

# Five Things You Didn't Know About ODS PDF

Individual Results May Vary

# What is ODS?

- Output Delivery System
  - PROC and datastep results
    - Internal Destinations
      - Document
      - Listing
      - Output dataset
    - Third Party
      - HTML(3/4/5) – 4 now default
      - EPUB
      - MARKUP (e.g. customizable XML)

# What is ODS? continued

- Third Party
  - MSOffice destinations
    - » Word (via RTF)
    - » Excel (very flexible)
    - » Powerpoint
  - PRINTER
    - » PCL, PS, PDF

# What is PDF?

- Portable Document Format
- Adobe: proprietary → ISO open standard
- De facto standard for application/device/OS-independent document format
- Embedded fonts, graphics

# Features of PDF documents

- Metadata
- Table of Contents
- Hyperlinks
- Encryption
- Compression

# Metadata

- Author
- Title
- Subject
- Keywords
- Others – user-definable

# In SAS: Opening and Closing

- ODS PDF <(<ID=> identifier)> < action > ;
- ODS PDF <(<ID=> identifier)> <option(s)> ;
- First, open a destination
  - ods pdf file = 'C:\Temp\Demo.pdf';
  - *ods pdf id = MyCopy file = 'WithNames.pdf';*
  - *ods pdf id = YourCopy file = 'NoNames.pdf';*
    - *Do stuff without names*
  - *ods pdf id = YourCopy close;*
    - *Do stuff with names*
  - *ods pdf id = MyCopy close;*



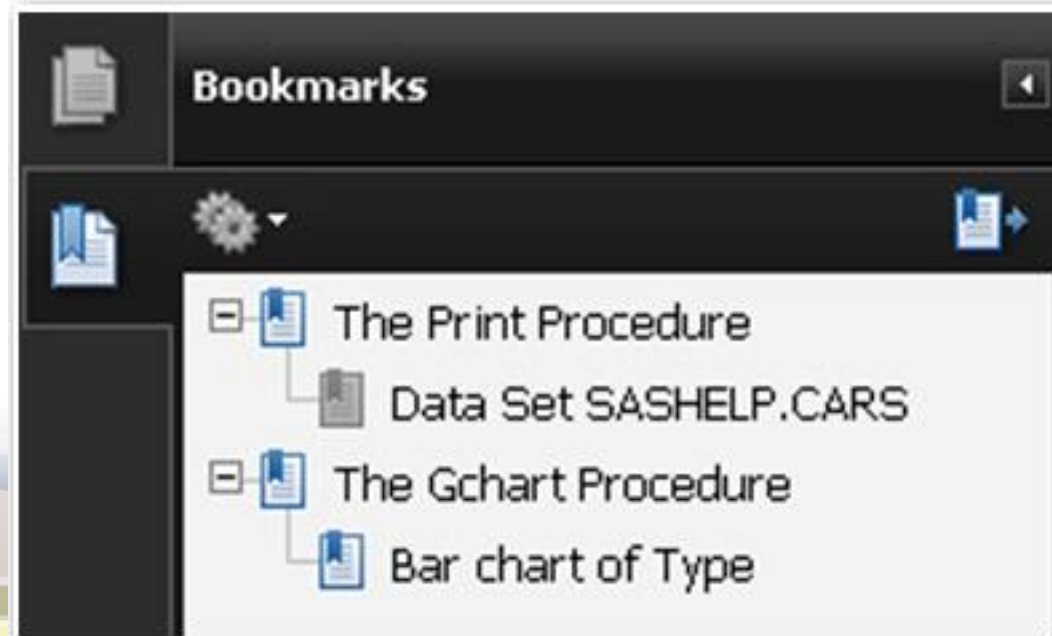
# Adding Metadata

- ODS PDF
  - author = "John Fahey"
  - file = "&DestDir.\Request &ReqNo &Version..pdf"
  - keywords = "Singleton Term Vertex ICD-10-CA codes Eclampsia HELLP IDDM Diabetes"
  - subject = "Low Risk Pregnancy Definition"
  - title = "NSAPD Request # &ReqNo"
  - uniform
  - ;



