



# PhilaSUG



## Philadelphia Area SAS Users Group

### Spring '00 Meeting Announcement

May 3, 2000

### PhilaSUG Spring '00 Meeting Wednesday, June 14, 2000

The Philadelphia Area SAS Users Group Spring Meeting will be on Wednesday, June 14, 2000 at 1:00 PM, and will be hosted by Beaver College at their campus in Glenside, Pennsylvania.

Registration will begin at 12:15 PM and the meeting will commence at 1 PM. Please try to arrive early to register.

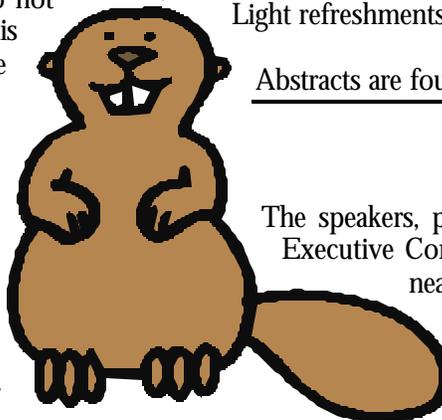
This is the second meeting of 2000. PhilaSUG dues for the year are \$20. There are no other fees for attending PhilaSUG meetings. We will accept cash, but a check is preferred. If you are a student, from any college or university, and present a current matriculation card, fees will be waived. Registration can be made a lot easier if you attach a business card to a check or \$20 bill as there is less writing to do and it is more legible.

Faculty members of Beaver College, our sponsor for this meeting, are admitted for no charge but we do request that they register for mailing list purposes. Please do not mail in your \$20 registration fee beforehand as this creates unnecessary paper work. Receipts will be available at registration time.

Note: This meeting will be held in Stitler Auditorium on the second floor of Murphy Hall and is not handicapped accessible.

Use Parking Lot #8, which is a few steps away from Murphy Hall.

Directions to Beaver College may be found later in this newsletter.



### Scheduled Agenda

12:15	1:00	Registration, refreshments
1:00 -	1:10	President's opening remarks and Introduction to Beaver College by Dr. Ned Wolff
1:10 -	2:00	<i>What's New in V8?</i> Carl LaChappelle, SAS Institute, Cary, NC
2:00 --	2:15	Break, refreshments
2:15	2:45	<i>SASHELP: A Backstage Pass</i> Tim Kelly, Synteract, Inc.
2:45 --	3:15	<i>Proc Report</i> Kerry Deem, Covance Inc.
3:15 -	3:30	Break, refreshments
3:30 -	3:40	Open Forum
3:40 -	4:30	<i>Web Enabling The SAS System</i> Carl Chapelle, SAS Institute, Cary, NC
4:30		Meeting adjourns & Dinner!!!!

Light refreshments will be served during breaks.

Abstracts are found later in this newsletter.

The speakers, poster presenters, and the PhilaSUG Executive Committee will adjourn for dinner at a nearby restaurant when the meeting concludes. You are invited to join us. The location will be announced at the meeting.

## Thank You to Our Host

The PhilaSUG Executive Committee wishes to thank Barbara Kulp and Dr. Ned Wolff of the Department of Computer Science and Mathematics for making this meeting possible at Beaver College.

## About Beaver College

Beaver College is a coeducational, comprehensive college in suburban Philadelphia offering undergraduate and graduate study to more than 2,700 students annually. The national historic landmark Grey Towers Castle, complete with gargoyles, is the heart of the 55-acre campus.

U.S. News and World Report has ranked Beaver College among the top twenty colleges and universities in the Northern region.

*Barron's* has named the College a "best buy" for the past five years. And Beaver's graduates take great pride in the College—with some 40 percent of undergraduate alumni donating to their alma mater, a percentage comparable to many Ivy-League institutions.

The Beaver College Physical Therapy Program has been designated #8 in the nation in the US News and World Report Master of Physical Therapy Programs rankings.

The Beaver College Center for Education Abroad, one of the largest campus-based study abroad programs in the United States, serves an additional 1,400 students each year from nearly 300 American colleges and universities.



