

The SAS logo is rendered in a bold, green, sans-serif typeface. The letters 'S', 'A', and 'S' are closely spaced and share a consistent weight and color.

Tips, Tricks and Oddities

SAS Oddity

The background of the slide is white with abstract green geometric shapes on the right and bottom edges. These shapes consist of overlapping triangles and polygons in various shades of green, ranging from light lime to dark forest green. The shapes are layered, creating a sense of depth and movement.

```
data proc contents;  
    if fi then th=en;  
    else el=se;  
    ;  
    _=__^=__;  
    what=is; going=on!here;  
    system=broken;  
run;
```

▶ How many errors?

More than 4

4

3

2

1

0

SAS Trick

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the slide, creating a modern, layered effect. The text 'SAS Trick' is centered in the white space on the left.

Monotonic

- Every used monotonic?
- An “undocumented” feature in SAS
- Same as using `_n_` in SAS but can be used in an SQL

```
PROC SQL;  
  CREATE TABLE WORK.QUERY_FOR_SHOES AS  
  SELECT DISTINCT  
    monotonic() AS count,  
    t1.Region,  
    t1.Sales FORMAT=DOLLAR12. AS Sales,  
    t1.Inventory FORMAT=DOLLAR12. AS Inventory,  
    t1>Returns FORMAT=DOLLAR12. AS Returns,  
    t1.Stores AS Stores  
  FROM SASHELP.SHOES t1  
;  
QUIT;
```

	count	Region	Sales	Inventory	Returns	Stores
1	1	Africa	\$29,761	\$191,821	\$769	12
2	2	Africa	\$67,242	\$118,036	\$2,284	4
3	3	Africa	\$76,793	\$136,273	\$2,433	7
4	4	Africa	\$62,819	\$204,284	\$1,861	10
5	5	Africa	\$68,641	\$279,795	\$1,771	14
6	6	Africa	\$1,690	\$16,634	\$79	4
7	7	Africa	\$51,541	\$98,641	\$940	2
8	8	Africa	\$108,942	\$311,017	\$3,233	12
9	9	Africa	\$21,297	\$73,737	\$710	21
10	10	Africa	\$63,206	\$100,982	\$2,221	4

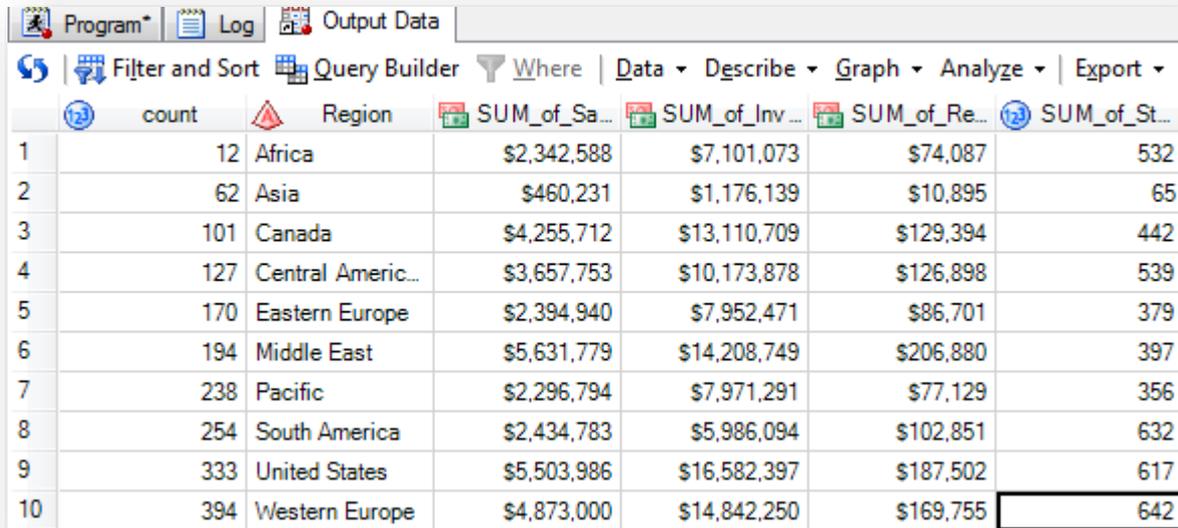
Monotonic

- Using monotonic with a group - this will not work....

```
PROC SQL;
```

```
CREATE TABLE WORK.QUERY1_FOR_SHOES AS  
SELECT DISTINCT  
    monotonic() AS count,  
    t1.Region,  
    SUM(t1.Sales) FORMAT=DOLLAR12. AS SUM_of_Sales,  
    SUM(t1.Inventory) FORMAT=DOLLAR12. AS SUM_of_Inventory,  
    SUM(t1>Returns) FORMAT=DOLLAR12. AS SUM_of>Returns,  
    SUM(t1.Stores) AS SUM_of_Stores  
FROM SASHELP.SHOES t1  
GROUP BY t1.Region;
```

```
QUIT;
```

