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Numeric and Decimal Place Alignment in RTF Files with Non-Monospaced Fonts

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ABSTRACT

Summary tables in RTF format for population data, laboratory data, vitals … they all have the same problem. Everyone wants that RTF table to look as sharp as possible. But, getting the alignment of numeric data using proportional fonts can drive you crazy.

This paper presents simple approaches to solving this problem using column styles and RTF codes.

INTRODUCTION

The characters in monospaced fonts all occupy the same amount of horizontal space. They have a fixed width which makes it relatively easy to align output created with these fonts. In contrast, the characters in proportional fonts or non-monospaced fonts occupy varying amounts of horizontal space. They vary in width and therefore cause problems with output alignment when using these fonts.

MONOSPACED OUTPUT

For monospaced fonts, it is easy to achieve output that has character and numeric alignment. Output 1 was created using simple left and right justification for character variables even for the numeric column because it was preformatted and placed into a character variable.

Type	Test	Summary	Results
HEMATOLOGY	Hematocrit (%)	Mean	40.7
		SE	0.67
		Median	40.0
		Std Dev	1.15
		Min	40
		Max	42
	Hemoglobin (g/dL)	Mean	13.27
		SE	0.203
		Median	13.30
		Std Dev	0.351
		Min	12.9
		Max	13.6
	WBC (x10^3/uL)	Mean	7.733
		SE	0.4889
		Median	7.430
		Std Dev	0.8468
		Min	7.08
		Max	8.69

Output 1. Monospaced Alignment of Decimal Places

PROPORTIONAL PROBLEMS

The majority professional publications use proportional fonts. Even the FDA has a recommended list of 16 fonts and only 3 are monospaced. So, it is important to learn how to create proportional font output that looks good and is readable.

The most common way to align output in RTF format is the standard justifications; left, right, and center. What can be achieved with these standard justifications using output 1 and emphasizing the formatting of the numeric column? Can output with a similar alignment to that of the monospaced font be created using proportional fonts?

PROPORTIONAL JUSTIFICATIONS

Justification can be accomplished with the STYLE option in PROC REPORT statement or the STYLE option in the DEFINE statement of the PROC REPORT. The STYLE option in the PROC REPRT statement defines a default style for the entire report. We can create a mixture of justifications for the columns by using both STYLE options.

LEFT JUSTIFICATION

Using just the STYLE option in the PROC REPORT statement, left justification is defined for the entire table.

```
proc report data=labrslt nowd
              style(report)=[rules=none width=80%]
              style(header)=[just=left]
              style(column)=[just=left];
     column (Labtype newlabtest Level labrslt);

     define labtype      /order order=internal 'Type';
     define newlabtest   /order order=internal 'Test';
     define level        /display 'Summary';
     define labrslt      /display 'Results';
run;
```

Type	Test	Summary	Results
HEMATOLOGY	Hematocrit (%)	Mean	40.7
		SE	0.67
		Median	40.0
		Std Dev	1.15
		Min	40
		Max	42
	Hemoglobin (g/dL)	Mean	13.27
		SE	0.203
		Median	13.30
		Std Dev	0.351
		Min	12.9
		Max	13.6
	WBC (x10/uL)	Mean	7.733
		SE	0.4889
		Median	7.430
		Std Dev	0.8468
		Min	7.08
		Max	8.69

Output 2. Proportional Left Justification of Decimal Places

RIGHT JUSTIFICATION

Using the style option in the PROC REPORT statement, left justification is the defined as the default for the table. But, using the style option in the define statement; we can override the default for the results column to make it right justified.

```
proc report data=labrslt nowd
              style(report)=[rules=none width=80%]
              style(header)=[just=left]
              style(column)=[just=left];
     column (Labtype newlabtest Level labrslt);

     define labtype      /order order=internal 'Type';
     define newlabtest   /order order=internal 'Test';
     define level        /display 'Summary';
     define labrslt      /display 'Results' style(column)=[just=right];
run;
```

Type	Test	Summary	Results
HEMATOLOGY	Hematocrit (%)	Mean	40.7
		SE	0.67
		Median	40.0
		Std Dev	1.15
		Min	40
		Max	42
	Hemoglobin (g/dL)	Mean	13.27
		SE	0.203
		Median	13.30
		Std Dev	0.351
		Min	12.9
		Max	13.6
	WBC (x10/uL)	Mean	7.733
		SE	0.4889
		Median	7.430
		Std Dev	0.8468
		Min	7.08
		Max	8.69

