

Statistical Analyses and Graphics in SAS Enterprise Guide

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What is SAS Enterprise Guide

- SAS is one of the most commonly used statistical packages.
- Data manipulation and analyses are done by writing programs. Hence general programming knowledge and SAS specific coding knowledge is required.



What is SAS Enterprise Guide

- SAS Enterprise Guide (SAS-EG) is a Windows interface to SAS.
- A powerful project management tool. A SAS-EG “project” might consist of SAS programs, datasets, plots and results.
- SAS-EG has very fast learning curve.



What is SAS Enterprise Guide

- Graphical interface, point-and-click and drag-and-drop features.
- Can reduce the time spent on coding to help programmers work more efficiently.
- Can allow researchers from other disciplines with little programming background to explore data.



Analyze in SAS, Generate Graphics With Other Software

- It is common practice among the scientific community to use SAS to manage and analyze the data, then prepare the graphics in other software like R, S-Plus, SigmaPlot, and even MS Excel.
- SAS-EG offers users an intuitive point and click interface to create graphics.
- SAS-EG also automatically generates the code used to produce the graphics.



Process Flow

- One of the very neat features of SAS-EG is Process Flow. One can see all of the related SAS programs, datasets, reports and graphics in a relational structure.

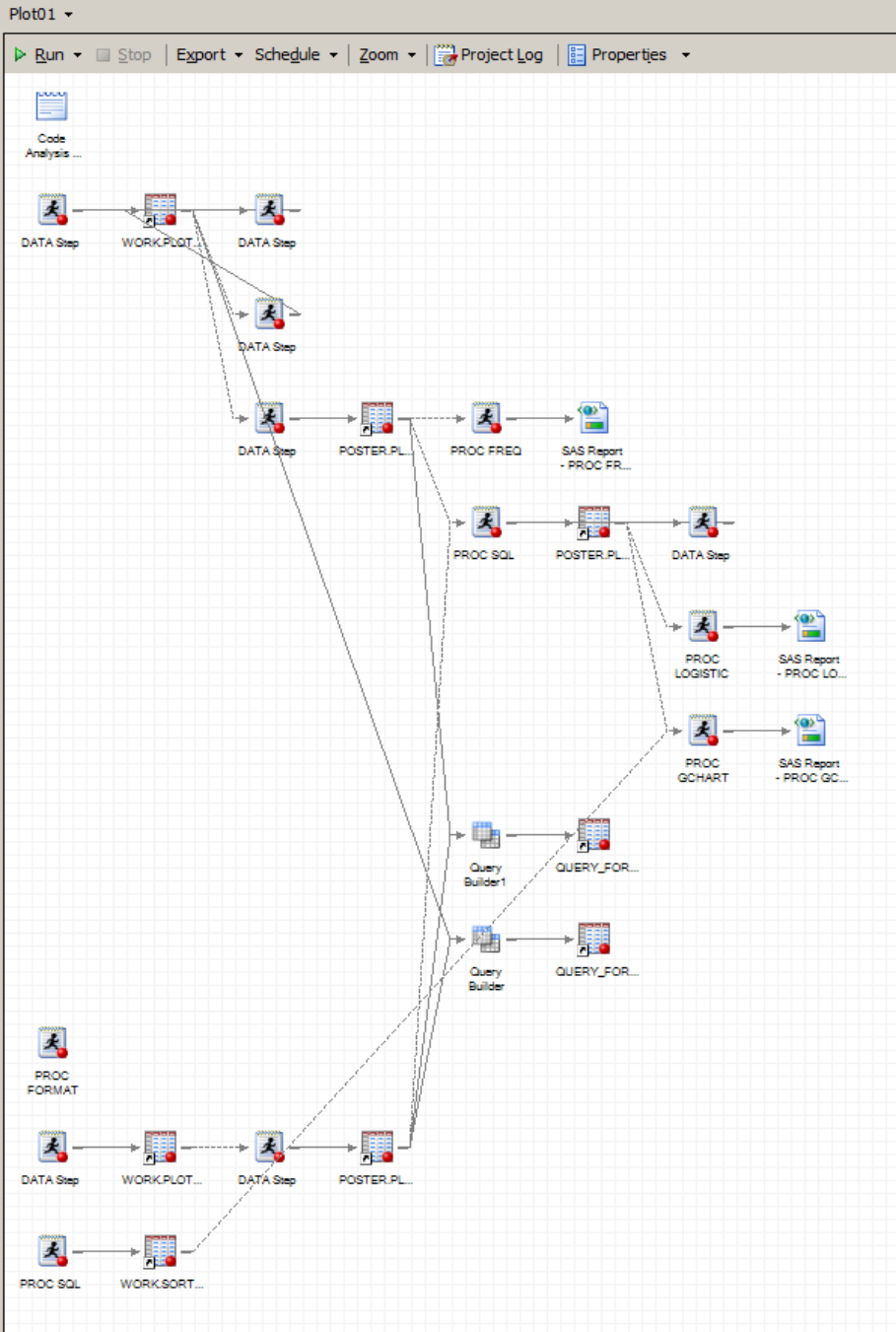
Project Tree

- Plot01
 - Code Analysis Summary Information
 - WORK.PLOT02
 - Link to DATA Step
 - Link to DATA Step
 - Link to DATA Step
 - Query Builder
 - POSTER.PLOT02
 - Link to PROC FREQ
 - Link to PROC SQL
 - WORK.PLOT02_GENDER
 - Link to DATA Step
 - POSTER.PLOT02_GENDER
 - Link to PROC SQL
 - Query Builder1
 - POSTER.PLOT02_FINAL
 - Link to DATA Step
