shade Menu

File Edit Text Align View Line Shade Color Window

Hidden
Outline
Solid
———————
(Custom Menu)

The **Shade** menu contains commands to set box types, and a custom menu of patterns for the interior of solid boxes, for lines and for the edges of outline boxes.

Patterns include None (transparent), solid "black" (current color), plus a dozen or more useful patterns of the current color with transparent background. Each black pixel of the selected pattern is drawn in the selected color; each white pixel is a "hole" that allows objects below to be visible.

Hidden, **Outline**, and **Solid** are styles applying only to boxes (of any type).

A "solid" box is filled in with the selected pattern (and color), and obscures any object beneath it except where the pattern has "holes" (white pixels); it has no border, or rather the border is indistinguishable from the box's interior. An "outline" box has a visible border, of the selected pattern (and line width and color), but its interior is transparent. A "hidden" box is not visible at all, although its contents are visible.

[There may be a better set of attributes to replace the mutually-exclusive 'hidden,' 'outline,' and 'solid.' An alternative suggestion is (non-exclusive) Opaque, Filled, and Framed. This would produce pattern-filled boxes with a solid frame—a desirable object type.]

If one or more objects is selected, these commands change the selected objects. If there is no selected object, then these commands change the default. If one object is selected, checkmarks show its properties. If several objects are selected, checkmarks show their properties if all are the same, else there are no checkmarks. If no object is selected, checkmarks show the current default.

Color Menu

File Edit Text Align View Line Shade Color Window

(Custom Menu)
Other...
———————
Select Background

The **Color** menu determines the color of objects—box edges, lines, plus pattern, text, and/or pictures in the box. All parts of an object (except its background, see below) are of the same color.

Patches of color are shown on the screen, in numbered slots, extendable to additional slots (as for fonts). The first of these is the color None, which is transparent. All other colors are opaque.

Each presentation document contains its own colors, which are shown on the menu when that presentation is open and active. If different presentations have different colors and are open at the same time, then the menu will change depending on which presentation is currently active. The colors are numbered, and the numbers correspond to the slots in the dialog box below.

The **Others...** command permits colors to be added to the menu, or changed or removed. It brings up a dialog box which works somewhat like the color selection in Microsoft Windows. You select a hue, a color, and a brightness with three slider bars from the left half of the dialog. Clicking the Install button replaces the highlighted color patch in the box at the right with your selections. A spare slot is always available at the end of the color list so you can add new ones. You can also select a color from the list and remove it. Removed colors do not appear in the **Color** menu, and the remaining colors are renumbered. You can continue updating the color list until you are satisfied, and then click Done to install the new list.

Any time you modify one of the numbered slots that already had a color installed, objects throughout the presentation is modified; for example, if Install is selected when slot 3 has been changed from indigo to chartreuse, then that menu item is changed from indigo to chartreuse, and all uses of indigo throughout the presentation are changed to chartreuse. Removing a

color from the list does not affect the objects in the presentation, although it does make it harder to create new objects of that color. When the dialog box is opened, the hue, color, and brightness (and red,green,blue values) of the current selection are initially selected in the dialog box, if there is a current selection and if the entire selection has the same color. By installing that color in the spare slot, you can easily redefine a color that was previously removed but still in use.

When slides are inserted from another presentation, they retain their colors from the source, even if those colors are not installed in this presentation. The colors corresponding to these objects are not automatically installed in the destination presentation.

[A side-effect of this mechanism seems to be that we must disallow duplication of items in the color list. The exact interface is not defined.]

If one or more objects is selected, these commands change the selected objects. If there is no selected object, then these commands change the default. If one object is selected, checkmarks show its properties. If several objects are selected, checkmarks show their properties if all are the same, else there are no checkmarks. If no object is selected, checkmarks show the current default.

