

Chapter 11

Coloring Observations

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Chapter 11

Coloring Observations

You can assign the colors for displaying observations in plots. You can assign colors for the observations you select, and you can let SAS/INSIGHT software assign colors automatically based on the value of a variable.

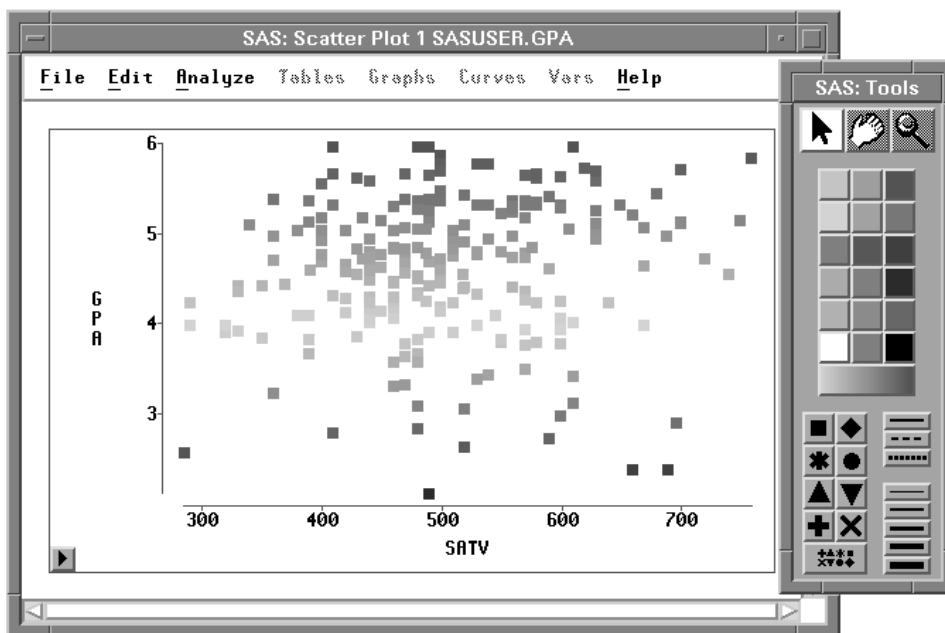


Figure 11.1. Coloring Observations

Coloring Individual Observations

You can set the color for any observations you select.

⇒ **Open the GPA data set.**

⇒ **Create a scatter plot of SATM versus SATV.**

Use the techniques described in Chapter 5, “Exploring Data in Two Dimensions.”

⇒ **Click on an observation to select it.**

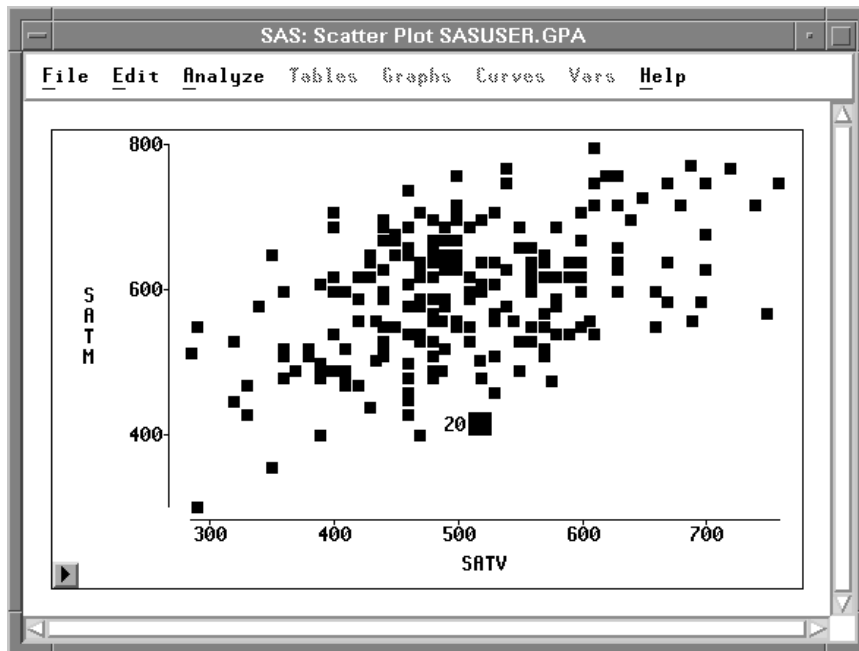


Figure 11.2. Scatter Plot

⇒ **Choose Edit:Windows:Tools.**

This toggles the display of the tools window, shown in Figure 11.4.

