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## Introduction

Welcome to DAUB, a truly unique graphics program. DAUB simulates a flat brush, hence it is particularly suited to calligraphy. The brush is controlled using the mouse, and the program offers many ways to vary the look of the brush strokes that you draw. Also, the brush strokes may be extensively modified after you have drawn them, with pre-programmed effects.

Although originally developed as a general purpose drawing program with a difference, DAUB has proven to be more usable as a calligraphic tool. Professional calligraphers and artists have collaborated with the developer to make DAUB more user-friendly and also more specialized for calligraphy. For example, DAUB now lays out guidelines that automatically adapt to the size of the brush being used.

DAUB can be quite demanding on a PC's resources, depending on how you use it. For simple use, a 386 machine with 1 megabyte of RAM will run DAUB successfully. For calligraphy involving many finely detailed characters on the screen at once, a powerful machine with graphics acceleration will be necessary for quick, convenient performance. DAUB runs well under Windows 3.1, Windows 95 and OS/2.

## Main Menu Items

All of DAUB's capabilities are accessible through the main menu. Some of the more advanced capabilities are only accessible this way.

A brief description of the currently highlighted menu item is always displayed in the button bar at the bottom of the DAUB main window. More extensive descriptions are available below.

Every menu item in DAUB's menu system is listed here:

File | New

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## **File | New**

Creates and opens a new child window, with the currently selected background colour.

## **File | Open...**

Brings up the standard Windows file open dialog, doing the usual check for unsaved work. Files with the .dob extension in the current directory are listed - these are the only ones that DAUB can read in. After opening a file, the graphics it contains are displayed in the current child window.

## **File | Save**

Saves the graphics in the current child window to disk. If the window is 'untitled', this does the same thing as File | Save as... .

## **File | Save as...**

Saves the graphics in the current child window to disk, under a different name.



## **File | Print...**

Prints the contents of the current child window, matching the total width of the canvass to the width of the printable area of the printer. You are firstly prompted for a scaling factor, as a percentage, in case you want the image a different size. The percentage is set to 100 by default.

## **File | Printer Setup...**

Brings up the standard Windows printer setup dialog.

## **File | Exit**

Terminates DAUB, with the usual checks for unsaved work in each child window.

## **Edit | Undo**

Undoes the effect of the last operation that changed the position, shape or colour of any displayed object(s).

## **Edit | Cut**

Deletes the selected object(s) from the current child window. However, the object(s) are still available for pasting.

## **Edit | Copy**

Makes the selected object(s) available for pasting.

## **Edit | Copy to Clipboard as MetaFile**

Copies the selected object(s) to the Windows clipboard, in MetaFile format. This makes them available to a very wide range of Windows graphics software. Even bitmapped applications such as Paint will import the metafile and convert it to a bitmap.

## **Edit | Paste**

Duplicates the most recently cut or copied object(s), a short distance from their original position. This may be done repeatedly, at any time, until the next cut or copy is done.



## **Edit | Delete**

Deletes the selected object(s) from the current child window.

## Tools | Pointer

Selects the *Pointer* tool, causing the cursor to change to an arrow. This tool is powerful and versatile. It can be used to perform the following operations on the selected object(s):

Moving

Re-sizing in the x or y direction

Proportional re-sizing

Rotation

Click and drag anywhere *within* the rectangular area(s) outlined by the selection squares.

Click and drag on any of the selection squares *mid-way* between the corner ones. Note that it is possible to flip the object(s) in the x or y directions by dragging far enough. All object types are resizable this way, even text (although text ignores any attempt to flip it).

Click and drag on any *corner* selection square to resize, which will *maintain* the original proportions of the selected object(s). Note that it is possible to flip the object(s) in the x or y directions, or the x and y directions simultaneously, by dragging far enough in the right directions.

Click and drag anywhere *outside* all of the rectangular areas outlined by the selection squares. The shape objects cannot be rotated, but their position will change appropriately if they are part of a selected group of objects that is being rotated. Text will respond to rotation *if* it is in a TrueType font. Otherwise, only the position will change, like the shape objects.

## Tools | Skew Tool

Selects the *Skew* tool. This tool *only* operates on selected brush strokes. By clicking and dragging anywhere *outside* the rectangular areas defined by the selection squares, the stroke(s) can be skewed left or right.

## Tools | Magnifying Glass

Selects the *Magnifying Glass* tool. By clicking on any object, this tool examines the object's data and displays it in a dialog. For example, clicking on an ellipse will display its line size, whether or not it is filled, the line colour and fill colour. Clicking on a brush stroke will display the size, angle and colour of the nearest brush mark.



## Tools | **Axe**

Selects the *Axe* tool. This tool is used to chop a brush stroke in two, by clicking over the required spot. The brush stroke does not need to be selected. After it has been chopped (a brush mark is removed), the 2 resulting pieces become complete brush strokes, like any other brush stroke object.

## Tools | Glue Tube

Selects the *Glue Tube* tool. By clicking between the tail of one brush stroke and the head of another, they can be glued together. The tail and head need to be fairly close to one another - nothing will happen if they are too far apart. The brush strokes are then one brush stroke, like any other brush stroke object.

**Try this:** Draw a stroke at normal writing speed. Chop it in the middle with the *Axe tool*, then rejoin it using the *Glue Tube tool*.

## Tools | Static Brush (fixed angle)

Selects the fixed angle *Static Brush*. Colour, brush size and brush angle stay constant while you use it. It produces strokes like a calligraphic nib held at a constant angle.

## Tools | Static Brush (monotonic)

Selects the monotonic *Static Brush*. Colour, brush size and brush angle stay constant while you use it. It produces strokes like a calligraphic nib always held at an angle perpendicular to the direction of movement.

