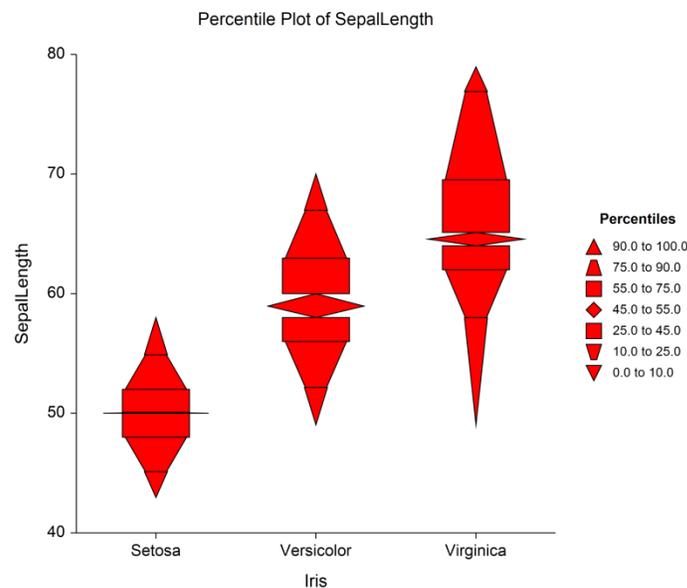


## Chapter 153

# Percentile Plots

### Introduction

This procedure calculates and displays percentiles between 0 and 100. It lets you assign different shapes, colors, and widths to each percentile group. Using various combinations, you can generate percentile plots that will be tailored to your particular need. Following is a percentile plot for the PetalWidth variable of Fisher's iris data.



### Data Structure

A percentile plot is constructed from a numeric variable. A second variable may be used to divide the first variable into groups (e.g., age group or gender). In the two-factor procedure, a third variable may be used to divide the groups into subgroups.

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## Procedure Options

This section describes the options available in this procedure.

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### Variables Tab

This panel specifies which columns are used to create the percentile plot.

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#### Variables – Simple Percentile Plots

##### Data Variable(s)

This option lets you designate which variables are plotted. If more than one Data Variable is designated and no Horizontal (Group) Variable is selected, a set of percentile plots will be displayed on a single chart, one plot for each variable. If more than one variable is designated and a Horizontal (Group) Variable is selected, a separate percentile plot will be drawn for each variable.

##### Horizontal (Group) Variable

Designates an optional variable used to separate the observations into groups. The groups defined by this variable will all appear on the same plot.

##### Frequency Variable

Specify an optional frequency (count) variable. This variable contains integers that represent the number of observations (frequency) associated with each observation. If left blank, each observation has a frequency of one.

##### Data Label Variable

A data label is text that is displayed beside each outlier point. This option designates the variable containing the data labels. The values may be text or numeric.

##### Break Variable

Select an optional break (categorical) variable. A separate plot will be generated for each unique value of this variable. If you specify more than one break variable, a separate plot will be generated for each unique combination of the values of the variables specified.

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#### Variables – Two-Factor Percentile Plots

##### Data Variable(s)

This option lets you designate which variables are plotted. If more than one Data Variable is designated and no Legend (Subgroup) Variable is selected, the variables will become the legend (subgroup) levels. If more than one variable is designated and a Legend (Subgroup) Variable is selected, a separate plot will be drawn for each variable.

##### Horizontal (Group) Variable

Designates an optional variable used to separate the observations into groups. An individual percentile plot will be displayed for each unique combination of this variable with the Legend (Subgroup) Variable.

##### Legend (Subgroup) Variable

Designates an optional variable used to separate the observations into subgroups. An individual percentile plot will be displayed for each combination of this variable with the Horizontal (Group) Variable. The levels of this variable will be shown in the legend.

## Percentile Plots

### Frequency Variable

Specify an optional frequency (count) variable. This variable contains integers that represent the number of observations (frequency) associated with each observation. If left blank, each observation has a frequency of one.

### Data Label Variable

A data label is text that is displayed beside each outlier point. This option designates the variable containing the data labels. The values may be text or numeric.

### Break Variable

Select an optional break (categorical) variable. A separate plot will be generated for each unique value of this variable. If you specify more than one break variable, a separate plot will be generated for each unique combination of the values of the variables specified.

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## Format Options

### Variable Names

This option specifies whether the column names or column labels are used on the chart.

### Value Labels

This option specifies whether the actual values or the value labels are used to label the group level labels of the plot.

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## Percentile Plot Format

### Format

Click the format button to change the plot settings (see Percentile Plot Format Window Options below).

### Edit During Run

Checking this option will cause the plot format window to appear when the procedure is run. This allows you to modify the format of the graph with the actual data.