Woodrow Wilson

## President's Message

I am wondering how many PhilaSUG members attended SUGI 25 in April, and what you thought? I attend SUGI every year, and every once in a while something at the conference strikes me very strongly. This is one of those years. I was quite struck by the amount of web-orientation of the conference. The SAS Institute's buzzword for the conference was "e", like in "eCommerce". This was clear in the opening session, it was clear in the demo area and the many demo theaters, and it was clear in the various papers given by SI staff throughout the conference.

The "e" theme, or web theme if you will, was so strong and so pervasive that one got the distinct feeling that SI had a major change from recent past years. For the past 3 years or so, SI has been pushing the web-related capabilities within the SAS System, but the SAS System itself was still presented overall as a large suite of software tools, some

web-oriented and some not, that address many needs within an organization. So in recent years at SUGI, we saw, for example, the introduction and growth of SAS/Intrnet, the emergence of web/AF out of SAS/AF, and the introduction and growth of the AppDevStudio product to help build web applications. But we also saw much from SI about a variety of their other products such as AF/SCL, FSP, EIS, STAT, Base SAS, etc. But this year the amount of coverage of non-web-related SAS products and issues was significantly less. Or at least that is the way it appeared to me. In fact, if you were new to the SAS world, and attended the opening session, and then went to the demo area, you would probably not believe it if someone told you that SAS was not strictly an internet-based or internet-focused company. Truly.

I am not fully sure what all this means for us, the SAS programmers and SAS-based application developers back on the home front. But I am sure that this change is significant enough that I wanted to give those of our membership who did not attend SUGI an opportunity to see this for themselves. So with your PhilaSUG Executive Committee, I have arranged to have Carl LaChapelle of the SAS Institute present at our Spring meeting. Carl will make two presentations to us.

One is about what, overall, is new in SAS Version 8. I am sure this will be valuable presentation as many of us are making plan to migrate to Version 8 now. And the other presentation is, roughly speaking, about the "whole eCommerce initiative" at SI. It is very interesting! I note, too, that Carl will be making his second appearance as an SI speaker at PhilaSUG. He did a great job a few years ago speaking to us about SAS/AF-SCL issues. We gladly welcome Carl back now!

And in addition to Carl, we have two local speakers, Kerry Deem of Covance, Inc. and Tim Kelly of Synteract, Inc. and no fewer than 4 poster presentations! Please see the abstracts for details.

I hope you can attend the meeting and hear and see the excellent information to be presented, as well as the information that surfaces more informally at the breaks and at dinner afterwards. As usual, any PhilaSUG member is welcome to join the presenters and Executive Committee members at dinner nearby after the meeting. Try it some time. It is a great way to integrate yourself further into the local SAS community.

I hope to see you and speak with you at the meeting.

Barry R. Cohen  
President, PhilaSUG

## Notes from our WebMaster

I would like to invite you to join the PhilaSUG-L community. We are always trying new ways to support our community of SAS users.

PhilaSUG-L will provide information about upcoming events, and other happenings related to PhilaSUG.

You can join this community by following these three easy steps:

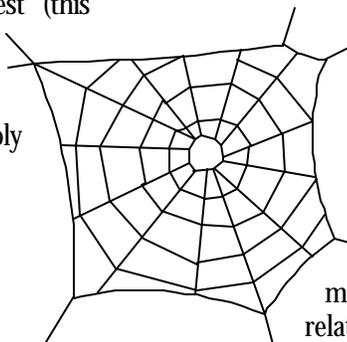
1. Send an email to the following address (the subject line and body of the message are ignored and may be left blank):

mailto:PhilaSUG-L-subscribe@onelist.com

2. You will shortly receive a confirmation request from OneList to inform you that you are one step away from completing your registration.

3. As a final step, before you are officially added to this list, you must reply to this request (this confirms that your email address is correct, and that no one has forged the request). You do not need to enter anything in the subject or body; simply reply to the email.

Thanks,  
Bob Schechter,  
WebMaster, PhilaSUG  
Email: webmaster@philasug.org



DC

NESUG '00 will be at Adams Mark Hotel, Philadelphia, PA. September 24-26, 2000.