## Tools | Dynamic Brush (fixed angle)

Selects the fixed angle *Dynamic Brush*. According to how you set it up, the width and colour of this brush change in response to how you draw with it. It produces strokes like a calligraphic nib held at a constant angle, with the size of the nib and colour of the ink continuously changing.

## Tools | Dynamic Brush (monotonic)

Selects the monotonic *Dynamic Brush*. According to how you set it up, the width and colour of this brush change in response to how you draw with it. It produces strokes like a calligraphic nib always held at an angle perpendicular to the direction of movement. The size of the nib and colour of the ink change continuously.

## Tools | Rectangle

Selects the *Rectangle* tool. By clicking and dragging in any direction, you can define two opposite corners of a rectangle. Colours and line thickness depend on how you have set up shapes.

## Tools | Rounded Rectangle

Selects the *Rounded Rectangle* tool. By clicking and dragging in any direction, you can define two opposite corners of a rectangle, which define the size and shape of a rectangle with rounded corners. Colours and line thickness depend on how you have set up shapes.



## Tools | Ellipse

Selects the *Ellipse* tool. By clicking and dragging in any direction, you can define two opposite corners of a rectangle, which define the size and shape of an ellipse. Colours and line thickness depend on how you have set up shapes.

## Tools | Line

Selects the *Line* tool. By clicking and dragging, you can define the beginning and end point of a line. How the line appears depends on how you have set up lines.

## Tools | Text Lines

Selects the *Text Lines* tool. By clicking, you can position the caret and begin typing in text using the keyboard. How the text appears depends on how you have set up text.

## Objects | Strokes | Setup (static, fixed angle)...

This menu item brings up a dialog box which allows you to setup the static fixed angle brush parameters.

In the top section of the dialog are edit boxes for the parameters size, angle, delay and the RGB colour components.

Immediately below these is a list box containing presets. You can select any available preset by clicking on it, scrolling the list up or down if necessary.

To the right of the *OK* and *Cancel* buttons are 2 buttons titled *Save as preset* and *Restore defaults*. Clicking on *OK* will select the static, fixed angle brush, if it hadn't already been selected before the dialog was opened.

## Objects | Strokes | Setup (static, monotonic)...

This menu item brings up a dialog box that is almost identical to that for the static, fixed angle brush. The only difference is that the Angle edit box is grayed out, since it is not relevant to describing a monotonic brush.

## Objects | Strokes | Setup (dynamic, fixed angle)...

This menu item brings up a dialog box which allows you to setup the dynamic fixed angle brush parameters.

In the top section of the dialog are 2 sections titled **Change these** and **According to an attribute**. As the titles attempt to suggest, the parameters on the left change in response to changes in the attributes on the right.

A simple example at this point should give you a basic idea of how this works.

Suppose you wished to draw a large Chinese character, with each stroke starting wide and then narrowing towards the end. Also, you want each individual stroke to start with a deep red colour, and turn gradually to yellow at the end.

To do this, you firstly need to set the parameters in the **Change these** section. The RGB values under the column titled **attr min** could be say, 128 0 0 and under the column **attr max** they could be 255 255 0. That specifies how the colour is to change. Similarly, you could set the value of **Size** to range from 16 down to 8 (in pixels). That controls the size of the brush.

Now you need to set the attribute in the **According to an attribute** section. The one you want is **Length**, since the colour and size are going to change along the length of each stroke. Hence you would click on the **Length** radio button. Under the **Min** column you would type in 0 and under the **Max** column, 60 (which means 60 pixels).

The other attributes are Speed lo, Speed hi, Index, Curvature and Slope.

If you clicked *OK* at this point, the dynamic fixed angle brush would be selected (if it wasn't already) and you could start drawing those Chinese looking strokes.

Immediately below the **Change these** section is a small section with edit boxes for Angle and Delay.

The next section down has edit boxes for Colour averaging and Size averaging.

Immediately below these is a list box containing presets. You can select any available preset by clicking on it, scrolling the list up or down if necessary.

To the right of the *OK* and *Cancel* buttons are 2 buttons titled *Save as preset* and *Restore defaults*.

This is the distance along a stroke's path, measured in pixels. Any parameter that changes according to length will change at a constant rate from the minimum to the maximum length.

Example

For example, suppose the parameters are set to go from black to bright blue, and the attribute minimum and maximum lengths are set to 40 and 130 respectively. The stroke will start off black, and stay black up to a length equivalent to 40 pixels. Then, it will begin to change smoothly, reaching bright blue at a length of 130 pixels. From there to the end, the stroke will be bright blue.



This is the speed at which the stroke is being drawn at any moment, measured in brush marks painted per 2 seconds. Any parameter that changes according to **Speed** will change at a constant rate between the minimum and maximum speeds. As the name suggests, it is most effective when drawing rather slowly. Also, powerful PCs will provide more flexibility with this feature, since they can achieve a higher rate of painting brush marks.

### Example

For example, suppose the parameters are set to go from black to bright blue, and the attribute minimum and maximum speeds are set to 4 and 15 respectively. As long as less than 4 brush marks are being painted every 2 seconds, the stroke will be coloured black. If more than 15 brush marks are being painted every 2 seconds, the colour will be bright blue. At speeds somewhere in between those limits, the colour will be some shade of blue.

This is the speed at which the stroke is being drawn at any moment, measured by the distance between successive positions of the cursor, in pixels. Any parameter that changes according to **Speed hi** will change at a constant rate between the minimum and maximum speeds. As the name suggests, it is most effective when drawing rather quickly, which gives the strokes an angular, straight sided appearance. This is due to the limited processing speed of the computer, but can be remedied by curve fitting and smoothing.

