

Crafting Clinical Reports with Stone-Age Tools

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Topics

- Introduction
- Introducing LaTeX
- Examples
- Future Promises
- Summary

Introducing LaTeX

- Originally written in the early 1980s by Leslie Lamport at SRI International
- LaTeX is a macro language – not SAS but TeX
- Started as a writing tool for mathematicians and computer scientists
- Used for ...
 - Wikipedia formulas
 - Aircraft manuals
 - TV Guides
 - Journals
 - Books
 - Conference presentations (although not this one)

LaTeX and SAS

- Supported since SAS 9.1 (2004)
- ODS Tagset

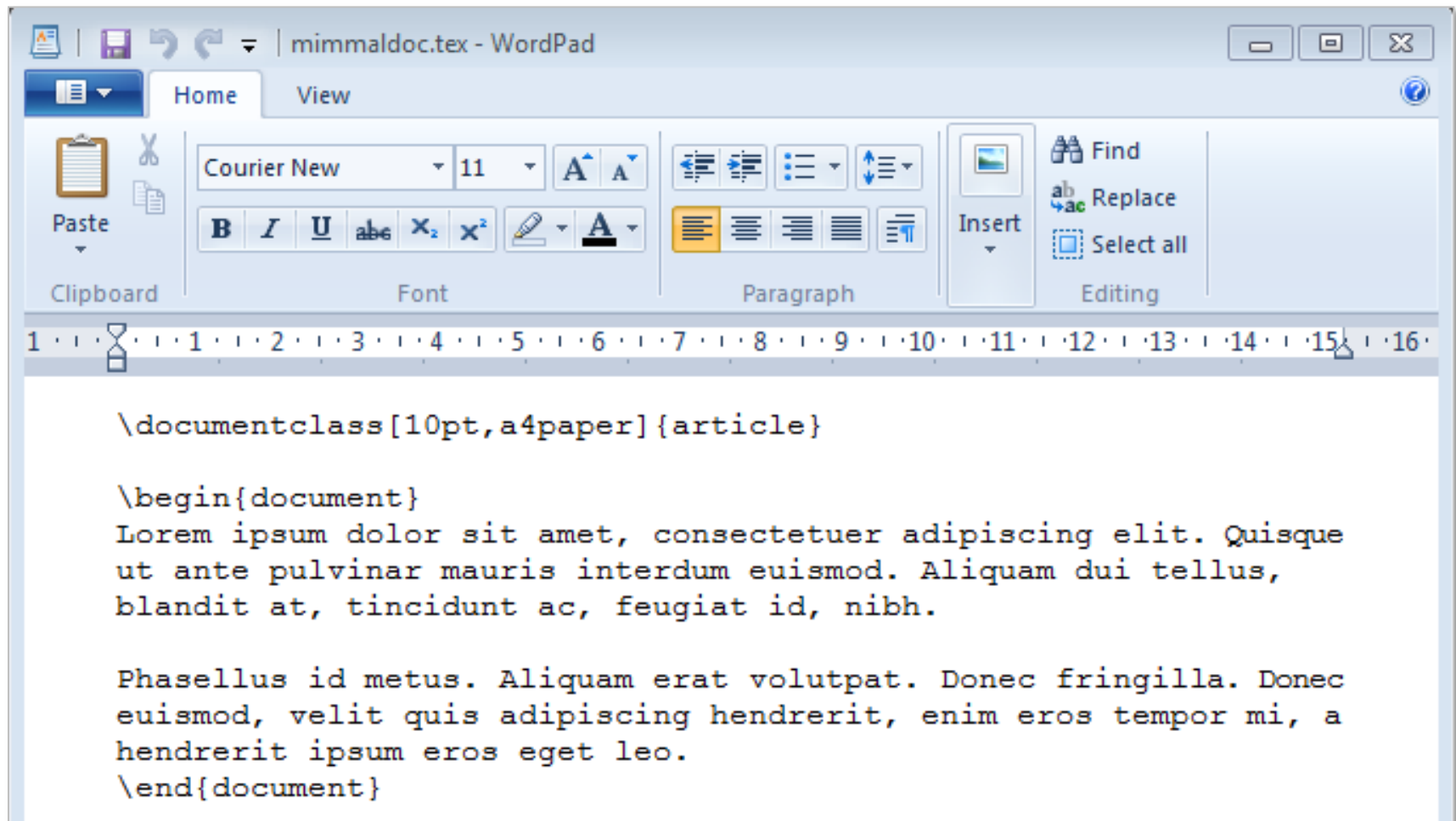
```
ods tagsets.latex file = "legacy.tex" ;  
  
proc print    data = sashelp.class ;  
run;  
  
ods tagsets.latex close ;
```