**PhilaSUG Fall Meeting** will be in November 2000 at LaSalle University.

DCSUG will meet December 5, 2000 in Washington, DC

SUGI 26 will be April 22-25, 2001 in Long Beach, CA

NESUG 2001 will be September 30 to October 2, 2001 at Marriott/Renaissance Harbour Place Hotel in Baltimore, MD

SUGI 27 will be April 14-17, 2002 in Orlando, FL

## PhilaSUG Web Site

PhilaSUG has a new website. Actually, it is very much like the old website but is at a new address that is a little easier to remember. The new one is

**<http://PhilaSUG.org>**

Our site on the World Wide Web always contains the latest information concerning upcoming meetings, SAS training and seminars, links to SAS related hot topics, and local SAS job opportunities.

## Future Meetings and Events

HASUG will meet on Thursday, May 18, 2000 at CIGNA in Bloomfield, Connecticut

DiaMondSUG (Data Mining SAS Users Group) will be May 28-31, 2000 in San Francisco.

DCSUG will meet June 13, 2000 in Washington, DC

Pittsburgh SAS User Group will be held on Wednesday, July 19, 2000

**PhilaSUG Spring Meeting** will be June 14 at Beaver College.

DCSUG will meet September 30, 2000 in Washington,

## SAS Education Opportunities

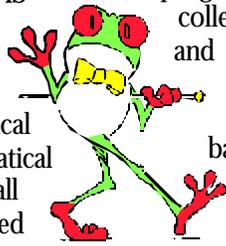
This section of the newsletter is available for use for all vendors of educational courses. There is no charge for this, but the course offerings must be SAS related and open to the general user community. PhilaSUG takes no responsibility for any errors or omissions in the listing.

### SAS Institute

SAS Institute has a large variety of public course offerings throughout the United States and elsewhere. For information about courses at the various SAS Institute sites call 1-800-333-7660 or on the web: **[www.sas.com/service](http://www.sas.com/service)**.

## Beaver College

Beaver College, located in Glenside, Pennsylvania, a northern suburb of Philadelphia, offers two SAS-related courses. Every year, Daphne Ewing, Managing Director of Northeast Operations at Synteract, Inc. teaches "SAS Programming." In addition, SAS is used in the college's Mathematical Statistics II course. Both the SAS and Mathematical Statistics II courses will next be offered in the Fall 2000 Semester. For more information call Dr. Ned Wolff, 215-572-2984 (wolff@beaver.edu)



provide state-of-the-art training for professionals interested in employment in the dynamic field of clinical research. Now in its second year, this sixth-month, non-credit program, offered twice annually, is designed for recent college graduates, professionals working in related fields, and career changers. Participants complete three distinct units - classroom training, an independent project, and a paid internship that is available on a competitive basis. For more information, contact the University's Graduate and Continuing Studies Office at 215-951-2900.

## Destiny Corporation

Destiny Corporation offers a variety of public SAS Training courses along the East Coast. Each of their 40 courses is also available for on-site instruction. They are now offering new courses in SAS Version 8.0 Changes and Enhancements. For information call 1-800-787-2464 or see their web site at [www.destinycorp.com](http://www.destinycorp.com).

Classes currently scheduled in the Northeast, in Wethersfield, CT.

Start Date	Class Title
05/22/2000	Web Publishing of SAS Output
05/24/2000	Getting Started with the SAS System -Point & Click Approach
06/05/2000	Fundamentals of the SAS System- Programming Approach
06/08/2000	Advanced Programming Techniques and Efficiencies
09/06/2000	Fundamentals of the SAS System -Programming Approach
09/27/2000	Programming in SAS Software
10/02/2000	Version 8 Changes and Enhancements
10/04/2000	Macros in SAS Software
10/11/2000	Report Writing in SAS Software- Programming Approach
11/06/2000	Advanced Programming Techniques and Efficiencies
11/08/2000	Getting Started with the SAS System-Point & Click Approach
12/04/2000	Fundamentals of the SAS System- Programming Approach
12/07/2000	SQL Processing in SAS Software

## Philadelphia University

Philadelphia University, the Covance Institute Professional Training Center, and SAS Institute Inc. are collaborating to

## University of Pennsylvania

Dr. Paul Allison will be teaching two five-day courses on Survival Analysis and Categorical Data Analysis using SAS. Classes will be held at International House on the campus of University of Pennsylvania.

