

Macro to Retain Group Variable Names in PROC REPORT's ODS RTF Outputs

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ABSTRACT

PROC REPORT with the combination of ODS RTF is a powerful tool and widely used to produce tables and listings for clinical trial data in pharmaceutical industry. Limitation of ODS RTF output is that the content of same group variables are not carried forward to following page for SAS® Versions 8.2 and 9.1. In this paper, a simple macro based solution will be presented to help SAS® users to overcome the limitation of ODS RTF.

INTRODUCTION

Since ODS RTF has been available in production in SAS® Version 8.1, it has become the most useful function to programmers in biotechnology/pharmaceutical industries. In this paper we will look at PROC REPORT output to the RTF destination, as designed to overcome an implication that programmers need to anticipate when creating tables and listings that extend over more than one page. For SAS® Versions 8.2 and 9.1, PROC REPORT output will not repeat GROUP/ORDER variable values at the start of a new page. In this paper I will outline the approach that I have adopted to overcome the limitation of the ODS RTF in my day-to-day work as a statistical programmer.

SOLUTION

The proposed macro based solution is simple and no advanced SAS® programming skill is needed. The basic idea of this macro is to control number of observations that fit to each page by taking advantage of automatic variable `_n_`.

An example program presented in this paper is to produce a summary table of lab parameters for each treatment group. The n, mean, std, median, min, max are presented for each lab parameter and visit, and the table output has treatment groups listed top of the table and lab parameter, visit and summary statistics are listed left side of the table.

Step 1

The first step is to sort the input data of PROC REPORT by the group/order variables.

```
proc sort data=lab;
  by test visit ;
run;
```

Step 2

The second step is to set up a macro to create a variable upon which a page break is forced in PROC REPORT. The input parameters for this macro are as follows:

PARAMETER	DESCRIPTION
inds	the input dataset name
byvars	by variables that are sorted from step 1
brkpt	a variable upon which a page break is forced

Step 3

The macro completes following steps in the process.

- 1) assign the group/order variables that are sorted
- 2) creates a variable pagebrk based on number of observations of brkpt
- 3) brkpt value of 18 is picked in order to increment pagebrk after every 18 observations of input dataset

```
%macro pagebreak (inds=, byvars=, brkpt=);
  /* one page can hold 18 lines of output in this scenario */
  data &inds(drop=brk);
    set &inds;
    by &byvars;
    if _n_ eq 1 then brk=0;
    else brk+1;
    /* when brk is greater than or equal to 18, it gets reset to 0 and increments
pagebrk by 1 */
    if brk >=&brkpt then do;
      pagebrk+1; brk=0;
    end;
```

```
run;
%mend;
%pagebreak (inds=lab, byvars=test visit, brkpt=18)
```

Step 4

The output data set now contains all the information required to produce an accurately paginated table to retain the group variable values to following page using the PROC REPORT procedure:

```
ods listing close;
ods rtf file="C:\ODS RTF\lab_summary.rtf" style=rtf_style;
title1 " ";
title2 "Summary of Laboratory Values ";
options nodate nonumber;
proc report data=lab nowindows headline headskip split='^'
style(header)=[background=transp];
column pagebrk TEST VISIT STAT varA varD varE;
/* pagebrk is set to noprint as it will be used for only pagination */
define pagebrk /order noprint;
define TEST /group "Test" style(column)=[just=L asis=on cellwidth=30%]
style(header)=[Just=L];
define VISIT /group "Visit" order=internal style(column)=[just=c asis=on
cellwidth=12%] style(header)=[Just=c];
define STAT / "Statistics" style(column)=[just=L asis=on cellwidth=8%]
style(header)=[Just=L ];
define varA / "Group A" style(column)=[just=L asis=on cellwidth=10%]
style(header)=[Just=c];
define varD / "Group D" style(column)=[just=L asis=on cellwidth=10%]
style(header)=[Just=c];
define varE / "Group E" style(column)=[just=L asis=on cellwidth=10%]
style(header)=[Just=c];
break after pagebrk/page;
run;
ods rtf close;
ods listing;
```

Use of the pagebrk variable as the left most in COLUMN statement, invisible order variable in DEFINE statement, and the BREAK AFTER statement are the only additional lines required to achieve the accurate pagination of the summary report.

LIMITATIONS

One of the tasks involved in this technique is the permutation and combination of number of observations of output in each page. This method is straight-forward to set page breaks when each observation only appears on one line. However, in some tables or listings the length of some data values causes text wrapping within the cells. In this case, SAS® does not know how many observations will fit on each page. To overcome this problem, in version 9.2 of SAS®, you can try the new option of SPANROWS in the PROC REPORT statement along with trying the new tagsets.rtf as well.

CONCLUSION

Using the automatic variable _n_ can be a great way to control number of observations that fit to each page using ODS RTF and PROC REPORT. However, there are some problems that you need to be aware of in creating tables or listings with this method. This paper demonstrated to simplify your coding and effectively overcome some of your practical problems.

REFERENCES

Hamilton P. (2003), "ODS to RTF: Tips and Tricks," Proceedings of the Twenty-eighth Annual SAS User Group International Conference, Cary, NC: SAS Institute, Inc.

Shannon D. (2002), "To ODS RTF and Beyond," Proceedings of the Twenty-seventh Annual SAS User Group International Conference, Cary, NC: SAS Institute, Inc.

PhUSE 2005 Conference (TS03: "Pagination in the ODS" – John Kirkpatrick, ISC Ltd)

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