

The New SAS® ODS Excel Destination: A User Review and Demonstration

LeRoy Bessler

DentaQuest

Le_Roy_Bessler@wi.rr.com

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Any errors in the presentation content are mine.

LeRoy Bessler

Mequon, Wisconsin, USA

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Purpose of Presentation

- Problem:
 - Too many (partial) old SAS tool choices
 - Users really want only ONE choice
- Solution Here:
 - Show you new ODS Excel destination
 - Demonstrate benefits/capabilities
 - Identify limitations

Comments

Graphs used here are for proof of concept, but are not meant as good graphic design.

To Color-Code Spreadsheet Data:

See Color-Coding Your Data

in my other presentation/paper for today

“Using Color to Communicate, Not to Decorate”

Test Environment

Most of the examples were created with SAS V9.4 TS1M2. For the examples that require TS1M3, I used an Early Adopter Release, which is distributed only via SAS University Edition, which runs on a Linux Virtual Machine, and is accessed by SAS Studio. The Linux Virtual Machine is provided as a download.

Viewing & Creation Environments

Viewing the output from ODS Excel or PROC MSCHART requires Excel 2010 or higher, but creating the output does not require Excel to be on the SAS computer.

You can create ODS Excel or PROC MSCHART output with SAS on MVS, UNIX, Linux, or Windows without Excel being installed.

Compare Pre-ODS-EXCEL Alternatives

Feature	TableEditor*	ExcelXP	MSOffice2K_x	HTML	DDE**
Pivot Table	Yes	No	No	No	requires an Excel macro
AutoFit Columns	By Default*	No	By Default*	By Default	Yes
Filters	Yes, but All Columns only	Yes	Yes, but All Columns only	No	Yes
Freeze Panes	Row 1 only	Yes	Yes	No	Yes
Side-By-Side Elements in WorkSheet	Yes	No	Yes	No	Yes
Multi-Sheet WorkBook	Yes	Yes, Easy	Yes	No	Yes
Graphs	Yes	No	Yes	Yes	Yes
Titles	Not with other features	Yes	Yes	Yes	Yes

*Headings of columns autofit by default can be overlaid by filter buttons

*Javascript must be enabled **SAS must be running on Windows

ODS Excel Destination

It is the current SAS technology direction for SAS to Excel.

It is definitely better than ExcelXP!

Current Limitations – Cannot do:

Pivot Tables

Panels (horizontal arrays of tables and/or images)

At this time, the TableEditor TagSet
IS the only ODS solution
to create Pivot Tables.

Best resource on the topic is

Short title: “The Armchair Quarterback”
by Peter Eberhardt & Louanna Kona.

See Reference 3 in my paper in the
Proceedings for link to this resource.

At this time, the MSOffice2K_x TagSet
IS the only ODS solution
to create Panels in a worksheet.

Panel:

N tables side-by-side

N graphs side-by-side

N tables + max. one graph at right end

For code to create panels in an Excel worksheet with the MSOffice2K_x ODS TagSet, download the zip file

“SAS to Excel - OLD ODS Methods & DDE Comparison - Slides, Code, Reference Doc” in the Conference Proceedings & Tools Package

I myself would prefer an enhancement to ODS Excel to support this.

For a panel of one graph + its table, consider the new PROC MSCHART.

Let's see what ODS Excel CAN do
It is definitely better than ExcelXP!

Basic Syntax

```
ods excel  
file="YourPath\YourFileName.xlsx"  
    options(name1=' value1'  
            name2=' value2'...);  
< SAS code goes here >  
ods excel close;
```

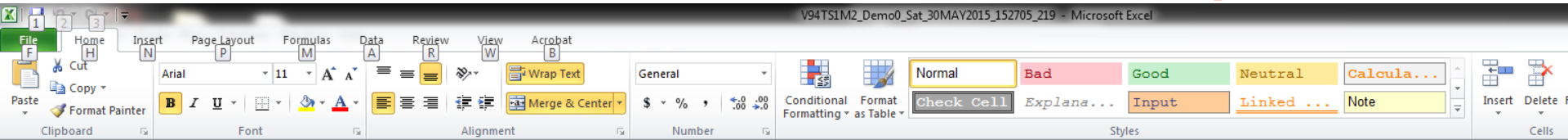
If doing a graph,
use "ods excel gttitle gfootnote;"
to imbed the text in the image.

Most examples in the demo steps
simply consist of adding or
changing ODS Excel options

Simple Example

```
ods excel  
  file="YourPath\YourFileName.xlsx"  
  options ( embedded_titles='yes'  
            embedded_footnotes='yes'  
            zoom='220' );  
title1 . . . ; title2 . . . ;  
options obs=10;  
proc print data=sashelp.shoes noobs;  
id region subsidiary product; run;  
ods excel close;
```

Undesired Title1 Wrap



	A	B	C	D	E	F	G	H
--	---	---	---	---	---	---	---	---

10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom

Default Sheet Name (maximum is 28 characters)

	Region	Subsidiary	Product	Stores	Sales	Inventory	Returns
5	Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769
6	Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284
7	Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433
8	Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861
9	Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771
10	Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79
11	Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940
12	Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233
13	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710
14	Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221

Source Data: SASHELP.SHOES

Code: D:!!! ODS Excel Destination\code\Demo0.sas

Run on: Saturday, 30 May 2015 at 3:27:05 PM

Can we stop title wrap?

I.e., spread it across more columns

```
ods excel ...
```

```
options( ...
```

```
sheet_name='Title Wrap Stopped?'
```

```
title_footnote_nobreak='yes');
```

TS1M2 title_footnote_nobreak='yes' fails

V94TS1M2_Demo2_Tue_02JUN2015_155406_206 - Microsoft Excel

	A	B	C	D	E	F	G	H
1	10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom							
2								
3	Region	Subsidiary	Product	Stores	Sales	Inventory	Returns	
4	Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769	
5	Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284	
6	Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433	
7	Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861	
8	Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771	
9	Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79	
10	Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940	
11	Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233	
12	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710	
13	Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221	
14								
15	Source Data: SASHELP.SHOES							
16	Code: D:!! ODS Excel Destination\code\Demo2.sas							
17	Run on: Tuesday, 2 June 2015 at 3:54:06 PM							
18								
19								

Title Wrap Persists

TS1M3 title_footnote_nobreak='yes' works

1

2

3

File

Home

Insert

Page Layout

Formulas

Data

Review

View

Acrobat

Paste

Cut

Copy

Format Painter

Clipboard

Font

Alignment

Number

Wrap Text

Merge & Center

General

Conditional Formatting

Format as Table

Normal

Bad

Good

Neutral

Calcula...

Check Cell

Explana...

Input

Linked ...

Note

Insert

Delete

Cells

A1

10 Obs - Shoe Sales - V94TS1M3 ODS EXCEL - ODS Style HTMLblue - 170% Zoom

	A	B	C	D	E	F	G	H	I	J	K
1	10 Obs - Shoe Sales - V94TS1M3 ODS EXCEL - ODS Style HTMLblue - 170% Zoom										
2											
3	Region	Subsidiary	Product	Stores	Sales	Inventory	Returns				
4	Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769				
5	Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284				
6	Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433				
7	Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861				
8	Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771				
9	Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79				
10	Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940				
11	Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233				
12	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710				
13	Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221				
14											
15	Source Data: SASHELP.SHOES										
16	Code: /folders/myfolders/! ! ODS Excel Destination/code/Demo2.sas										
17	Run on: Tuesday, 2 June 2015 at 3:31:54 PM										
18											
19											
20											
21											
22											
23											
24											
25											
26											
27											
28											

No More Title Wrap

Ready

Since TS1M3 is not yet available,
and not every site will install it
immediately, this presentation
solves the wrap problem
with a circumvention.

Default title space is determined by number of columns for variables.

Increase the width by force.

```
options( . . . title_footnote_width='8' );
```

Wrap Gone, But Oversized Row

Microsoft Excel interface showing a worksheet titled "10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom". The ribbon includes File, Home, Insert, Page Layout, Formulas, Data, Review, View, and Acrobat. The Home tab is active, showing Font, Paragraph, Styles, and Cells groups. The worksheet contains a table with 7 columns: Region, Subsidiary, Product, Stores, Sales, Inventory, and Returns. The table data is as follows:

Region	Subsidiary	Product	Stores	Sales	Inventory	Returns
Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769
Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284
Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433
Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861
Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771
Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79
Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940
Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233
Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710
Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221

Below the table, the following text is displayed:

Source Data: SASHELP.SHOES
Code: D:!!! ODS Excel Destination\code\Demo3.sas
Run on: Saturday, 30 May 2015 at 3:29:55 PM

The status bar at the bottom indicates "No Title Wrap, Row Too High".

absolute_row_height='14' - Right-Sized Row

V94TS1M2_Demo4_Sat_30MAY2015_153034_712 - Microsoft Excel

	A	B	C	D	E	F	G	H
1	10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom							
2								
3	Region	Subsidiary	Product	Stores	Sales	Inventory	Returns	
4	Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769	
5	Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284	
6	Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433	
7	Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861	
8	Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771	
9	Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79	
10	Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940	
11	Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233	
12	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710	
13	Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221	
14								
15	Source Data: SASHELP.SHOES							
16	Code: D:!! ODS Excel Destination\code\Demo4.sas							
17	Run on: Saturday, 30 May 2015 at 3:30:34 PM							
18								
19								
20								
21								

Set Row Height To Necessary

Provide a Custom Sheet Name

```
ods excel ...
```

```
options( ...
```

```
sheet_name='Custom Sheet Name');
```

```
/* max name length 28 characters */
```


sheet_name='Custom Sheet Name'