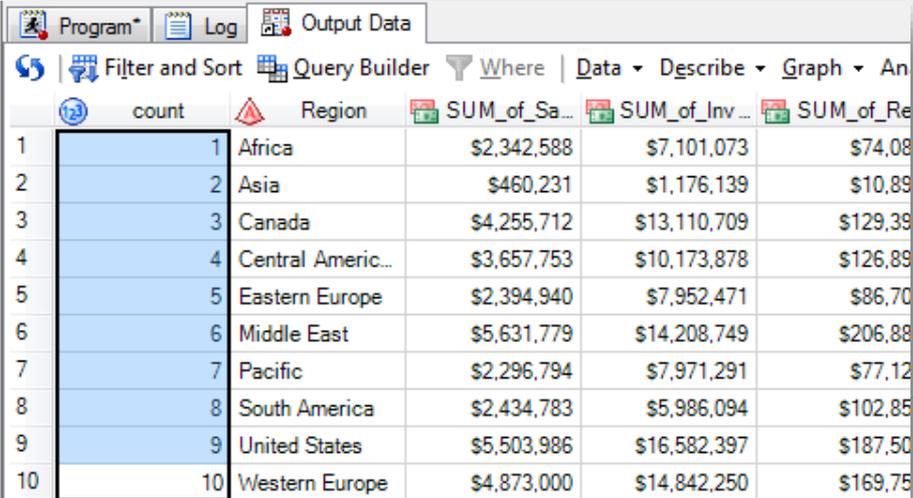


	count	Region	SUM_of_Sa...	SUM_of_Inv...	SUM_of_Re...	SUM_of_St...
1	12	Africa	\$2,342,588	\$7,101,073	\$74,087	532
2	62	Asia	\$460,231	\$1,176,139	\$10,895	65
3	101	Canada	\$4,255,712	\$13,110,709	\$129,394	442
4	127	Central Americ...	\$3,657,753	\$10,173,878	\$126,898	539
5	170	Eastern Europe	\$2,394,940	\$7,952,471	\$86,701	379
6	194	Middle East	\$5,631,779	\$14,208,749	\$206,880	397
7	238	Pacific	\$2,296,794	\$7,971,291	\$77,129	356
8	254	South America	\$2,434,783	\$5,986,094	\$102,851	632
9	333	United States	\$5,503,986	\$16,582,397	\$187,502	617
10	394	Western Europe	\$4,873,000	\$14,842,250	\$169,755	642

Monotonic

- Using monotonic with a group - this will work

```
PROC SQL;  
  CREATE TABLE WORK.QUERY2_FOR_SHOES AS  
  select monotonic() AS count, A.*  
  from  
  (SELECT DISTINCT  
    t1.Region,  
    SUM(t1.Sales) FORMAT=DOLLAR12. AS SUM_of_Sales,  
    SUM(t1.Inventory) FORMAT=DOLLAR12. AS SUM_of_Inventory,  
    SUM(t1>Returns) FORMAT=DOLLAR12. AS SUM_of_Returns,  
    SUM(t1.Stores) AS SUM_of_Stores  
  FROM SASHELP.SHOES t1  
  GROUP BY t1.Region) as A  
;  
QUIT;
```



	count	Region	SUM_of_Sa...	SUM_of_Inv ...	SUM_of_Re
1	1	Africa	\$2,342,588	\$7,101,073	\$74,08
2	2	Asia	\$460,231	\$1,176,139	\$10,89
3	3	Canada	\$4,255,712	\$13,110,709	\$129,39
4	4	Central Americ...	\$3,657,753	\$10,173,878	\$126,89
5	5	Eastern Europe	\$2,394,940	\$7,952,471	\$86,70
6	6	Middle East	\$5,631,779	\$14,208,749	\$206,88
7	7	Pacific	\$2,296,794	\$7,971,291	\$77,12
8	8	South America	\$2,434,783	\$5,986,094	\$102,85
9	9	United States	\$5,503,986	\$16,582,397	\$187,50
10	10	Western Europe	\$4,873,000	\$14,842,250	\$169,75

SAS Tip

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the slide, creating a modern, layered effect. The text 'SAS Tip' is centered in the white space on the left.

Rename all variables

```
%macro rename(lib,dset);
    /* get a list of all variables in the dataset
*/
    PROC CONTENTS DATA=&lib..&dset OUT=TEMPA(KEEP=NAME);
    RUN;
    /* take the list of variables and create macro variables that resolve to the variable name
    /* and the variable name with "pre_" as a prefix as well as the number of variables
*/
    DATA _null_;
    SET tempa end = eof;
        retain cnt;
        cnt = sum(cnt, 1);
        call symput(compress('old_name' || trim(put(cnt,8.)),name));
        call symput(compress('new_name' || trim(put(cnt,8.)),compress("pre_" || name)));
    if eof then
        call symput('cnt',put(cnt,8.));
    RUN;
    /* take a look at the macro variable values (in the log)
*/

    %put name1 &new_name1 &old_name1;
    %put name2 &new_name2 &old_name2;
    %put cnt...&cnt;
    /* run the rename
*/

    data &dset._out;
    set &lib..&dset;
        rename
            %do i = 1 %to &cnt;
                &&old_name&i = &&new_name&i
            %end;
    ;
    run;
%mend rename;

%rename(lib=sashelp,dset=shoes)
```