Example

For example, suppose the colour parameters are set to go from black to bright blue, and the attribute minimum and maximum speeds are set to 22 and 45 respectively. As long as the brush marks are less than 22 pixels long, the stroke will be coloured black. If the brush marks are more than 45 pixels long, the colour will be bright blue. At speeds somewhere in between those limits, the colour will be some shade of blue.

This is the number of brush marks that have been painted in the stroke, at any point. Thus, it is similar in effect to the **Length** attribute. However, the parameter's rate of change over the length of the stroke will depend on the length of the brush marks. This contrasts with the constant rate of change with the **Length** attribute.

Example

For example, suppose the colour parameters are set to go from black to bright blue, and the attribute minimum and maximum indices are set to 6 and 26 respectively. The first 5 brush marks will be coloured black. Going from brush mark 6 to 26, the colour will smoothly change to bright blue. From there to the end of the stroke, the colour will be bright blue.

This is how tightly curled the brush stroke is at any point, measured in degrees difference from 180 degrees. A straight stroke would have 0 curvature along its length. In comparison, a looping flourish would have high values (say 30 - 40 degrees) over much of its length.

Example

For example, suppose the colour parameters are set to go from black to bright blue, and the attribute minimum and maximum curvatures are set to 5 and 25 respectively. Wherever the curvature is less than 5 degrees, the stroke will be coloured black. Wherever the curvature is greater than 25 degrees, the stroke will be coloured bright blue. For other values of curvature, the colour will be an intermediate shade of blue.



This is the angle the brush stroke makes with the horizontal, at any point, measured in degrees. If you drew a rough rounded rectangle, the brush marks along the top and bottom would have slopes close to 0. The brush marks along the verticals would have slope values close to 90.

Example

For example, suppose the colour parameters are set to go from black to bright blue, and the attribute minimum and maximum slopes are set to 10 and 60 respectively. Wherever the slope is less than 10 degrees, the stroke will be coloured black. Wherever the slope is greater than 60 degrees, the stroke will be coloured bright blue. For other values of slope, the colour will be an intermediate shade of blue.

The **Delay** parameter specifies how closely the computer 'keeps up' with the position of the cursor. A value of 0 means that the computer will duplicate the movement of the cursor as closely as possible, when drawing brush strokes. A value of 500 means the computer will only check the position of the cursor every 500 milliseconds (half a second). This will result in angular, straight sided brush strokes.

Suggestion.

Try drawing strokes slowly, with different values for delay, and observe the effect. This can be a useful approach in some situations, since you can get DAUB to curve fit and smooth the strokes afterwards.

The **Colour averaging** edit box lets you specify to what extent the program will average out the effect on colour of small fluctuations in the selected attribute. A value of 1 turns off averaging altogether. The higher the value, the smoother the colour will change. However, high values also introduce a noticeable delay in the changes. If you like drawing strokes dynamically, as opposed to putting the changes in later via alterations, this feature is worth experimenting with.

Example

Suppose you are trying to vary a brush stroke smoothly from black to red depending on speed, using the **Speed hi** attribute. With colour averaging turned off (set to 1), the result is likely to be a jumble of stripes of colour which get more red, on the whole, as you move the cursor faster. With colour averaging set to say, 5, the program does not display the calculated colour at every instant. Instead, it will always display the average of the previous 5 values that were calculated. The result is a much smoother transition from black to red, where tiny variations in speed make no noticeable difference from brush mark to brush mark.

The size averaging feature is identical to the colour averaging feature, except that the size of the brush is affected instead of the colour.

The presets feature allows you to select a pre-designed brush. When a preset is selected by clicking on one of the names in the list, all the controls in the dialog are reset to the values stored for that preset. When DAUB is first installed, the list features a number of useful default presets. You can also set up your own presets via the *Save as preset* button.



When this button is pressed, you are prompted for a name. You can type in anything that will remind you of what the effect looks like. You also specify the preset number to use. When you press *OK*, the values of all the controls in the dialog are saved under the description and preset number you typed in. The original preset for that number is lost. Your new preset is now available for selection from the list of presets. **Hint:** Your own collections of presets can easily be archived by renaming and copying the file *presets.dat* to a floppy disk.

When this button is pressed, all the presets that were available when you first installed DAUB are restored, wiping out any you might have defined yourself. These default presets were designed by professional calligraphers. However, due to differences in performance and graphics capability between PCs, some users will want to make small changes to the defaults and save them as their own.

## **Objects | Strokes | Setup (dynamic, monotonic)...**

This menu item brings up a dialog box that is almost identical to that for the dynamic, fixed angle brush. The only difference is that the Angle edit box is grayed out, since it is not relevant to describing a monotonic brush.

## Objects | Strokes | Alter Uniformly...

This menu item brings up a dialog box that allows you to make changes to the selected brush stroke or strokes.

The left hand section has edit boxes for **Size Inc** and **Angle Inc**. So, for example, to make each stroke in a group of selected strokes 8 pixels thicker, you would type in 8 next to **Size Inc**. Similarly, to reduce the angle of the brush by 5 degrees, you would type in -5 next to **Angle Inc**.

The right hand section has edit boxes for **Red Inc**, **Green Inc** and **Blue Inc**. To reduce the amount of red in all the selected strokes, you could type in -60 next to **Red Inc**. To increase the amount of blue slightly, you could type in 15 next to **Blue Inc**. etc.

## Objects | Strokes | Alter Variable...

This menu item brings up a dialog box containing 2 sections, titled **Alter these** and **According to an attribute**

As the titles attempt to suggest, the brush parameters on the left change in response to changes in the path attributes on the right.

A simple example at this point should give you a basic idea of how this works.

