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ODS Style Templates:
Always in Fashion

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Today's Topics

- Overview of ODS and Style Templates
- More about Style Elements
- Template Examples showing SAS 9.2 Syntax (Fashion Show!)

This paper (and programs) will be available for download at:

```
http://support.sas.com/rnd/papers
```

§sas.

Guide to Style Template Fashion

1) Have a Pattern

2) Read the back of the Envelope (documentation)

3) Draft a "muslin" (make your first template)
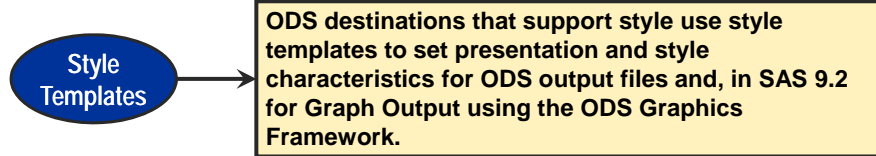
4) Review the results and alter as needed.

5) Have patience.

Fabric widths given in inches.					
SIZES	6	8	10	12	14
DRESS A					
45"*Y**	$3^1/4$	$3^7/4$	$3^7/4$	$3^7/4$	$3^7/4$
60"*Y**	$2^3/4$	$2^3/4$	$2^1/2$	$2^1/2$	$2^5/8$
DRESS B					
45"*Y**	$2^7/8$	$2^7/8$	$3^1/8$	$3^1/8$	$3^1/8$
60"*Y**	$2^1/8$	$2^1/4$	$2^1/4$	$2^1/4$	$2^1/2$
DRESS C					
45"**	$1^7/8$	$1^7/8$	$1^7/8$	$1^7/8$	$1^7/8$
60"*	$1^1/8$	$1^1/8$	$1^1/8$	$1^1/4$	$1^1/4$
60"**	$1^1/8$	$1^1/8$	$1^1/8$	$1^1/8$	$1^1/4$
CONTRAST C (Sleeves, Shoulder Pads, Upper, Lower and Back Bodice)					
45"*Y**	$1^5/8$	$1^5/8$	$1^5/8$	$1^5/8$	$1^5/8$
60"*Y**	$1^1/8$	$1^1/8$	$1^3/8$	$1^3/8$	$1^3/8$
SEW-IN INTERFACING A, B, C					
22"	$3/8$	$3/8$	$1/2$	$1/2$	$1/2$
45"	$3/8$	$3/8$	$3/8$	$3/8$	$3/8$

ODS and Style Templates

- ODS Style templates are "style-centric" templates. They contain a collection of style elements which are used to determine the style characteristics of the output objects when the output objects are routed to destinations that support style.

Style Templates

> ODS destinations that support style use style templates to set presentation and style characteristics for ODS output files and, in SAS 9.2 for Graph Output using the ODS Graphics Framework.

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Style Templates

- A *style template*
  - describes how viewer applications should render the presentation aspects of a report
  - determines the overall appearance of the reports that use it
  - determines style attributes such as
    - colors
    - fonts
    - graphic images
    - margins and output size
    - borders.

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SAS Predefined Style Templates

Templates in Styles Folder			
Analysis[*]	Education[*]	Normal[*]	Theme
Astronomy[*]	Electronics[*]	Printer	Torn[*]
Banker[*]	Festival[*]	Rsvp[*]	Watercolor[*]
BarrettsBlue	Gears[*]	RTF	blockPrint[*]
Beige	Journal[*]	Sasweb	fancyPrinter
Brick	Magnify[*]	Science[*]	sansPrinter
Brown	Meadow[*]	Seaside[*]	sasdocPrinter
Curve[*]	Minimal	Sketch[*]	serifPrinter
D3d	Money[*]	Statdoc	
Default	NoFontDefault	Statistical[*]	

[*] SAS®9 only

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Slide 1

Default
Minimal
Normal
Sasweb

Implied inheritance
BASE.TEMPLATE.STYLE (9.2)

Styles.Default is the foundation template that most style templates use.