Output 2. Proportional Right Justification of Decimal Places

CENTER JUSTIFICATION

Using the STYLE option in the PROC REPORT statement, left justification is the defined as the default for the table. But, using the STYLE option in the DEFINE statement; we can override the default for the results column to make it centered.

```
proc report data=labrslt nowd
              style(report)=[rules=none width=80%]
              style(header)=[just=left]
              style(column)=[just=left];
     column (Labtype newlabtest Level labrslt);

     define labtype      /order order=internal 'Type';
     define newlabtest   /order order=internal 'Test';
     define level        /display 'Summary';
     define labrslt      /display 'Results' style(column)=[just=center];
run;
```

Type	Test	Summary	Results
HEMATOLOGY	Hematocrit (%)	Mean	40.7
		SE	0.67
		Median	40.0
		Std Dev	1.15
		Min	40
		Max	42
	Hemoglobin (g/dL)	Mean	13.27
		SE	0.203
		Median	13.30
		Std Dev	0.351
		Min	12.9
		Max	13.6

Type	Test	Summary	Results
	WBC (x10/uL)	Mean	7.733
		SE	0.4889
		Median	7.430
		Std Dev	0.8468
		Min	7.08
		Max	8.69

Output 3. Proportional Center Justification of Decimal Places

DECIMAL TAB

It becomes apparent that the same look of the decimal place alignment achieved with a monospaced font when using the standard justifications on a proportional font cannot be accomplish. So, what can be done? An RTF decimal tab can be used to produce decimal place alignment creating a similar formatting.

RTF decimal tab is defined with \tqdec\txNNN, where \tqdec is the RTF code for the decimal tab and \txNNN defines the placement of the tab in NNN twip units. A twip is 1/20th of a point or 1/1440th of an inch.

To use the decimal tab RTF code, an ODS ESCAPECHAR must be defined and the RTF decimal tab must be used in the DEFINE statement of a PROC REPORT with the PRETEXT attribute of the STYLE option. Otherwise, the RTF decimal tab may be appended to the front of the variable prior to the call of the PROC REPORT.

```
ods escapechar='^';
proc report data=labrslt nowd
             style(report)=[rules=none width=80%]
             style(header)=[just=left]
             style(column)=[just=left];
     column (Labtype newlabtest Level labrslt);

     define labtype      /order order=internal 'Type';
     define newlabtest   /order order=internal 'Test';
     define level        /display 'Summary';
     define labrslt      /display 'Results' style(column)=[just=left
pretext="^R'\tqdec\tx650 '"];
run;
```

Type	Test	Summary	Results
HEMATOLOGY	Hematocrit (%)	Mean	40.7
		SE	0.67
		Median	40.0
		Std Dev	1.15
		Min	40
		Max	42
	Hemoglobin (g/dL)	Mean	13.27
		SE	0.203
		Median	13.30
		Std Dev	0.351
		Min	12.9
		Max	13.6
	WBC (x10/uL)	Mean	7.733
		SE	0.4889
		Median	7.430
		Std Dev	0.8468

Type	Test	Summary	Results
		Min	7.08
		Max	8.69

Output 4. Proportional Decimal Tab of Decimal Places

If the field had more than one decimal, the decimal place alignment occurs with the first decimal of the field. The characters on either side of the decimal place are still using proportional font.

DECIMAL JUSTIFICATION

How about non-standard justifications? Using the STYLE option in the PROC REPORT statement, left justification is the defined as the default for the table. But, using the STYLE option in the DEFINE statement; we can override the default for the results column to make it decimal justified.

```
proc report data=labrslt nowd
             style(report)=[rules=none width=80%]
             style(header)=[just=left]
             style(column)=[just=left];
     column (Labtype newlabtest Level labrslt);

     define labtype      /order order=internal 'Type';
     define newlabtest   /order order=internal 'Test';
     define level        /display 'Summary';
     define labrslt      /display 'Results' style(column)=[just=d];
run;
```

Type	Test	Summary	Results
HEMATOLOGY	Hematocrit (%)	Mean	40.7
		SE	0.67
		Median	40.0
		Std Dev	1.15
		Min	40
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	WBC (x10/uL)	Mean	7.733
		SE	0.4889
		Median	7.430
		Std Dev	0.8468
		Min	7.08
		Max	8.69

Output 5. Proportional Decimal Justification of Decimal Places

CONCLUSION

Using the STYLE option for justification and RTF decimal tab, it is possible to create proportional font output that has a similar alignment to that of the monospaced font. It looks good and is readable.

REFERENCES

FDA Providing Regulatory Submissions in Electronic Format – General Considerations

ODS to RTF: Tips and Tricks - Paul Hamilton, Berlex Laboratories, Seattle, WA

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