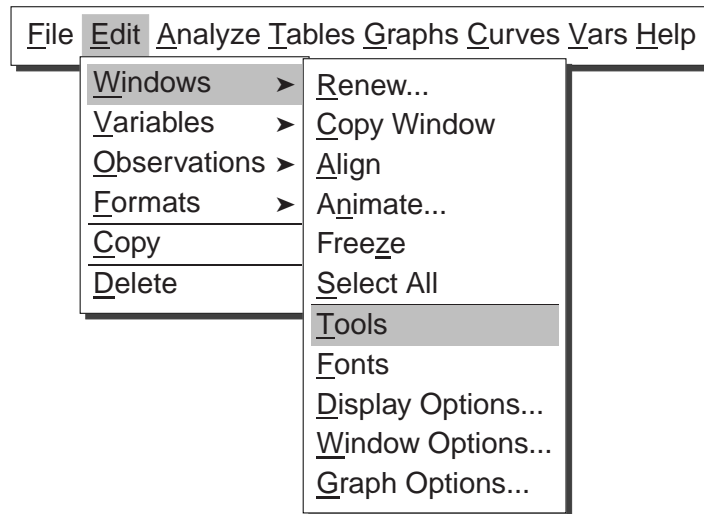


Figure 11.3. Edit:Windows Menu

⇒ **Click on the red button in the tools window.**

This causes the selected observation to turn red. The marker also becomes red in the data window and in any other windows.

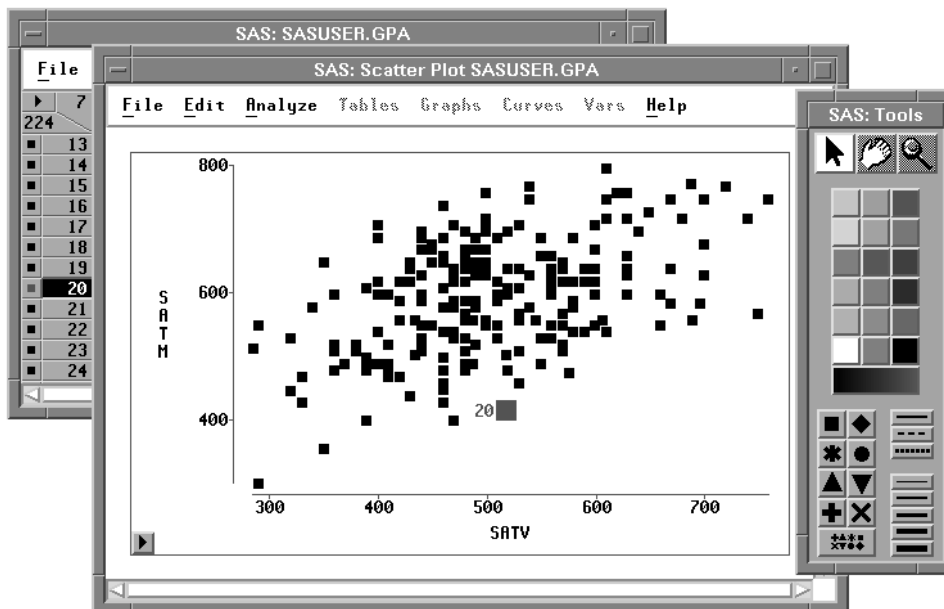


Figure 11.4. Changing a Color

You can similarly select a group of observations in a brush and assign colors for the group. Colors, like markers, provide a convenient way to track observations through multiple windows.

Coloring by Nominal Variable

You can set observation colors based on the value of a nominal variable. This is a good way to display subsets of the data.

⇒ Click on **SEX** in the data window.

