

Allow Your RTF Table Numbers to Reorder as They Change Position In Your RTF

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Before We Start

- Handout
 - Reviews Word procedures needed in conjunction with the %caption macro
 - Contains %caption macro and examples
- Presentation
 - Utilization of the %caption macro
 - Highlights of the %caption macro

Reason for %Caption Macro

- Statisticians wanted Word to automagically update table numbers after reordering or inserting new tables into a Word document without altering and rerunning SAS code.
- Before the %caption macro, a change of “Table 1” to “Table 2” was hard coded in a SAS TITLE statement and would need to be changed each time the tables in a report were reordered.
- With the %caption macro, tables can be inserted and reordered in a Word document and the table numbers update without SAS code changes to ease the automation of reports.

Example

- The tables are files that are inserted as links into a Word document (See handout if you need directions).
- Notice the changes we would like to make in our RTF (Word) example document.

Results

BLAH BLAH BLAH

Table 1: Analysis A

< Table of Analysis A >

BLAH BLAH BLAH

Table 2: Analysis B

< Table of Analysis B >

BLAH BLAH BLAH

Results

BLAH BLAH BLAH

Table 1: Analysis B

< Table of Analysis B >

BLAH BLAH BLAH

Table 2: Analysis C

< Table of Analysis C >

BLAH BLAH BLAH

Table 3: Analysis A

< Table of Analysis A >

BLAH BLAH BLAH

Code Comparison

- Table of analysis C – another program
- Hard coding changes repeatedly OR
- Code once and done

OLD NEEDED CODE CHANGES = REPEATED HARD CODING

```
ODS RTF file=AnalysisA.rtf bodytitle;  
title1 justify=left 'Table 3: Analysis A';  
< Proc Report >  
ODS RTF close;
```

```
ODS RTF file=AnalysisB.rtf bodytitle;  
title1 j=left 'Table 1: Analysis B';  
< Proc Tabulate >  
ODS RTF close;
```

NEW %CAPTION CODE = CODE ONCE AND DONE

```
ODS RTF file=AnalysisA.rtf bodytitle;  
%caption(captiontext=Analysis A);  
< Proc Report >  
ODS RTF close;
```

```
ODS RTF file=AnalysisB.rtf bodytitle;  
%caption(captiontext=Analysis B);  
< Proc Tabulate >  
ODS RTF close;
```

Update Field For Numbers

- Whoa!!! Where are my automagic numbers?
- Select the whole document (CTRL+A or directions in handout).
- Right Click and hit !Update Field or press F9
- Table numbers appear according to their order in the document.

Results

BLAH BLAH BLAH

Table 1: Analysis B

< Table of Analysis B >

BLAH BLAH BLAH

Table 2: Analysis C

< Table of Analysis C >

BLAH BLAH BLAH

Table 3: Analysis A

< Table of Analysis A >

BLAH BLAH BLAH



How Do The Numbers Work?

- Word calls it field instructions, or field codes.
- This is what it looks like:
`\field{\*\fldinst{SEQ &type \}* ARABIC \n }}`
- Word resolves the ugly code above into a “defined sequence number” or the number you see when the fields are updated.
- Curious about field codes?
 - Make a Word document with the features you want, save it as a RTF (not a Word document) and then view the .rtf file in a text editor.
 - May lead to other helpful “SAS” macros

%Caption Macro Capabilities

- TNUM defines the type of SAS TITLE statement created. If TNUM=3, it will make a TITLE3 statement. The default is 1.
- CNUM combined with SWTCH=c make table “sub numbers”, like 2a or 2b.

```
ODS RTF file=AnalysisA.rtf bodytitle;  
%caption( captiontext=Analysis A of Gender, tnum=1, swtch=n, justify=center );  
%caption( captiontext=Male Analysis, tnum=2, swtch=c, cnum=a, justify=center );  
< Table Code >  
ODS RTF close;
```

SWTCH = N places the Next sequence number into the title.

SWTCH = C places the Current sequence number into the title.

