

# Adding Graph Visualization on SAS® ODS Output

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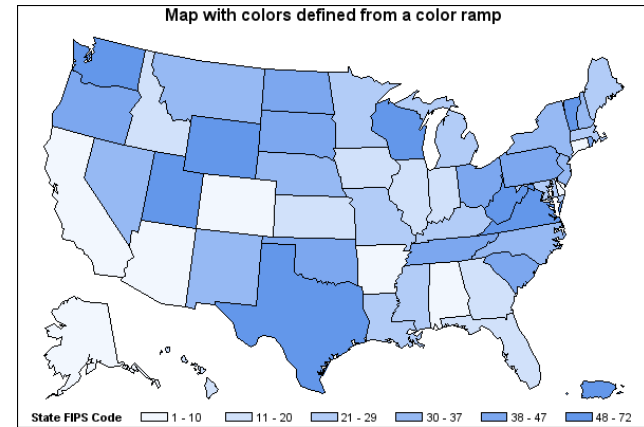
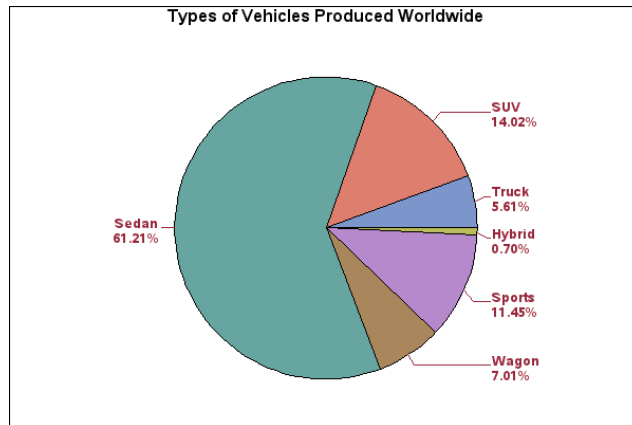
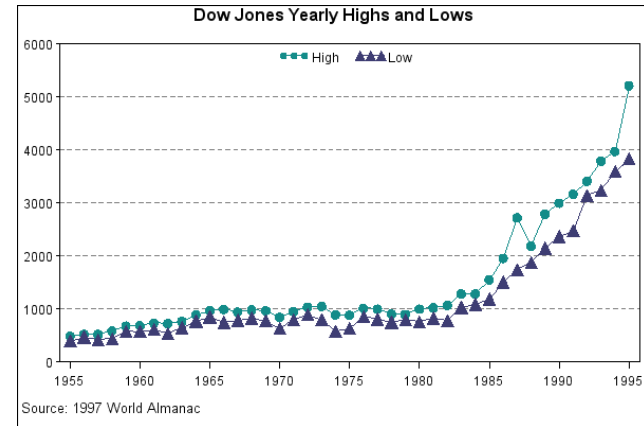
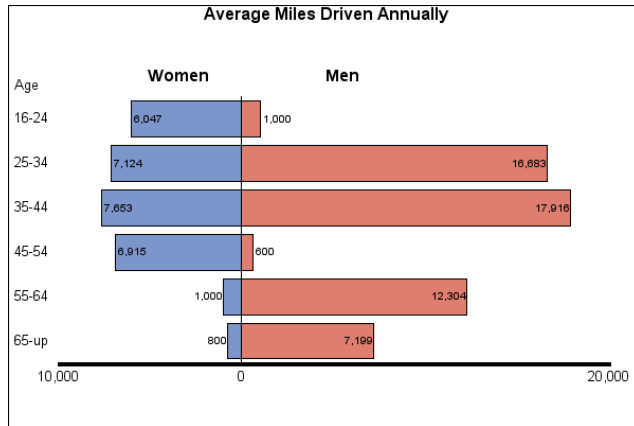
# Introduction



- Graphviz is open source graph visualization software. It can represent structural information in the form of various diagrams such as networking, cluster, and process flows.
- Using Graphviz in Base SAS (PUT, FILE and X Statment)