 - Link to PROC LOGISTIC
 - Link to PROC GCHART
 - WORK.SORTTEMPTABLESORTED
 - Link to PROC GCHART
 - Programs
 - DATA Step
 - DATA Step
 - PROC FORMAT
 - DATA Step
 - DATA Step

Server List

Refresh Disconnect Stop

- Servers
- Private OLAP Servers



Even PROC SQL is Fun to Use with SAS-EG

- PROC SQL is not often being used by novice programmers.
- PROC SQL works faster than DATA STEP.
- SAS-EG graphically displays the SQL relationships among the datasets in the Process Flow.
- Query Builder in SAS-EG provides a graphical interface to create SQL queries and save them.

Project Tree

- POSTER.P
- Link to
- Link to
- WORK.PLO
- Link to
- POSTER.P
- Link to
- POSTER.P
- Link to
- Link to
- Link to
- WORK.SO
- Link to
- Programs
- DATA S
- DATA S
- PROC
- DATA S
- DATA S
- PROC FREQ
- DATA Step
- DATA Step
- PROC SQL
- DATA Step
- PROC LOGISTIC
- PROC SQL
- PROC GCHART

- Data
- Describe
- Graph
- ANOVA
- Regression
- Multivariate
- Survival Analysis
- Capability
- Control Charts
- Pareto Chart...
- Time Series
- Data Mining
- OLAP
- Task Templates

- Filter and Sort...
- Query Builder...
- Append Table...
- Sort Data...
- Create Format...
- Create Format from Data Set...
- Transpose...
- Split Columns...
- Stack Columns...
- Random Sample...
- Rank...
- Standardize Data...
- Data Set Attributes...
- Compare Data...
- Delete Data Sets and Formats...
- Upload Data Files to Server...
- Download Data Files to PC...
- Import JMP file...
- Import SPSS file...
- Import Stata file...

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Query Builder1 for Local:POSTER.PLOT02_FINAL [X]

Query name: Output name:

t2 (PLOT02_GENDER)

- PID
- Female

t1 (PLOT02)

- PID
- TRT
- Success

Select Data | Filter Data | Sort Data





Column Name	Identifier	Summary
PID	t1.PID	
TRT (Treatment)	t1.TR	
Success (End P...	t1.Success	
Female	t2.Female	