Select Background is used to select the background, of an object or of the slideas a whole, which can thereafter be colored. This is analogous to Select All, in that it simply creates a selection waiting for an operation to be performed on it. There is no way to select any background except through this command. This command is on the **Color** menu, because the color is the only attribute of a background which can be changed.

If one or more box objects are selected, then Select Background causes their backgrounds to be selected (shown by adding an inversion of the box interior in addition to the move fuzz and possible handles). If no object is selected, then Select Background causes the background of the slide itself to be selected (shown by inverting everything?) Selecting a color now (via an ordinary use of the Color menu) will apply that color to the backgrounds selected. The backgrounds remain selected, so they can be recolored. Making any other selection deselects them.

[An alternative is to have select background work only for selecting the background of the slide. Then, if any filled object were selected and colored, a dialog box could ask whether the fill or the frame should be colored.]

- There is a None color, and if a background is that color (the default) it is transparent. Otherwise, the effect is as if an opaque rectangle of the selected color was below the object. The object's edge, possible pattern, possible text, and possible picture contents are all in the object's color, and where the object is transparent its background shows through. The object's background moves and resizes together with the object..

- The color selected for the background of a box is like a rectangle of the same size, behind the other elements. For hidden boxes, this has the effect of a rectangle of the background color with text , picture, and pattern in the foreground color. For outline boxes the effect is the same, but with an outline in the foreground color. For solid boxes, the solid pattern obscures the background color, except for holes.

Color Menu (Fallback Position)

File Edit Text Align View Line Shade Color Window

Black
White
Red
Green
Blue
Cyan
Magenta
Yellow
———————
Select Background

[If Apple does no more with color by our freeze date than they have done so far, then it will be appropriate to do something very much simpler with color. In that case, on a monochrome screen, the **Color** menu would appear as simply a list of eight color words with no option for adding others. **Select Background** would be as described above, in either of its flavors.]

[If one or more objects is selected, these commands change the selected objects. If there is no selected object, then these commands change the default. If one object is selected, checkmarks show its properties. If several objects are selected, checkmarks show their properties if all are the same, else there are no checkmarks. If no object is selected, checkmarks show the current default.]

[On a monochrome Macintosh screen, the only way to find out the color of an object would be to select it, and then to pull down the color menu to see which color was checkmarked.]

Window Menu

 File Edit Text Align View Line Shade Color Window

Show Clipboard
New Window

Help
June Bd. of Dir.
(N) June Bd. of Dir.
AV Market:1
AV Market:2
(N) AV Market

- The **Window** menu is modeled after the one in Excel (a convention newly introduced by Microsoft for Windows applications as well). The top two items are constant. The remaining items are dynamically added, one for each window currently open. (The items in the menu are illustrative, and how how the menu might look when the Help presentation has been opened along with two other presentations. Both of the two user presentations have their notes open, and one has two windows open for viewing different parts of the presentation).

- **Show Clipboard** pops open a window displaying the clipboard, which may be closed by its close button (or Hide Clipboard). It is convenient for making sure you have the right thing before pasting, which people frequently want to do (in Presenter there are alternatives which are not bad). Wouldn't be worth adding if this menu did not exist.

- **New Window** opens an additional window on the document which is shown in the active window. This new window provides an additional view of the same document which may be scrolled, edited, etc. The document is not opened a second time. Changes in one window affect all other windows open on the same document, reasonably promptly.

  Window bars (and menu items) differentiate between multiple windows open on the same presentation by suffixing instance numbers to the document name, *e.g.*, **AV Market:1** and **AV Market:2**. (This is another Microsoft standard introduced for Windows.)

The motivation for a **Window** menu is to rapidly select from among multiple windows, especially when each window must be fairly large (or even screen size). This is true for presentations, where you cannot work effectively on slides reduced below a certain size or by scrolling over a single slide. If you have only two windows, they can be slightly offset and flipped in the usual way by selecting on a visible edge. For more than two windows, a **Window** menu pays off. With the decision to show notes in a separate window, so that two open presentations may mean four windows, there is additional need for it.