July 10-14 Survival Analysis  
July 17-21 Categorical Data Analysis  
July 24-28 Survival Analysis

Full details can be found on Professor Allison's web site:  
[www.ssc.upenn.edu/~allison](http://www.ssc.upenn.edu/~allison)

## PhilaSUG Executive Committee

Barry Cohen, President	(610) 649-8701
Robert Schechter, WebMaster	(302) 886-5561
Ray Haupt, Secretary/Treasurer	(215) 438-8175
Ellen Brookstein	(610) 975-3836
Mac Cherny	(215)918-9028
John Cohen	(302) 886-7083
John Dennis	(610) 832-4344
Diane Foose	(610) 917-7168
Jerry Kagan	(610) 834-5290
Jessica Lam	(215) 283-0713 x2363
Russ Lavery	(610) 645-0735
Robert Nicol	(215) 775-5813
Terek Peterson	(610) 917-5303
Caryn Reape	(215) 283-9370
Anne Marie Smith	(215) 654-1394

The PhilaSUG Executive Committee meets on an occasional basis, about six times per year. We invite you to become a member. It's a fun and effective way to broaden your SAS horizons.

## DESUG Delaware SAS Users Group

The Delaware SAS Users Group (DESUG) holds meetings several times per year on items of interest to the greater SAS user community. These are scheduled in the evenings in the Wilmington, DE area.

To suggest topics, submit abstracts, or for additional information, please contact

Carmela Scalora at:

cscalora@infosysinc.com

## Wanted!!!!

Short articles, clever Macros, SAS tips, and other interesting tidbits about SAS for publication in this newsletter and on our website. If you wish to contribute please send your idea to:

**secretary@philasug.org**

Also wanted are Papers and Posters for presentation at the Fall 2000 meeting which will be held at LaSalle University and the Winter 2001 meeting, site yet to be determined.

Live presentations may be from a few minutes to 50 minutes

in length and should be of interest to the general SAS programming community.



## Directions to Beaver College

Beaver College is located on Easton Road, in Glenside, PA, between Routes 73 and 309.

Once you have arrived on Campus proceed to Murphy Hall and park in Parking Lot #8. The meeting is on the second floor in Stitler Auditorium.

### From the Pennsylvania Turnpike:

Take the Fort Washington exit (#26). Proceed south on Route 309 approximately 5 miles to the second Easton Road exit (Glenside). Follow exit ramp around and immediately bear left into the Beaver College campus.

### From the Tacony Palmyra Bridge:

Take Route 73 (Cottman Avenue) west to Beaver College, located at the junction of 73 (which has then become Church Road) and Route 152 (Limekiln Pike).

### From the commodore Barry Bridge, Delaware or Points South:

Take I-95 North to 476 North. Take 276 East (the Pennsylvania Turnpike).

Follow directions from the Pennsylvania Turnpike.

### From the Schuylkill Expressway:

Take the Lincoln Drive exit (#32), follow Lincoln Drive to Emlen Street. Turn left on Emlen (which changes to Cresheim Valley Drive) and follow until it dead ends at Stenton Avenue. Turn right on Stenton and move left immediately, turning left at the first light (Ivy Hill Road). Take Ivy Hill until it dead ends and turn right on Cheltenham Avenue. Turn left at the first light, Easton Road, and continue about one-half mile, bearing left at the sign for Beaver College.

### From southern New Jersey:

Take New Jersey Turnpike to exit 3, follow Route 168 North to signs for Walt Whitman Bridge. Cross bridge and take I-95 North. Follow directions from I-95.

### From northern New Jersey:

Take the New Jersey Turnpike to the Pennsylvania Turnpike exit (#6). Go west on the Pennsylvania Turnpike. Follow directions from the Pennsylvania Turnpike.