Custom Sheet Name



Title2 as hyperlink to elsewhere

```
ods excel ...  
    options(... sheet_name='Title2 Is Hyperlink');  
title1 . . .  
title2 justify=left bold color=blue underlin=1  
    link='http://www.wiilsu.org'  
    'Go to Wisconsin Illinois SAS Users Home Page';
```

(Link could be another WorkBook)

V94TS1M2_Demo5_Sat_30MAY2015_153117_928 - Microsoft Excel

10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom

[Go to Wisconsin Illinois SAS Users Home Page](#)

Region	Subsidiary	Product	Stores	Sales	Inventory	Returns
Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769
Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284
Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433
Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861
Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771
Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79
Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940
Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233
Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710
Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221

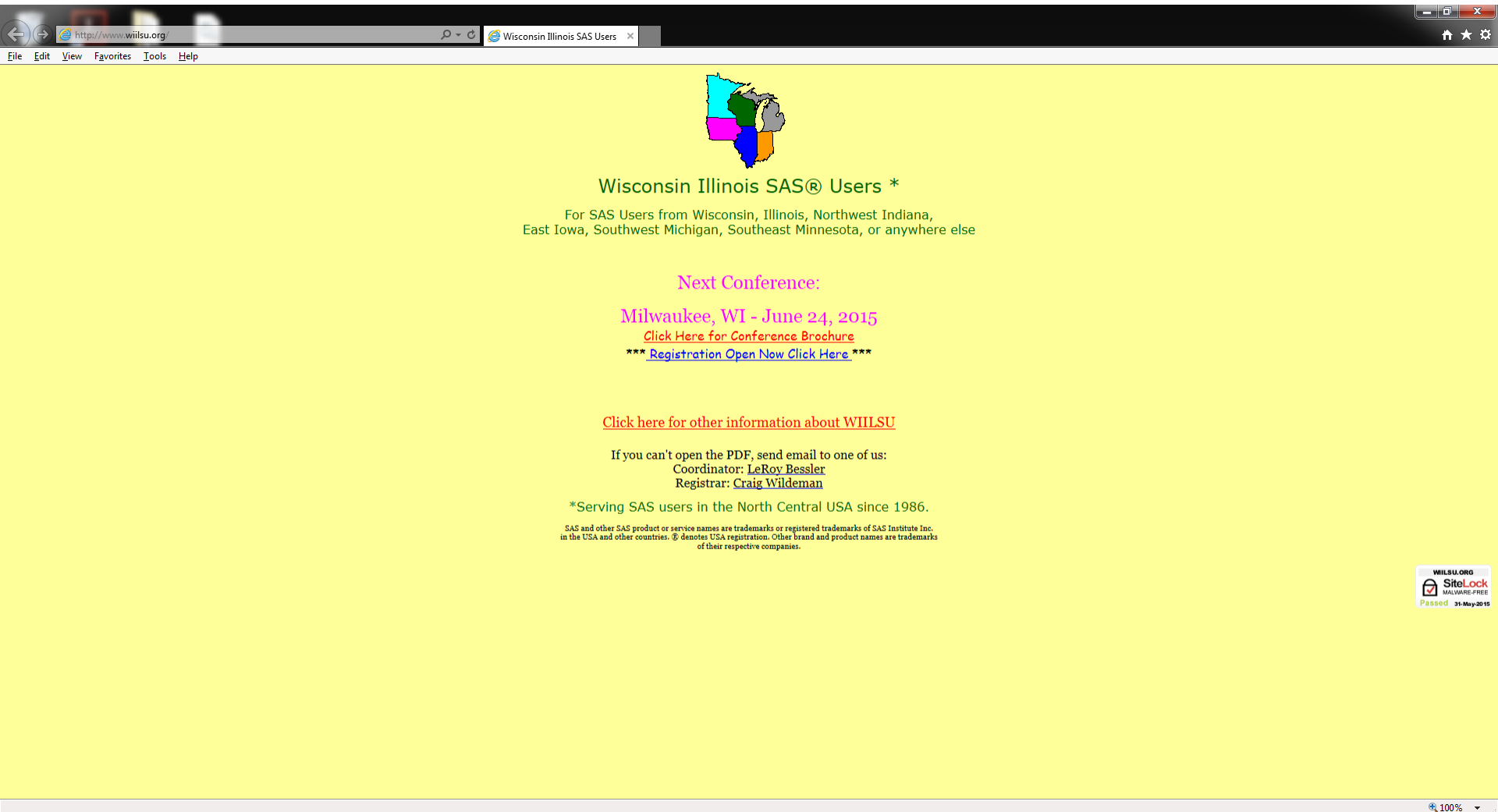
Source Data: SASHELP.SHOES

Code: D:!!! ODS Excel Destination\code\Demo5.sas

Run on: Saturday, 30 May 2015 at 3:31:17 PM

Title2 Is Hyperlink

After clicking the link in Title 2



frozen_headers='4' frozen_rowheaders='3'

V94TS1M2_Demo6_Sat_30MAY2015_153147_008 - Microsoft Excel

	A	B	C	D	E	F	G	H
1	10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom							
2	Go to Wisconsin Illinois SAS Users Home Page							
3								
4	Region	Subsidiary	Product	Stores	Sales	Inventory	Returns	
5	Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769	
6	Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284	
7	Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433	
8	Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861	
9	Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771	
10	Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79	
11	Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940	
12	Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233	
13	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710	
14	Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221	
15								
16	Source Data: SASHELP.SHOES							
17	Code: D:!!! ODS Excel Destination\code\Demo6.sas							
18	Run on: Saturday, 30 May 2015 at 3:31:47 PM							
19								
20								

Freeze Headers + RowHeaders

autofilter='1-4'

V94TS1M2_Demo7_Sat_30MAY2015_153216_262 - Microsoft Excel

	A	B	C	D	E	F	G	H
1	10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom							
2	<u>Go to Wisconsin Illinois SAS Users Home Page</u>							
3								
4	Region	Subsidiary	Product	Store	Sales	Inventory	Returns	
5	Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769	
6	Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284	
7	Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433	
8	Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861	
9	Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771	
10	Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79	
11	Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940	
12	Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233	
13	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710	
14	Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221	
15								
16	Source Data: SASHELP.SHOES							
17	Code: D:!!! ODS Excel Destination\code\Demo7.sas							
18	Run on: Saturday, 30 May 2015 at 3:32:16 PM							
19								
20								

AutoFilters Columns A-D

ByGroup Processing

```
ods excel . . . options( . . .  
    sheet_label='Sex'  
    sheet_interval='bygroup'  
    suppress_bylines='yes' );  
proc sort data=sasHELP.class  
    out=work.ToPrint;  
by sex;  
run;  
proc print data=work.ToPrint noobs;  
by sex;  
id name;  
run;  
ods excel close;
```

sheet_interval='bygroup' (opens "Sex - F")

V94TS1M2_Demo11_Sat_30MAY2015_153451_298 [Group] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Styles

Normal Bad Good Neutral Calcula...
Check Cell Explana... Hyperlink Input Linked ...

A1 Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom

	A	B	C	D	E	F	G	H	I	J
1	Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom									
2	<u>Go to Wisconsin Illinois SAS Users Home Page</u>									
3										
4	Name	Age	Height	Weight						
5	Alice	13	56.5	84.0						
6	Barbara	13	65.3	98.0						
7	Carol	14	62.8	102.5						
8	Jane	12	59.8	84.5						
9	Janet	15	62.5	112.5						
10	Joyce	11	51.3	50.5						
11	Judy	14	64.3	90.0						
12	Louise	12	56.3	77.0						
13	Mary	15	66.5	112.0						
14										
15	Source Data: SASHELP.CLASS									
16	Code: D:!!! ODS Excel Destination\code\Demo11.sas									
17	Run on: Saturday, 30 May 2015 at 3:34:51 PM									
18										
19										
20										
21										

Ready Sex - F Sex - M

After Clicking “Sex - M” tab

Microsoft Excel interface showing the "Sex - M" tab selected. The worksheet displays a table of student data and summary information.

Worksheet Title: Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom

Table 1: Student Data

Name	Age	Height	Weight
Alfred	14	69.0	112.5
Henry	14	63.5	102.5
James	12	57.3	83.0
Jeffrey	13	62.5	84.0
John	12	59.0	99.5
Philip	16	72.0	150.0
Robert	12	64.8	128.0
Ronald	15	67.0	133.0
Thomas	11	57.5	85.0
William	15	66.5	112.0

Summary Information:

- Source Data: SASHELP.CLASS
- Code: D:!!! ODS Excel Destination\code\Demo11.sas
- Run on: Saturday, 30 May 2015 at 3:34:51 PM

Navigation: Go to Wisconsin Illinois SAS Users Home Page

WorkBook with color-coded WorkSheet tabs

At WorkBook Open & After, worksheet tabs have only a tinge of color at their bottom.

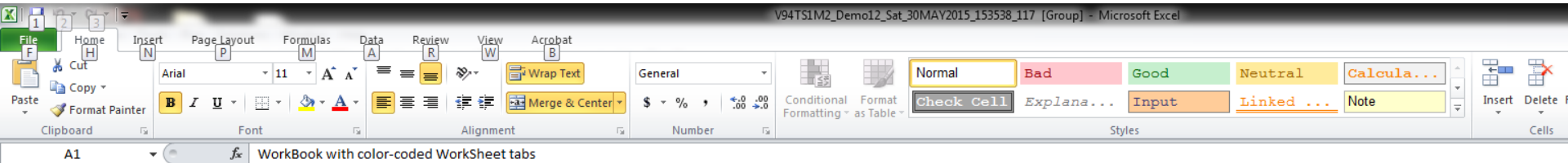
After either Sheet tab has been pressed, the InActive sheet tab is fully colored.

Possible Rationale: Maximize readability of text on the Active tab. If dark enough colors are unwisely chosen, text on the Active tab would be hard to read.