Festival
Meadow
Seaside

inherit from

Normal

fancyPrinter
Rtf
sansPrinter
sasdocPrinter
serifPrinter

inherit from

Printer

inherits from

D3D

inherits from

Beige

inherits from

Default

all other style templates

inherit from

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Slide 2
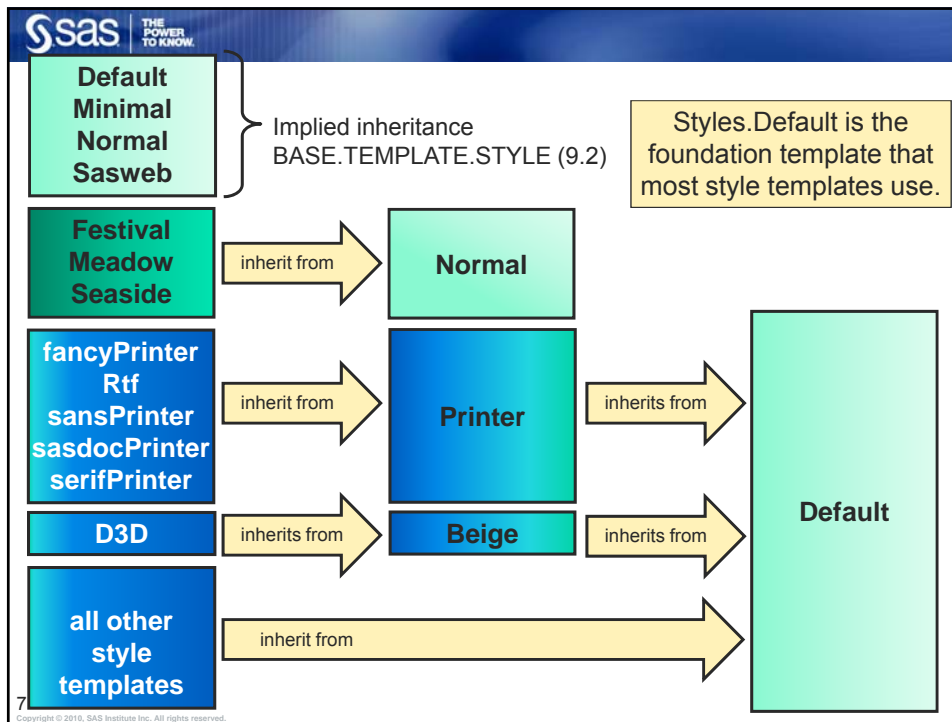
Last Year's Fashion – (SAS 8.2 and 9.1.3)

```
proc template;
define style Styles.Default;
   style TitlesAndFooters from Container /
      font = Fonts('TitleFont2')
      background = colors('systitlebg')
      foreground = colors('systitlefg');
   style ProcTitle from TitlesAndFooters        /
      background = colors('proctitlebg')
      foreground = colors('proctitlefg');
   style Output from Container        /
      background = colors('tablebg')
      rules = GROUPS
      frame = BOX
      cellpadding = 7
      cellspacing = 1
      bordercolor = colors('tableborder')
      borderwidth = 1;
   style Table from Output
      "Controls overall table style.";
   style HeadersAndFooters from Cell
      "Abstract. Controls table headers and footers." /
      font = fonts('HeadingFont')
      foreground = colors('headerfg')
      background = colors('headerbg');
   style RowHeader from Header
      "Controls row headers.";
. . . More (a LOT more code) . . .
```

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Style Element Definition (SAS 9.1.3)

```
proc template;
  define style Styles.Default
  . . . more code . . .
  style HeadersAndFooters from Cell
    "Abstract. Controls table headers and footers." /
    font = fonts('HeadingFont')
    foreground = colors('headerfg')
    background = colors('headerbg');
  style Header from HeadersAndFooters
    "Controls the headers of a table.";
  style RowHeader from Header
    "Controls row headers.";
  . . . more code . . .
  end;
run;
```

This Year's Fashion – (SAS 9.2)

```
proc template;
  define style Base.Template.Style;
    notes "Implicit parent for all style templates";
    style TitlesAndFooters from Container
      "Controls system page title text and system page footer text." /
      abstract =| on;
    style ProcTitle from TitlesAndFooters
      "Controls procedure title text.";
    style Output from Container
      "Controls basic output forms." /
      abstract =| on;
    style Table from Output
      "Controls overall table style.";
    style Batch from Output
      "Controls batch mode output.";
    style Cell from Container
      "Controls general cells.";
    style Data from Cell
      "Default style for data cells in columns.";
    style Header from HeadersAndFooters
      "Controls the headers of a table.";
    style RowHeader from Header
      "Controls row headers.";
    style Footer from HeadersAndFooters
      "Controls table footers.";
. . . More (a LOT more code) . . .
```

Style Element Definition (SAS 9.2)

Implicit "ancestor"
BASE.TEMPLATE.STYLE

```
proc template;
  define style Styles.Default
  . . . more code . . .
      class HeadersAndFooters /
          font = fonts('HeadingFont')
          color = colors('headerfg')
          backgroundcolor = colors('headerbg');
      class Header;
      class RowHeader;
  . . . more code . . .
  end;
run;
```

The CLASS statement creates a style element from a like-named style element.
```
class wombat;
style wombat from wombat;
style wombat from _self_;
```

Tabular Style Elements: PROC MEANS

A *style element* is a collection of style attributes that apply to a particular part of the output.