### From the Philadelphia International Airport:

Take I-95 South to 476 North. Take 276 East (the Pennsylvania Turnpike).

Follow directions from the Pennsylvania Turnpike.

### By Train:

Take the SEPTA R5 or R2 lines to Glenside Station. Use SEPTA #22 bus or taxicab or walk south along Easton Road to Beaver College.

### By Bus:

Take the SEPTA #22 to Beaver College. Connect with the #22 from Broad Street Subway and SEPTA bus routes C, #18 and #26 at SEPTA center at Broad Street and Olney Avenue. From Mt. Airy/Cedarbrook take the SEPTA H bus and transfer to SEPTA #22 at Cheltenham Avenue and Easton Road.

## Paper Abstracts

### **What's New in V8?**

Carl LaChapelle, SAS Institute, Cary, NC

A tremendous amount of new features and functionality has been added to the SAS System in Version 8. From the transparent access to external data sources, to the new presentation capabilities supplied by the Output Delivery System, The SAS System has many new features.

We'll start by looking at the new features for accessing and manipulating data, and work our way through The SAS System. We'll look at each of the key components of the SAS System, and see how they have been improved in V8.

*Carl LaChapelle is the director of the Display Products division at SAS Institute. He has been an employee of SAS Institute for the past 15 years. He is responsible for the development of SAS/AF, SAS/FSP, and AppDev Studio products. Over the years he has worked on many parts of the SAS system. He is currently working on getting SAS V8.1, and AppDev Studio 2.0 ready to ship.*

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### **SASHELP: A Backstage Pass**

Tim Kelly, Synteract, Inc.

The great thing about SAS is that there are multiple ways to get the final result. Whether you're coding edit checks, creating tables or listings, or you just need a work around, using SAS gives you many options. Each user has their own style and method when it comes to programming. What makes a good programmer is knowing more than one way to get the final result.

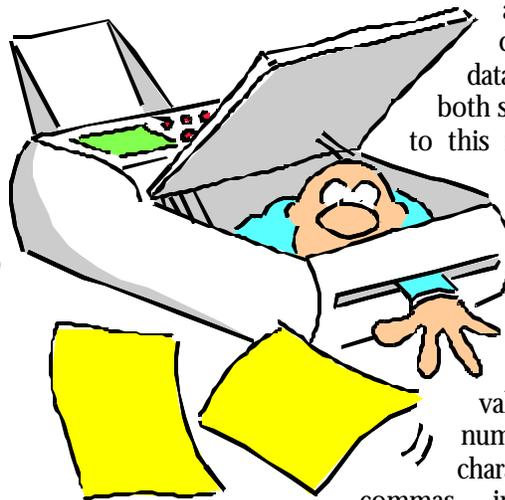
The ability to understand and know where SAS stores information and how it can be attained can be very beneficial. The SASHELP library, in particular, stores information that is very useful no matter what you are programming. This paper will describe several data types available within the SASHELP library and show how the information can be utilized. This will prove to be a stepping stone into a volume of information available at your fingertips.

*Tim Kelly is currently employed by Synteract, Inc. as a programmer analyst. He is a graduate of Bloomsburg University with a degree in Mathematics.*

### **Proc Report**

Kerry Deem, Covance, Inc.

PROC REPORT is a very powerful reporting tool. When generating tables that summarize data, it is sometimes necessary to add percentages (as (97%)) and/or ranges (as 30,54) as part of the data display. Displaying special characters such as parentheses and commas in PROC REPORT, while challenging, can be accomplished in several ways. One method using picture formats must be used with care. The picture must be set up properly or errors may occur. In addition, negative numbers must be handled as a special case. Another method is to create a character variable that includes these special characters. This paper describes a method that conditionally displays parentheses



and commas. These special characters are added as variables to a data set. The technique employed is both simple and straightforward. The keys to this method are to employ appropriate SPACING and WIDTH in the DEFINE statements of PROC REPORT for those variables.

