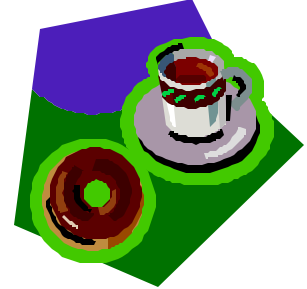


DCSUG Newsletter

Washington, DC SAS Users Group

Second Quarter Meeting

When: Tuesday, June 4, 2002
Time: 8:30a.m. to noon
Place: Bureau of Labor Statistics
Postal Square Building
Room G440
First Street North East
Washington DC



Agenda:	8:30 - 9:00	Registration and refreshments
	9:00 - 9:15	Announcements
	9:15 - 10:15	Ray Pass, Ray Pass Consulting PROC REPORT: Doin' It in Style!
	10:15 - 10:30	Break
	10:30 - 10:45	User-to User Questions and Answers Moderators - DCSUG officers
	10:45 - 11:45	Ray Pass, Ray Pass Consulting PROC TABULATE: Doin' It in Style!
	11:45 - Noon	Giveaway Drawings

***Presentation times subject to change**

Visitors must use the visitor's entrance on First Street NE. Directions for those taking Metro: Take the Red Line to Union Station. Exit the station via the Amtrak exit, but do not go up to the train level. Instead, after going up to and out through the farecard gates, turn to the left where there is an exit to the street (First Street NE). Directly across from the exit are the employee and visitor's entrances to the building. After checking in with security, take the main elevators down to the G level. **BRING PICTURE ID!**



If you have special needs and are planning to attend this meeting, please contact any DCSUG officer no later than 5/22/02

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NOTE: If you are not currently a paid member of the DCSUG and are planning to attend the meeting, please email Lawrence.W.Altmayer@census.gov or call (301) 457-2581 by May 28th and leave your name. Security at the Bureau of Labor Statistics is very tight and having your name on a list of possible attendees will make your entrance to the building easier.

President's Message

Peter Knapp

At the September DCSUG meeting we had the pleasure of welcoming Ray Pass as a speaker. As those who attended the meeting may well remember, our morning was cut short by the terrible tragedy of 911. We have invited Ray back for the June meeting, and I am happy to report that he's going to make not one but two presentations – a double header!

I look forward to seeing many of you at the June DCSUG meeting. I also hope many of you are planning to make it to NESUG this year. The conference is from September 29 - October 2 in Buffalo, NY. Many members of DCSUG are working hard to make this conference a success. Come out and show your support!

Speaker Abstracts

PROC REPORT: Doin' It in Style!

Ray Pass, Ray Pass Consulting, Hartsdale, NY

The advent of the SAS® Output Delivery System (ODS to its friends) has turned SAS reports from machine generated, black & white monospace bores into people produced, productive and reader-friendly information displays. One of the main principles underlying ODS is the use of Table and Style definitions (also known as Table and Style templates). Most procedures have a standard output layout structure and rely on their Table and Style definitions to govern the cosmetic or stylistic appearance of their tables. Certain procedures (REPORT, TABULATE, etc), however, by the very nature of their complete structural customizability, do not rely on fixed external table definitions. For these procedures, stylistic customizations are performed through the use of the STYLE option, an ODS concept which is integrated into the heart of the procedures' syntax. This presentation will demonstrate the use of STYLEs in the REPORT procedure. This Paper will also introduce some of the more advanced structural features of PROC REPORT. from run to run. All UNIVARIATE output for example follows a basic blueprint. This was not, however, possible with certain reporting procedures (REPORT, TABULATE, PRINT, etc) because of the infinite amounts of final data layouts that could be created depending on many data factors including variables used and reporting statistics chosen, as well as other design considerations. Therefore, while standard codified aspects of most procedure output could be individually customized via ODS and its accompanying TEMPLATE procedure, this was not possible for the reporting procs because of the lack of standard replicable design features. To compensate for this lack of individual customizability, a system of STYLE formatting was made available for use in REPORT and TABULATE coding (now available in PRINT as well) which provided the ability to individually customize almost all design aspects of the procedure output.