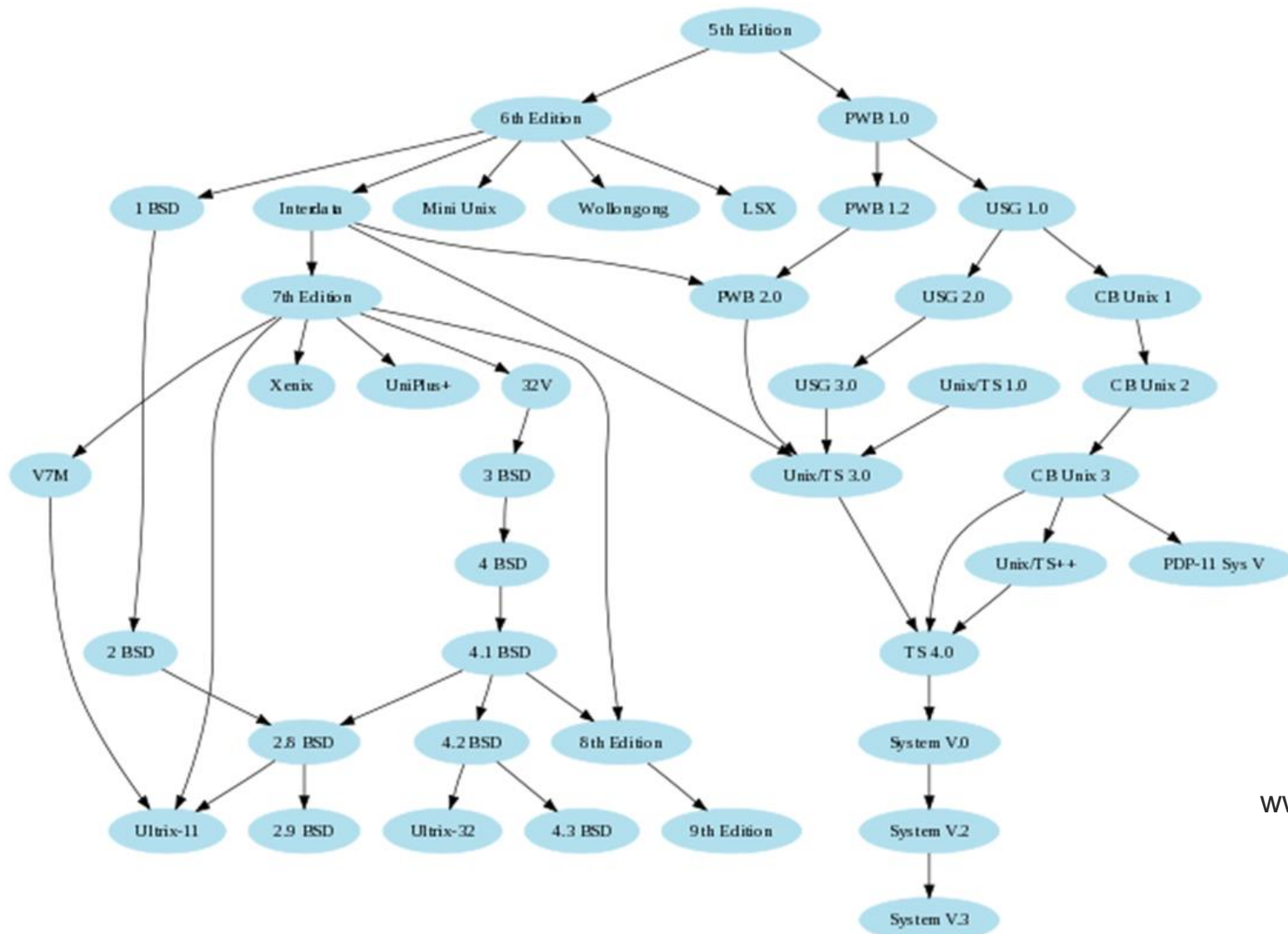


# What we can do with SAS



[support.sas.com](http://support.sas.com)