Color-Coded WorkSheet Tabs

```
ods excel ...  
    options(... sheet_interval='proc');  
ods excel options( sheet_name='Girls'  
    tab_color='LightRed');  
title4 ...  
proc print data=sashelp.class noobs;  
where sex eq 'F'; id name; run;  
ods excel options( sheet_name='Boys'  
    tab_color='LightBlue');  
title4 ...  
proc print data=sashelp.class noobs;  
where sex eq 'M'; id name; run;  
ods excel close;
```

tab_color - At Initial Open of WorkBook



	A	B	C	D	E	F	G	H	I	J
--	---	---	---	---	---	---	---	---	---	---

1 **WorkBook with color-coded WorkSheet tabs**

2 **At WorkBook Open & After, the Active Sheet tab has only a tinge of color at its bottom**

3 **After either Sheet tab has been pressed, the InActive sheet tab is fully colored**

4 **Female Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom**

	Name	Sex	Age	Height	Weight
6	Alice	F	13	56.5	84.0
7	Barbara	F	13	65.3	98.0
8	Carol	F	14	62.8	102.5
9	Jane	F	12	59.8	84.5
10	Janet	F	15	62.5	112.5
11	Joyce	F	11	51.3	50.5
12	Judy	F	14	64.3	90.0
13	Louise	F	12	56.3	77.0
14	Mary	F	15	66.5	112.0

16

17 **Source Data: SASHELP.CLASS**

18 **Code: D:!! ODS Excel Destination\code\Demo12.sas**

19 **Run on: Saturday, 30 May 2015 at 3:35:38 PM**

20

Tab Colors at Initial Open

Only a tinge of color at bottom of tabs



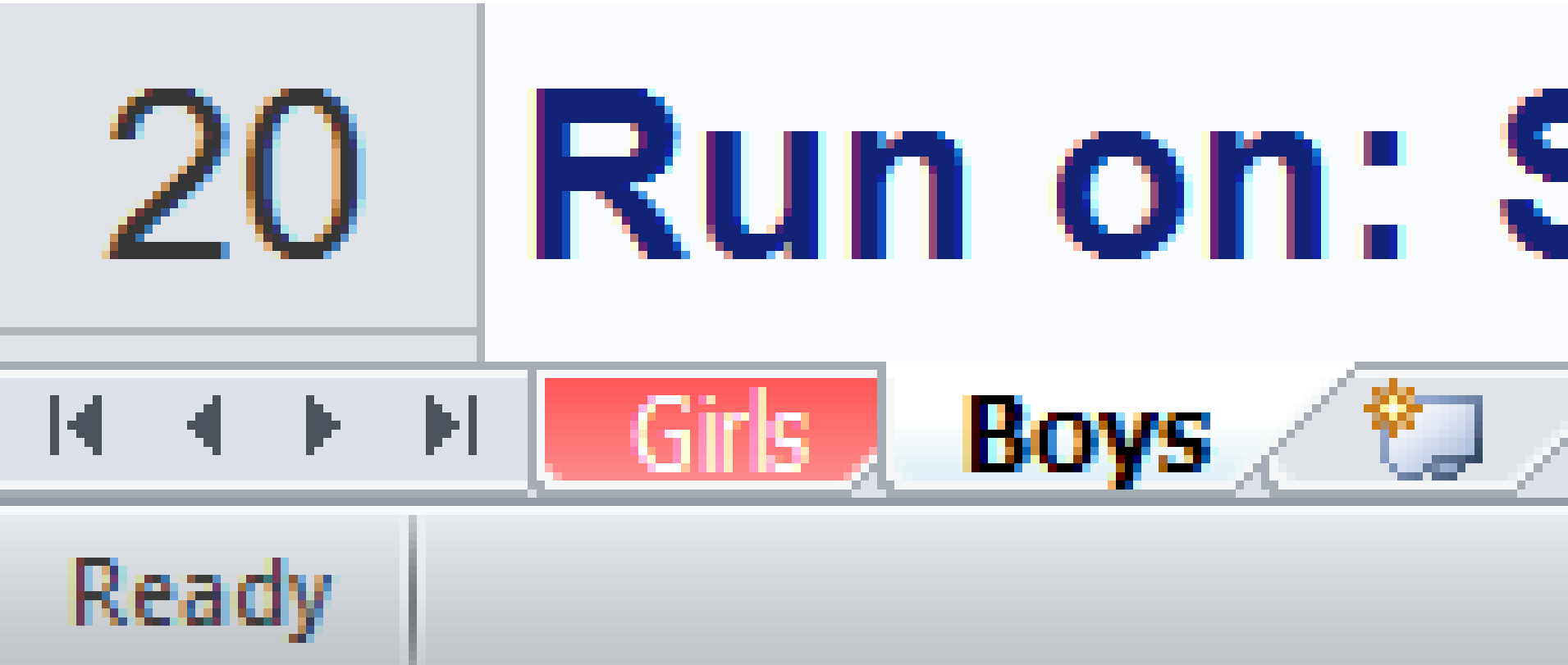
tab_color – After Clicking on Boys Tab

The screenshot shows the Microsoft Excel interface. The title bar indicates the file is 'V94TS1M2_Demo12_Sat_30MAY2015_153538_117 - Microsoft Excel'. The ribbon is set to the 'Home' tab. The worksheet is named 'WorkBook with color-coded WorkSheet tabs'. The 'Boys' tab is selected and highlighted in blue. The spreadsheet content is as follows:

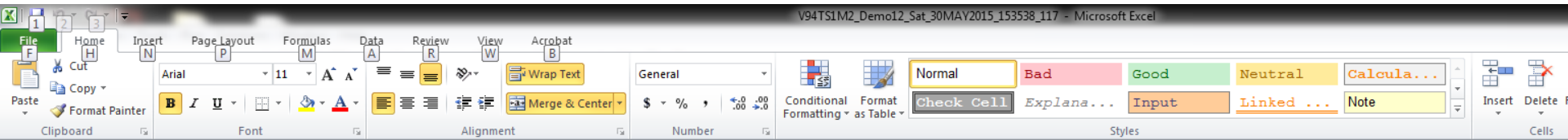
	A	B	C	D	E	F	G	H	I	J
1	WorkBook with color-coded WorkSheet tabs									
2	At WorkBook Open & After, the Active Sheet tab has only a tinge of color at its bottom									
3	After either Sheet tab has been pressed, the InActive sheet tab is fully colored									
4	Male Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom									
5										
6	Name	Sex	Age	Height	Weight					
7	Alfred	M	14	69.0	112.5					
8	Henry	M	14	63.5	102.5					
9	James	M	12	57.3	83.0					
10	Jeffrey	M	13	62.5	84.0					
11	John	M	12	59.0	99.5					
12	Philip	M	16	72.0	150.0					
13	Robert	M	12	64.8	128.0					
14	Ronald	M	15	67.0	133.0					
15	Thomas	M	11	57.5	85.0					
16	William	M	15	66.5	112.0					
17										
18	Source Data: SASHELP.CLASS									
19	Code: D:\! ! ! ODS Excel Destination\code\Demo12.sas									
20	Run on: Saturday, 30 May 2015 at 3:35:38 PM									

The status bar at the bottom shows 'Ready' and the active sheet is 'Boys'.

Tab Colors after Clicking on the Boys Tab



tab_color - After Clicking Back to Girls Tab



Workbook with color-coded Worksheet tabs

A B C D E F G H I J

1 **Workbook with color-coded Worksheet tabs**

2 **At Workbook Open & After, the Active Sheet tab has only a tinge of color at its bottom**

3 **After either Sheet tab has been pressed, the InActive sheet tab is fully colored**

4 **Female Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom**

5

6 **Name Sex Age Height Weight**

7 **Alice** F 13 56.5 84.0

8 **Barbara** F 13 65.3 98.0

9 **Carol** F 14 62.8 102.5

10 **Jane** F 12 59.8 84.5

11 **Janet** F 15 62.5 112.5

12 **Joyce** F 11 51.3 50.5

13 **Judy** F 14 64.3 90.0

14 **Louise** F 12 56.3 77.0

15 **Mary** F 15 66.5 112.0

16

17 **Source Data: SASHELP.CLASS**

18 **Code: D:\!!! ODS Excel Destination\code\Demo12.sas**

19 **Run on: Saturday, 30 May 2015 at 3:35:38 PM**

20

Ready Girls Boys

Tab Colors after Clicking back to Girls Tab



Provide an Index for the WorkBook

```
ods excel . . .  
    options(sheet_interval='proc' index='yes' ...);  
title1 ...;  
ods excel options(sheet_name='Girls');  
title2 justify=left bold "Female Students ... ";  
proc print data=sashelp.class noobs;  
where sex eq 'F'; id name; run;  
ods excel options(sheet_name='Boys');  
title2 justify=left bold "Male Students ... ";  
proc print data=sashelp.class noobs;  
where sex eq 'M'; id name; run;  
ods excel close;
```

index='yes' - efficient and informative

V94TS1M2_Demo14_Sat_30MAY2015_153658_873 [Group] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Styles Cells

Normal Bad Good Neutral Calcula...
Check Cell Explana... Hyperlink Input Linked ...