Select distinct rows only

Project Tree

- [-] POSTER.PLOT02
 - Link to PROC FREQ
 - Link to PROC SQL
- [-] WORK.PLOT02_GENDER
 - Link to DATA Step
- [-] POSTER.PLOT02_GENDER
 - Link to PROC SQL
 - Query Builder1
- [-] POSTER.PLOT02_FINAL
 - Link to DATA Step
 - Link to PROC LOGISTIC
 - Link to PROC GCHART
- [-] WORK.SORTTEMPTABLESORTED
 - Link to PROC GCHART
- [-] Programs
 - DATA Step
 - DATA Step
 - PROC FORMAT
 - DATA Step
 - DATA Step
 - PROC FREQ
 - DATA Step
 - DATA Step

Query Builder1

 Input Data (2)
  Code
  Log
  Output Data

 Modify Task
  Filter and Sort
  Query Builder
  Data
  Describe
  Graph

	PID	TRT	Success	Female
1	1	Treatment B	Success	1
2	2	Treatment A	Failure	0
3	3	Treatment B	Success	1
4	4	Treatment B	Failure	0
5	5	Treatment A	Success	1
6	6	Treatment B	Success	1
7	7	Treatment A	Failure	1
8	8	Treatment B	Success	1
9	9	Treatment A	Success	0
10	10	Treatment A	Success	0
11	11	Treatment A	Failure	1
12	12	Treatment B	Success	1
13	13	Treatment B	Failure	1
14	14	Treatment B	Success	0