The MEANS Procedure

Body

ProcTitle

Header

Analysis Variable : Sales Total Sales		
Region	N Obs	Sum
Africa	56	2342588.00
Asia	14	460231.00
Canada	37	4255712.00
Central America/Caribbean	32	3657753.00
Eastern Europe	31	2394940.00
Middle East	24	5631779.00
Pacific	45	2296794.00
South America	54	2434783.00
United States	40	5503986.00
Western Europe	62	4873000.00

Table

Data

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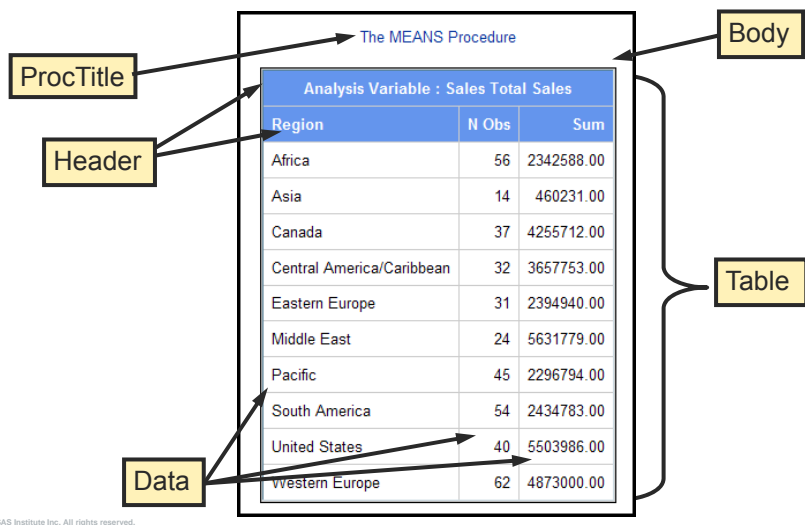
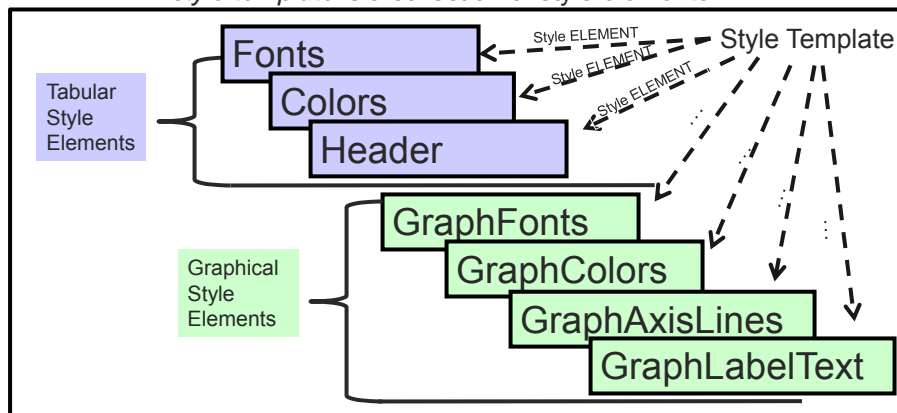## Tabular Style Elements: PROC REPORT

For PROC REPORT, some of the style elements used are the same as those used by other procedures, such as PROC MEANS. But in this example, PROC REPORT uses the NoteContent style element, but PROC MEANS does not.

Header

Data

NoteContent

Table

	Salary Report		
Job Title	Female Average	Male Average	Calculated Difference
Sales Rep. I	26,305	26,491	-186
Sales Rep. II	27,347	27,397	-50
Sales Rep. III	29,707	29,393	314
Sales Rep. IV	32,123	31,609	514
Temp. Sales Rep.	26,416	26,231	184
All Jobs	27,693	27,611	82

Based on average salary, female Sales Reps earn more.
Number of Female Reps: 290
Number of Male Reps: 358

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Style Template Concepts: Style Elements

A *style template* is a collection of style *elements*.

Tabular Style Elements

Fonts
Colors
Header

Graphical Style Elements

GraphFonts
GraphColors
GraphAxisLines
GraphLabelText

Style ELEMENT
Style ELEMENT
Style ELEMENT
Style Template

A *style template* is a collection of *style elements.* The *style elements,* conceptually, represent major table and graph components, such as Header or GraphLabelText, respectively.

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Style Template Concepts: Style Attributes

Each *style element* is a collection of *style attributes.* The *style attributes* represent the individual presentation and output characteristics. Several *style elements* may have a FONT attribute or a COLOR attribute, for example. Some *style elements* like GraphFonts and GraphColors set up reference lists of attribute names.
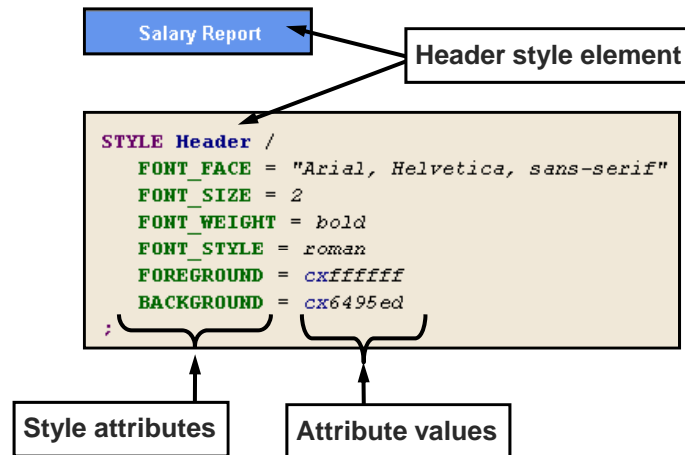
Fonts ← Style ELEMENT ⇠ ⇢ Style Template
Colors ← Style ELEMENT
Header ← Style ELEMENT