	A	B	C	D	E	F	G	H
1	Girls							
2	Boys							
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								

Index Girls Boys

Ready

After Clicking on “Girls” in the Index

Microsoft Excel interface showing the workbook "WorkBook with an Index". The active sheet is "Girls". The data displayed is as follows:

	A	B	C	D	E	F	G	H	I	J
1	WorkBook with an Index									
2	Female Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 220% Zoom									
3										
4	Name	Sex	Age	Height	Weight					
5	Alice	F	13	56.5	84.0					
6	Barbara	F	13	65.3	98.0					
7	Carol	F	14	62.8	102.5					
8	Jane	F	12	59.8	84.5					
9	Janet	F	15	62.5	112.5					
10	Joyce	F	11	51.3	50.5					
11	Judy	F	14	64.3	90.0					
12	Louise	F	12	56.3	77.0					
13	Mary	F	15	66.5	112.0					
14										
15	Source Data: SASHELP.CLASS									
16	Code: D:\!!! ODS Excel Destination\code\Demo14.sas									
17	Run on: Saturday, 30 May 2015 at 3:36:58 PM									
18										
19										
20										

The bottom of the interface shows the worksheet tabs: Index, **Girls**, Boys.

Table & Plot on Separate Sheets

```
ods excel . . . options( . . .  
sheet_interval='proc' );  
ods excel options( sheet_name='Class Listing' ) ;  
title1 . . . ;  
proc print data=sashelp.class noobs; id name;  
run;  
ods excel options( sheet_name='Plot Wgt vs Hgt' )  
    gtitle gfootnote ; /* imbed text in image */  
goptions . . . ; title1 . . . ;  
proc gplot data=sashelp.class;  
plot weight*height; run; quit;  
ods excel close;
```

Table and Graph on Separate WorkSheets

V94TS1M2_Demo16_Sat_30MAY2015_153806_818 [Group] - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Styles

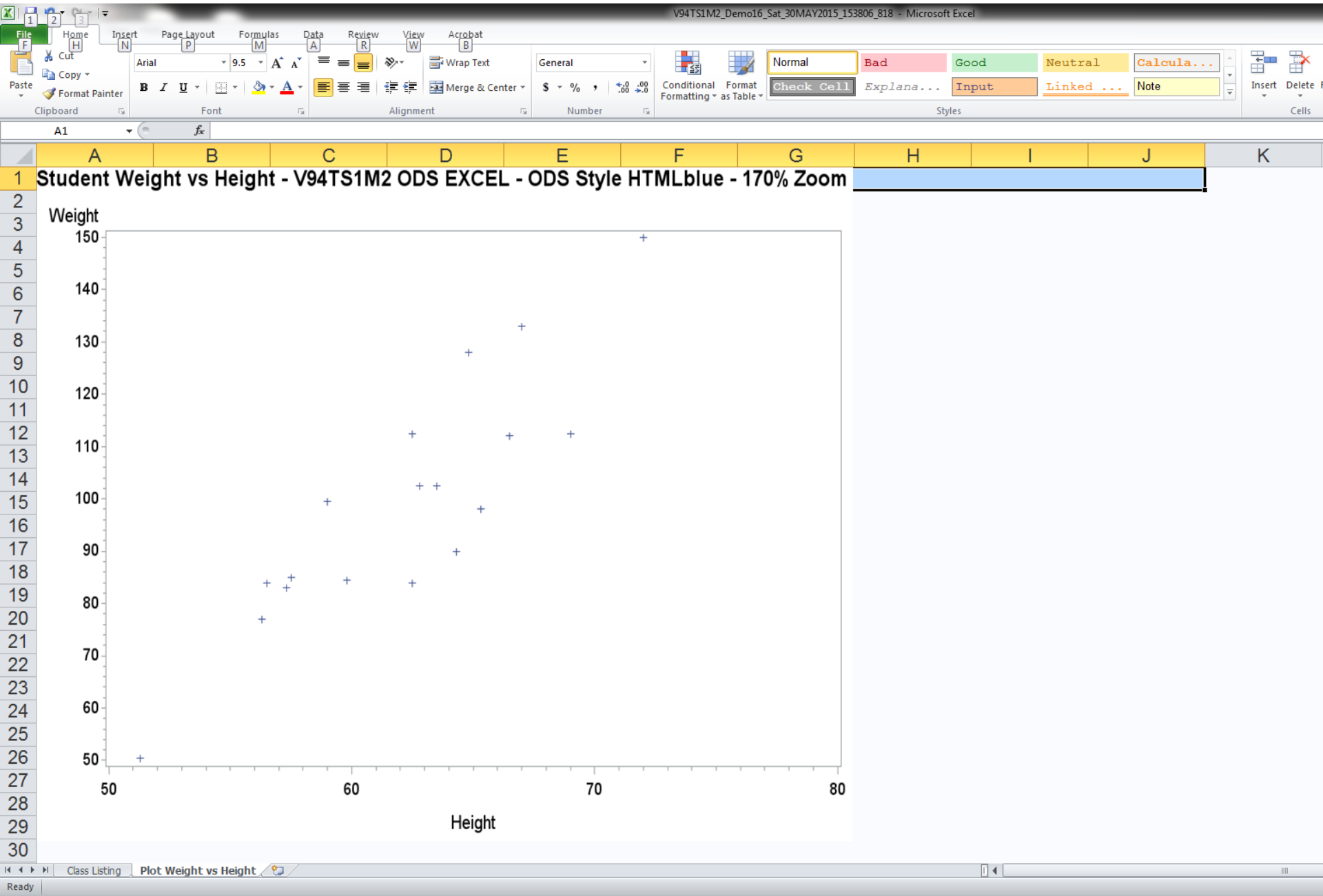
A1 List of Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 170% Zoom

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	List of Students - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 170% Zoom												
2													
3	Name	Sex	Age	Height	Weight								
4	Alfred	M	14	69.0	112.5								
5	Alice	F	13	56.5	84.0								
6	Barbara	F	13	65.3	98.0								
7	Carol	F	14	62.8	102.5								
8	Henry	M	14	63.5	102.5								
9	James	M	12	57.3	83.0								
10	Jane	F	12	59.8	84.5								
11	Janet	F	15	62.5	112.5								
12	Jeffrey	M	13	62.5	84.0								
13	John	M	12	59.0	99.5								
14	Joyce	F	11	51.3	50.5								
15	Judy	F	14	64.3	90.0								
16	Louise	F	12	56.3	77.0								
17	Mary	F	15	66.5	112.0								
18	Philip	M	16	72.0	150.0								
19	Robert	M	12	64.8	128.0								
20	Ronald	M	15	67.0	133.0								
21	Thomas	M	11	57.5	85.0								
22	William	M	15	66.5	112.0								
23													
24	Source Data: SASHELP.CLASS												
25	Code: D:\! ! ODS Excel Destination\code\Demo16.sas												
26	Run on: Saturday, 30 May 2015 at 3:38:06 PM												