LaTeX Tagsets

Tagset	Description
Latex	Black-and-white LaTeX in an ODS-type style
ColorLatex	Latex tagset in color
SimpleLatex	Plain LaTeX markup for tables with procedure titles, system titles, notes, etc.
TablesOnlyLatex	Plain LaTeX markup for tables without the procedure titles, system titles, notes, etc.

- Master documents and include
- Fragment for re-use
 - Format determined by master document
 - Includes are user specified – similar to %include in SAS

Simple Example



Clinical Summary Report

Company Protocol Name			
Table 5.3 Demographics			
	Active (N=31)	Placebo (N=29)	Overall (N=120)
	P-value**		
Age (years)			0.9528
N	31	29	
Mean	51.4	50.1	
Standard Deviation	13.23	13.22	
Minimum	32.0	23.0	
Maximum	75.0	77.0	
Gender			
Male	22 (71.0%)	16 (55.2%)	
Female	9 (29.0%)	12 (41.4%)	
Race			
White	18 (58.1%)	18 (62.1%)	
Black	10 (32.3%)	8 (27.6%)	
Other*	3 (9.7%)	3 (10.3%)	
* Other includes Asian, Native American, and other			
** P-values: Age = Wilcoxon rank-sum, Gender = Pearson's Chi-Square, Race = Fisher's exact test.			
Created by on 130CT2			

	Active (N=31)	Placebo (N=29)	Overall (N=120)	P-value**
Age (years)				0.9528
N	31	29	60	
Mean	51.4	50.1	50.8	
Standard Deviation	13.23	13.22	13.13	
Minimum	32.0	23.0	23.0	
Maximum	75.0	77.0	77.0	
Gender				0.2681
Male	22 (71.0%)	16 (55.2%)	38 (63.3%)	
Female	9 (29.0%)	12 (41.4%)	21 (35.0%)	
Race				0.9270
White	18 (58.1%)	18 (62.1%)	36 (60.0%)	
Black	10 (32.3%)	8 (27.6%)	18 (30.0%)	
Other*	3 (9.7%)	3 (10.3%)	6 (10.0%)	

In LaTeX

```

216 {\sffamily \begin{center}
217 \begin{longtable}[ lcccc]\toprule
218 \multicolumn{5}{c}{\hrule2em}\midrule
219 & Active {\newline} (N=31) & Placebo {\newline} (N=29) & Overall {\newline} (N=120) & {\newline} P-
value**\midrule
220 \endhead
221 Age (years) & & & & 0.9528\\
222 \phantom{Age} N & 31 & 29 & 60 & ~\\
223 \phantom{Age} Mean & 51.4 & 50.1 & 50.8 & ~\\
224 \phantom{Age} Standard Deviation & 13.23 & 13.22 & 13.13 & ~\\
225 \phantom{Age} Minimum & 32.0 & 23.0 & 23.0 & ~\\
226 \phantom{Age} Maximum & 75.0 & 77.0 & 77.0 & ~\\
227 Gender & & & & 0.2681\\
228 \phantom{Gender} Male & 22 ( 71.0\%) & 16 ( 55.2\%) & 38 ( 63.3\%) & ~\\
229 \phantom{Gender} Female & 9 ( 29.0\%) & 12 ( 41.4\%) & 21 ( 35.0\%) & ~\\
230 Race & & & & 0.9270\\
231 \phantom{Race} White & 18 ( 58.1\%) & 18 ( 62.1\%) & 36 ( 60.0\%) & ~\\
232 \phantom{Race} Black & 10 ( 32.3\%) & 8 ( 27.6\%) & 18 ( 30.0\%) & ~\\
233 \phantom{Race} Other* & 3 ( 9.7\%) & 3 ( 10.3\%) & 6 ( 10.0\%) & ~\\
234 \end{center}
235 \end{longtable}
236 }