Style Attributes
font
background color
foreground color

```
color = colors('headerfg')
```

GraphFonts
GraphColors
GraphAxisLines
GraphLabelText

Style Attributes
line thickness
line style
line color

Style Attributes
font
foreground color

```
color = GraphColors('glabel')
```

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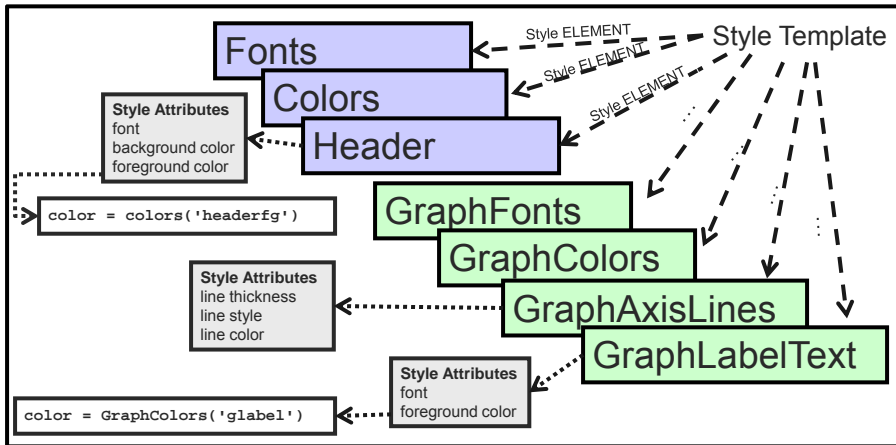
Understanding Tabular Colors

```
class colors /
  . . . more style attributes . . .
  'headerfg' = color_list('fgA2')
  'headerbg' = color_list('bgA2')
  . . . more style attributes . . .
  'systitlefg' = color_list('fgA')
  'systitlebg' = color_list('bgA')
. . . more style attributes . . .
  'docfg' = color_list('fgA')
  'docbg' = color_list('bgA');
```

```
class color_list /
    'fgB2' = cx0066AA
    'fgB1' = cx004488
    'fgA4' = cxAAFFAA
    'bgA4' = cx880000
    'bgA3' = cxD3D3D3
    'fgA2' = cx0033AA
    'bgA2' = cxB0B0B0
    'fgA1' = cx000000
    'bgA1' = cxF0F0F0
    'fgA' = cx002288
    'bgA' = cxE0E0E0;
```

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Style Attributes as Defined in Style Templates

- The ODS style attributes for the HEADER style element as defined in the SASWEB style template .

Salary Report ← **Header style element**

```
STYLE Header /
    FONT_FACE = "Arial, Helvetica, sans-serif"
    FONT_SIZE = 2
    FONT_WEIGHT = bold
    FONT_STYLE = roman
    FOREGROUND = cxffffff
    BACKGROUND = cx6495ed
;
```

Style attributes   **Attribute values**

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RGB Color Codes

In the RGB color system, color names are of the form CX*rrggbb*, where the color values are given as hexadecimal numbers in the range 00 through FF. Most web page colors and output for the web use RGB color values. SAS style templates use RGB color codes.

CX indicates the RGB color specification

- *rr* is the red component
- *gg* is the green component
- *bb* is the blue component.

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Hex Values Are Percentages

Decimal Value	Hex Value	Color Percent
255	FF	100%
204	CC	80%
153	99	60%
102	66	40%
51	33	20%
0	00	0%

For example:
cxFF0000 = 100% red, 0% green, 0% blue
cx00FF00 = 0% red, 100% green, 0% blue
cx339966=20% red, 60% green, 40% blue

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Using a Color Application

The Internet has many HTML color selector applications available, where you can type in a specific color value and discover the color.

From: http://html-color-codes.info/#HTML_Color_Picker

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RGB Color Examples

Some selected RGB colors are shown below:

Percent Red	Percent Green	Percent Blue					
		00 = 0%	33 = 20%	66 = 40%	99 = 60%	CC = 80%	FF = 100%
33 = 20%	00 = 0%	cx330000	cx330033	cx330066	cx330099	cx3300CC	cx3300FF
	33 = 20%	cx333300	cx333333	cx333366	cx333399	cx3333CC	cx3333FF
	66 = 40%	cx336600	cx336633	cx336666	cx336699	cx3366CC	cx3366FF
	99 = 60%	cx339900	cx339933	cx339966	cx339999	cx3399CC	cx3399FF
	CC = 80%	cx33CC00	cx33CC33	cx33CC66	cx33CC99	cx33CCCC	cx33CCFF
	FF = 100%	cx33FF00	cx33FF33	cx33FF66	cx33FF99	cx33FFCC	cx33FFFF