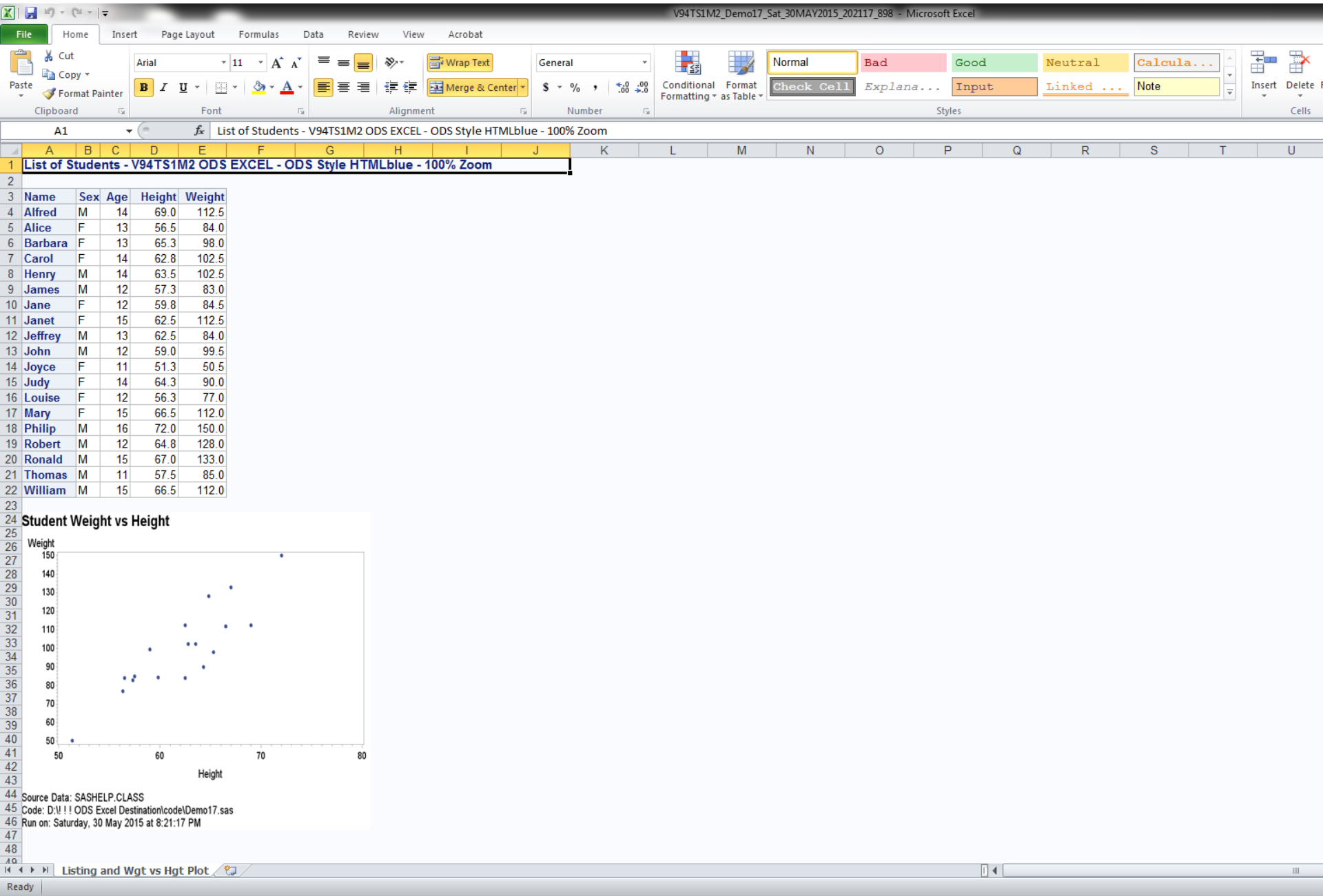
Class Listing Plot Weight vs Height

Ready

After Clicking the Plot Weight vs Height Tab



sheet_interval='none' Table + Graph



PROC with Multiple Outputs

sheet_interval option

sheet_interval='output' - UNIVARIATE Output 1

Univariate Statistics for Student Weight - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 210% Zoom			
Variable: Weight			
Moments			
N	19	Sum Weights	19
Mean	100.026316	Sum Observations	1900.5
Std Deviation	22.7739335	Variance	518.652047
Skewness	0.18335097	Kurtosis	0.68336484
Uncorrected SS	199435.75	Corrected SS	9335.73684
Coeff Variation	22.7679419	Std Error Mean	5.22469867
Source Data: SASHELP.CLASS			
Code: D:!! !! ODS Excel Destination\code\Demo19.sas			
Run on: Saturday, 30 May 2015 at 9:04:35 PM			

UNIVARIATE Output 2 on Separate WorkSheet

V94TS1M2_Demo19_Sat_30MAY2015_210435_607 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Styles

A1 Univariate Statistics for Student Weight - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 210% Zoom

	A	B	C	D	E	F	G	H
1	Univariate Statistics for Student Weight - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 210% Zoom							
2								
3								
4								
5	Basic Statistical Measures							
6	Location		Variability					
7	Mean	100.0263	Std Deviation	22.77393				
8	Median	99.5000	Variance	518.65205				
9	Mode	84.0000	Range	99.50000				
10			Interquartile Range	28.50000				
11								
12	he smallest of 4 modes with a count of 2.							
13								
14	Source Data: SASHELP.CLASS							
15	Code: D:!! ODS Excel Destination\code\Demo19.sas							
16	Run on: Saturday, 30 May 2015 at 9:04:35 PM							
17								
18								
19								
20								
21								
22								

Table 1 - Moments Table 2 - Basic Measures of Table 3 - Tests For Location Table 4 - Quantiles Table 5 - Extreme Observations

Ready

UNIVARIATE Output 3 on Separate WorkSheet

V94TS1M2_Demo19_Sat_30MAY2015_210435_607 - Microsoft Excel

Univariate Statistics for Student Weight - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 210% Zoom

Variable: Weight

Tests for Location: Mu0=0				
Test	Statistic		p Value	
Student's t	t	19.1449	Pr > t	<.0001
Sign	M	9.5	Pr >= M	<.0001
Signed Rank	S	95	Pr >= S	<.0001

Source Data: SASHELP.CLASS

Code: D:\!!! ODS Excel Destination\code\Demo19.sas

Run on: Saturday, 30 May 2015 at 9:04:35 PM

Table 1 - Moments Table 2 - Basic Measures of **Table 3 - Tests For Location** Table 4 - Quantiles Table 5 - Extreme Observatio

UNIVARIATE Output 4 on Separate WorkSheet

Variable: Weight

Level	Quantile
100% Max	150.0
99%	150.0
95%	150.0
90%	133.0
75% Q3	112.5
50% Median	99.5
25% Q1	84.0
10%	77.0
5%	50.5
1%	50.5
0% Min	50.5

Source Data: SASHELP.CLASS
 Code: D:!! ODS Excel Destination\code\Demo19.sas
 Run on: Saturday, 30 May 2015 at 9:04:35 PM

UNIVARIATE Output 5 on Separate WorkSheet

V94TS1M2_Demo19_Sat_30MAY2015_210435_607 - Microsoft Excel

Univariate Statistics for Student Weight - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 210% Zoom

Variable: Weight

Extreme Observations				
Lowest		Highest		
Value	Obs	Value	Obs	
50.5	11	112.5	1	
77.0	13	112.5	8	
83.0	6	128.0	16	
84.0	9	133.0	17	
84.0	2	150.0	15	

Source Data: SASHELP.CLASS

Code: D:!! ODS Excel Destination\code\Demo19.sas

Run on: Saturday, 30 May 2015 at 9:04:35 PM

Table 1 - Moments Table 2 - Basic Measures of Table 3 - Tests For Location Table 4 - Quantiles Table 5 - Extreme Observatio

PROC UNIVARIATE - sheet_interval='none'

V94TS1M2_Demo20_Sat_30MAY2015_154213_954 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Paste Copy Format Painter Clipboard Font Alignment Number Conditional Formatting Format as Table Styles Insert Delete Cells

A1 Univariate Statistics for Student Weight - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 85% Zoom

Univariate Statistics for Student Weight - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 85% Zoom

Variable: Weight

Moments			
N	19	Sum Weights	19
Mean	100.026316	Sum Observations	1900.5
Std Deviation	22.7739335	Variance	518.652047
Skewness	0.18335097	Kurtosis	0.68336484
Uncorrected SS	199435.75	Corrected SS	9335.73684
Coeff Variation	22.7679419	Std Error Mean	5.22469867

Basic Statistical Measures			
Location		Variability	
Mean	100.0263	Std Deviation	22.77393
Median	99.5000	Variance	518.65205
Mode	84.0000	Range	99.50000
		Interquartile Range	28.50000

the smallest of 4 modes with a count of 2.

Tests for Location: Mu0=0			
Test	Statistic		p Value
Student's t	t	19.1449	Pr > t <.0001
Sign	M	9.5	Pr >= M <.0001
Signed Rank	S	95	Pr >= S <.0001

Quantiles (Definition 5)	
Level	Quantile
100% Max	150.0
99%	150.0
95%	150.0
90%	133.0
75% Q3	112.5
50% Median	99.5
25% Q1	84.0
10%	77.0
5%	50.5
1%	50.5
0% Min	50.5

Extreme Observations			
Lowest		Highest	
Value	Obs	Value	Obs
50.5	11	112.5	1
77.0	13	112.5	8
83.0	6	128.0	16
84.0	9	133.0	17
84.0	2	150.0	15

Source Data: SASHELP.CLASS
Code: D:\ !! ODS Excel Destination\code\Demo20.sas
Run on: Saturday, 30 May 2015 at 3:42:13 PM

Sheet 1

Ready

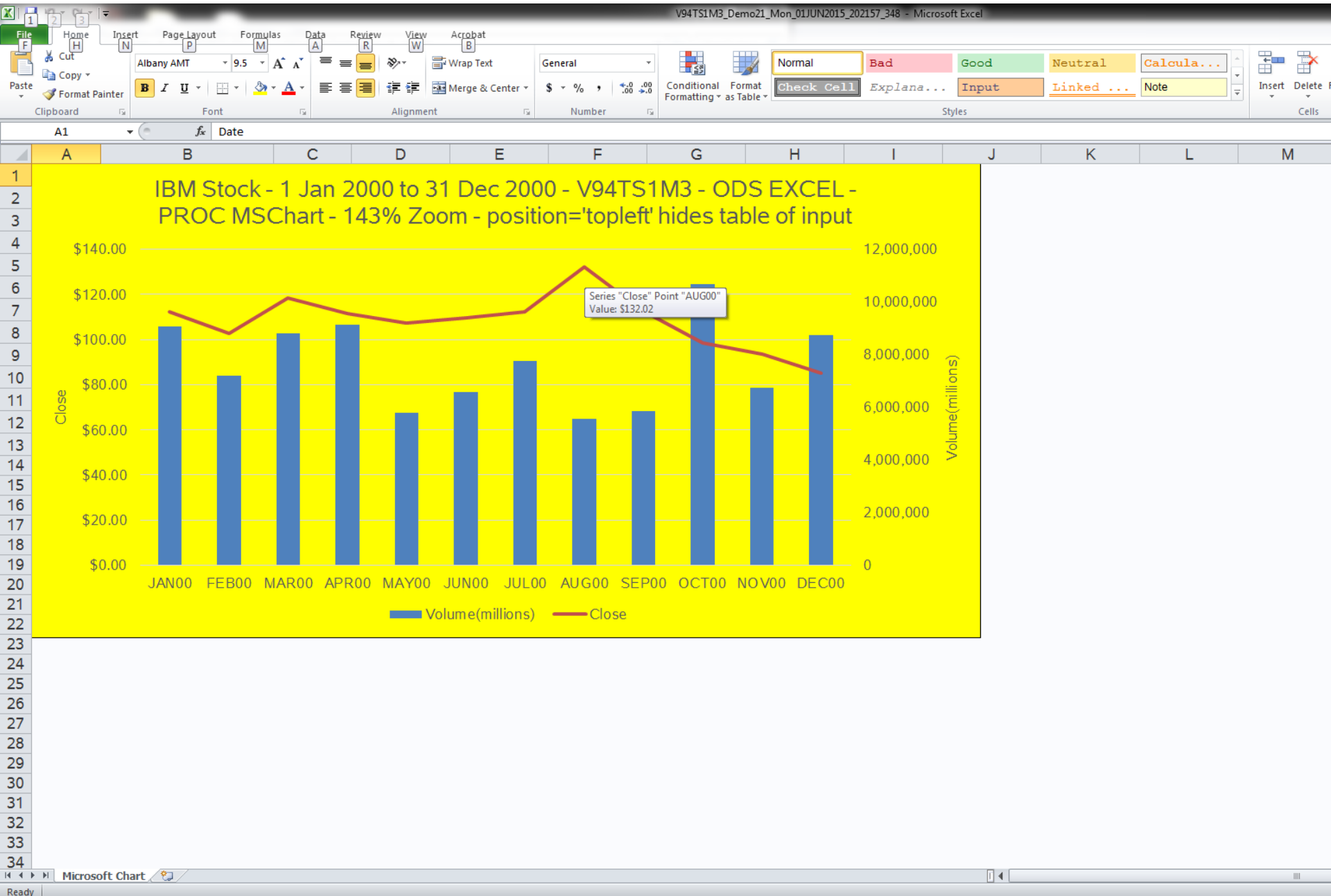
PROC MSChart – TS1M3

```
proc sort out=work.stocks data=sasHELP.stocks
  (where=((stock="IBM") and ('01Jan00'd LE date LE
'31dec00'd))); by date; run;
ods excel file="C:\MicrosoftChart.xlsx"
options(zoom="143" sheet_name='Microsoft Chart');
title "... position='topleft' hides input table";
proc mschart data=work.stocks category=date
  width=8in height=4in position="topleft";
  < chart control statements here >
run; ods excel close;
/* If you reduce chart height enough,
   the bottom of the table peeks out. */
/* If you don't sort the input by date,
   the chart is amazingly drawn backward. */
```