PROC TABULATE: Doin' It in Style!

Ray Pass, Ray Pass Consulting, Hartsdale, NY

The advent of the SAS® Output Delivery System (ODS to its friends) has turned SAS reports from machine-generated, black & white monospace bores into people-produced, productive and reader-friendly information displays. One of the main principles underlying ODS is the use of Table and Style definitions (also known as Table and Style templates). Most procedures have a standard output layout structure and rely on their Table and Style definitions to govern the cosmetic or stylistic appearance of their tables. Certain procedures (REPORT, TABULATE, etc), however, by the very nature of their

complete structural customizability, do not rely on fixed external table definitions. For these procedures, stylistic customizations are performed through the use of the STYLE option, an ODS concept which is integrated into the heart of the procedures' syntax. This presentation will demonstrate the use of STYLEs in the TABULATE procedure

Ray Pass is an independent SAS consultant and has been using the SAS System for too many years. He is the co-author, with Ron Cody, of Programming SAS by Example" (1995) and has delivered many invited papers at national, regional and local SAS user groups. Ray's primary areas of expertise in the SAS System are report generation and data manipulation. In addition to teaching SAS courses, Ray has also been quite active in organizing and participating in SAS user group activities on various levels. Ray was one of the founders of both the New York Area SAS Users Group (NYASUG) and the NorthEast SAS Users Group (NESUG). Ray co-chaired the first two NESUG annual conferences ('88, '89) and has been a Section Chair at many SAS User Group International (SUGI) annual conventions.

Questions and Answers

Moderated by DCSUG Officers



Bring your SAS programming or procedure questions to DCSUG and its members. During this open session, you can ask questions of and get answers from experienced SAS users. All are welcomed to participate

Due to the high cost of mailing out newsletters, DCSUG will be emailing notices of the availability of accessing the quarterly newsletter (and other important announcements) at the DCSUG Internet site. If you are a member, please make sure your email address is current in our database. Please notify Larry Altmayer at Lawrence.W.Altmayer@census.gov with the email address you want to use to receive notification of the publication of the newsletter. Members will still have the option of continuing to receive a hard copy of the newsletter upon request.

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Desktop Special Interest Group

The next meeting TBA (May or June)

David DesJardins will present 'Using easily generated "live" graphs to effectively display statistical data' The point and click SAS Insight and JMP software will demonstrated as part of this seminar (this meeting will be in conjunction with FDA JMP-enthusiasts). Check the DCSUG home page for further information: <http://www.ita.doc.gov/industry/otea/dcsug> Please contact Yesvy Gustasp or Joe Mirabal (see Steering Committee column) with questions, requests, suggestions, and offers.



Membership Application/Renewal

Date: _____
Name: _____
Company Name: _____
Mailing Address: _____
City, _____ State _____ Zip _____
Phone # _____ Fax # _____
E-Mail: _____
Preferred mode of contact (check one):
 Fax e-mail

SAS Version(s) _____
SAS Product(s): _____
Operating System(s) _____
Check one:
 Individual membership for 1 year is \$10.00
 Corporate sponsorship for 1 year is \$50.00

Please indicate a contact person for Corporate Sponsorships!

Check one:
 New membership Renewal membership

Mail to:
Washington DC SAS Users Group
P.O. Box 44670
Washington, DC 20026-4670

SAS® Talk™

By Ian Whitlock

Let's take a look at the issue of global macro variables. On a number of occasions I have advised that a design goal should be to minimize the use of global variables. Recently (April 2002) on SAS-L, Donald Henderson offered that there are legitimate reasons for global variables so that although one should not abuse global variables, one should not necessarily minimize their use. So what are the legitimate uses?