## Percentile Plot Format Window Options

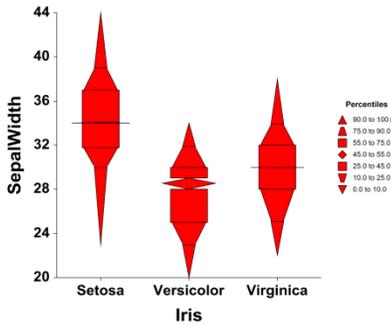
This section describes the specific options available on the Percentile Plot window, which is displayed when the Percentile Plot button is clicked. Common options, such as axes, labels, legends, and titles are documented in the Graphics Components chapter.

### Percentile Plot Tab

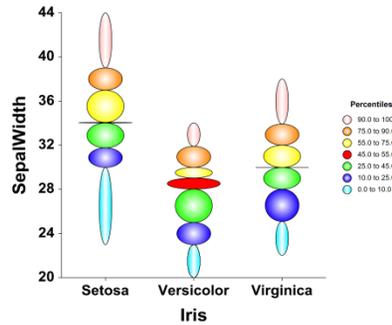
#### Segments Section

You can modify the color, shape, and width of each segment using the options in this section. You can also change the percentile range that makes up a segment.

Percentile Plot using Polygons



Percentile Plot using Ellipses

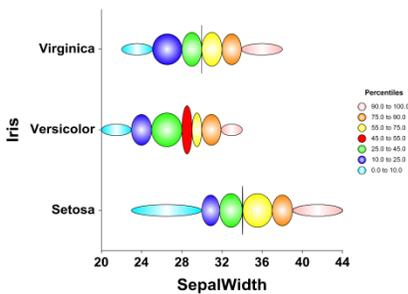


### Layout Tab

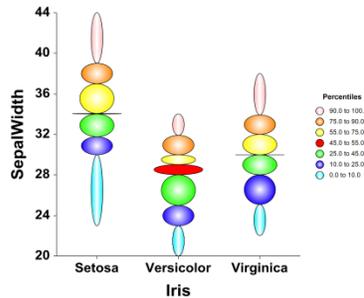
#### Orientation Section

You can orient the plot horizontally or vertically.

Horizontal



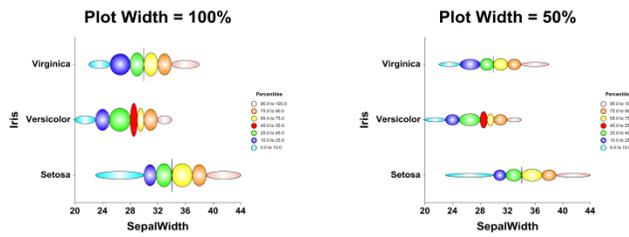
Vertical



## Percentile Plots

### Object Spacing and Size Section

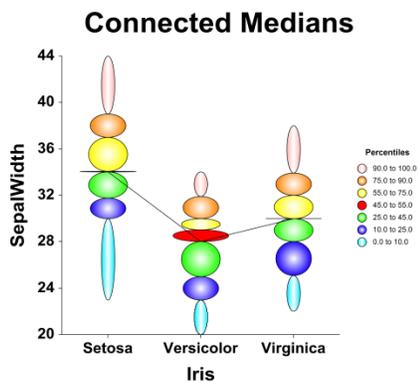
You can change the size of the gap between individual plots.



## Connecting Lines Tab

### Connect Between Groups Section

You can add reference lines at group means and percentiles.



## Titles, Legend, Numeric Axis, Group Axis, Grid Lines, and Background Tabs

Details on setting the options in these tabs are given in the Graphics Components chapter.

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## Example 1 – Creating a Percentile Plot

This section presents an example of how to generate a percentile plot. The data used are from the Fisher dataset. We will create percentile plots of the *SepalLength* variable, grouping on the type of iris.

You may follow along here by making the appropriate entries or load the completed template **Example 1** by clicking on Open Example Template from the File menu of the Percentile Plots window.

### 1 Open the Fisher dataset.

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Click on the file **Fisher.NCSS**.
- Click **Open**.

### 2 Open the Percentile Plots window.

- Using the Graphics menu or the Procedure Navigator, find and select the **Percentile Plots** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