15	15	Treatment A	Success	0
16	16	Treatment B	Failure	1
17	17	Treatment A	Failure	0
18	18	Treatment A	Success	1

```

3 PROC SQL;
4   CREATE TABLE WORK.QUERY_FOR_PLOT02_FINAL AS
5   SELECT t1.PID,
6         t1.TRT,
7         t1.Success,
8         t2.Female
9   FROM POSTER.PLOT02_GENDER t2 INNER JOIN POSTER.PLOT02 t1 ON (t2.PID = t1.PID);
0 QUIT;

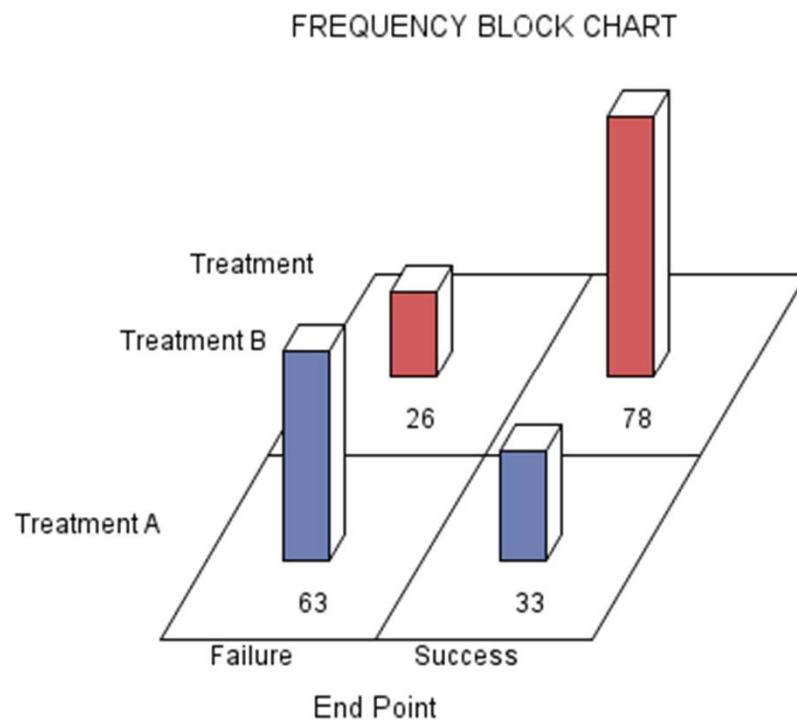
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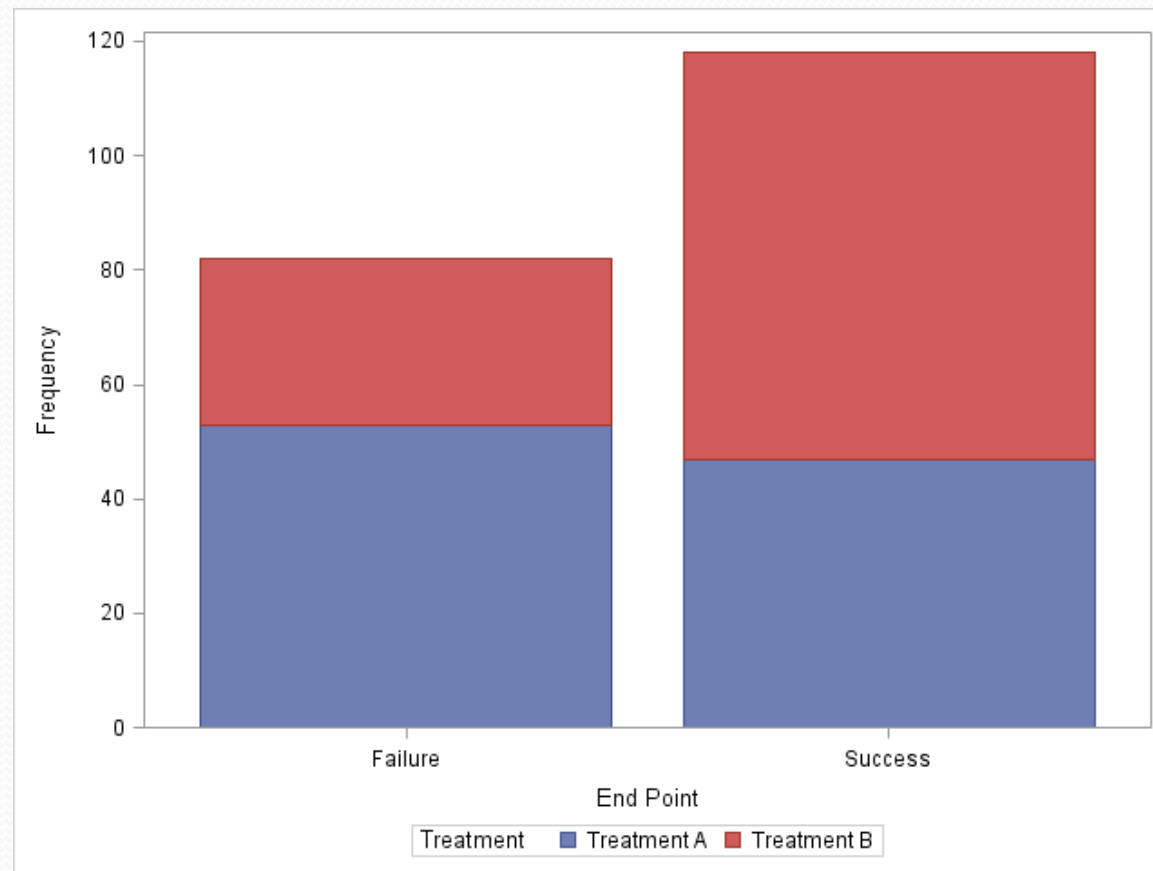

Graphics in SAS-EG