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Understanding Graph Colors

```
class GraphColors
  'gcdata' = cx000000
  'gdata' = cxB9CFE7
  . . . more style attributes . . .
  'gtext' = cx000000
  'glabel' = cx000000
  'gborderlines' = cx000000
  'goutlines' = cx000000
  'ggrid' = cxECECEC
  . . . more style attributes . . .;

        class GraphDataDefault /
            endcolor = GraphColors('gramp3cend')
            neutralcolor = GraphColors('gramp3cneutral')
            startcolor = GraphColors('gramp3cstart')
            markersize = 7px
            markersymbol = "circle"
            linethickness = 1px
            linestyle = 1
            contrastcolor = GraphColors('gcdata')
            color = GraphColors('gdata');
```

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Style Elements used by PROC SGPLOT

This graph uses the following style elements:
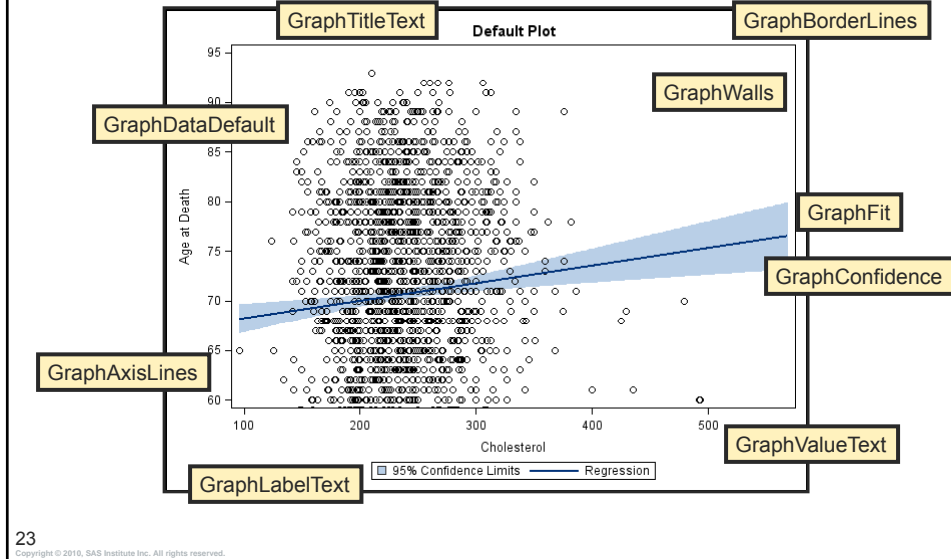
PROC TEMPLATE to Define a Style Template

```
ods path work.temp(update)
         sasuser.templat(update)
         sashelp.tmplmst(read);

proc template;
   define style styles.newstyle;
```
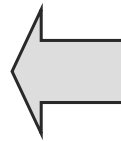
The syntax for STYLE templates only uses a few statements in addition to the DEFINE/END statements. The other statements include a PARENT statement, a STYLE statement and/or a CLASS statement.

```
   end;
run;
```

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Style Template Fashion Show

You're sitting in the audience at the **House of ODS** fashion show, where I have my *haute couture* custom collection of templates strutting down the fashion runway for your review.

On the runway today are:

- Outfit 1: Changing the **Header** and **RowHeader** style
- Outfit 2: Changing **Header** style, but using default colors for **RowHeader**
- Outfit 3: Making TITLE statements different sizes
- Outfit 4: Changing the default formatting for output from the ODS TEXT= option
- Outfit 5: Changing interior table lines
- Outfit 6: Using CSS class selectors to change **Header** style
- Outfit 7: Changing graph output with a style template

Starting Point

```
ods html file='demo00_basic.html'
        style=sasweb;

proc freq data=prdsale;
  title 'List of Products';
run;

proc means data=prdsale mean std max;
  title 'Actual Sales For Each Region';
run;

proc report data=prdsale nowd;
  title 'Product and Region Report';
run;

ods html close;
```

List of Products

The FREQ Procedure

PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Actual Sales For Each Region

The MEANS Procedure

Analysis Variable : ACTUAL Actual Sales

Region	N Obs	Mean	Std Dev	Maximum
EAST	360	503.4888889	284.1412217	1000.00
WEST	360	503.4138889	282.8339933	1000.00

Product and Region Report

	EAST		WEST		Total Sales	
Product	Actual	Predicted	Actual	Predicted	Actual	Predicted
BED	$37,608.00	$34,360.00	$36,092.00	$35,841.00	$73,700.00	$70,191.00
CHAIR	$36,865.00	$34,569.00	$33,149.00	$31,829.00	$70,014.00	$66,398.00
DESK	$36,262.00	$37,830.00	$38,010.00	$37,984.00	$74,272.00	$75,814.00
SOFA	$34,962.00	$38,726.00	$40,117.00	$34,894.00	$75,079.00	$73,620.00
TABLE	$36,559.00	$38,632.00	$33,861.00	$32,930.00	$69,420.00	$71,562.00
Total	$181,256.00	$184,107.00	$181,229.00	$173,478.00	$362,485.00	$357,585.00

Outfit 1: Changing Header and Rowheader

List of Products

The FREQ Procedure

		Product		
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Actual Sales For Each Region