This will give the appearance of either the picture format or the character variable without the hassle and maintains the actual data values (percentages or ranges) as numeric variables. Displaying special characters such as parentheses and commas in PROC REPORT can be accomplished in several ways. One way is to use picture formats. Care must be taken to ensure that the picture is correct or unexpected results can occur. Also, negative numbers have to be explicitly handled as a special case. Another way is to create a character variable that includes these characters. This paper employs code to conditionally display parentheses and commas. These special characters are actually added as variables to the data set. This technique is simple and straightforward. Keys to using this method are to employ SPACING= 0 and WIDTH=1 in the define statements for those columns/variables. This will give the appearance of either the picture format or the character variable without the hassle and maintains the actual data values as numeric variables.

*Kerry Deem is currently employed by Covance, Inc. as a programmer analyst. He is a graduate of The Pennsylvania State University with a degree in Computer Science. In addition, he has completed a certificate program from the Philadelphia College of Textiles and Science in conjunction with Covance and SAS Institute.*

Web Enabling The SAS System.  
Carl LaChapelle, SAS Institute, Cary, NC

You've been using the data services and computational power of The SAS System from your desktop for quite a few years. Lately you've been using the incredible ability of the Internet to look up information. Can the power of The SAS System be combined with the Internet's ability to distribute information? Absolutely!

We'll take a look at the tools that The SAS System provides to create web based information delivery applications. We'll see how you can publish you monthly reports on the Internet. We'll explore Java programs running in your web browser or web server that accesses your data warehouse. Finally, we'll look beyond the browser, and see how you can access the power of The SAS System from the new range of wireless Personal Digital Assistants, and cell phones.

## Poster Abstracts

### **Using ODS & SAS/GRAPH® Software and MXG® OS/390 SAS Version 8 WEB GIFS and HTML**

Neal Musitano Jr.

Department of Veterans Affairs

OS/390® mainframe computer performance data is collected using IBM System Management Facilities (SMF) and Resource Measurement Facility (RMF) data. The raw SMF/RMF data is processed with MXG® and SAS® software into an easily usable SAS® format.

This paper utilizes that performance data. The MXG® Performance Database, i.e., daily, weekly or monthly contains millions of performance variable values all in SAS® readable format.

The intent of this paper is not to explain MXG® software, which is SAS® source code, but to display some user examples of OS/390 computer performance graphs and reports as WEB GIFS and HTML output utilizing SAS Version 8® and the MXG® Computer Performance Database as input.

The WEB GIFS displayed were produced on an OS/390 mainframe using the SAS/Graph® GIF driver. The WEB GIFS and HTML reports are updated daily on the mainframe intranet Webserver for viewing via a WEB browser.

*Neal Musitano Jr is a Senior Computer Specialist, with the Department of Veterans Affairs, Veterans Benefits Administration, Benefits Delivery Center, located in the Philadelphia, Pennsylvania.*

*The VBA is responsible for processing Veterans Benefits and Services. Neal holds a B.A. in Physics and a B.S. in Computer Science from Youngstown State University. He has been working in data processing since 1978, on Honeywell and IBM mainframes and NCR communication processors. He has been a SAS user on MVS/OS platforms since 1982. Neal is a member of the Philadelphia SAS Users Group - PhilaSUG, the Philadelphia Computer Measurement Group - PHILACMG, and has presented at the local, regional and national level*

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### **Using SAS Tabulate HTML Formatter - Web Publishing Tool - By Examples**

SAS Web Publishing Tools are SAS macros which enable you to convert your data files, output files to HTML format and to display it on your Web browser. This paper explains one of SAS Formatters, known as Tab formatter and how to invoke this macro with provided examples. The examples illustrate how to enhance your tabulation output on the Web browsers.

The SAS product utilized in this paper is SAS BASE, with SAS Formatters installed on Unix platform.