- Now three graphics based on the same data are going to be presented.
- 1st: SAS-PROC GCHART
- 2nd: SAS-PROC SGPLOT
- 3rd: SAS-EG

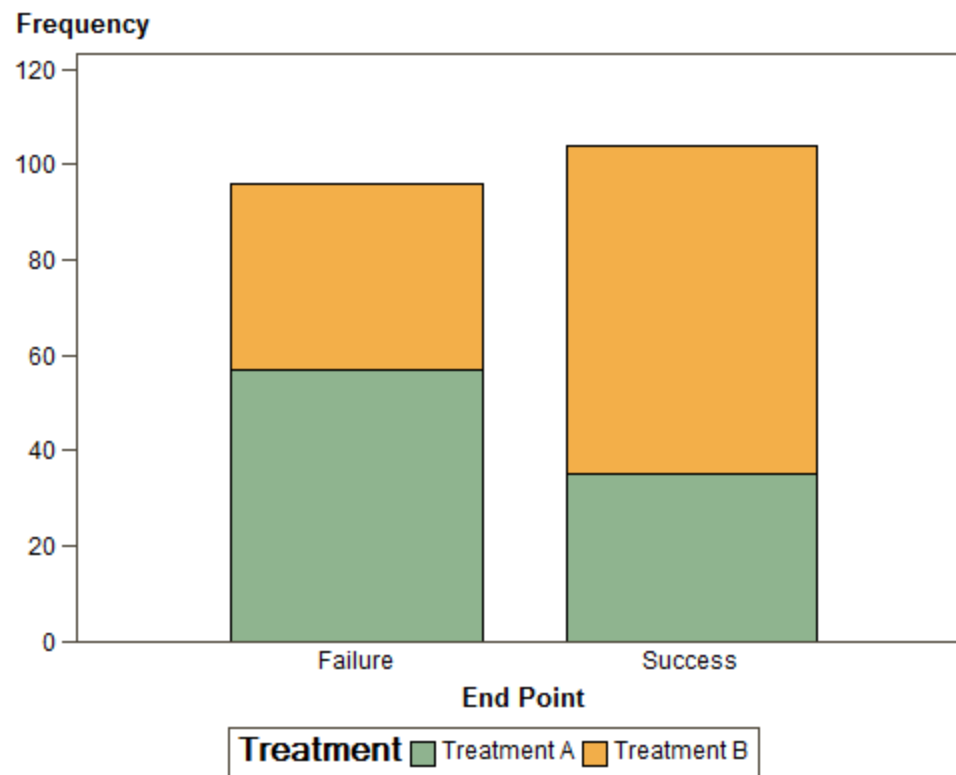
1 – SAS PROC GCHART



2- SAS- PROC SGPLOT ("S"tatistical "G"raphics)



3 – SAS-EG





EG Graphics

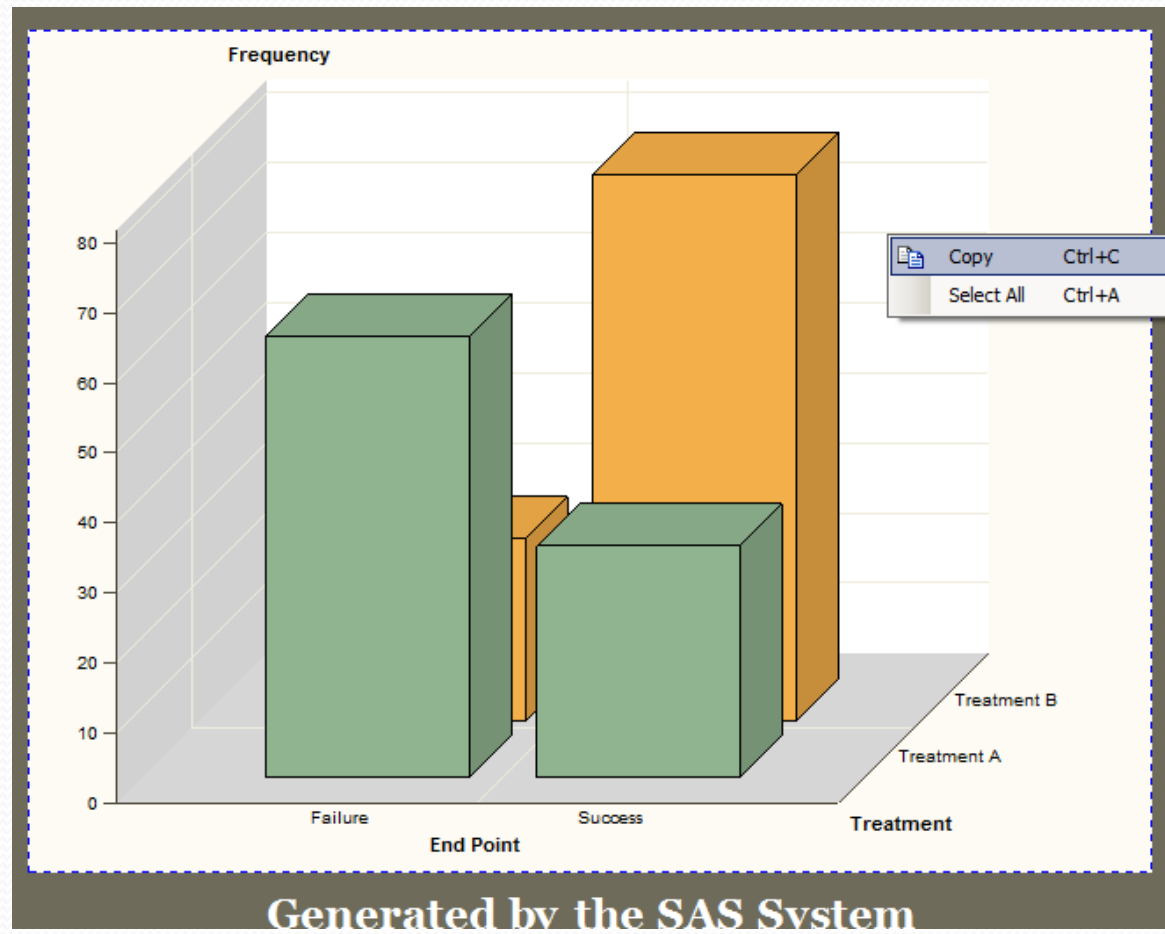
- SAS-EG creates the SAS codes and attaches to the project, so you can edit the code and next time just submit the program, instead of point-and-click for small changes.