Suppose you have drawn a large Chinese character with a static fixed angle brush, with a brush size of 12 pixels, and in black. You would like to make the strokes look more interesting, with each stroke starting wide and then narrowing towards the end. Also, you want each individual brush stroke to start with a deep red colour, and turn gradually to yellow at the end.

To do this (assuming that all the individual brush strokes in the character are surrounded by selection squares), you firstly need to set the alterations in the **Change these** section. The RGB values under the column titled **Attrib min** could be say, 128 0 0. This means 'whatever the red value is, increase it by 128, and leave the green and blue values alone'. Under the column **Attr max** you could type 255 255 0, which specifies how the red and green components of the colour are to be altered.

Similarly, you could set the value of **Size Inc** to range from 8 down to -8 (in pixels). That alters the size of the brush, from whatever its original size was for each individual brush mark. Again, in a similar way, you could set the value of **Angle Inc** to range from -10 to 25 (in degrees) to modify the brush angle of each individual brush mark. Indeed, you can make all three parameters (colour, size and angle) change simultaneously if you wish. For the sake of simplicity, only changes in colour will be considered in the examples in this Help system. The principle is exactly the same for brush size and angle.

Now you need to set the attribute in the **According to an attribute** section. The one you want is Length, since the colour and size are going to be altered along the length of each stroke. Hence you would click on the **Length** radio button. Under the **Min** column you would type in 0. This is a percentage, so it means 'at the very start of the stroke, alter the brush stroke according to the alterations under **Attrib min**'. Under the **Max** column you would type 100, meaning 'at the very end of the stroke, alter the brush stroke according to the alterations under **Attrib max**'. The brush strokes are altered smoothly and proportionally between their start and finish.

The other attributes are Speed, Index, Curvature, Slope and Y pos.

If the above explanation is confusing, some experimenting and careful observation of the various effects will help a lot. If in doubt about the **Min** and **Max** attribute values, set them to 0 and 100 respectively.

This is the distance along a stroke's path. Any parameter that is altered according to length will change at a constant rate from the minimum to the maximum length, expressed as percentages of the total length.

Example

Assume that a stroke has been selected that was drawn in black. Suppose the parameter increments for colour are set to go from (0, 0, 0) to (0, 0, 255) i.e. black to bright blue, and the attribute minimum and maximum lengths are set to 25% and 75% respectively. After pressing *OK*, the first quarter of the stroke will be black. Then, it will begin to change smoothly, reaching bright blue at the 3/4 mark. The last quarter of the stroke will be bright blue.

This is the speed at which the stroke was drawn at any point, measured by the length of the individual brush marks. Any parameter increment that changes according to speed will change at a constant rate between the minimum and maximum speeds, expressed as percentages. The shortest brush mark in the stroke corresponds to 0%, and the longest mark corresponds to 100%.

### Example



Assume that a stroke has been selected that was drawn in black. Suppose the parameter increments for colour are set to go from (0, 0, 0) to (0, 0, 255) i.e. black to bright blue, and the attribute minimum and maximum speeds are set to 25% and 75% respectively, before pressing OK. The shortest brush mark in the stroke is 4 pixels long and the longest one is 20 pixels. All the brush marks less than 8 pixels long will be coloured black. All the brush marks more than 16 pixels long will be bright blue. The other brush marks will be some intermediate shade of blue.

This is the number of brush marks that have been painted in the stroke, at any point. Thus, it is similar in effect to the **Length** attribute. However, the parameter's rate of change over the length of the stroke will depend on the length of the brush marks. This contrasts with the constant rate of change with the **Length** attribute.

Example

Assume that a stroke has been selected that was drawn in black and that there are 20 brush marks in the stroke. Suppose the parameter increments for colour are set to go from (0, 0, 0) to (0, 0, 255) i.e. black to bright blue, and the attribute minimum and maximum indices are set to 25% and 75% respectively, before pressing OK. The first 5 brush marks will be coloured black. The last 5 brush marks will be bright blue. The other brush marks will be some intermediate shade of blue.

This is how tightly curled the brush stroke is at any point, measured by the angle difference between individual brush marks. Any parameter increment that changes according to curvature will change at a constant rate between the minimum and maximum curvatures, expressed as percentages. The straightest section of the stroke corresponds to 0%, and the most tightly curved corresponds to 100%.

Example

For example, suppose the colour parameters are set to go from black to bright blue, and the attribute minimum and maximum curvatures are set to 0% and 50% respectively. Wherever the brush stroke is flat (but not necessarily horizontal) it will be coloured black. Wherever the curvature is greater than half the curvature of the most tightly curved section, the stroke will be coloured bright blue. The other sections of the brush stroke will be coloured intermediate shades of blue.

This is the angle the brush stroke makes with the horizontal at any point, measured by the angle of the imaginary line connecting individual brush marks. Any parameter increment that changes according to slope will change at a constant rate between the minimum and maximum slopes, expressed as percentages. Horizontal corresponds to 0%, and vertical corresponds to 100%.

Example

For example, suppose the colour parameters are set to go from black to bright blue, and the attribute minimum and maximum slopes are set to 10% and 80% respectively. Wherever the brush stroke has a slope of less than 10% of 90 degrees it will be coloured black. Wherever the slope is greater than 80% of 90 degrees, the stroke will be coloured bright blue. The other sections of the brush stroke will be coloured intermediate shades of blue.

Y pos is the position of the brush marks in the vertical direction. Any parameter increment that changes according to Y pos will change at a constant rate between the minimum and maximum Y position, expressed as percentages. The top (not necessarily the beginning or end) of the stroke corresponds to 0%, and the bottom corresponds to 100%.