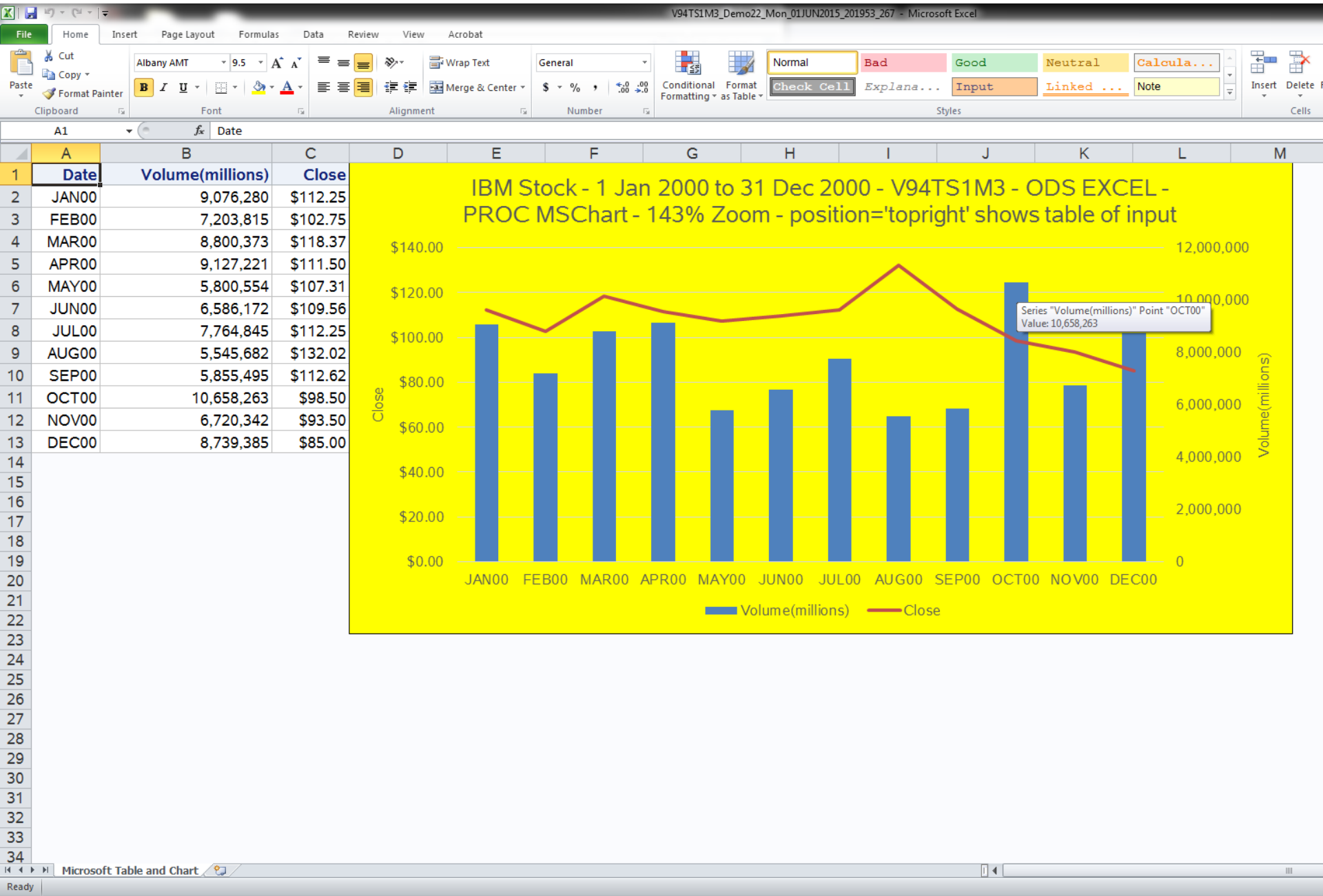
PROC MSChart – TS1M3

```
/* chart control statements: */  
chartattrs nowall  
    borderattrs =(type=solid solid_color=black)  
    backfillattrs=(type=solid solid_color=yellow);  
vcolumn volume / secondary;  
line close;  
categoryaxis type=date;  
primaryaxis title;  
secondaryaxis title;  
format date monyy5.;  
label close = 'Close';  
label volume = 'Volume(millions)';
```

chart supports “data tips”



position="topright" reveals input data table



The Table from PROC MSChart

- With position="topleft",
IF the table is short enough, you can hide it,
IF you regard it as unwanted.
- **I like the companion table,**
except if a standalone graph is mandatory.
- I have long said:
Image + Precise Numbers =
quick, easy inference + reliable inference
- The developer reported that a future release of PROC MSCHART will allow the table to be retained or suppressed.

Moving the upper left corner

```
options( start_at='3,2'  
        sheet_name='Start Content at Col3Row2'  
        embedded_titles='yes'  
        embedded_footnotes='yes'  
        title_footnote_width='8'  
        absolute_row_height='14'  
        zoom="&ZoomPct"  
        frozen_headers='4'  
        frozen_rowheaders='3'  
        autofilter='1-4' );
```

TS1M2 start_at='3,2' like TS1M3 fails

- Numerous ERRORS appear in SAS log.
- The output workbook is unusable.

TS1M2 start_at='C2' succeeds

V94TS1M2_Demo9_TS1M2_Thu_04JUN2015_210956_397 - Microsoft Excel

	A	B	C	D	E	F	G	H	I
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									

10 Obs - Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue -
[Go to Wisconsin Illinois SAS Users Home Page](#)

Region	Subsidiary	Product	Stores	Sales	Inventory	Return
Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$
Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2
Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2
Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1
Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1
Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	
Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$
Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3
Africa	Algiers	Boot	21	\$21,297	\$73,737	\$
Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2

Source Data: SASHELP.SHOES
Code: D:!!! ODS Excel Destination\code\Demo9_TS1M2.sas
Run on: Thursday, 4 June 2015 at 9:09:56 PM

Start Content at ColCRow2

TS1M3 start_at='3,2'

V94TS1M3_Demo9_Sat_30MAY2015_192155_212 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Styles

F6 12

10 Obs - Shoe Sales - V94TS1M3 ODS EXCEL - ODS Style HTMLblue - 170% Zoom
[Go to Wisconsin Illinois SAS Users Home Page](#)

Region	Subsidiary	Product	Store	Sales	Inventory	Returns
Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769
Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284
Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433
Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861
Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771
Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79
Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940
Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233
Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710
Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221

Source Data: SASHELP.SHOES
 Code: /folders/myfolders/!!! ODS Excel Destination/code/Demo9.sas
 Run on: Saturday, 30 May 2015 at 7:21:55 PM

Start Content at Col3Row2

TS1M3 start_at='C2' (like TS1M2) Fails

V94TS1M3_Demo9_TS1M3TryStartAtLikeTS1M2_Thu_04JUN2015_203146_842 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Styles

F6 118036

	A	B	C	D	E	F	G	H	I	J	K
1	10 Obs - Shoe Sales - V94TS1M3 ODS EXCEL - ODS Style HTMLblue - 170% Zoom										
2	Go to Wisconsin Illinois SAS Users Home Page										
3											
4	Region	Subsidiary	Product	Store	Sales	Inventory	Returns				
5	Africa	Addis Ababa	Boot	12	\$29,761	\$191,821	\$769				
6	Africa	Addis Ababa	Men's Casual	4	\$67,242	\$118,036	\$2,284				
7	Africa	Addis Ababa	Men's Dress	7	\$76,793	\$136,273	\$2,433				
8	Africa	Addis Ababa	Sandal	10	\$62,819	\$204,284	\$1,861				
9	Africa	Addis Ababa	Slipper	14	\$68,641	\$279,795	\$1,771				
10	Africa	Addis Ababa	Sport Shoe	4	\$1,690	\$16,634	\$79				
11	Africa	Addis Ababa	Women's Casual	2	\$51,541	\$98,641	\$940				
12	Africa	Addis Ababa	Women's Dress	12	\$108,942	\$311,017	\$3,233				
13	Africa	Algiers	Boot	21	\$21,297	\$73,737	\$710				
14	Africa	Algiers	Men's Casual	4	\$63,206	\$100,982	\$2,221				
15											
16	Source Data: SASHELP.SHOES										
17	Code: /folders/myfolders/!!! ODS Excel Destination/code/Demo9_TS1M3TryStartAtLikeTS1M2.sas										
18	Run on: Thursday, 4 June 2015 at 8:31:46 PM										
19											
20											
21											
22											
23											
24											
25											
26											
27											