- RTF (Word) Document

Table 1: Analysis A of Gender

Table 1a: Male Analysis

<Table>

Adding Heading Numbers to Table Numbers

- **SNUM** and **SWTCH=S** combine to allow tables to start with heading numbers.
 - A heading must already be in place to see its matching number.
 - If the section is 1.1, then the first table number will be 1.1.1.
 - **SNUM** must coordinate with the number of levels in the heading, so if the heading is 3.1.2, then **SNUM** must be 3. Most likely **snum** will equal 2 like in the 1.1 example above.

```
ODS RTF file=AnalysisA bodytitle;
```

```
%caption( captiontext=Analysis A of Gender, type=Figure, tnum=1, swtch=s, justify=left, snum=2 );
```

```
< Figure Code >
```

```
ODS RTF close;
```

TYPE can have any value. The default is Table, but can equal anything, Bumblejet or Snagglebike, or more likely, Figure or Graph.

- **RTF (Word) Document**

1 Introduction

1.1 Background

Figure 1.1.1: Analysis A of Gender

<Figure>

Make Bookmarks to Reference Table Numbers

- Bookmarks can be very useful for referencing tables in the text, especially since the bookmark numbers change when table numbers are reordered. Directions are in the handout.

```
ODS RTF file=AnalysisA bodytitle;  
%caption( captiontext=Analysis A of Gender, type=Table, tnum=1, swtch=n, justify=left,  
          bkmrk=TAGENDER );  
< Table Code >  
ODS RTF close;
```

BKMRK names the bookmark to use as a reference. In this case, TAGENDER, will be selected from a list of possible bookmarks.

- RTF (Word) Document

1 Methods

Here is a bookmark reference in the text for the table (**Table 3**) we created. This will change its number as the table number changes. You just need to update the field like we mentioned before. The bookmark is “Table 3” because of the location of the bookmark start and end field codes.

Notes of %Caption Macro

- Easy to use
 - Complex TITLE statement
- Field code embedded in SAS code
 - Allows for table number reordering within Word
 - Allows the use of bookmarks in Word
 - To discover other useful field codes, create a Word document with the elements that you would like, save it as a RTF, and then look at the file in a text editor.
- PROC GPLOT, or similar procedure, combined with %caption macro:
 - NOGTITLE must be in your ODS RTF statement.
- SUGGESTION: Use BODYTITLE in the ODS RTF statement so that the tables appear seamless from the text.

Thank you.

- Heather Ribaudo for writing this macro.
- Wayne Hester from SAS for pointing us in the right direction for this macro.
- Matt Manne, Peter Bohlin, Lesley Park, and the computing group at CBAR for helping with this presentation.

Questions?

- You may reach me at
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%Caption Macro Code – More Examples in Handout

SWTCH can take the values n (insert the next sequence number),

c (use the most recent sequence number),

s (index to heading number),

r (reset sequence number to value given in rnum)

```
%macro caption(captiontext=,tnum=1,justify=left,type=Table,bkmrk=,swtch=n,snum=,cnum=,rnum=) ;
```

```
  %if %lowercase(&swtch)=n %then
```

```
    title&tnum j=&justify "{{\*\bkmrkstart &bkmrk}
```

```
      {\&type \field{\*\fldinst{SEQ &type \* ARABIC \n}}{\*\bkmrkend &bkmrk}: &captiontext}" ;
```

```
  %if %lowercase(&swtch)=c %then
```

```
    title&tnum j=&justify "{{\*\bkmrkstart &bkmrk}
```

```
      {\&type \field{\*\fldinst{SEQ &type \* ARABIC \c}}&cnum{\*\bkmrkend &bkmrk}: &captiontext}" ;
```

```
  %if %lowercase(&swtch)=r %then
```

```
    title&tnum j=&justify "{{\*\bkmrkstart &bkmrk}
```

```
      {\&type \field{\*\fldinst{SEQ &type \* ARABIC \r &rnum}}{\*\bkmrkend &bkmrk}: &captiontext}" ;
```

```
  %if %lowercase(&swtch)=s %then
```

```
    title&tnum j=&justify "{{\*\bkmrkstart &bkmrk}
```

```
      {\&type {\field{\*\fldinst{STYLEREF &snum \s}}.\field{\*\fldinst{SEQ &type \* ARABIC \s &snum}}}{\*\bkmrkend &bkmrk}: &captiontext}" ;
```

```
%mend ;
```