```

RTF versus LaTeX

```

AFarm International
\par \hich\af6\dbch\af31505\loch\f6 Study: Phosgene Treatment Placebo,A and B
\par
\begin{longtable}[[|c|c|c|c|]\hline
\par \hich\af6\dbch\af31505\loch\f6 \multicolumn{5}{|c|}{---}\hline
\par \hich\af6\dbch\af31505\loch\f6 & Active {\newline} (N=31) & Placebo {\newline} (N=29) & Overall {\n
\par \hich\af6\dbch\af31505\loch\f6 value**\hline
\par \hich\af6\dbch\af31505\loch\f6 \endhead
\par \hich\af6\dbch\af31505\loch\f6 Age (years) & & & & 0.9528\hline
\par \hich\af6\dbch\af31505\loch\f6 N & 31 & 29 & 60 & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Mean & 51.4 & 50.1 & 50.8 & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Standard Deviation & 13.23 & 13.22 & 13.13 & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Minimum & 32.0 & 23.0 & 23.0 & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Maximum & 75.0 & 77.0 & 77.0 & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Gender & & & & 0.2681\hline
\par \hich\af6\dbch\af31505\loch\f6 Male & 22 ( 71.0\%) & 16 ( 55.2\%) & 38 ( 63.3\%) & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Female & 9 ( 29.0\%) & 12 ( 41.4\%) & 21 ( 35.0\%) & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Race & & & & 0.9270\hline
\par \hich\af6\dbch\af31505\loch\f6 White & 18 ( 58.1\%) & 18 ( 62.1\%) & 36 ( 60.0\%) & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Black & 10 ( 32.3\%) & 8 ( 27.6\%) & 18 ( 30.0\%) & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 Other* & 3 ( 9.7\%) & 3 ( 10.3\%) & 6 ( 10.0\%) & ~\hline
\par \hich\af6\dbch\af31505\loch\f6 \end{longtable}
\par \hich\af6\dbch\af31505\loch\f6
\par \hich\af6\dbch\af31505\loch\f6 n
\par \hich\af6\dbch\af31505\loch\f6 Mean
\par \hich\af6\dbch\af31505\loch\f6 Std. Dev.
\par \hich\af6\dbch\af31505\loch\f6 Median
\par \hich\af6\dbch\af31505\loch\f6 Minimum
\par \hich\af6\dbch\af31505\loch\f6
\par \hich\af6\dbch\af31505\loch\f6

```

	1	2
Mean		
Std. Dev.	3	
Median	140.0	162
Minimum	140	160

Supporting Documentation

Study 1234 — Demographics Dataset Variables				
Variable	Label	Type	Codes	Comments [1]
usubjid	Unique subject ID number	char		Demographics Page 3
sex	Sex of subject	char	f = female m = male	Demographics page 3
bdate	Birth date	date		Demographics page 3
DUR	Duration of Treatment	num		Derived STOP DATE – START DATE
trt	Assigned treatment group	num	0 = placebo 5 = 5 mg/day	

[1] Use footnotes for longer comments

* FDA example document in Appendix 2

Some Additional Features

- Table of Contents
- Links
- References
- Acronyms
- Abbreviations
- Glossary
- Index

→ `\newacronym{wbc}{WBC}{White Blood Cell}`

→ `\index( key )`
`...`
`\printindex`

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Future Offerings

- StatReport LaTeX package (SAS)
- More visual editors and packages (1000+)
- Machine readable – programmatic QC
- Transformations
 - LaTeX to Word
 - LaTeX to RTF
 - LaTeX to XML
 - LaTeX to PDF
- Growing list of references

Search for “latex example” on Google



About 45 100 000 results (0.18 seconds)

Questions & Comments

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THE END