A macro typically generates SAS code. (The exceptions are macros that consist of purely executable macro instructions such as %PUT, %LET, %IF, and %DO statements without any constant SAS code.) So where does the flexibility to generate different SAS statements on different executions of the macro come from? It comes from the fact that macro variables can hold different values and that macro instructions can do different things based on different values. Can a macro variable be assigned inside the macro so that its value is independent of any outside influence? I suggest not. At first you might think a random number generator might provide an answer. But what seed would you use? If the seed does not change then the values generated do not change. Well zero doesn't change? True, but zero is just an argument to get the seed from the clock time and that is a force outside the macro! You might wish to consider using CALL SYMPUT to convert a data value to a macro variable. But again, I ask, how is the data value created? To be of any use here, it must come from outside the macro. To sum up, macros get their flexibility from having instructions that can do different things based on the different values of macro variables. Those macro variables either exist outside the macro, or they are parameters to the macro assigned by the outside agent invoking the macro, or they are created from information outside the macro.

It should be clear that when a variable is determined by outside information, the program will soon become unreadable if one doesn't convey in the code what outside lines of code are determining the value. Beginners often write macros without parameters and typically do not use tools such as CALL SYMPUT. From the above argument we see that they have to use macro variables defined outside the macro. Typically these variables are global macro variables. This constitutes the primary abuse of global variables. It has two bad effects:

1. The variable is global and therefore known throughout the program. Thus it can easily be changed by mistake and the reader is led into the mistaken thought that the variable is important to the program as a whole, while in fact, it is important only to one macro.
2. The macro becomes difficult to read because there is a reference to a variable and no indication of how that variable got a value. If the variable was not assigned very close to the macro invocation it may be very difficult to locate where the value came from.

The only saving grace to this situation is that macro beginners do not generally write very big or very complex programs. In fact, the technique itself limits the size and complexity of the programs that can be written this way. Thus when a beginner starts down this path, he/she is liable to stay a macro beginner for life.

A macro provides a service to generate SAS code. The parameters are a contract between the macro (service provider) and the consuming code, i.e. the code that invokes the macro. Whenever required information is not contained in the parameter list, either the flexibility or the readability of the macro is harmed. The use of global macro variables to communicate macro parameter information is not a legitimate use. I think Don and I would agree very strongly on this principle.

So what are the legitimate reasons for global macro variables? There is one primary reason - the variable controls how the whole program works and thus must be known throughout the program. One common example is a variable to indicate whether the program is running in test mode or production mode. Another comes from wanting to define a number of different, but related files. Thus one might write

```
%let root = C:\Project\my part in project ;
filename progs "&root\progs" ;
libname prj "&root\data" ;
...
```

One must use global variables sometimes to cover up defects in the macro language. One common example is the need for static macro variables. A macro MAC must be called a number of times. However the first time some extra initialization code is required. For example we might want a macro to manage PROC APPEND. On the first call we want to wipe out the base data set. After that it is important to not wipe out the base data set. One common solution would be to store a counter that must be known from one execution to the next that counts calls to MAC. Where can the counter be stored? It cannot be inside the macro since all variables defined inside the macro cease to exist when the macro is not executing. Hence the variable must be

stored outside the macro. There are two simple possibilities: 1) write a macro to contain all invocations of MAC and make the variable local to this containing macro, 2) put the variable in the global environment. In a sense #1 is begging the question. All global variables can always be avoided by this technique. One has to ask what principle difference is there between a variable known throughout a program and a program with an all-encompassing macro with a variable known throughout this all-encompassing macro. In principle the same problems arise in both cases. The only advantage is when executing interactively the life of the session can be increased by having the all encompassing macro cease to be all encompassing.

One of the most common past requests for macro has been to implement the deletion of macro variables. In version 8.2 the command %SYMDEL was added to provide this service. Thus global no longer means known throughout a program, but only known until deleted. The problem given above about initialization could have been solved with a parameter, say STATE with possible values INIT and CONTINUE. However it is easy to envision a need for a true counter that must be known from one execution to the next. The third solution is to store this information in a data set instead of in a variable. If important enough, this is the best SAS solution, but it means extra time and inconvenience to implement it. As I indicated before, the class of static variables is an important, but missing concept from SAS macro.

Perhaps Don would see this as a legitimate use of global variables. As I see it, it is an indication that the language is incomplete and I might suffer this use because of language inadequacy, but I would not want to give it a label of legitimacy. It is only a necessary work-around of convenience in common usage.