⇒ Click on the large multiple colors button in the tools window.

SAS/INSIGHT software automatically assigns a different color for each value of the nominal variable.

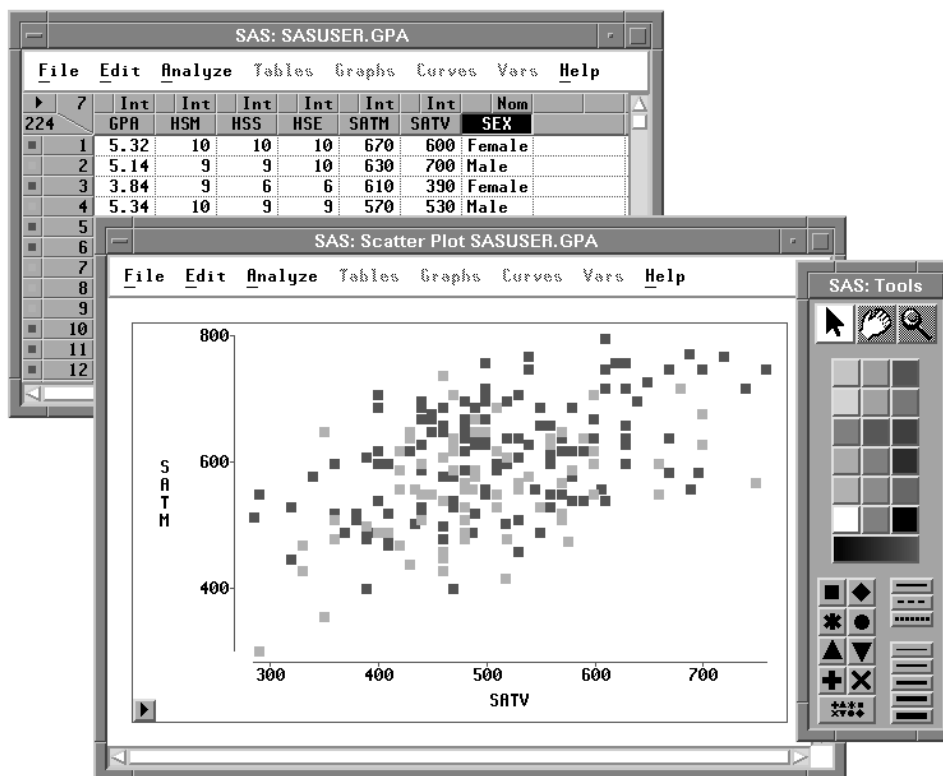


Figure 11.5. Assigning Colors by **SEX**

Coloring by Interval Variable

You can also set the marker colors based on the value of an interval variable.

⇒ **Click on GPA in the data window.**

⇒ **Click on the large multiple colors button in the tools window.**

SAS/INSIGHT software assigns a color to each observation depending on the value of **GPA** for that observation. The color varies smoothly between the two colors at the ends of the button. This use of color adds an extra dimension to the plot.