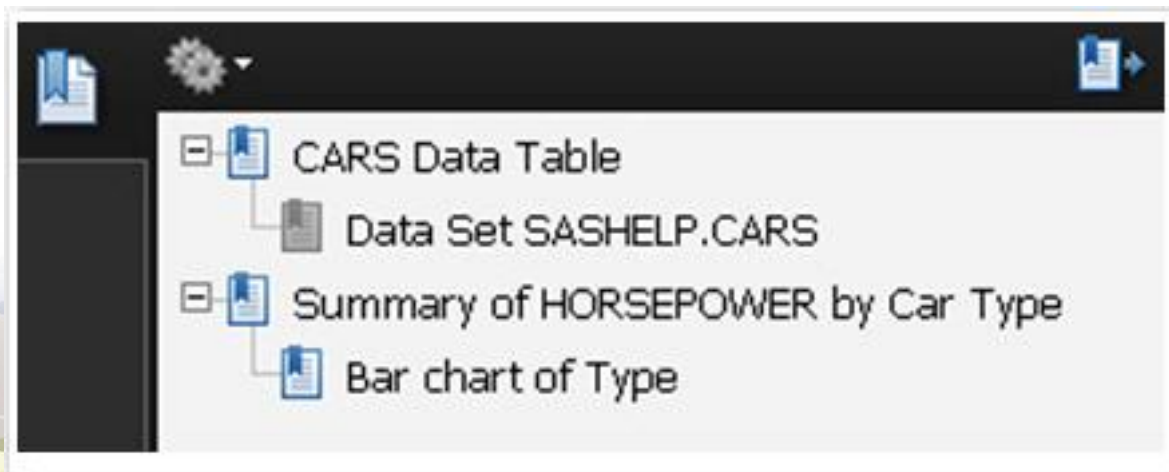
# Table of Contents

- *ods pdf file = 'QuietLibrary.pdf' NOTOC;*
- `ods pdf file="display1.pdf";`
  - `proc print noobs data=sashelp.cars;`
  - `run;`
  - `proc gchart data=sashelp.cars;`
  - `vbar type / sumvar=horsepower;`
  - `run;`
  - `quit;`
- `ods pdf close;`



# Table of Contents continued

- ods pdf file="display2.pdf";
  - *ods proclabel="CARS Data Table";*
  - proc print noobs data=sashelp.cars;
  - var type horsepower msrp;
  - run;
  - *ods proclabel="Summary of HORSEPOWER by Car Type";*
  - proc gchart data=sashelp.cars;
  - vbar type / sumvar=horsepower;
  - run;
  - quit;
- ods pdf close;



# It's Done at a High Level

- ODS PDF file="display3.pdf" pdftoc=1;



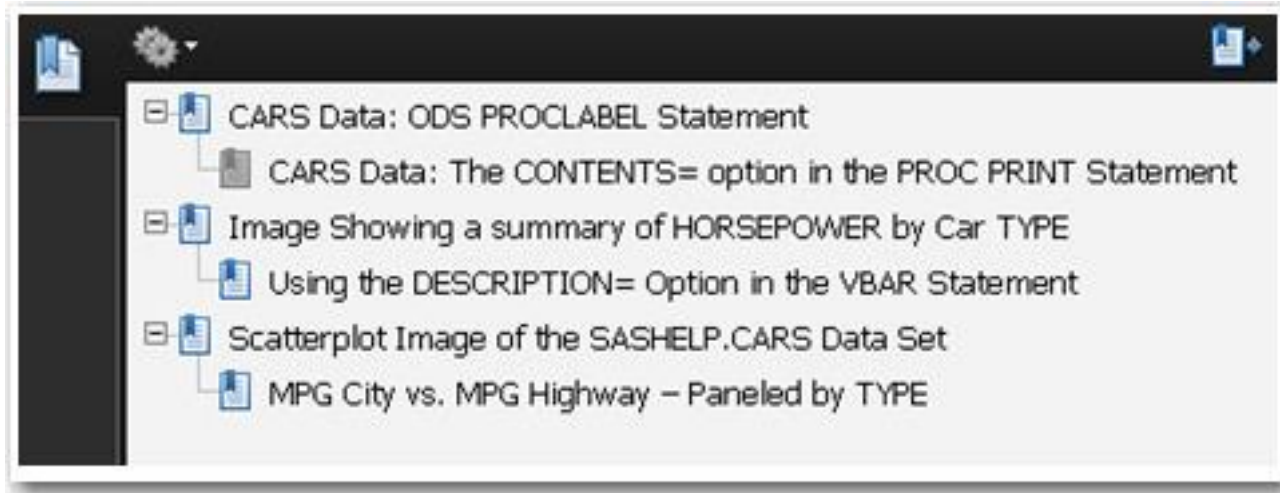
- Changes default view, not the actual content
- Changing content is procedure-specific