Example



For example, suppose the colour parameters are set to go from black to bright blue, and the attribute minimum and maximum Y positions are set to 30% and 90% respectively. All brush marks that lie in the top 30% of the stroke will be coloured black. All brush marks that lie in the bottom 10% will be coloured bright blue. The other sections of the brush stroke will be coloured intermediate shades of blue.

## Objects | Shapes | Setup...

This menu item brings up a dialog which allows you to set line size, line colour, whether or not the shape is filled and the fill colour. Setting these parameters affects all the shape tools. That is, the rectangle, rounded rectangle and ellipse tools.

The **Line size** edit box is used to specify the width, in pixels, of the pen Windows will use to draw the outline of the shape that you define with a shape tool.

The **Line colour** edit boxes are used to specify the RGB components of the colour of the pen Windows will use to draw the outline of the shape that you define with a shape tool.

The **Filled** check box determines whether or not the shape is filled with colour. If the box is not checked, the interior of the shape is transparent. That is, any other object on the screen will be visible through it.

The **Fill colour** edit boxes are used to specify the RGB components of the colour of the brush Windows will use to draw the interior of the shape that you define with a shape tool. These numbers have no effect if the **Filled** check box is not checked.

## Objects | Shapes | Alter...

This menu item brings up a dialog which allows you to alter the line size, line colour, and fill colour of the selected shape(s). Also, the filling of the interior can be toggled.

The **Line size inc** edit box is used to specify how much to increase the thickness of the outline of the selected shape(s), in pixels. A negative value will decrease the thickness. Whatever the original thickness was, it will be altered by the given number of pixels. The program ensures that the thickness will never reduce to less than 1.



The **Line colour** edit boxes are used to specify alterations to the RGB values of the outline(s) of the selected shape(s). Positive values increase the values, while negative values will decrease them. Whatever the original values for red green and blue were, they will be altered by the given amounts. The program ensures that they never get lower than 0 or higher than 255.

The **toggle fill** check box swaps the fill status of the selected shape(s). In other words, if a shape was originally filled, it will now be transparent, and vice versa.

The **Fill colour** edit boxes are used to specify alterations to the RGB values of the fill colour of the selected shape(s). Positive values increase the values, while negative values will decrease them. Whatever the original values for red green and blue were, they will be altered by the given amounts. The program ensures that they never get lower than 0 or higher than 255.

## Objects | Shapes | Move...

This menu item brings up a dialog box containing 2 sections, titled **Shift** and **Scale(%)**.

This section contains 2 edit boxes, titled **X direction** and **Y direction**, for shifting the selected shape(s). You type in the number of pixels that you want to shift. A positive number for **X direction** will shift to the right, while a negative number will shift to the left. Similarly, a positive number for **Y direction** will shift towards the bottom and a negative number will shift towards the top. This feature can be handy when you want to shift just a small number of pixels, perhaps just 1.

This section contains 2 edit boxes, titled **X direction** and **Y direction**, for re-scaling the selected shape(s). You type in a percentage of the original size. For example, typing in 50 next to **X direction** and 200 next to **Y direction** will make the selected shape(s) half as wide and twice as high as they were before.

## Objects | Lines | Setup...

This menu item brings up a dialog box which allows you to set line size and line colour.

The **Line size** edit box is used to specify the width, in pixels, of the pen Windows will use to draw the line that you define with the line tool.



The **Line colour** edit boxes are used to specify the RGB components of the colour of the pen Windows will use to draw the line that you define with the line tool.

## Objects | Lines | Alter...

This menu item brings up a dialog box which allows you to alter the thickness and colour of the selected line(s).

The **Line size inc** edit box is used to specify how much to increase the thickness of the selected line(s), in pixels. A negative value will decrease the thickness. Whatever the original thickness was, it will be altered by the given number of pixels. The program ensures that the thickness will never reduce to less than 1.

The **Line colour** edit boxes are used to specify alterations to the RGB values of the selected line(s). Positive values increase the values, while negative values will decrease them. Whatever the original values for red green and blue were, they will be altered by the given amounts. The program ensures that they never get lower than 0 or higher than 255.

## Objects | Lines | Move...

This menu item brings up a dialog box containing 2 sections, titled **Shift** and **Scale(%)**.

This section contains 2 edit boxes, titled **X direction** and **Y direction**, for shifting the selected line(s). You type in the number of pixels that you want to shift. A positive number for **X direction** will shift to the right, while a negative number will shift to the left. Similarly, a positive number for **Y direction** will shift towards the bottom and a negative number will shift towards the top. This feature can be handy when you want to shift just a small number of pixels, perhaps just 1.

This section contains 2 edit boxes, titled **X direction** and **Y direction**, for re-scaling the selected line(s). You type in a percentage of the original size. For example, typing in 50 next to **X direction** and 200 next to **Y direction** will make the selected line(s) half as wide and twice as high as they were before.

## Objects | Text | Setup...

This menu item brings up a dialog box which contains a large font list on the left and sections on the right for setting up font height, weight, italics, underlining and colour.



This list box contains every font that is currently installed on your system under Windows. Simply click on a font name to select it for the next time you type in some text in a child window.

This edit box allows you specify the height that the text will appear, in pixels. The width will change in proportion to the height you specify. Hence the text will look normal, only bigger or smaller according to the height you specify.

This section allows you to specify the weight of the text. Choose between **normal**, **bold**, or **other** for a custom value (999 maximum).

This check box turns italics on or off for the selected font, if the font supports italics.

This check box turns underlining on or off for the selected font, if the font supports underlining.

This section allows you to specify the RGB components of the text colour. The text will be painted using the pure colour nearest to the specified colour.

## Objects | Text | Alter...

This menu item brings up a dialog box which allows you to alter the font, height, width, weight, italics, underlining and colour of the selected text line(s).