*Shi-Tao Yeh is a senior consultant at EDP Contract Services with assignments to SmithKline Beecham Pharmaceuticals. Shi-Tao's areas of expertise are SAS Base, SAS/STAT, SAS/GRAPH, SAS/AF and SAS/FSP. He has a Ph.D. degree from University of Pennsylvania and has been using SAS software for twenty-three years.*

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### **Automatically Converting Data Set Specifications on Excel to a SAS Program Used to Assign Data Set Attributes - An Approach to Global Data Mart Building Process**

Melanie Paules, Smithkline Beecham Pharmaceuticals

Pilita Canete, EDP Contract Services

Shi-Tao Yeh, EDP Contract Services

The Global Data Mart (GdMart) is a collection of SAS datasets in a standard structure that are used for reporting clinical data. The data mart building process entails mapping data fields from the Oracle database into SAS datasets based on mapping specifications. The data mart mapping specifications are held in Microsoft Excel spreadsheets.

This paper describes an automated approach to building an attribute dictionary and the code to assign the attributes to

the datasets during the data mart building process. The approach includes two steps. The first step uses a nested SAS program with SAS macros to read the dataset specification from Excel worksheets and build an attribute dictionary that is transported to UNIX. The second step uses a SAS macro to assign the attributes to the data mart data sets within the mapping programs. The outcome is an attribute dictionary in the form of a SAS dataset and a SAS macro that can be invoked within the mapping programs to assign the attributes to the reporting datasets.

The SAS product used in this paper is SAS BASE on PC and UNIX platforms.

*Melanie Paules is a Lead Programmer/Analyst at SmithKline Beecham. Her responsibilities include leading the development of data mart building and reporting software used in the summarization and presentation of clinical trial data. Melanie has a MS degree in Applied Statistics from Villanova University. She has been a SAS user for 11 years.*

*Pilita R. Canete is a consultant at EDP Contract Services working for Smithkline Beecham. She has more than 10 years experience of using SAS in different platforms. She has an M.S and B.S Statistics Degree from the University of the Philippines.*

*Shi-Tao Yeh is a senior consultant at EDP Contract Services with assignments to SmithKline Beecham Pharmaceuticals. Shi-Tao's areas of expertise are SAS Base, SAS/STAT, SAS/GRAPH, SAS/AF and SAS/FSP. He has a Ph.D. degree from University of Pennsylvania and has been using SAS software for twenty-three years.*

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### **Using Proc SQL to Create Ad Hoc Reports**

Anne Marie Smith

The purpose of this poster is to demonstrate the powerful features of PROC SQL in the creation of ad hoc reports for clinical trial research. The reports created are for the display, summation and descriptive statistical analysis of clinical trial research data. The SAS programming methods discussed are flexible and summarize Phase I to Phase III clinical trial data; adverse events, study medications and potentially clinically significant lab test values. Within the SAS programs written here, the use of PROC SQL affords for shorter, easier to understand programs with short execution times, while making the programming code efficient, flexible and maintainable.

*Anne Marie Smith is an independent consultant with 20 years experience in the Software Industry. Visit her website at*

*http://geocities.com/rainbow\_softwr, the homepage of Rainbow Communications and Software Inc. Presently Anne is doing Statistical Programming consulting work for the Pharmaceutical Industry and working with AstraZeneca in PA.*

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### **Proc Forms- Mailing Labels Without Word Processing**

John J. Cohen

AstraZeneca Pharmaceuticals

Mail merge programs in word processors or specialized packages meet most of our needs. But when bulk mailing is required or the pre-processing and selection is extensive and/or frequent, a programming tool is handier. The SASR System can combine both, offering all the data manipulation capabilities we know and love and a label formatting utility. This utility, Proc Forms, will be described here.

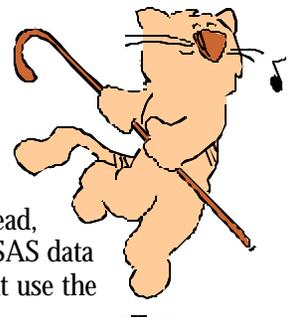
*John Cohen is an IT Support Team Leader for the Promotions Response Analysis Department at AstraZeneca Pharmaceuticals. A SAS user since 1980 in a variety of business and academic settings, he is active in several SAS usergroups and will be a Section Co-chair at DiamondSUG in San Francisco, CA and at NESUG 2000 in Philadelphia, PA.*

## **Tech Notes**

### **Audit Files (a new feature in SAS version 8)**

by Rick Aster

An audit file is a special SAS data file that records all or selected changes to observations in a SAS data file, including changes that are rejected by indexes or integrity constraints. The association between the SAS data file and its audit file is called an audit trail. Use the AUDIT statement of the DATASETS proc to create and manage an audit trail. To read, query, print, or copy the audit file of a SAS data file, use the same SAS dataset name, but use the dataset option TYPE=AUDIT.



