



CC03: Overview of SAS Proc Format and combining formats catalogs

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Proc format Basics

- **proc format ;**
- **value trt**
 1='treatment 1'
 2='treatment 2';
- **value \$c_txt**
 'A'='Alpha';
- **run;**

```
data _temp;  
  num =1;  
  num2=2;  
  format num          trt.;  
  attrib num2 format= trt.;  
run;
```

Formats stored in a catalog

← Work library by default e.g. library=work

← Numeric format

← Character format – starts with a \$ sign

← Use format in a datastep
Format used with a trailing dot

	num	num2
1	treatment 1	treatment 2

Proc format ranges

- value rng

low-100 =[4.]

other='Amend rng';



Using SAS format 4. in [brackets
"Other" useful to catch errors

- value tot_trt

1-2 =[trt20.]

99 ="Total" ;



Using existing user-defined format

- value real_rng

0 - <0.05 ='<0.05' ;



Real number ranges can cause problems

- value rng_olap

1-10 ='One to ten'

5-15 ='five to fifteen' ;



ERROR: These two ranges overlap:
1-10 and 5-15 (fuzz=1E-12).

Proc format options

- **proc format**

lib=derived

cntlín =raw_fmts

cntlout=drv_fmts

Noreplace

FMTLIB;

value xyz ... ;

- **run;**



Formats stored in derived library



Importing formats from a dataset



Exporting formats to a dataset



Duplicate format names will give an error



Prints format definition to output window

Other format points

■ NOFMterr

- A format may be defined but SAS can't find it and gives an error in the log
- ERROR 48-59: The format MISC was not found or could not be loaded.
 - NOFMterr makes this a Note

■ FMTSEARCH

- Format error may be because SAS is not searching the correct library
 - Define search order with FMTSEARCH
 - options fmtsearch=(raw derived work);
 - If the same format is in both libraries then the first one is used.

■ See which options are in effect with:

- Proc options option=fmtterr option=fmtsearch; run;

Combining formats catalog

- Study Setup program – setup.sas
 - Defines location of data and macros
 - Database data and formats in RAW library
 - Derived data in DERIVED library
 - Defines SAS options
 - Runs formats program
- Good to have all Derived and Listing Table Figure formats in one catalog to:
 1. Check for duplicates - NOREPLACE option
 2. Only run formats program when there is an update
 3. Keep an old copy for checking/QC and traceability
 4. Store copy of formats as a dataset for review

Pseudo code - %fmt (update=N (default) or Y);

- If raw formats catalog exists then create a work dataset version
 - Otherwise create a dummy format and a work dataset version
- If updating formats (update=Y)
 - keep an old work copy of the catalog
 - delete current derived catalog
- If derived formats catalog does not exist then
 - Import the raw formats from raw format dataset - CNTLIN
 - Run the code to create the derived formats
 - Check no duplicate formats with NOREPLACE option
 - Check formats okay by printing formats to output window - FMTLIB
 - Output combined formats to a dataset - CNTLOUT

Combined catalogs further points

- Format program is a macro
 - Need to run updated macro to update code in memory
- Check format log for duplicates or errors
- Check old catalog has been saved for traceability
- Use format and check it is as expected
 - Dual program or check new vs previous dataset as required
- Store all formats in formats program
 - Adhoc formats in TFL programs may be inconsistent and difficult to trace
 - Consider format naming conventions

Summary

- Proc format basics
- Proc format options
- Other format points
- Format problems
- Combining formats catalogs
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Any Questions ?