# Can we do more?

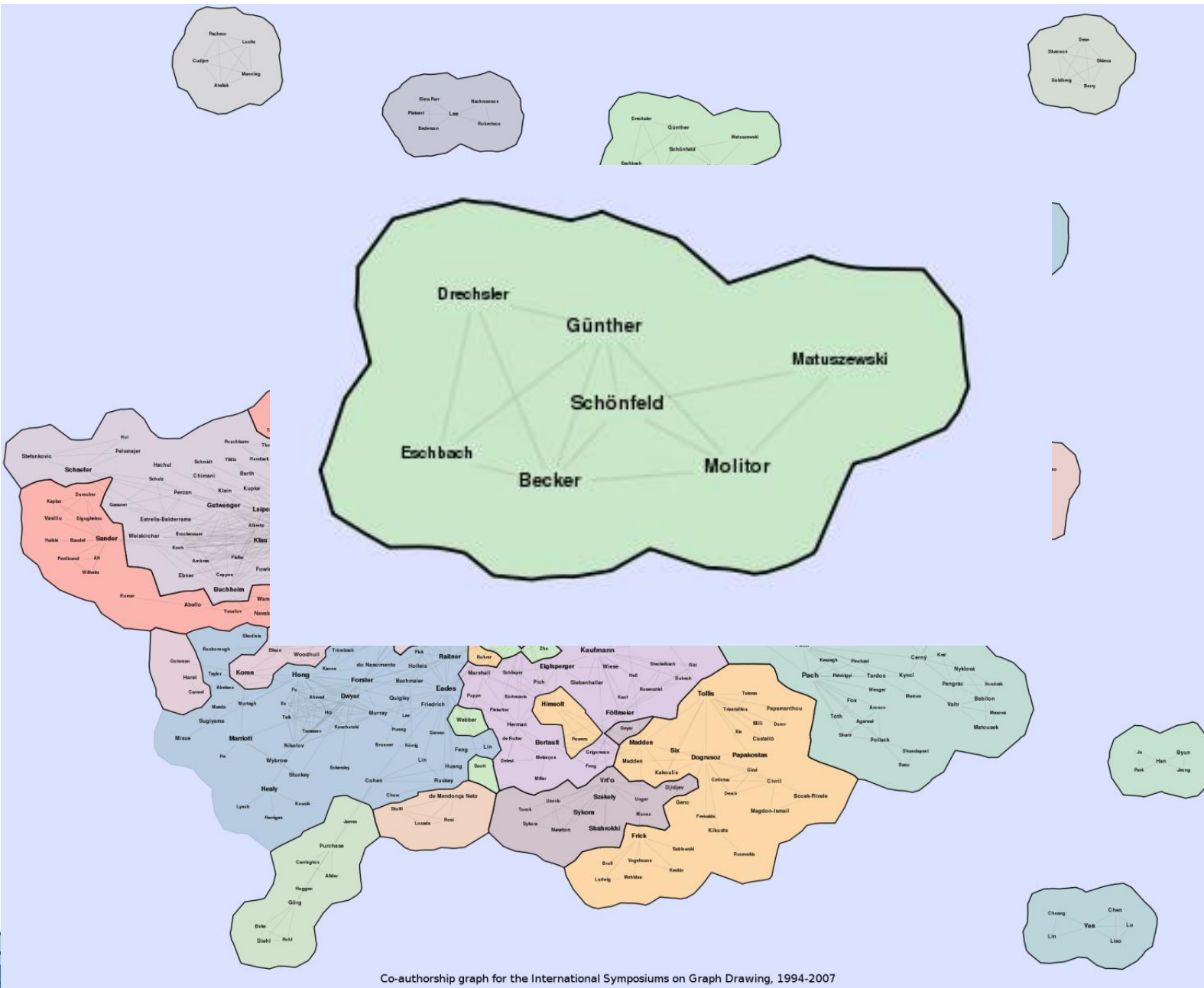


[www.graphviz.org](http://www.graphviz.org)