# Your (favourite) PROC here

- `ods pdf file="display4.pdf" ;`
  - `ods proclabel="CARS Data: ODS PROCLABEL Statement";`
  - `proc print noobs data=sashelp.cars`
  - `contents="CARS Data: The CONTENTS= option in the PROC PRINT Statement";`
  - `var type horsepower msrp; run;`
  - `ods proclabel="Image Showing a summary of HORSEPOWER by Car TYPE";`
  - `proc gchart data=sashelp.cars;`
  - `vbar type / sumvar=horsepower`
  - `description=Using the "DESCRIPTION= Option in the VBAR Statement";`
  - `run; quit;`
  - `ods proclabel="Scatterplot Image of the SASHELP.CARS Data Set";`
  - `proc sgpanel data=sashelp.cars`
  - `description="MPG City vs. MPG Highway – Paneled by TYPE";`
  - `panelby type / rows=2 columns=3; scatter X=Mpg_City Y=Mpg_Highway; run;`
- `ods pdf close;`



# Now is the winter of our Dis-Content



- CONTENTS in TABULATE, REPORT statements
- Also in TABLE(s) statement in TABULATE, FREQ
- BREAK, DEFINE, RBREAK BEFORE in REPORT
- CONTENTS ="" suppresses



# STYLE and substance

- ```
proc tabulate data = Work.WithPopn;  
  – class CHB_Number BrthDate MAgeGrp;  
  – var CHB_BRCntrbn; format BrthDate Year.;;  
  – table CHB_Number, BrthDate = 'Year',  
  – MAgeGrp='Age Group'*CHB_BRCntrbn= "  
  – * sum = " * f = 4.1 /
```
- ```
box={s={preimage='rcp_logo_40th_3.png'}}  
  – misstext = '0'; run;
```

## *Birth Rates per 1000 females - by Community Health Board*

Mother's Community Health Board of Residence Annapolis

	Age Group				
	15-19 yrs	20-24 yrs	25-29 yrs	30-34 yrs	35-39 yrs
<b>Year</b>					
1990	37.9	126	171	68.8	28.4

# LINKed IN

- footnote3
  - height = 2.0
  - link = 'http://rcp.nshealth.ca'  
"http://rcp.nshealth.ca/";
- Can also embed custom text in several ways
- ODS TEXT
- Proc odstext



# Ugly but functional

- **proc odstext;**
- list /style=[preimageRCPandNS.png"]; end;
- p 'Nova Scotia Perinatal Health Indicator' /
- style=[just=center fontweight=bold];
- p "Post-dates induction before 41<sup>{super 0}</sup> weeks' gestation; &GeoTitle" /
- style=[just=center fontweight=bold];
- **run;**

# Works in RTF, may need tweaking

- ODS TEXT='<sup>1</sup>{style[fontweight=bold] Background: }Induction of labour is defined as "artificial initiation of labour before its spontaneous onset"<sup>1</sup>. ... 30<sup>2</sup>{unicode 0025} of all births in this province. ...41<sup>0</sup> weeks gestation, and that includes methods for cervical ripening.<sup>2</sup> ...';

# Encryption

- Various security options
- PDFSECURITY = NONE | HIGH;
- Specify HIGH and
  - Must set PDFPASSWORD=(open=*secret* owner=*mine*)
  - Affects other properties default values

Printing	Allowed	High Resolution
Changing the Document	Allowed	Not Allowed
Commenting	Allowed	Not Allowed
Form Field Fill-in or Signing	Allowed	Allowed
Document Assembly	Allowed	Not Allowed
Content Copying	Allowed	Allowed
Content Accessibility Enabled	Allowed	Allowed
Page Extraction	Allowed	Not Allowed
Encryption Level	None	128-bit RC4

# Miscellaneous other options

- COMPRESS = 6 (on 0 to 9 scale) is default
- COLUMNS = 2
- EXCLUDE ALL (stop writing to pdf file)
- STARTPAGE=NEVER|NO|NOW|YES|BYGROUP
- STYLE = *templatename*

# Resources

- SAS® 9.4 Output Delivery System: User's Guide, Fifth Edition
- **Paper 252-2011**
  - **Let's Give 'Em Something to TOC about:**
  - **Transforming the Table of Contents of Your PDF File**
    - Bari Lawhorn, SAS Institute Inc., Cary, NC
- Wikipedia – which is not going bankrupt
- Many years of my own code

# Contact

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