A new font may be selected from the list box on the left. All fonts currently installed on the system under Windows are displayed.



The **Height inc** edit box allows you to increment (change) the character height of the font used in the selected text line(s), in pixels. A positive value will increase the current height, while a negative value will decrease it. This does not affect the current width.

The **Width inc** edit box allows you to increment (change) the average character width of the font used in the selected text line(s), in pixels. A positive value will increase the current width, while a negative value will decrease it. This does not affect the current character height.

The **Weight inc** edit box allows you to increment (change) the current weight of the font used in the selected text line(s). The value you type in will be added to the current weight. A negative value will decrease the weight.

The **Italics** check box allows you to turn italics on or off for the selected text line(s).

The **Underlining** check box allows you to turn underlining on or off for the selected text line(s).

The **Colour** section allows you to increment (change) the RGB components of the text colour. Positive values will increase the value and negative values will decrease it. After you have changed these values, the selected text will be displayed in the nearest pure colour.

## Objects | Text | Move...

This menu item brings up a dialog box which allows you to shift and rotate the selected text line(s).

This section contains 2 edit boxes, titled **X direction** and **Y direction**, for shifting the selected text line(s). You type in the number of pixels that you want to shift. A positive number for **X direction** will shift to the right, while a negative number will shift to the left. Similarly, a positive number for **Y direction** will shift towards the bottom and a negative number will shift towards the top. This feature can be handy when you want to shift just a small number of pixels, perhaps just 1.



This section contains an edit box in which you can specify the number of degrees to rotate the selected text line(s). A positive value will rotate in the clockwise direction, and a negative value will rotate anti-clockwise.

## **Objects | Text | Edit...**

This menu item brings up a dialog box which allows you to edit the selected text line(s) in a large edit box. If only one text line is selected, you can edit the text using the keyboard. If more than one text line is selected, the edit box is blank - anything you type in will replace the text of all the selected text lines.

## Selectors | Select all

This menu item selects all the objects in the active child window. This is particularly useful if you want to shift or rescale the entire contents of the window with the pointer tool. Also, it is useful for deleting everything, in order to start again.

## Selectors | Deselect all

This menu item deselects all the objects in the active child window. This is handy if you want to quickly get rid of all the selection squares, in order to get an uncluttered view of your work. A quicker way to do this, if you have the pointer tool selected, is to simply click somewhere that is not occupied by an object.

## Selectors | Toggle all

This menu item will select all objects that are not currently selected, and vice versa. This can be handy if you wish to select more than half of the objects in the active child window. You would simply select the objects you don't want, then toggle all.

## Options | Guidelines...

This menu item brings up a dialog box that contains 2 sections, one titled **Horizontal** and one titled **Vertical**. These sections provide considerable flexibility in setting up standard calligraphic guides which are an aid to accurate lettering.

In this section, the 4 standard horizontal calligraphic guidelines can be switched on or off, and the spacing between them can be defined in terms of brush widths. The bottommost spacing figure defines the space between the groups of 4 guidelines. The figure you type in for spacing is rounded to 1 decimal point. Hence typing 3.24 will set a spacing on the screen of 3.2 times the width of the most recently selected brush, in pixels.

In this section, the vertical guides may be switched on or off, and their angle from the vertical set (in degrees). Also, their spacing may be set in terms of brush widths, in the same manner as for the horizontal guides.



## Options | Other...

This menu item brings up a dialog box which contains the 4 sections titled **Grid**, **Rendering**, **Angle constraint** and **Background colour**.

This section allows you to set up a grid. Type a number in the pixel spacing edit box to set the size of each box in the grid, in pixels.

If the grid is required for visual reference, just check the visible check box.

If it is required for constraint, check the 'snap to' check box. With 'snap to' checked, any sizing or shifting operations with the pointer tool will result in the dotted box snapping to the nearest grid point. This is useful for lining up objects accurately in straight lines.

This section allows you to specify how brush strokes will appear on the screen. It does not affect the brush strokes themselves in any way, and is a time saver for users with relatively slow machines.

The edit box lets you alter the level of detail. Typing in say, 4, will result in only every 4th brush mark appearing. The default is 1 i.e. every brush stroke appears.

If Frame only is checked, only the outlines of all the brush marks are displayed.

This section allows you to constrain rotation operations by the pointer tool. If the 'snap to' check box is checked, any rotation will be restricted to a multiple of the angle specified in the degrees edit box. For example, if 15 degrees is set, the selected object(s) will 'snap' to 15, 30, 45, 60 degrees etc.

This section allows you to set the background colour, by simply clicking on a coloured rectangle in a scrollable list box. The colour selected will become the background colour of *all* the child windows.

## **Windows | Cascade**

This is the standard MDI Windows command that arranges all the opened child windows. The windows are arranged in a stack, with the title bar of each one visible.

## Windows | Tile

This is the standard MDI Windows command that arranges all the opened child windows. The windows are arranged side by side, with no overlapping.

## Windows | Arrange Icons

This is the standard MDI Windows command that arranges all the minimized child windows (i.e. icons). The icons are arranged in a row, across the bottom of the main window.



## **Windows | Close All**

This is the standard MDI Windows command that closes all the child windows, regardless of whether they are opened or iconic.

## The Button Bar

At the bottom of the main window is a bar containing 3 buttons, titled *Curve Fit*, *Remove* and *Smooth*. These buttons only operate on selected brush strokes, so the buttons are grayed out and disabled if there are no brush strokes selected. On the right hand side of the button bar is an area reserved for hint messages.