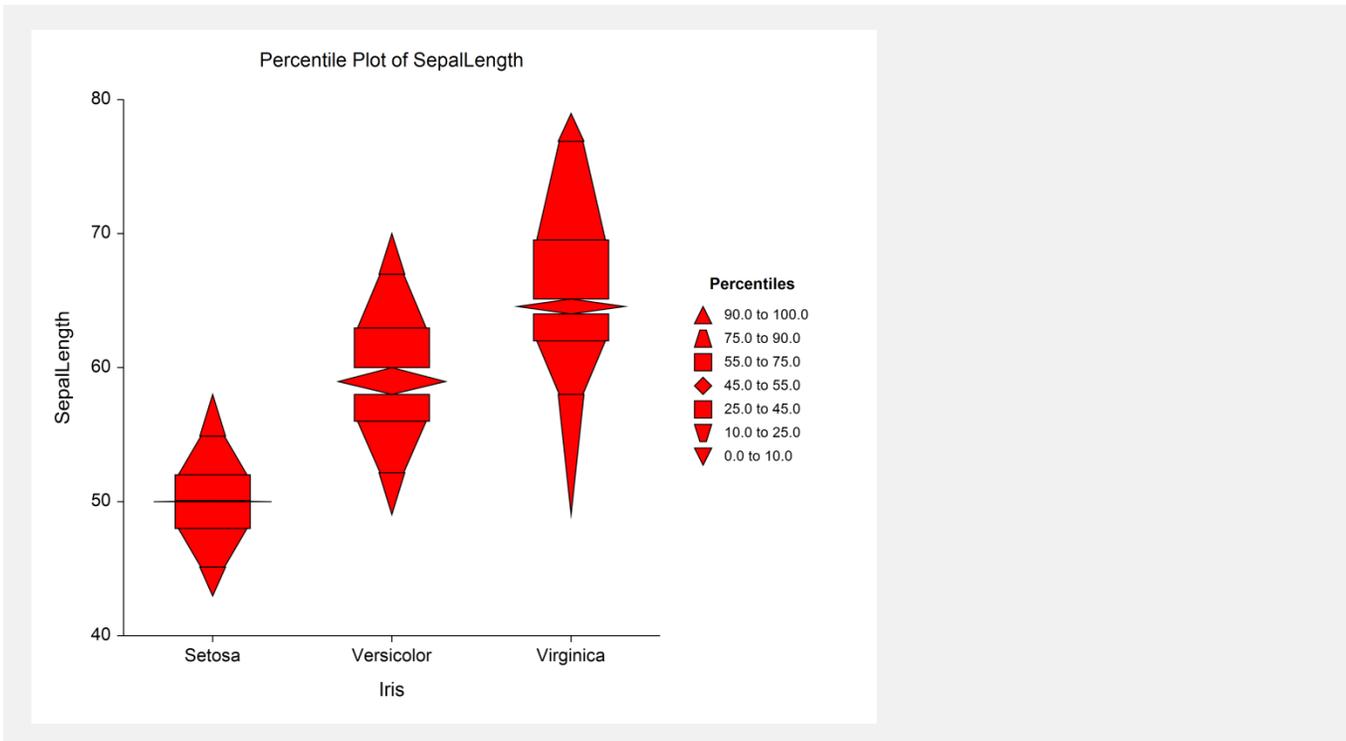
### 3 Specify the variables.

- On the Percentile Plots window, select the **Variables tab**.
- Double-click in the **Data Variable(s)** text box. This will bring up the variable selection window.
- Select **SepalLength** from the list of variables and then click **Ok**. “SepalLength” will appear in the Variable(s) box.
- Double-click in the **Horizontal (Group) Variable** text box. This will bring up the variable selection window.
- Select **Iris** from the list of variables and then click **Ok**. “Iris” will appear in the Horizontal (Group) Variable box.
- Set **Value Labels** to **Value Labels**.

### 4 Run the procedure.

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

## Percentile Plot Output



## Example 2 – Creating a Percentile Plot with Subgroups

This section presents an example of how to generate a percentile plot with subgroups. The data used are from the fictitious Tree dataset. We will create percentile plots of the *Diameter* variable, grouping on *Species*, with subgroups according to *Sunlight*.

You may follow along here by making the appropriate entries or load the completed template **Example 2** by clicking on Open Example Template from the File menu of the Percentile Plots (2 Factors) window.

### 1 Open the Tree dataset.

- From the File menu of the NCSS Data window, select **Open Example Data**.
- Click on the file **Tree.NCSS**.
- Click **Open**.

### 2 Open the Percentile Plots (2 Factors) window.

- Using the Graphics menu or the Procedure Navigator, find and select the **Percentile Plots (2 Factors)** procedure.
- On the menus, select **File**, then **New Template**. This will fill the procedure with the default template.

### 3 Specify the variables.

- On the Percentile Plots (2 Factors) window, select the **Variables tab**.
- Double-click in the **Data Variable(s)** text box. This will bring up the variable selection window.
- Select **Diameter** from the list of variables and then click **Ok**. “Diameter” will appear in the Variable(s) box.
- Double-click in the **Horizontal (Group) Variable** text box. This will bring up the variable selection window.

## Percentile Plots

- Select **Species** from the list of variables and then click **Ok**. “Species” will appear in the Horizontal (Group) Variable box.
- Double-click in the **Legend (Subgroup) Variable** text box. This will bring up the variable selection window.
- Select **Sunlight** from the list of variables and then click **Ok**. “Sunlight” will appear in the Legend (Subgroup) Variable box.
- Set **Value Labels** to **Value Labels**.

### 4 Run the procedure.

- From the Run menu, select **Run Procedure**. Alternatively, just click the green Run button.

## Percentile Plot Output

