

Seamless R And SAS: For Shiny Visualizations

Pragathi Kotha Venkata

Clinical Pharmacology Modelling and Simulation, US



Acknowledgements:

- Daren Austin: Senior Director, CPMS, UK
- Isabelle Pouliquen: Director, CPMS, UK
- CPMS Colleagues
- SAS
- R Studio

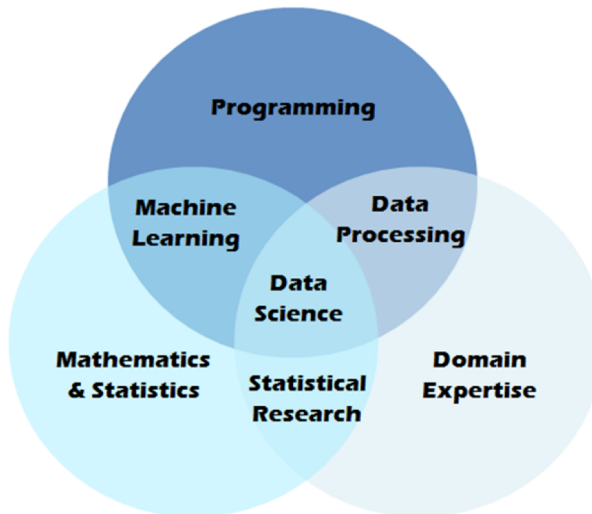
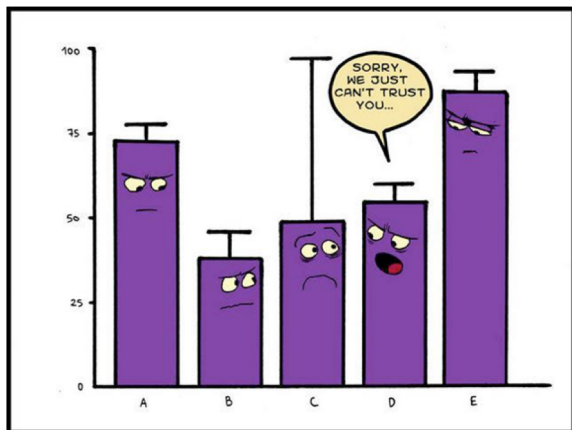
Putting Data in perspective