When pushed, this button performs 1 curve fit operation on the selected stroke(s). This results in a doubling of the number of brush marks that make up the brush stroke(s). The extra brush marks are placed so that the outline becomes smoother with each curve fit. Also, changes in colour become smoother.

Care needs to be taken with this operation, since the amount of work you are asking the computer to do increases dramatically with each curve fit. As a general rule, only perform multiple curve fits as a last step before printing a final version of your work.

When pushed, this button removes every second brush mark from the selected brush stroke(s) while retaining the general outline of the stroke. It can sometimes be useful to follow this with a curve fit in order to tidy up the outlines.

When pushed, this button smooths the outlines of the selected brush stroke(s) by shifting the brush marks around, using an averaging function. This is probably the most useful feature of DAUB for a beginner, and even experienced calligraphers will find it handy from time to time. Its effect is even more evident in printouts, since the higher resolution of the printer can more accurately show the precise placement of the brush marks. (DAUB records positions very accurately.)

When pushed, this button brings up a palette of tools, which provides a more convenient way of accessing most of DAUB's features. Pressing the button again will close down the palette.

Many helpful messages appear here, depending on where the cursor is. This applies whether you are using the menu system, the tool palette or drawing in a window. Hence, if you are unfamiliar with DAUB, it is a good idea to run the cursor over all the menu items and all the tools in the tool palette. By taking note of the hints that appear, you will gain a feel for what is possible in DAUB.

# Glossary

brush angle

brush mark

brush size

brush stroke

calligraphy

default

font

monotonic

object

parameter

path attribute

path

pixel

pure colour

resolution

RGB

selection squares

weight



This is the angle the brush makes with the horizontal. Angles in an anti-clockwise direction from the horizontal are represented with positive numbers, while those in the other direction are negative.

A bundle of information which describes how a brush stroke looks at each point along its path. It is displayed as a straight line which is connected to the previous brush mark, forming a 4 sided area. The area is coloured according to the colour value of the brush mark. Often, the marks are too narrow to be distinguished individually.

This is the width of the brush in pixels.

A collection of brush marks, created by dragging the mouse.

The art of beautiful writing, using a variety of nibs and brushes. The most well known examples are Medieval scripts and the writing of Chinese and Japanese characters.

An initial value supplied by the program, which might be a string of text or a number. For example, all parameters in all the dialog boxes have default values (often 0).

This means a particular style of type for text. For example Arial and Times New Roman are 2 fonts that come with Windows. Other fonts for Windows can be bought separately and then installed. Some software products also come bundled with many fonts that can be installed in Windows.

In the context of DAUB, this means a brush whose angle automatically stays at 90 degrees to the path of the brush stroke.



In DAUB, an object is either a brush stroke, shape (rectangle, rounded rectangle or ellipse), line or text line. Each type of object will respond to manipulation as far as it is able. For example, all objects except non-TrueType text can be scaled with the pointer tool. Also, all objects can be rotated except shapes. Only brush strokes can be smoothed, and so on.

A quantity associated with some object in DAUB. For example, colour and size are parameters of the brushes.

A quality that changes over the length of a brush stroke's path, which can be described as a number. For example, the slope at any point can be described as a number representing degrees.

The imaginary line connecting the midpoint of all the brush marks in a brush stroke.

The smallest area of colour that can be displayed on the screen. Also, anything that moves can only be positioned to the nearest pixel. For example, the cursor.

The number of pure colours available depends on your graphics hardware and the video mode set under Windows. Colours that the system cannot display accurately are 'dithered', which means different coloured pixels are mixed to fool your eye into seeing an intermediate colour.

This refers to the fineness of detail in an image. More precisely, it is the number of pixels in a rectangular array e.g. '400 x 640'. The larger the number of pixels, the more detail that can be displayed.

This refers to Red, Green and Blue, and is a common system for describing colour. Each of the 3 components is a number between 0 and 255. In total, this allows you to specify over 17 million colours.



These are small square areas of inverted colour, 8 of which surround each individual selected object. On a white background they are black, but they are clearly visible over virtually any colour. They indicate which objects will be affected when you perform some operation, for example, altering the brush size on a group of brush strokes.

This is the boldness (thickness) of the font. A font will support somewhere between 1 and 6 or more separate weights, with values ranging from 100 to 900. Hence, a font will use the weight that is nearest to the weight you specify. Because of this, small changes in weight are not always possible, and sometimes the weight cannot be changed at all.

## Objects | Strokes | Move...

This menu item brings up a dialog which contains 4 sections titled **Shift**, **Scale(%)**, **Rotate** and **Flip**. If desired, more than one of these operations can be applied to the selected object(s), in the order just mentioned.

This section of the dialog contains 2 edit boxes titled **X direction** and **Y direction**.

A positive number for **X direction** will shift the selected stroke(s) that many pixels to the right. A negative number will shift to the left.

A positive number for **Y direction** will shift the selected stroke(s) that many pixels downwards. A negative number will shift upwards.

This section of the dialog contains 2 edit boxes titled **X direction** and **Y direction**.

A number between 0 and 999 for **X direction** will re-scale the selected stroke(s) to that percentage of its original width. For example, typing in 50 will shrink the selected stroke(s) to half their original width. Typing in 200 will expand the selected stroke(s) to twice their original width.

The value for **Y direction** has precisely the same effect, except that it changes height instead of width.

This section of the dialog contains an edit box titled **degrees**. A positive number entered here will result in a clockwise rotation of the selected stroke(s). A negative number will cause anti-clockwise rotation.

This section of the dialog contains 2 radio buttons, titled **Vertically** and **Horizontally**. Selecting **Vertically** will flip the selected stroke(s) about their vertical axis (a vertical line running through the centre of an imaginary box that surrounds the stroke(s) ). Selecting **Horizontally** does the same thing about the horizontal axis. Only one button may be selected at a time.