# Can we do more?

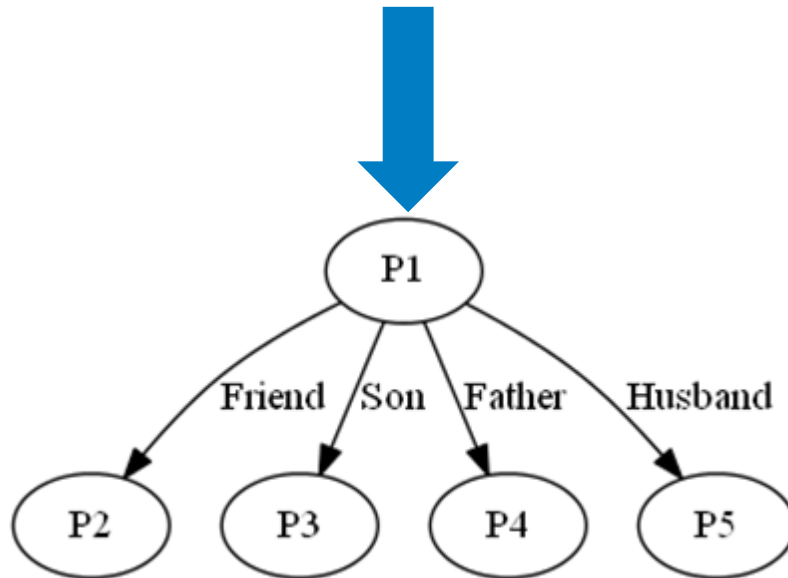


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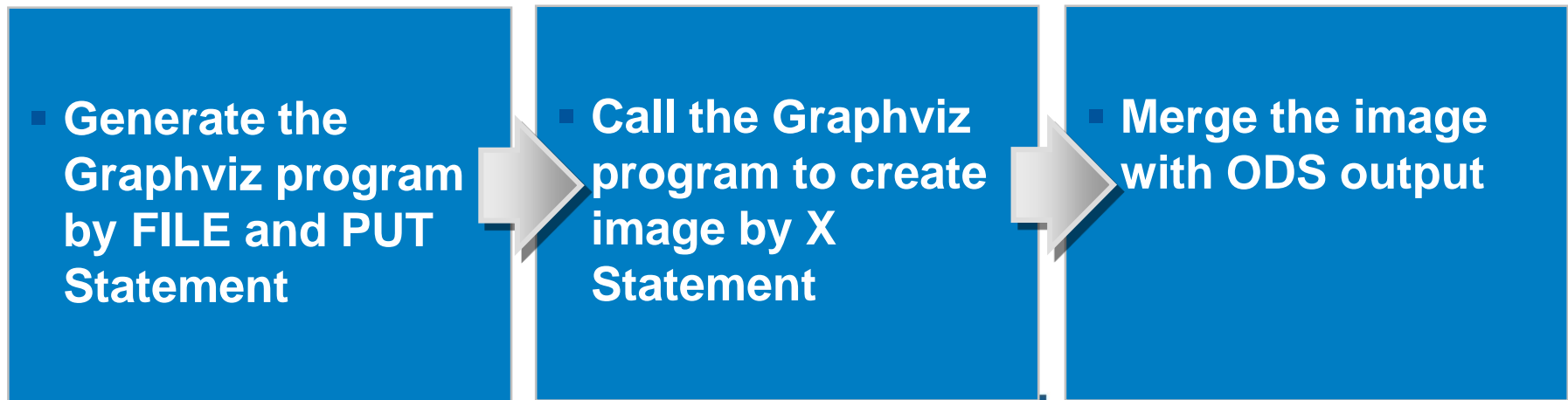
# Graphviz Code

```
digraph G {  
    P1->P2[label=Friend];P1->P3[Label=Son];  
    P1->P4[label=Father];P1->P5[label=Husband];  
}
```