The MEANS Procedure

		Analysis Variable : ACTUAL Actual Sales		
Region	N Obs	Mean	Std Dev	Maximum
EAST	360	503.4888889	284.1412217	1000.00
WEST	360	503.4138889	282.8339933	1000.00

Proc Template Code

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo01;
  parent=styles.sasweb;
  class Header/
    background=pink  [1]
    foreground=purple;
  class ProcTitle /
    foreground=purple  [2]
    font=fonts('HeadingFont');
  class SystemTitle /
    foreground=purple;  [3]
  end;
run;

ods html file='demo01_outfit1.html'
    style=styles.demo01;
. . . more code . . .
ods html close;
```

[3] **List of Products**

The FREQ Procedure [2]

[1]		Product		
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

[3] **Actual Sales For Each Region**

The MEANS Procedure [2]

[1]		Analysis Variable : ACTUAL Actual Sales		
Region	N Obs	Mean	Std Dev	Maximum
EAST	360	503.4888889	284.1412217	1000.00
WEST	360	503.4138889	282.8339933	1000.00

Outfit 2: Changing Header Style Only

Proc Template Code

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo02a;
  parent=styles.sasweb;
  class Header/
    background=pink      1
    foreground=purple;
  class RowHeader /
    background=color_list('bgA1')
    foreground=color_list('bgA');   2
  class ProcTitle /
    foreground=purple    3
    font=fonts('HeadingFont');
  class SystemTitle /
    foreground=purple;   4
  end;
run;
ods html file='demo02_outfit2a.html'
        style=styles.demo02a;
. . . more code . . .
ods html close;
```

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Outfit 3: Different Size Title Statements

List of Products
Another Title

Yet Another title

The FREQ Procedure

		Product		
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Proc Template Code

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo03;
  parent=styles.sasweb;
  class SystemTitle /
    foreground=purple      1
    font=("<serif>, Times New Roman, serif",7,bold);
  class SystemTitle2 /
    foreground=purple      2
    font=("<sans-serif>, Helvetica, sans-serif",5,bold italic);
  class SystemTitle3  /
    foreground=purple
    just=l                 3
    font=("<sans-serif>, Helvetica, sans-serif",3,bold);
  end;
run;

ods html(id=after) file='demo03_outfit3.html'
    style=styles.demo03;
. . . more code . . .
ods _all_ close;
```

List of Products 1
Another Title 2
Yet Another title 3

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Outfit 4: Changing ODS TEXT= Style

List of Products

The FREQ Procedure

	Product			
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Long and Brilliant Text String

The MEANS Procedure

Analysis Variable : ACTUAL Actual Sales				
Region	N Obs	Mean	Std Dev	Maximum
EAST	360	503.4888889	284.1412217	1000.00
WEST	360	503.4138889	282.8339933	1000.00

Proc Template Code

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo04;
  parent=styles.printer;
  class UserText from SystemTitle/
        just=c; 1
  end;
run;

ods rtf file='demo04_outfit4.rtf' style=styles.demo04  startpage=no;
ods pdf file='demo04_outfit4.pdf' style=styles.demo04  startpage=no;

  proc freq data=prdsale;
  run;

ods text = '   ';
ods text = 'Long and Brilliant Text String';
  proc means data=prdsale mean std max;
  run;
ods _all_ close;
```

TABLE	144	20.00	720	100.00

1 *Long and Brilliant Text String*

The MEANS Procedure

Analysis Variable : ACTUAL Actual Sales

Outfit 5: Changing Interior Table Lines

A) List of Products

The FREQ Procedure

		Product	
PRODUCT	Frequency	Percent	Cumulative Frequency
BED	144	20.00	144
CHAIR	144	20.00	288
DESK	144	20.00	432
SOFA	144	20.00	576
TABLE	144	20.00	720

B) List of Products

The FREQ Procedure

		Product		
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00		
SOFA	144	20.00		
TABLE	144	20.00		

C) List of Products

The FREQ Procedure

		Product		
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Proc Template Code: No Interior Lines

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo05a;
  parent=styles.sasweb;
  class table /
        frame=void
        borderspacing=0
        rules = none;
  end;
run;

ods html(id=a) file='demo05_outfit5a.html'
    style=styles.demo05a;

proc freq data=prdsale;
run;

ods _all_ close;;
```

A) List of Products

The FREQ Procedure

		Product		
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Proc Template Code: Lines Between Columns

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo05b;
  parent=styles.printer;
  class table /
        frame=void
        borderspacing=0
        rules = cols;
  end;
run;
ods pdf(id=b) file='demo05_outfit5b.pdf'
    style=styles.demo05b;

proc freq data=prdsale;
run;

ods _all_ close;
```

B) List of Products

The FREQ Procedure

PRODUCT	Product			
	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Proc Template Code: Lines Between Rows

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo05c;
  parent=styles.rtf;
  class table /
        frame=void
        borderspacing=0
        cellspacing=0
        rules = rows;
  end;
run;

ods rtf(id=c) file='demo05_outfit5c.rtf' style=styles.demo05c;

proc freq data=prdsale;
run;

ods _all_ close;
```

C) List of Products

The FREQ Procedure

PRODUCT	Product			
	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Proc Template Code: Incorrect Borderspacing