Rename all variables

TEMPA ▾

Filter and Sort

	NAME
1	Inventory
2	Product
3	Region
4	Returns
5	Sales
6	Stores
7	Subsidiary

Name1 pre_Inventory Inventory

Name2 pre_Product Product

cnt.... 7

SHOES ▾

Filter and Sort Query Builder Where Data Describe Graph Analyze Export Send To

	Region	Product	Subsidiary	Stores	Sales	Inventory	Returns
1	Africa	Boot	Addis Ababa	12	\$29,761	\$191,821	\$769
2	Africa	Men's Casual	Addis Ababa	4	\$67,242	\$118,036	\$2,284
3	Africa	Men's Dress	Addis Ababa	7	\$76,793	\$136,273	\$2,433
4	Africa	Sandal	Addis Ababa	10	\$62,819	\$204,284	\$1,861

rename variables in dataset ▾

Program* Log Output Data (2)

SHOES_OUT ▾

Filter and Sort Query Builder Where Data Describe Graph Analyze Export Send To

	pre_Region	pre_Product	pre_Subsi...	pre_Stores	pre_Sales	pre_Inventory	pre>Returns
1	Africa	Boot	Addis Ababa	12	\$29,761	\$191,821	\$769
2	Africa	Men's Casual	Addis Ababa	4	\$67,242	\$118,036	\$2,284
3	Africa	Men's Dress	Addis Ababa	7	\$76,793	\$136,273	\$2,433
4	Africa	Sandal	Addis Ababa	10	\$62,819	\$204,284	\$1,861

Non SAS® variable names in Excel

The screenshot shows the SAS Enterprise Guide interface. On the left is the Project Tree. The main window is titled 'Import Data (Book2.xlsx[Sheet1])'. It contains a table with the following data:

	name	1998	1999	2000	2001	total year
1	john	7	8	8	9	32
2	mary	6	4	2	7	19
3	tony	5	6	7	8	26
4	richard	1	2	4	4	11
5	ella	8	9	9	7	33

Below the table is a 'Program' window with the following SAS code:

```
1  
2 proc contents data=work.book2 out=tempa;  
3 run;  
4  
5 data tempa;  
6 set book2;  
7 tot2 = sum('1998'n,'1999'n,'2000'n, '2001'n);  
8 tot3 = 'total year'n;  
9 run;
```

The screenshot shows the 'Output Data' window of the SAS program. The table contains the following data:

	name	1998	1999	2000	2001	total year	tot2	tot3
1	john	7	8	8	9	32	32	32
2	mary	6	4	2	7	19	19	19
3	tony	5	6	7	8	26	26	26
4	richard	1	2	4	4	11	11	11
5	ella	8	9	9	7	33	33	33

Non SAS® variable names in Excel

	name	1998	1999	2000	2001	total year	a 32 length character variable i	variable with a ' in it	'single quote at the start	single quote at the end'
1	john	7	8	8	9	32	1	1	1	1
2	mary	6	4	2	7	19	2	2	2	2
3	tony	5	6	7	8	26	3	3	3	3
4	richard	1	2	4	4	11	4	4	4	4
5	ella	8	9	9	7	33	5	5	5	5

```

proc contents data=work.book2 out=tempa noprint;
run;
/* determine the "literal" for each variable */

data tempc(keep=name test1 nliteral );
set tempa;
test1 = trim(nliteral(name)); /* returns the value of the literal */
nliteral=invalid(name,'nliteral'); /* creates a variable called nliteral that determines if the value can be a literal */
run;

```

	LIBNAME	MEMNAME	MEM...	TY...	NAME	TYPE	LENGTH
1	WORK	BOOK2			1998	1	8
2	WORK	BOOK2			1999	1	8
3	WORK	BOOK2			2000	1	8
4	WORK	BOOK2			2001	1	8
5	WORK	BOOK2			'single quote at...	1	8
6	WORK	BOOK2			a 32 length cha...	1	8
7	WORK	BOOK2			name	2	7
8	WORK	BOOK2			single quote at...	1	8
9	WORK	BOOK2			total year	1	8
10	WORK	BOOK2			variable with a '...	2	1

	NAME	test1	nliteral
1	1998	"1998"N	1
2	1999	"1999"N	1
3	2000	"2000"N	1
4	2001	"2001"N	1
5	'single quote at the start	"'single quote at the start"N	0
6	a 32 length character variable i	"a 32 length character variable i"N	1
7	name	name	1
8	single quote at the end'	"single quote at the end"N	1
9	total year	"total year"N	1
10	variable with a ' in it	"variable with a ' in it"N	1