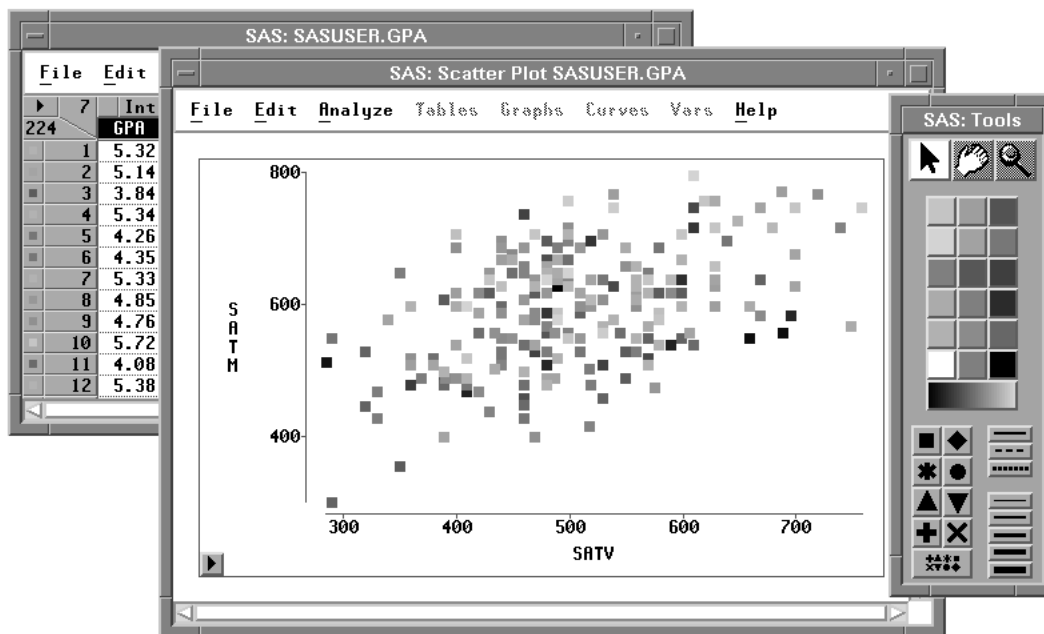


Figure 11.6. Assigning Colors by **GPA**

† **Note:** Some hosts do not support color blending. On these hosts, SAS/INSIGHT software uses a discrete set of colors instead of a smooth blend. You may also see this behavior when running multiple applications that do not share color resources. When the host does not support blending, or insufficient colors are available, the multiple colors button shows discrete bands of colors instead of a smooth blend.

On hosts that support color blending, you can choose the range over which the color varies. The left end of the multiple colors button defaults to white or black, whichever contrasts with the background color. The right end of the multiple colors button defaults to red. To use a range from blue to red, follow these steps.

⇒ **Place the cursor on the blue button in the tools window.**

⇒ **Drag the blue color down to the left end of the large button.**

Then release the mouse button. The colors in the button change to a smooth blend between blue and red.

You can also drag colors to the right side of the button to make other blends. This lets you choose colors that have meaning for your data, for example, blue-to-red for cold-to-hot or brown-to-green for arid-to-tropical.

Multiple Color Blends

Color blending applies to all observations if none are selected. If observations are selected, color blending applies only to the selected observations. This enables you to assign multiple color blends for a single variable.

- ⇒ **Create a scatter plot of GPA versus SATV.**
- ⇒ **Create a blue-to-yellow blend in the tools window.**
Drag the blue color to the left end of the multiple colors button, and drag the yellow color to the right end.
- ⇒ **Select observations with values of GPA less than or equal to 4.**

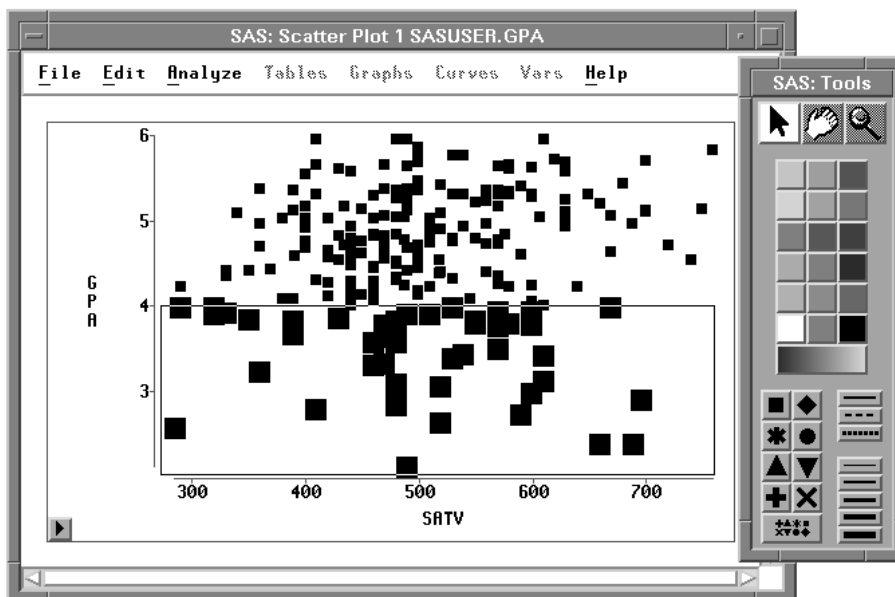


Figure 11.7. Selecting Observations Where $GPA \leq 4$

- ⇒ **Click the multiple colors button.**
This displays a variables dialog, as shown in Figure 11.8.