Start Content at ColCRow2

Ready

Moving the upper left corner

TS1M2: use Start_At=(C2) for Column C Row 2

TS1M3: use Start_At=(3,2) for Column 3 Row 2

The Limits of Start_At

```
/* It can be used only once in a spreadsheet with
any effect. The code below delivers the second
table below the first table, not to its right,
as clearly desired by the start_at value. */
ods excel . . . options(embedded_titles='yes'
                        sheet_interval='none');
ods excel options(start_at='A1');
title1 justify=left bold "Student Heights";
proc print data=sashelp.class noobs;
var name height; run;;
ods excel options(start_at='D1');
title1 justify=left bold "Student Weights";
proc print data=sashelp.class noobs;
var name weight; run;
ods excel close;
```

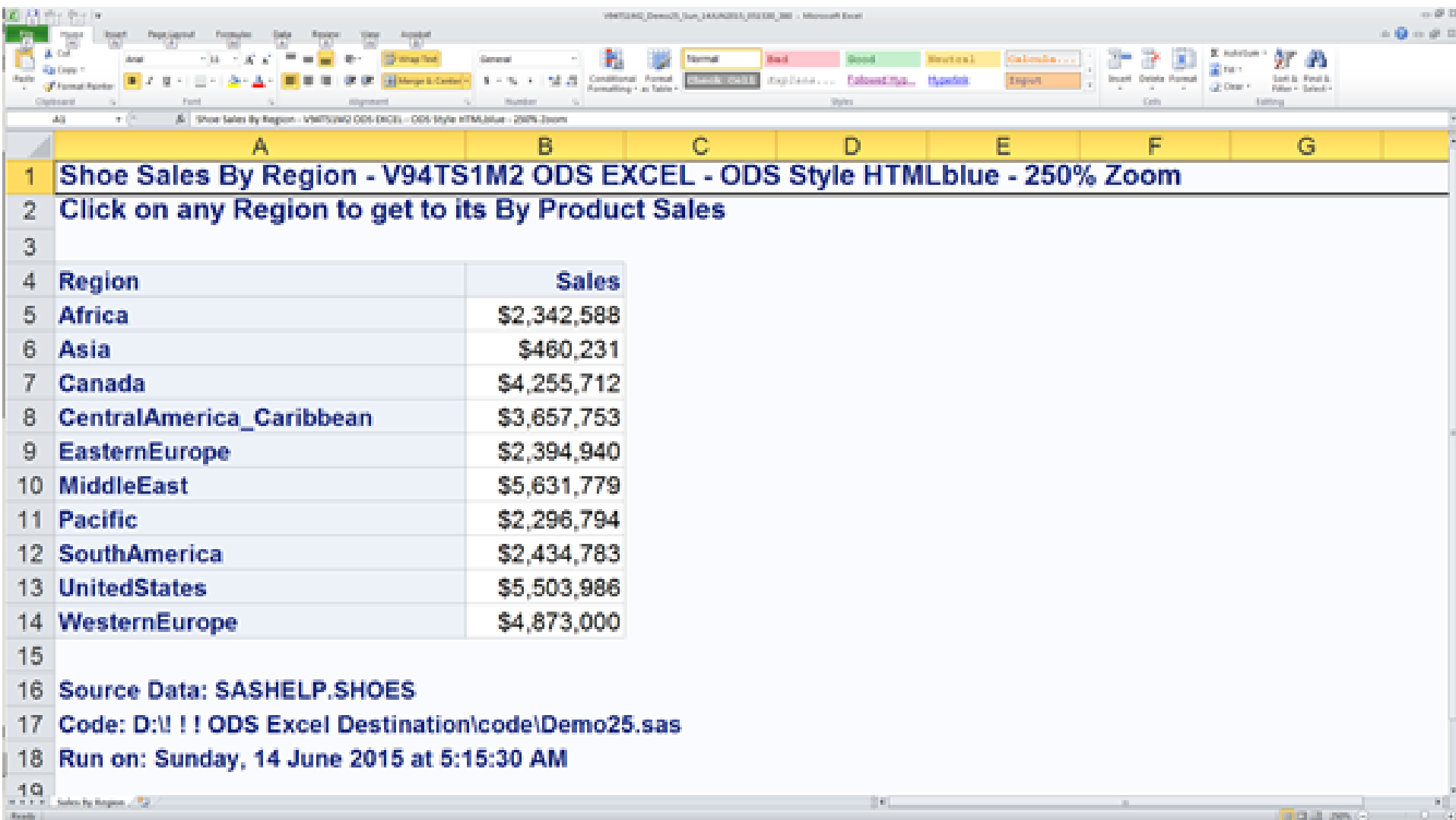
Alternative to an Index

- With an index, when you are in a sheet at the far right, the index tab, IF you have created an index, can be accessed with full scroll left arrow at the bottom left of the workbook
- I like a workbook with all tabs viewable without scrolling (and with meaningful sheet labels)
- I had a project where one summary spreadsheet had dozens or hundreds of related detail spreadsheets
- Following is the Bessler UNindex solution
- See the paper for the code

The Bessler UNindex Solution

- In a summary workbook, the summarization key values can be made into hyperlinks to corresponding workbooks of their detail
- NOTE: at least one ODS tagset does not support hyperlinks from table cells
- However, ODS Excel does support hyperlinks in table cells
- Here is how the solution works . . .

Summary WorkBook



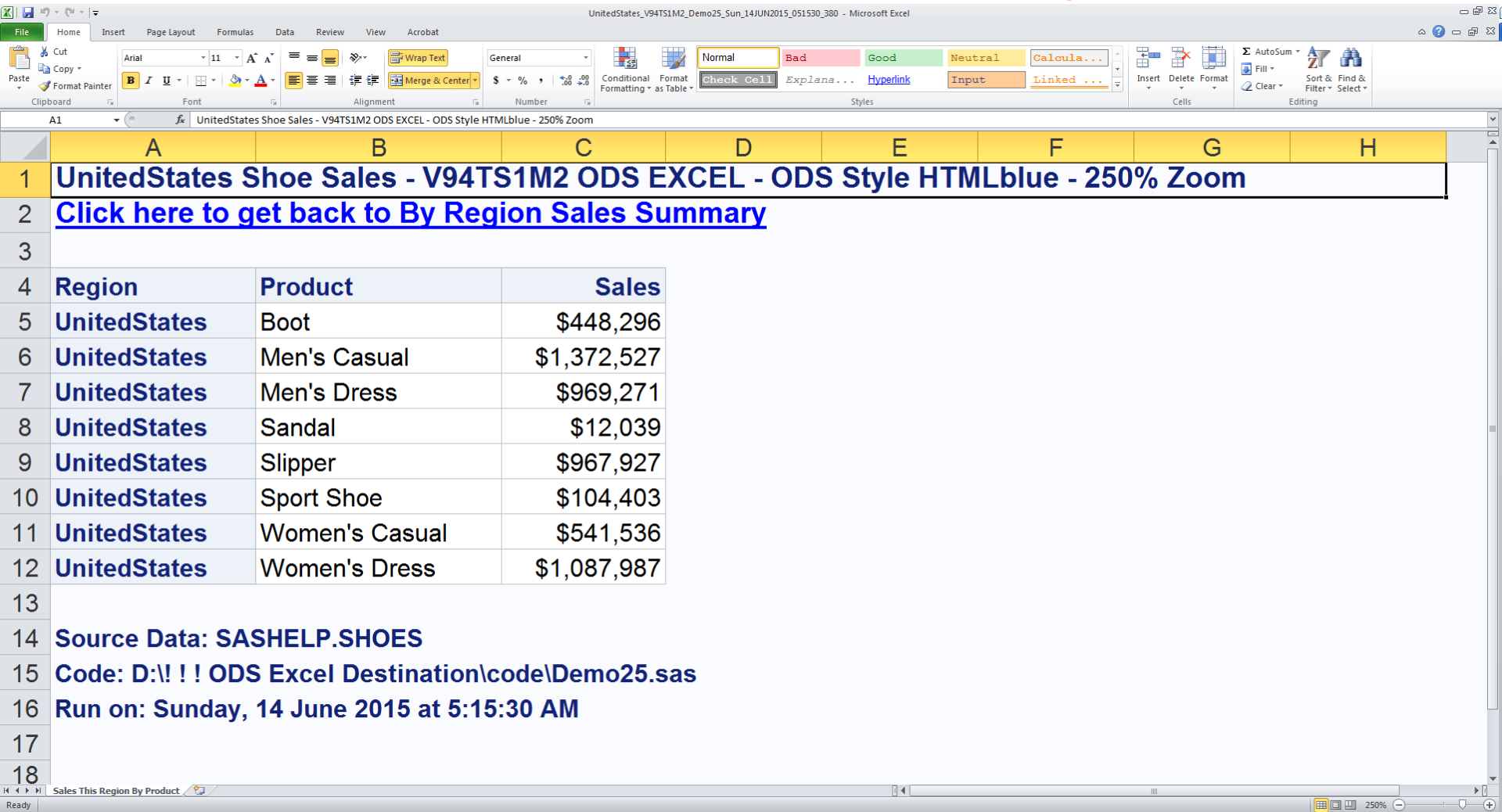
The screenshot shows a Microsoft Excel spreadsheet with the following content:

	A	B	C	D	E	F	G
1	Shoe Sales By Region - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom						
2	Click on any Region to get to its By Product Sales						
3							
4	Region	Sales					
5	Africa	\$2,342,588					
6	Asia	\$460,231					
7	Canada	\$4,255,712					
8	CentralAmerica_Caribbean	\$3,657,753					
9	EasternEurope	\$2,394,940					
10	MiddleEast	\$5,631,779					
11	Pacific	\$2,296,794					
12	SouthAmerica	\$2,434,783					
13	UnitedStates	\$5,503,986					
14	WesternEurope	\$4,873,000					
15							
16	Source Data: SASHELP.SHOES						
17	Code: D:\! ! ! ODS Excel Destination\code\Demo25.sas						
18	Run on: Sunday, 14 June 2015 at 5:15:30 AM						
19							

The status bar at the bottom of the Excel window shows 'Ready' and '250% Zoom'.