A similar situation arises when one has several related macros that all must know certain variables. This is a lot like the static situation where it has now become a communication problem between macros instead of a problem of different executions of the same macro communicating. The same solutions occur here as given in the simpler case. Again, it shows a missing construct in the macro language. Object oriented languages have solved this problem by introducing a class as a set of related methods or functions (macros in our case) with a common storage area typically held in the objects that are defined from the class.

Still another possibility is the consideration of program constants. It is often a wise idea to take some literals and define them as constants. For example, the value of Pi, or the size of an array. In some sense these are really program parameters in disguise.

I would argue this is not a new legitimate use, but rather a further explication of the program parameters that I presented first.

We have not really seen any new SAS features (shiny language toys) in this discussion, but hopefully it has helped you to see some of the issues in writing and maintaining large SAS programs when using SAS macro tools. Even if it does not change the way you write programs, I would hope that it makes you think more about the programs that you do write.

NorthEast SAS Users Group Proceedings for Sale

DCSUG has a number of copies of the Proceedings for the NESUG '01 conference for sale, at a price of \$10. To order, contact Linda Atkinson at (202) 694-5046, atkinson@ers.usda.gov

Local Paper, Competition, and Prize Winners

Coders' Corner, Honorable Mention

Fast and Easy Ways to Check Your Work: Using PROC MEANS to Confirm Continuous Variable Categorizations -- **Rick Mitchell**

Professional Development & User Support, Honorable Mention

Developing and Maintaining a Tips Database: A Practical Approach to Programming Standards, Style Sheets and Peer Reviews,

Dianne Louise Rhodes

SUGI 27 Problem Solving Contest Winners

First Place: Joint entry by **Marianne Whitlock** and **Quentin McMullen**

Second Place: **Ian Whitlock**



Calendar of Meetings and Events

This feature is meant to give users an idea of some of the activities of area users groups and special interest groups, as well as regional and international groups. If your group would like to be regularly included in this feature, please call Mike Rhoads or one of the DCSUG officers. There is a DCSUG directory with phone, fax, and E-mail contact information elsewhere in this newsletter.

June

4 **DCSUG** DC SAS Users Group, General Meeting
 Time: 8:30 am - 12:00 noon
 Site: Bureau of Labor Statistics
 2 Massachusetts Ave. NE
 Program: See front page announcement
 Contacts: Mike Rhoads at (301) 251-4308
 RhoadsM1@Westat.com
 Peter Knapp at (202) 482-1359
 peter_knapp@ita.doc.gov

Other Groups

CENSUG Census SAS Users Group
 Contact: Andrea Potter at (301) 457-1687

MDSUG Maryland SAS Users Group
 Contact: Mr. R.H. Miller, (410) 740-4229
 millerrh@juno.com

NCHSSUG National Center for Health Statistics SAS Users Group
 Contacts: Arlene Siller at (301) 458-4498
 asiller@cdc.gov
 Linda Tompkins at (301) 458-4533

September/October

10 **DCSUG** DC SAS Users Group, General Meeting
 Time: 8:30 am - 12:00 noon
 Site: Bureau of Labor Statistics
 2 Massachusetts Ave. NE
 Program: TBA

NIHSUG National Institutes of Health SAS Users Group
 Contact: Ray Danner at (301) 496-6037

22-24 **SESUG 2002** Southeast SAS Users Group 9th Annual Conference
 Site: Hyatt Regency Savannah
 Co-Chairs: David Maddox, Heidi Markovitz
 Further Info: www.sesug.org/SESUG02

NOVASUG Northern Virginia SAS Users Group
 Contact: Gary McQuown at (703) 628-5681
 gmcquown@dasconsultants.com

SIGSTAT Special Interest Group in Statistics, CPCUG and WINFORMS
 Contact: Charlie Hallahan, 202-694-5051
 hallahan@ers.usda.gov