- Codes can (and sometimes should) be transferred to a regular SAS session for more modification via SG or EditorGraph Template Language (GTL).



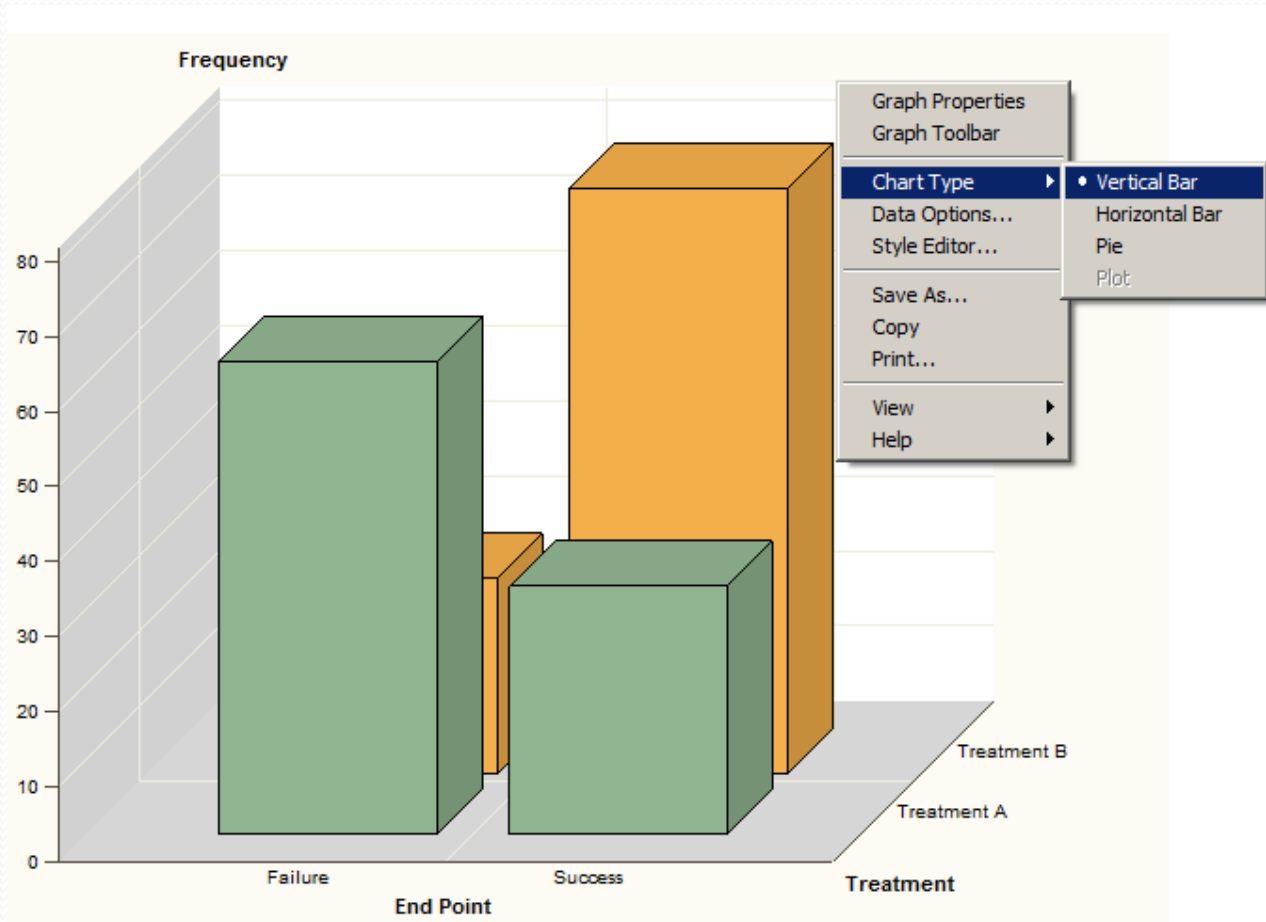
SAS-EG and MS Office

- SAS-EG GRAPHS are not plain pictures, but are objects. They can be copied in EG then pasted to MS-Office products and can be modified inside the MS-Office products.

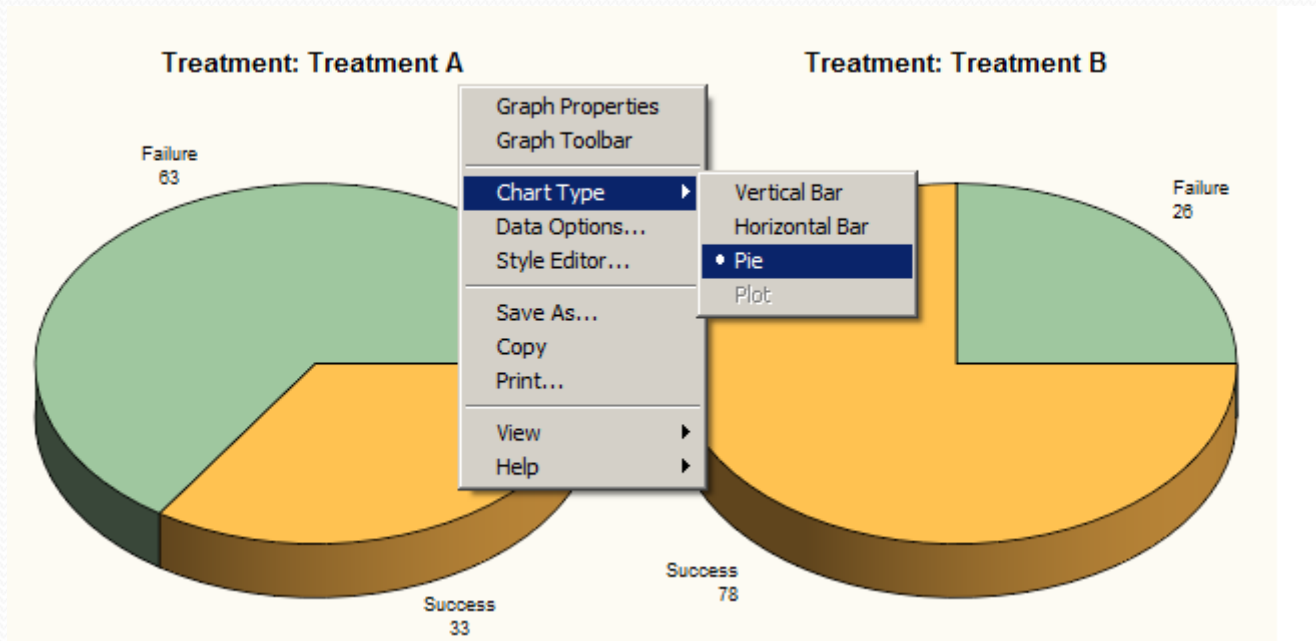
SAS-EG and MS Office



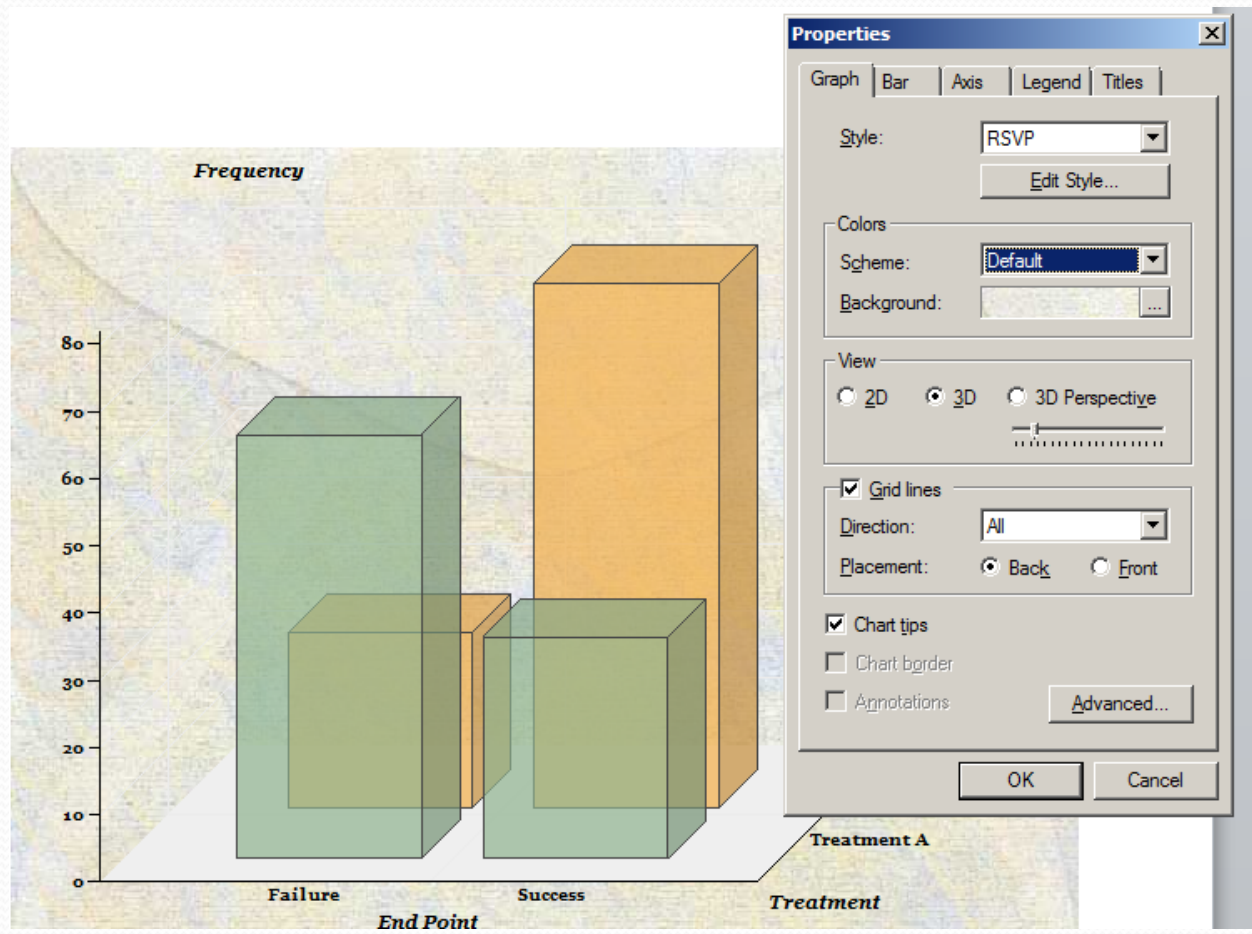
SAS-EG and MS Office



SAS-EG and MS Office



SAS-EG and MS Office



What SAS-EG Cannot Do (Yet)? (based on EG v4.3)

- Not all SAS procedures are fully supported in EG.
- EG cannot export produced graphics in SAS ODS Graphic Editor format.
- EG is slower in running compared to using the SAS in regular way.



Conclusions

SAS Enterprise Guide

- provides an environment with less coding
- especially beneficial to novice programmers from other disciplines
- easier project management,
- easier and intuitive graphing features and
- flow chart features.