After Clicking United States cell in the Summary

Note the link back to the Summary Workbook



UnitedStates_V94TS1M2_Demo25_Sun_14JUN2015_051530_380 - Microsoft Excel

UnitedStates Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom

Region	Product	Sales
UnitedStates	Boot	\$448,296
UnitedStates	Men's Casual	\$1,372,527
UnitedStates	Men's Dress	\$969,271
UnitedStates	Sandal	\$12,039
UnitedStates	Slipper	\$967,927
UnitedStates	Sport Shoe	\$104,403
UnitedStates	Women's Casual	\$541,536
UnitedStates	Women's Dress	\$1,087,987

Source Data: SASHELP.SHOES
Code: D:\! ! ! ODS Excel Destination\code\Demo25.sas
Run on: Sunday, 14 June 2015 at 5:15:30 AM

Index Solution for the Same Data

- Much of the coding for the **UNindex** solution is adaptable the ODS Excel Index solution, with omissions of no longer needed code, and with a few rearrangements and minor option changes
- **See the paper for the code**
- Here is how the solution works . . .

Index WorkSheet

Total Sales By Region						G	H	I
1	Total Sales By Region							
2	Africa							
3	Asia							
4	Canada							
5	CentralAmerica_Caribbean							
6	EasternEurope							
7	MiddleEast							
8	Pacific							
9	SouthAmerica							
10	UnitedStates							
11	WesternEurope							
12								
13								
14								
15								
16								
17								
18								

After Clicking Total Sales By Region in the Index Or Clicking Directly on that WorkSheet tab

File

Home

Insert

Page Layout

Formulas

Data

Review

View

Acrobat

Cut

Copy

Paste

Format Painter

Clipboard

Arial

11

Wrap Text

Merge & Center

General

\$

%

Conditional Formatting

Format as Table

Normal

Bad

Good

Neutral

Calcula...

Check Cell

Explana...

Followed Hyp...

Hyperlink

Input

Insert

Delete

Format

AutoSum

Fill

Clear

Sort & Filter

Find & Select

Cells

Editing

A1

fx

Shoe Sales By Region - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom

	A	B	C	D	E	F	G
1	Shoe Sales By Region - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom						
2							
3	Region	Sales					
4	Africa	\$2,342,588					
5	Asia	\$460,231					
6	Canada	\$4,255,712					
7	CentralAmerica_Caribbean	\$3,657,753					
8	EasternEurope	\$2,394,940					
9	MiddleEast	\$5,631,779					
10	Pacific	\$2,296,794					
11	SouthAmerica	\$2,434,783					
12	UnitedStates	\$5,503,986					
13	WesternEurope	\$4,873,000					
14							
15	Source Data: SASHELP.SHOES						
16	Code: D:!! ODS Excel Destination\code\Demo26.sas						
17	Run on: Sunday, 14 June 2015 at 6:41:33 PM						
18							

Index

Total Sales By Region

Africa

Asia

Canada

CentralAmerica_Caribbean

EasternEurope

MiddleEast

Pacific

SouthAmerica

UnitedStates

WesternEurope

Ready

250%

After Returning to Index and Clicking Entry Or Clicking Directly on United States Sheet tab

Microsoft Excel - V94TS1M2_Demo26_Sun_14JUN2015_184133_333

UnitedStates Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom

	A	B	C	D	E	F	G	H
1	UnitedStates Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom							
2								
3	Region	Product	Sales					
4	UnitedStates	Boot	\$448,296					
5	UnitedStates	Men's Casual	\$1,372,527					
6	UnitedStates	Men's Dress	\$969,271					
7	UnitedStates	Sandal	\$12,039					
8	UnitedStates	Slipper	\$967,927					
9	UnitedStates	Sport Shoe	\$104,403					
10	UnitedStates	Women's Casual	\$541,536					
11	UnitedStates	Women's Dress	\$1,087,987					
12								
13	Source Data: SASHELP.SHOES							
14	Code: D:\! ! ! ODS Excel Destination\code\Demo26.sas							
15	Run on: Sunday, 14 June 2015 at 6:41:33 PM							
16								
17								
18								

Index / Total Sales By Region / Africa / Asia / Canada / CentralAmerica_Caribbean / EasternEurope / MiddleEast / Pacific / SouthAmerica / **UnitedStates** / WesternEurope

After Clicking UnitedStates Entry in the Index

UnitedStates_V94TS1M2_Demo25_Sun_14JUN2015_051530_380 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Conditional Formatting Styles Cells Editing

UnitedStates Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom

	A	B	C	D	E	F	G	H
1	UnitedStates Shoe Sales - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 250% Zoom							
2	<u>Click here to get back to By Region Sales Summary</u>							
3								
4	Region	Product	Sales					
5	UnitedStates	Boot	\$448,296					
6	UnitedStates	Men's Casual	\$1,372,527					
7	UnitedStates	Men's Dress	\$969,271					
8	UnitedStates	Sandal	\$12,039					
9	UnitedStates	Slipper	\$967,927					
10	UnitedStates	Sport Shoe	\$104,403					
11	UnitedStates	Women's Casual	\$541,536					
12	UnitedStates	Women's Dress	\$1,087,987					
13								
14	Source Data: SASHELP.SHOES							
15	Code: D:\! ! ! ODS Excel Destination\code\Demo25.sas							
16	Run on: Sunday, 14 June 2015 at 5:15:30 AM							
17								
18								

Sales This Region By Product

Ready

Dynamic TagAttr with Formula

```
proc print data=work.ToPrint noobs label;  
id country;  
var predict actual / style=  
    {tagattr='format:$#,##0_'); [Red]\($#,##0\) '};  
var Difference / style=  
    {tagattr='format:$#,##0_'); [Red]\($#,##0\)   
        formula:RC[-1]-RC[-2] '};  
run;
```

For Microsoft Numeric Format Alternatives Other Than
'format:\$#,##0_'); [Red]\(\$#,##0\)

See <https://support.office.com/en-nz/article/Create-a-custom-number-format-78f2a361-936b-4c03-8772-09fab54be7f4?ui=en-US&rs=en-NZ&ad=NZ>

Dynamic TagAttr with Formula

V94TS1M2_Demo24_Wed_03JUN2015_160519_315 - Microsoft Excel

File Home Insert Page Layout Formulas Data Review View Acrobat

Clipboard Font Alignment Number Styles

Normal Bad Good Neutral Calcula... Check Cell Explana... Input Linked ... Note

A1 Actual Vs Predicted Sales By Country - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 270% Zoom

	A	B	C	D	E	F
1	Actual Vs Predicted Sales By Country - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 270% Zoom					
2	Any Manual Changes to Actual and/or Predicted Will Be Reflected in a Revised Difference					
3						
4	Country	Predicted Sales	Actual Sales	difference		
5	CANADA	\$233,019	\$246,990	\$13,971		
6	GERMANY	\$231,554	\$245,998	\$14,444		
7	U.S.A.	\$241,722	\$237,349	(\$4,373)		
8						
9	Source Data: SASHELP.PRDSALE					
10	Code: D:!! ! ODS Excel Destination\code\Demo24.sas					
11	Run on: Wednesday, 3 June 2015 at 4:05:19 PM					

Tag Attributes and Formula

Ready

After Changing Germany Actual to \$200,000

V94TS1M2_Demo24_Wed_03JUN2015_160519_315 - Microsoft Excel

Actual Vs Predicted Sales By Country - V94TS1M2 ODS EXCEL - ODS Style HTMLblue - 270% Zoom

**Actual Vs Predicted Sales By Country - V94TS1M2
ODS EXCEL - ODS Style HTMLblue - 270% Zoom**

**Any Manual Changes to Actual and/or Predicted Will
Be Reflected in a Revised Difference**

Country	Predicted Sales	Actual Sales	difference
CANADA	\$233,019	\$246,990	\$13,971
GERMANY	\$231,554	\$200,000	(\$31,554)
U.S.A.	\$241,722	\$237,349	(\$4,373)

Source Data: SASHELP.PRDSALE
Code: D:!! !! ODS Excel Destination\code\Demo24.sas
Run on: Wednesday, 3 June 2015 at 4:05:19 PM

Tag Attributes and Formula

Conclusion

ODS Excel is the current SAS technology direction for SAS to Excel.

It is definitely better than ExcelXP!

Current Limitations – Cannot Do:

Pivot Tables

Panels (horizontal arrays of tables and/or images)

However, Start_At might be upgraded to do multiple placements on the same worksheet—per my discussion with SAS.

My thanks to Nancy Goodling, Wayne Hester, Chevell Parker, Scott Huntley, Dan O'Connor, and Amy Peters at SAS Institute for their essential help.

Any errors in the presentation content are mine.

LeRoy Bessler

Mequon, Wisconsin, USA

June 2015

For Your Suggestions, Comments,
Questions, Alternate Solutions, etc.

LeRoy Bessler PhD
Mequon, Wisconsin, USA
Le_Roy_Bessler@wi.rr.com