```
ods path work.temp(update)
        sashelp.tmplmst(read);

proc template;
  define style styles.demo05diff;
  parent=styles.printer;
  class data /
        backgroundcolor=cxdddddd;
  class table /
        frame=void
        borderspacing=0.5pt
        rules = cols;
  end;
run;

ods pdf(id=d) file='demo05_outfit5diff.pdf'
    style=styles.demo05diff;

proc freq data=prdsale;
run;

ods _all_ close;
```

| Product | | | | |
PRODUCT	Frequency	Percent	Cumulative Frequency	Cumulative Percent
BED	144	20.00	144	20.00
CHAIR	144	20.00	288	40.00
DESK	144	20.00	432	60.00
SOFA	144	20.00	576	80.00
TABLE	144	20.00	720	100.00

Borderspacing (9.2) and Cellspacing (9.1.3) are style attributes which are used to control the amount of space that shows BETWEEN the cells in a table.

Outfit 6: Using CSS Class Selectors

Product and Region Report

| | Region Sales | | | | | |
| | EAST | | WEST | | Total Sales | |
Product	Actual	Predicted	Actual	Predicted	Actual	Predicted
BED	$37,608.00	$34,350.00	$36,092.00	$35,841.00	$73,700.00	$70,191.00
CHAIR	$36,865.00	$34,569.00	$33,149.00	$31,829.00	$70,014.00	$66,398.00
DESK	$36,262.00	$37,830.00	$38,010.00	$37,984.00	$74,272.00	$75,814.00
SOFA	$34,962.00	$38,726.00	$40,117.00	$34,894.00	$75,079.00	$73,620.00
TABLE	$35,559.00	$38,632.00	$33,861.00	$32,930.00	$69,420.00	$71,562.00
Total	$161,256.00	$184,107.00	$161,229.00	$173,476.00	$362,465.00	$357,565.00

Proc Template Code and CSS File

```
.AHDR
{
  font-family: Arial, Helvetica, sans-serif;
  font-size: x-small;
  font-weight: bold;
  font-style: normal;
  color: #000000;
  background-color: pink;
}
.PHDR
{
  font-family: Arial, Helvetica, sans-serif;
  font-size: x-small;
  font-weight: bold;
  font-style: normal;
  color: white;
  background-color: purple;
}
```

HDR.CSS

PROC TEMPLATE IMPORT

```
ods path work.temp(update)
            sashelp.tmplmst(read);

proc template;
  define style styles.demo06;
    parent=styles.sasweb;
    import 'HDR.CSS';
  end;
run;
```

Proc Report Code

```
ods html file='demo06_outfit6.html' style=demo06;
ods rtf file='demo06_outfit6.rtf' style=demo06;
ods pdf file='demo06_outfit6.pdf' style=demo06;

proc report data=prdsale nowd;
  title 'Product and Region Report';
  column product region,(actual predict)
         ('Total Sales' actual=acttot predict=predtot);
  define product / group style(column)=RowHeader;
  define region / across 'Region Sales';
  define actual / sum 'Actual'
         style(header)=AHDR;
  define predict/ sum 'Predicted'
         style(header)=PHDR;
  define acttot / sum 'Actual'
         style(header)=AHDR;
  define predtot / sum 'Predicted'
         style(header)=PHDR;
  rbreak after / summarize;
  compute product;
    if _break_ = '_RBREAK_' then do;
       product='Total';
       call define('product','style','style=RowHeader');
    end;
  endcomp;
run;
ods _all_ close;
```

Region Sales					
EAST		WEST		Total Sales	
Product	Actual	Predicted	Actual	Predicted	Actual	Predicted
	AHDR	PHDR	AHDR	PHDR	AHDR	PHDR

Outfit 7: Changing Graph Attributes
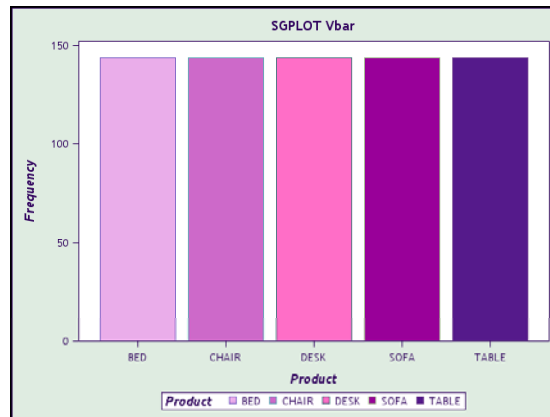
Proc Template Code