## Objects | Strokes | Outline...

This menu item brings up a dialog which contains edit boxes with the titles **Curve fit**, **Add brush marks (+)**, **Remove brush marks (-)** and **Smooth**. As the name of the dialog suggests, these operations all have an effect on the outline of the selected stroke(s).



Curve fitting doubles the number of brush marks in a brush stroke, with the added marks placed so that the outline of the stroke becomes smoother. Changes in colour become smoother as well. Typing in a value of 1 will have the same effect as pressing the *Curve Fit* button at the bottom of the main window. Typing in higher values will repeat the curve fitting operation the specified number of times.

Add brush marks doubles the number of brush marks in a brush stroke by simply splitting each brush mark into 2. Although the outline of the selected stroke(s) does not change immediately, the effect of smoothing is different after brush marks have been added a number of times. The effect is most easily seen on a stroke that has been drawn quickly i.e. has fairly long brush marks. A positive number in the edit box determines how many times this operation is repeated.

Remove brush marks removes every second brush mark from the selected brush stroke(s). The remaining brush marks become twice as long, giving the brush stroke a more angular appearance. The practical use for this is to remove imperfections in the stroke(s) due to unsteady movement of the mouse. A negative number in the edit box determines how many times this operation is repeated (a value of -1 has the same effect as pressing the *Remove* button at the bottom of the main window). Then, the same number of curve fitting operations will restore near-perfect smoothness to the outline (and colour graduation).

Smooth does an averaging operation on all the **brush marks**, not including the the first and the last one. The effect is a dramatic increase in smoothness of the outline of the selected brush stroke(s). Typing 1 in the edit box has the same effect as pressing the *Smooth* button at the bottom of the main window, while higher values will repeat the operation the specified number of times. Whether you use this operation, or the remove / curve fit combination is a matter of personal preference.

## The Tool Palette

This palette is created and closed down with the tool shed button on the button bar at the bottom of the DAUB main window. It contains 4 rows of icons, which, from top to bottom, are:

### Tools that operate on objects

Pointer, Skew Tool, Magnifying Glass, Axe and Glue Tube

### The 4 basic brush tools

Static (fixed angle) Static (monotonic) Dynamic (fixed angle) Dynamic (monotonic)

By double clicking on one of these, you are presented with a simplified dialog box for setting the brush characteristics for static or dynamic brushes (Static (fixed), Static (mono.), Dynamic (fixed), Dynamic (mono.)).

More powerful ways of changing the brush characteristics are available via the Objects menu in the main window (Static (fixed), Static (mono.), Dynamic (fixed), Dynamic (mono.)).

### Windows GDI (Graphics Device Interface) tools

Rectangle Rounded Rectangle Ellipse Line Text Line

Selecting any of the above tools has the same effect as selecting it from the Tools menu in the main window.

### Toolbox icons, for altering DAUB objects after they are created

'alter brush strokes uniformly' 'alter brush strokes variable' 'alter shapes' 'alter lines' 'alter text'

Clicking on one of these is equivalent to the corresponding item under the Objects menu in the main window.

A brief description of each tool or tool box appears in the button bar hint line whenever the cursor crosses the icon.

## Brush Setup (static, fixed angle, from tool palette)

This brings up a dialog box containing 3 palettes, titled **Size**, **Angle** and **Colr**. Just click on a box to select a value for any of these brush parameters.

## Brush Setup (static, monotonic, from tool palette)

This brings up a dialog box containing 3 palettes, titled **Size**, **Angle** (not relevant, hence grayed out) and **Color**. Just click on a box to select a value for brush size or colour.

## Brush Setup (dynamic, fixed, from tool palette)

This brings up a dialog box containing 3 palettes, titled Size, Angle and Color. Also, there are 2 sections titled Atttribute and Sensitivity.



This palette is split in two, enabling you to specify a range of sizes. The brush size will change in the specified range according to the attribute you choose.

This palette lets you select a brush angle from the choices displayed.

This palette is split in two, enabling you to specify a range of colours. The brush colour will change in the specified range according to the attribute you choose.

This section lets you specify what method to use, to vary the brush size and/or colour. For Speed lo, best results will be obtained by moving the cursor in the very slow to slow speed range, while Speed hi works well for natural writing speed and upwards. Just experiment!

This section lets you select the level of sensitivity for the attribute you are using. Basically, given a certain writing style, high sensitivity will result in more obvious changes to the brush size and/or colour, compared to lower sensitivity settings.

The best way to understand how the dynamic brush works is to try something and see what happens!

## Brush Setup (dynamic, monotonic, from tool palette)

This brings up a dialog box which is identical to the one for setting up dynamic fixed angle brushes, except that the **Angle** palette is grayed out - it is not relevant.

## Help | REGISTER...

This menu item starts up Write with a text file loaded. You may find it convenient to print this file out when you are ready to register DAUB. The file contains easy instructions to register, regardless of where you live or your method of payment.

## Help | Read Me...

This menu option starts up Write with the vendoinfo.diz file loaded. This file contains up to date information about DAUB that you should read at least once before starting to use the program. VendInfo is a shareware industry standard that is making it easier to find information on available shareware.



## **Help | Index**

This menu item takes you to the top level of the DAUB Help system, from where you can quickly jump to the appropriate area.

## Help | Menu Items

This menu item takes you directly to the section of the DAUB Help system that covers all the main menu items.

## Help | How to Use Help

This menu item brings up instructions on how to use the Windows Help system. This applies to the Help system in virtually any Windows software.

## Help | About...

This menu item brings up a small dialog box that displays the version number, author's name and the author's electronic addresses (CompuServe and World Wide Web).