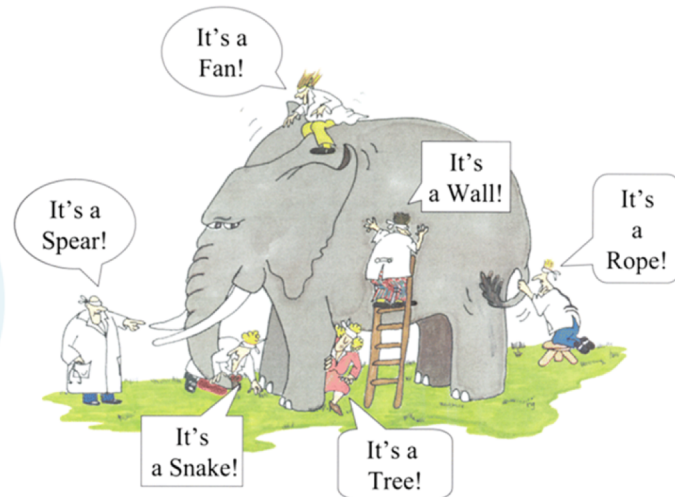
Social coding and learning



Interpretation of results

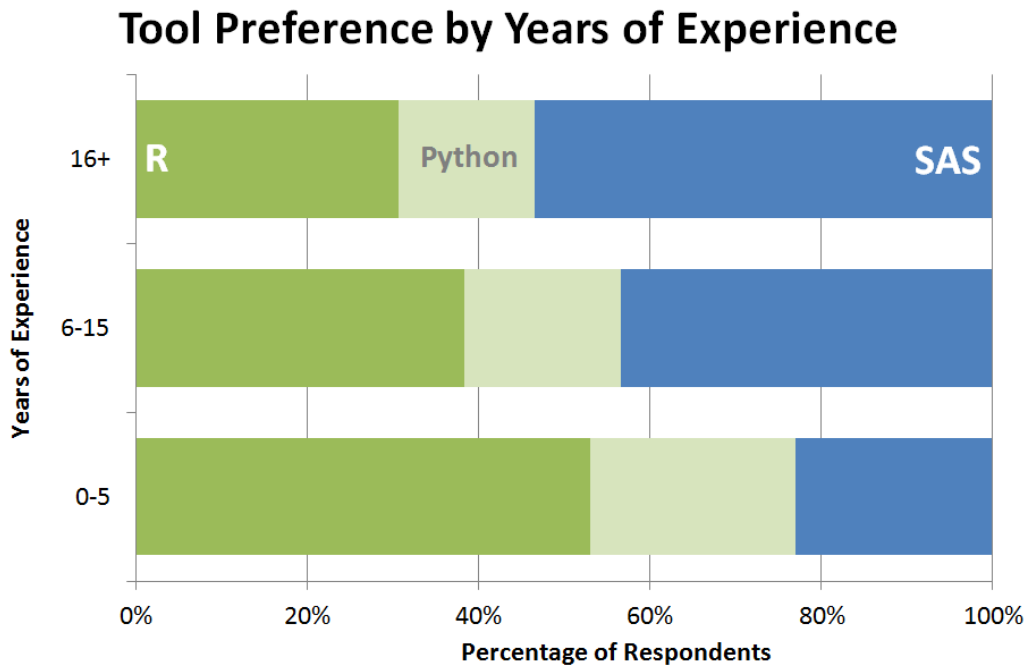


Seeing the Big picture & Strategizing



R or SAS

– Stop choosing and start Integrating



SAS® and R - stop choosing, start combining and get benefits!

Diana Bulaienko, Experis Clinical, Kharkiv, Ukraine



ABSTRACT

The R software is powerful but it takes a long time to learn to use it well. However, you can keep using your current software to access and manage data, then call R for just the things your current software doesn't do. Learning to use a data analysis tool well takes significant effort and quite a lot of time, so this paper will be valuable to experienced SAS users who don't want totally switch to R, but want to use advantages of both SAS and R software.

This presentation introduces a minimal amount of R commands you will need to know to work this way. It will also describe how to call R routines from SAS to create beautiful graphs.

Paper 2500 - 2015

Integrating SAS® and the R Language with Microsoft SharePoint

Prasoon Sangwan, Piyush Singh, Shiv Govind
TATA Consultancy Services Ltd.

Paper 876-2017

Streamline Your Workflow: Integrating SAS, L^AT_EX, and R into a Single Reproducible Document

Lucy D'Agostino McGowan, Vanderbilt University

ABSTRACT

Microsoft SharePoint has been adopted by a number of companies today as their content management tool because of its ability to create and manage documents, records, and web content. It is described as an enterprise collaboration platform with a variety of capabilities, and thus it stands to reason that this platform should also be used to surface content from analytical applications such as SAS® and the R language. SAS provides various methods for surfacing SAS content through SharePoint.

This paper describes one such methodology that is both simple and elegant, requiring only SAS Foundation. It also explains how SAS and R can be used together to form a robust solution for delivering analytical results. The paper outlines the approach for integrating both languages into a single security model that uses Microsoft Active Directory as the primary authentication mechanism for SharePoint. It also describes how to extend the authorization to SAS running on a Linux server where LDAP is used. Users of this system are blissfully ignorant of the back-end technology components, as we offer up a seamless interface where they simply authenticate to the SharePoint site and the rest is, as they say, magic.

References:

<https://www.pharmasug.org/proceedings/2016/QT/PharmaSUG-2016-QT14.pdf>

<https://support.sas.com/resources/papers/proceedings15/2500-2015.pdf>

<http://support.sas.com/resources/papers/proceedings17/0876-2017.pdf>

<https://www.lexjansen.com/nesug/nesug12/bb/bb10.pdf>

ABSTRACT

There is an industry-wide push toward making workflows seamless and reproducible. Incorporating reproducibility into the workflow has many benefits; among them are increased transparency, time saving, and accuracy. We walk through how to seamlessly integrate SAS®, L^AT_EX, and R into a single reproducible document. We also discuss best practices for general principles such as literate programming and version control.

SAS® and R Working Together

Matthew Cohen, Wharton Research Data Services

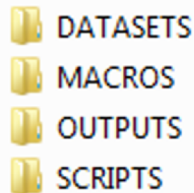
ABSTRACT

This paper will explore the ways SAS and R can work together. It will cover data transfers using SAS Transport and ASCII files and how to call R directly from within SAS. Rather than focusing on the pros and cons of each language, I will assume that some people want to use both.