Figure 11.8. Variables Dialog

⇒ **In the variables dialog, select GPA, then click OK.**

This assigns the blue-to-yellow blend to observations with values of **GPA** less than or equal to 4.

You can use similar steps to assign a yellow-to-red blend to all observations with values of **GPA** greater than 4. To save time, select both observations and variables using extended selection instead of using the variables dialog.

⇒ **Create a yellow-to-red blend in the tools window.**

Drag the yellow color to the left end of the multiple colors button, and drag the red color to the right end.

⇒ **Select observations with values of GPA greater than or equal to 4.**

⇒ **Using extended selection, select the variable GPA.**

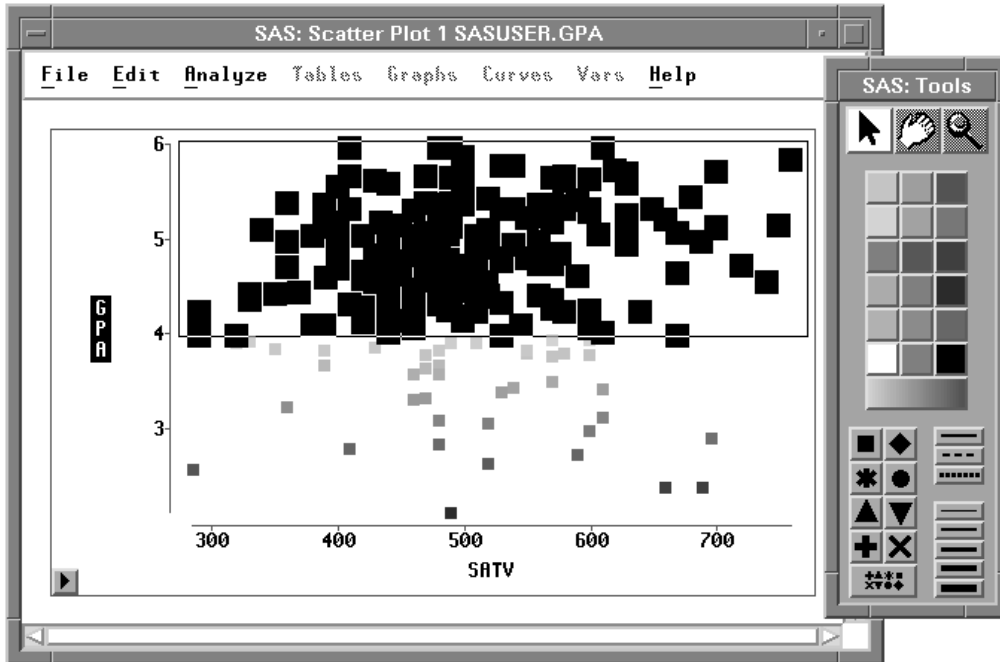


Figure 11.9. Selecting Variable **GPA** and Observations Where **GPA** ≥ 4

⇒ **Click the multiple colors button.**

This assigns the yellow-to-red blend to observations with values of **GPA** greater than or equal to 4. Now all observations are assigned a color based on their value for **GPA**, with colors smoothly blended from blue through yellow to red.

† **Note:** In addition to the two-color blends described above, you can create a blended color strip based on the interpolation of up to five colors.

To do this, follow these steps:

- Bring up the tools window by using **Edit:Window:Tools**.
- Choose a color in the tools window and place the cursor over that color button. For the sake of this example, choose the white button.
- Hold down the **shift** key.
- Shift-drag the white button onto the large multiple colors button.
- Release the mouse button while the cursor is in the middle of the multiple colors button. One of the existing colors that make up the multiple color button is replaced by white.
- You can further modify the color strip by shift-dragging other color buttons to varying positions along the length of the multiple color button.

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