29-2 **NESUG 2002** NorthEast SAS Users Group 15th Annual Conference
 Site: Adam's Mark Hotel, Buffalo NY
 Co-Chairs: Michael Mace, Chris Roper
 Further Info: www.nesug.org

VASUG Virginia SAS Users Group (Richmond area)
 Contact: Peter Rikard at (804) 828-4878
 liaison@vasug.org

SESUG in Savannah



If the idea of increasing your SAS knowledge in a gracious southern atmosphere appeals to you, mark your calendar now for the 9th Annual Conference of the Southeast SAS Users Group. SESUG 2002 will take place September 22-24 in Savannah, Georgia. Voted one of the "Worlds' Top Ten Trendy Travel Hot Spots" by the New York Times and named one of the "Top 10 U.S. Cities to Visit" by Condé Nast Traveler. Savannah captivates, intrigues, surprises and romances millions of visitors each year with her gracious hospitality and subtle charm (according to www.savannah-visit.com). David Maddox and Heidi Markovitz are the conference co-chairs.

The conference offers 10 different paper presentations, as well as weekend workshops, and the conference leaders are now actively seeking people to present papers on almost any topic related to the usage of SAS software. More details on the conference can be found on the web at www.sesug.org/SESUG02.



The fifteenth annual NorthEast SAS Users' Group conference will be held at the beautiful Adam's Mark in Buffalo, New York –home of the Buffalo Bills, Buffalo Bisons(baseball), and of course, the ORIGINAL buffalo wings and beef-on-weck. Served by more than ten airlines, with free shuttle service, and on-site car rental, the conference site is within two hours of all NESUG participants, as well as our friendly neighbors north of the border, eh !

Buffalo, the "twenty-minute city", is the gateway to the Niagara region, featuring world-class arts and culture, architecture, sports, wineries, dining, and great autumn weather. Come visit Lake Erie, Lake Ontario, the Niagara River and Falls, the historic Erie Canal, Buffalo and Erie County Naval and Military Park, Pedaling History Bicycle Museum, Old Fort Niagara, Original American Kazoo Company, Our Lady of Victory Basilica and National Shrine, Toy Town Museum, Chautauqua, and much, much more. In addition, Buffalo is just a short drive away from our Canadian neighbors, including the Shaw Festival, Niagara wine country, Casino Niagara, and the international metropolis of Toronto.

In addition to the opening night celebration, come partake in all the activities that have made NESUG one of the best valued conferences: SAS Demo Area, Presentations by SAS, Vendor Pavilion of service and solution providers, pre- and post- conference training, meeting and sharing with fellow SAS users. Planned concurrent sessions for Monday through mid-day Wednesday include: Advanced and Beginning Tutorials, Applications Development, Code Clinic, Coders' Corner, Emerging Technologies, Graphics & Information Visualization, Hands-On-Workshops, Posters, Statistics, Data Analysis, and Econometrics, Training and User Support.

These sessions will optionally follow the following tracks:

Beginner, Financial, Government, Management, Pharmaceutical, and Web

NESUG (www.nesug.org) has thrived for fifteen years because of your faithful attendance and the volunteer efforts of folks like you; serving as session coordinators, working the registration desk, assisting as Code Clinicians

Please contact the conference co-chairs for further information on how you can help continue the tradition.

Michael Mace

Chris Roper

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2002 Meetings

Plan ahead and mark your calendars now. The DCSUG will meet on the following dates in 2002: September 10, December 3. Meeting times and locations to be announced. If at any time you have a question about an upcoming meeting or other DCSUG information, call one of the members of the Steering Committee.



To visit the DCSUG home page

The URL for the DCSUG home page on the Web:
<http://www.ita.doc.gov/industry/otea/dcsug>

Remember to Join DCSUG!!!



Don't forget to renew your DCSUG membership for 2002. Dues are used to defray the costs of producing and mailing the newsletter and provide refreshments at our meetings. You'll make sure that you keep receiving the newsletter and keep DCSUG going. If you have not joined DCSUG, now is a great time to do so. Joining DCSUG is as easy as completing the membership form included in this newsletter. Individual memberships are only \$10; corporate memberships are \$50

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