SAS code

```
/******  
/** Create Reporting Effort **/  
/******  
options noxwait;  
x "mkdir &path";  
x "mkdir &path\Analyses";  
x "mkdir &path\Archive";  
x "mkdir &path\Datasets";  
x "mkdir &path\Datasets\Data_source";  
x "mkdir &path\Datasets\Data_derived";  
x "mkdir &path\Documents";  
x "mkdir &path\Outputs";  
x "mkdir &path\Outputs\Preliminary";  
x "mkdir &path\Outputs\Final";  
x "mkdir &path\Report";  
x "mkdir &path\Scripts";
```

A)



B)

```
/******  
/** Set path for reporting effort **/  
/******  
%let path = C:\SAS4CPMS;  
/******  
/** Load plotting template **/  
/******  
%include '&path\ClinPharmPlotTemplate.sas';
```

Protocol: GSK123456
Population: Analysis population

CONFIDENTIAL

2017N####_00

Figure XX.X



Stop Choosing Start Integrating



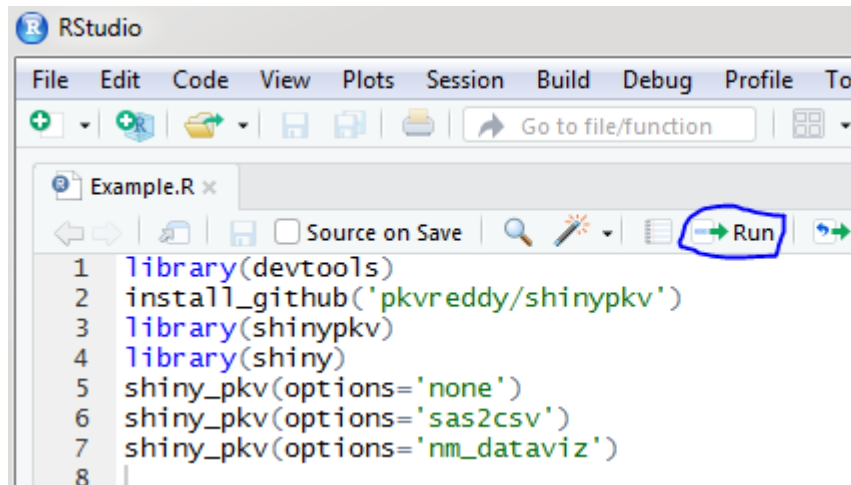
Some footnote text
pk153330 June 1, 2017 9:10:34



References:

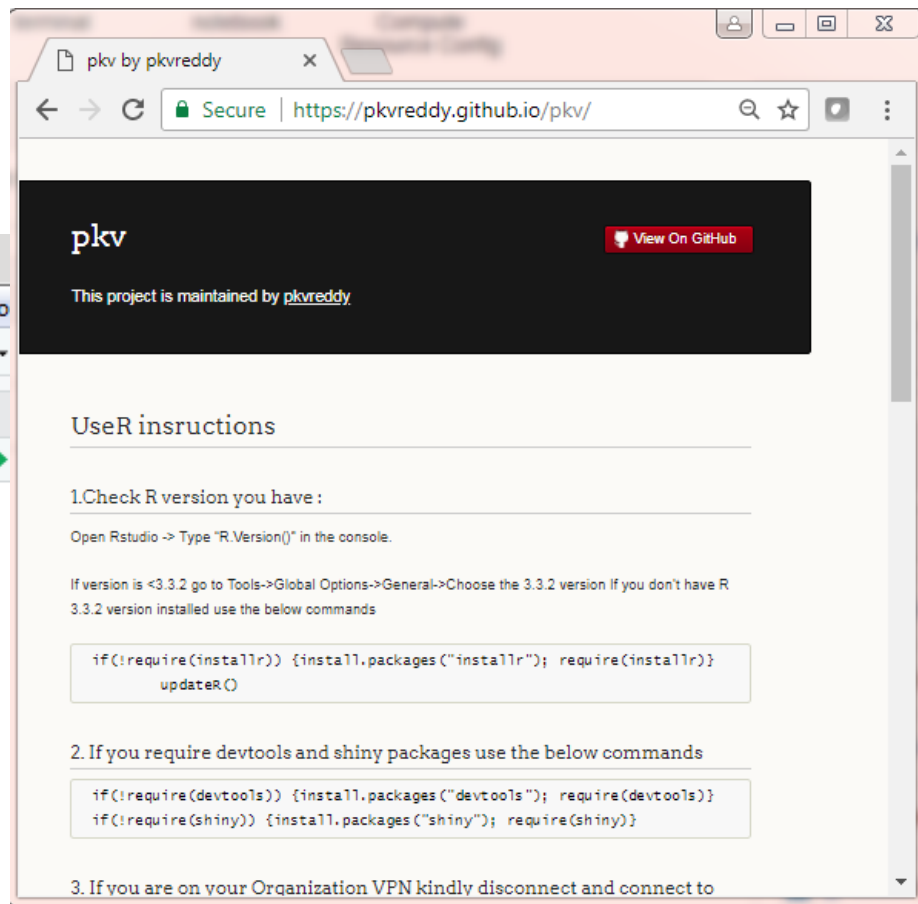
- [1] <https://github.com/cpms-gsk/sasmacros/blob/master/R2SAS>
- [2] <https://github.com/cpms-gsk/sasmacros/blob/master/PDFplot1x1>
- [3] <https://github.com/cpms-gsk/sasmacros/blob/master/PDFplot2x1>
- [4] <https://github.com/cpms-gsk/sasmacros/blob/master/PDFplot2x2>
- [5] <https://pkvreddy.github.io/pkv/>
- [6] <https://github.com/cpms-gsk/sasmacros/blob/master/PLOT2PDF-template>
- [7] <https://github.com/cpms-gsk/sasmacros/blob/master/SAS2SHINY>