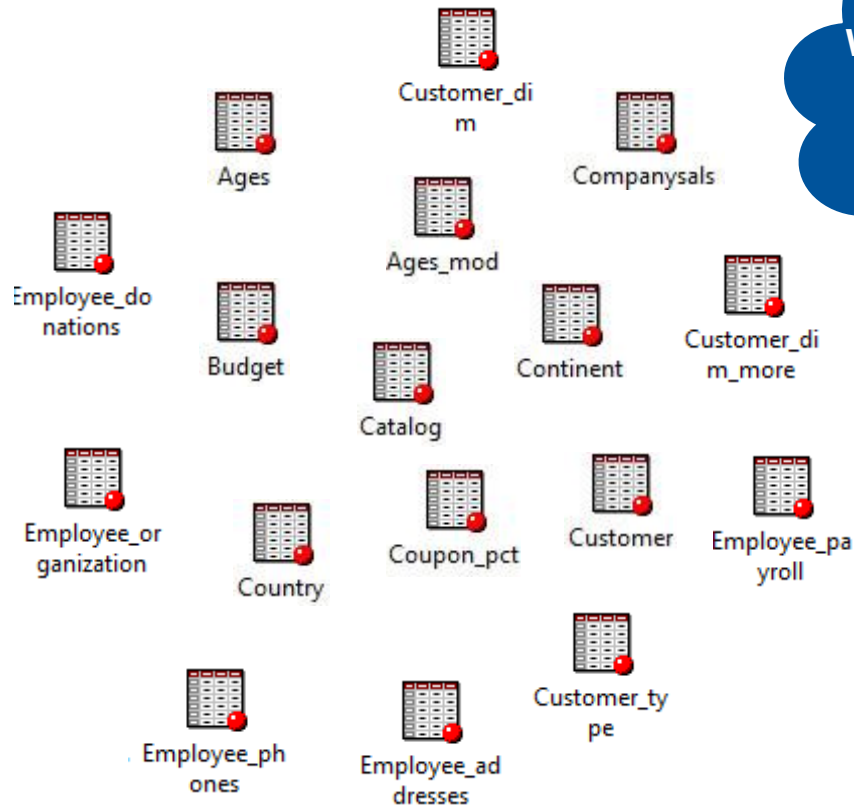


# Methods

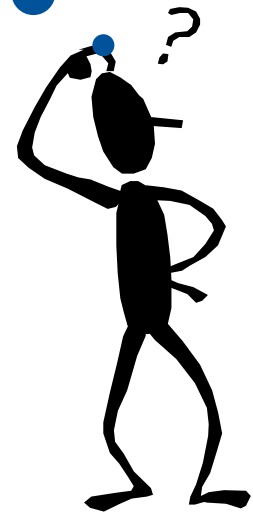
- Generate the Graphviz program
- Call the Graphviz program to create image
- Merge the image with ODS output



# Scenario



What's the relationship among these data sets?





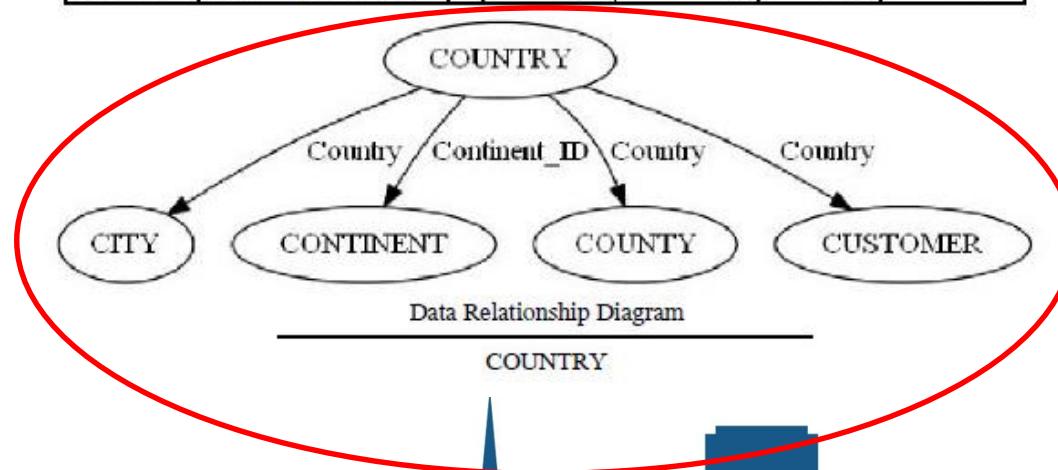
# Relationship Diagram in ODS Output

*Column Properties Of country*

Obs	Member	Num	Variable	Type	Len	Pos	Format	Label
1	MACPROJ.COUNTRY	5	Continent_ID	Num	8	16		Numeric Rep. for Continent
2	MACPROJ.COUNTRY	1	Country	Char	2	24		Country Abbreviation
3	MACPROJ.COUNTRY	6	Country_FormerName	Char	30	56		Former Name of Country
4	MACPROJ.COUNTRY	4	Country_ID	Num	8	8		Country ID
5	MACPROJ.COUNTRY	2	Country_Name	Char	30	26		Current Name of Country
6	MACPROJ.COUNTRY	3	Population	Num	8	0	COMMA12.	Population (approx.)

*Summary Statistics Of country*

Variable	Label	N	Mean	Std Dev	Minimum	Maximum
Population	Population (approx.)	6	83000000.00	100637965.00	5000000.00	280000000.00
Country_ID	Country ID	7	560.14	315.13	160.00	926.00
Continent_ID	Numeric Rep. for Continent	7	93.57	1.99	91.00	96.00



Data Relationship Diagram

COUNTRY

# Conclusion

- BASE SAS can add specific graph visualization in an ODS output by interacting with an open source software “Graphviz
- This method provides a complement to the current SAS graph system and let SAS users have more options to visualize their results generated in SAS.





San Francisco, CA  
April 28–May 1, 2013