```
ods path work.temp(update)
         sashelp.tmplmst(read);

proc template;
  define style styles.demo07;
  parent = styles.ocean;
  class GraphColors /
        'gdata1' = CXEAADEA     1
        'gdata2' = CXCD69C9     2
        'gdata3' = CXFF6EC7     3
        'gdata4' = CX990099     4
        'gdata5' = CX551A8B;    5
  end;
run;

ods listing style=demo07;
proc sgplot data=prdsale;
run;

options GSTYLE;
proc gchart data=prdsale;
run;
quit;
```

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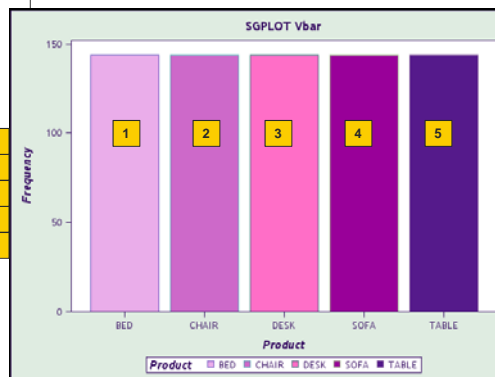
Figuring Out the Pattern

- There are some diagnostic techniques that you can use to help figure out what style elements need to change.

- Use ODS MARKUP "diagnostic" tagset templates, such as STYLE_POPUP or ODSSTYLE in order to determine what style elements and/or style attributes need to change.

ODS TAGSETS.STYLE_POPUP

```
ods tagsets.style_popup path='.' (url=none)
   file='spu_diagnose.html'
   style=sasweb stylesheet='spu.css';

. . . procedure of choice . . .

ods _all_ close;
```

Slide 47 — ODS MARKUP Output

ODS MARKUP Output

- This example of ODS MARKUP creates an HTML file. View the HTML file in a Web browser.

Report of SAS Variables

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat
1	EmpID	Char	6	$6.	$6.
2	JobCode	Char	6	$6.	$6.
3	Salary	Num	8	COMMA10.	COMMA10.

Header

> Position the mouse over the different parts of the report in order to get the style element names to appear.

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Slide 48 — ODS MARKUP Output

ODS MARKUP Output

Report of SAS Variables

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat
1	EmpID	Char	6	$6.	$6.
			6	$6.	$6.
			8	COMMA10.	COMMA10.

Header

PROC TEMPLATE Syntax - Microsoft Internet Explorer pr...

Style Definition

```
STYLE Header /
    FONT_FACE = "Arial, Helvetica, sans-serif"
    FONT_SIZE = 4
    FONT_WEIGHT = bold
    FONT_STYLE = roman
    FOREGROUND = cx0033aa
    BACKGROUND = cxb0b0b0
;
```

Header Attributes

```
    VJUST = bottom
```

> Click a highlighted style element to open a popup window that shows all the style attributes for that style element.

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ODS TAGSETS.ODSSTYLE

```
ods tagsets.odsstyle path='.'(url=none)
    file='dummy.html'
    style=sasweb
    stylesheet='resolved_style_info.txt';
. . . any procedure here . . .
ods _all_ close;
```

TAGSETS.ODSSTYLE resolves all inheritance and writes PROC TEMPLATE code to the STYLESHEET= file. You can use this resolved file in order to see how style inheritance was resolved.

ODS TAGSETS.ODSSTYLE Results

```
proc template;                              Resolved_Style_Info.txt File
    define style styles.mystyle;
. . . more style element definitions . . .
        style Data/
            Background = #FFFFFF
            Foreground = #000000
            ContentPosition = left
            Font = ("Arial, Helvetica, sans-serif", 2, normal normal)
            ContentScrollbar = auto
            BodyScrollbar = auto        ;
        style Header/
            Background = #6495ED
            Foreground = #FFFFFF
            ContentPosition = left
            Font = ("Arial, Helvetica, sans-serif", 2, bold normal)
            ContentScrollbar = auto
            BodyScrollbar = auto        ;
        style RowHeader/
            Background = #6495ED
            Foreground = #FFFFFF
            ContentPosition = left
            Font = ("Arial, Helvetica, sans-serif", 2, bold normal)
            ContentScrollbar = auto
            BodyScrollbar = auto        ;
. . . more style element definitions . . .
    end;
run;
```

References on Style Elements

- Search the documentation for the topic:
"Style Attributes and Their Values"

References on Style Elements

- Search the documentation for the topic:
"Graphical Style Elements"

References on Style Elements

- Search the documentation for the topic:
"Graphical Style Element Reference for
Device-Based Graphics"

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Graphical Style Element Reference for Device-Based Graphics

The GraphColors Style Element

The GraphColors style element specifies the colors that are used for different categories of graphical elements. GraphColors Attributes For Device-Based Output lists the style attributes that are defined in the GraphColors style element and the graphical elements that they affect by default.

GraphColors Attributes For Device-Based Output

GraphColors Attribute[1]	Portion of Graph Affected
gaxis	Axis lines and tick marks
gborderlines	Border around the graph wall, legend border, and borders to complete axis frame
gconnectLine	Line for connecting boxes
gfloor	Graph floor
ggrid	Grid lines
glabel	Axis labels and legend titles
glegend	Background of the legend
goutline	Outlines for data primitives such as bars, pie slices, and boxes
gshadow	Drop shadows used with text

Your Turn

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