Shiny_pkv



The image shows the RStudio interface. The menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, and Tools. The toolbar contains icons for adding files, saving, and running. The 'Run' button, represented by a green arrow, is circled in blue. The script editor shows the following R code:

```
1 library(devtools)
2 install_github('pkvreddy/shinypkv')
3 library(shinypkv)
4 library(shiny)
5 shiny_pkv(options='none')
6 shiny_pkv(options='sas2csv')
7 shiny_pkv(options='nm_dataviz')
8
```



The image shows a web browser window displaying the shiny_pkv project page. The address bar shows the URL <https://pkvreddy.github.io/pkv/>. The page has a dark header with the project name 'pkv' and a 'View On GitHub' button. Below the header, it states 'This project is maintained by pkvreddy'. The main content area is titled 'UseR insructions' (sic) and lists three instructions:

1. Check R version you have :
Open Rstudio -> Type "R.Version()" in the console.

If version is <3.3.2 go to Tools->Global Options->General->Choose the 3.3.2 version If you don't have R 3.3.2 version installed use the below commands

```
if(!require(installr)) {install.packages("installr"); require(installr)}
updateR()
```
2. If you require devtools and shiny packages use the below commands

```
if(!require(devtools)) {install.packages("devtools"); require(devtools)}
if(!require(shiny)) {install.packages("shiny"); require(shiny)}
```
3. If you are on your Organization VPN kindly disconnect and connect to

<https://pkvreddy.github.io/pkv/>

Visualize sas & xpt datasets and convert them to .csv format



```
library(shinypkv)
shiny_pkv(options= "sas2csv")
```

Convert .sas/.xpt to .csv file

Choose .sas or .xpt File

shoes.sas7bdat

Upload complete

Show entries

Search:

	Region	Product	Subsidiary	Stores	Sales	Inventory
			All			A
1	Africa	Boot	Addis Ababa	12	29761	
2	Africa	Men's Casual	Addis Ababa	4	67242	

Showing 1 to 10 of 395 entries

Previous

2

3

4

5

...

40

Next



shoes.sas7bdat

NONMEM Dataset Visualization



```
library(shinypkv)
```

```
shiny_pkv(options="nm_dataviz")
```



Sample file

NONMEM dataset visualization

Choose CSV File

Browse... TEST1.csv

Upload complete

☒ Header

Separator

☒ Comma

☐ Tab

Output Type

Individual

dose:

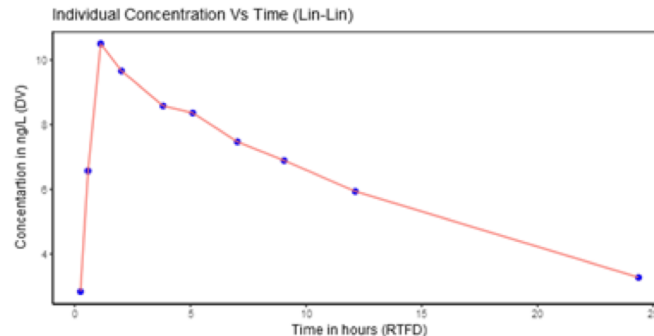
100

period:

1

subj:

1



Data points

subj	time	conc	dose	period
1	0.57	6.57	100	1



RStudio interface showing the 'Addins' menu. The menu is open, displaying a search bar and a list of addins. The addins listed are:

- COLOURPICKER
- Colour Picker
- Plot Colour Helper
- QUESTIONR
- Numeric range dividing
- Levels ordering
- Levels recoding
- SHINYPKV
- dose_cvst
- nm_dataviz
- sas2csv
- TFRUNS
- Training Run
- View Latest Run
- View Run History

NONMEM dataset visualization

Choose CSV File

Browse... No file selector

☒ Header

Separator

☒ Comma

☐ Tab

Output Type

Individual

Data points

Live Demo and Code references



- <https://phuseus2018.github.io/sasmacros/>
- https://pkvreddy.shinyapps.io/2_NM_data_vis/
- https://pkvreddy.shinyapps.io/1_converting_files/