The audit file generally contains one observation for each change to an observation in the SAS data file. It contains all the variables of the SAS data file, plus these:

- \_ATOBSNO\_                      The observation number of the changed observation (if available)
- \_ATDATETIME\_                The date and time of day when the change was stored

**\_ATUSERID\_** The user ID of the user or job that made the change

**\_ATRETURNCODE\_** The return code of the change

**\_ATMESSAGE\_** The log message, if any, generated by the change

**\_ATOPCODE\_** The operation, or kind of change:

- DA Added observation
- DD Deleted observation
- DR Updated observation (before)
- DW Updated observation (after)
- EA Error attempting to add observation
- ED Error attempting to delete observation
- EW Error attempting to update observation

**user variables** Other audit variables defined in the **USER\_VAR** statement. These variables, although stored in the audit file, are accessed as if they were in the SAS data file itself. Values are not stored for these variables if they are entered when deleting an observation.

An audit file is automatically deleted if the SAS data file is deleted, replaced, or sorted in place. It is not copied when the SAS data file is copied. If the SAS data file is renamed, the audit file remains associated with the SAS data file under the new name. If you create a new generation of a generation dataset that has an audit trail, the audit file becomes part of the historical generation, and the audit trail is no longer active. If an audit file becomes damaged or deleted, the SAS data file cannot be read or updated until the audit trail is terminated with the **TERMINATE** statement of the **DATASETS** proc.

*Reproduced by permission from the forthcoming book Professional SAS Programmer's Pocket Reference, 3rd edition, by Rick Aster. This new edition is extensively revised, expanded, and updated for SAS Version 8. It is scheduled for release June 20 by Breakfast Books.*

*Rick Aster, of Valley Forge, PA, is one of the leading experts on the subject of SAS programming. A decade ago, his first book changed the way people think about SAS programming. His audio sets are the only audio materials ever to combine authoritative information on SAS software with comedy and original rock music. His next book, Professional SAS Programming Logic, is expected to be ready for release in the fall.*

## **NESUG 2000 in Philadelphia**

**September 24 to September 26, 2000 are the dates  
and the Adams Mark Hotel is the place**

In 1682, Quaker William Penn founded Philadelphia, the

City of Brotherly Love. 318 years later, the 13th annual NESUG conference will make its second journey to Philly, at the Adam's Mark Hotel. Whether you are local or coming from a distance, Philadelphia, America's birthplace, has many attractions:

- Philadelphia Zoo
- Philadelphia Museum of Art
- Independence Hall
- Liberty Bell
- South Street shopping and dining
- New Jersey State Aquarium
- The Franklin Institute Science Museum
- Penn's Landing

As in the past, the NESUG 2000 Conference will provide presentations geared toward all SAS programming levels, from novice to advanced. Planned concurrent sessions for Monday and Tuesday will include:

- Advanced and Beginning Tutorials
- Applications
- Code Clinic
- Coder's Corner
- Database and Information Systems
- Internet, Intranets, the Web and SAS
- Posters
- Statistics
- Pharmaceuticals
- .....and more!

Plus, highlights will include the SAS Bowl, Vendor Area, Consultants Registry, Opening Session, and the Monday Night Party. SAS Institute will provide traditional sessions such as On-line Demonstrations and the SAS Demo Area. In addition, workshops and courses are planned prior to and after the conference. There will be ample opportunity to learn a great deal about SAS, meet new people and to Explore Philly!

There are many opportunities for you to volunteer your help with the conference. If you are interested, please contact the NESUG 2000 Conference Co-Chairs Erik or Alexa at:

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