# JSL is *the* language of analytical communication
## Bernard McKeown
## JMP, SAS

## What?

JSL is *the* language of analytical communication may seem an outlandish claim. What's the substance?

JMP is unique. It was designed to be a synergistic integration of visualisation and analytics from its outset. It was designed with the idea that there should be a visual to explain every statistic and this has led to a tight coupling. Statistics is like the "yin" and visualisation the "yang" of visual analytics:

*Visualisation*

*Synergistic integration*

*Statistics*
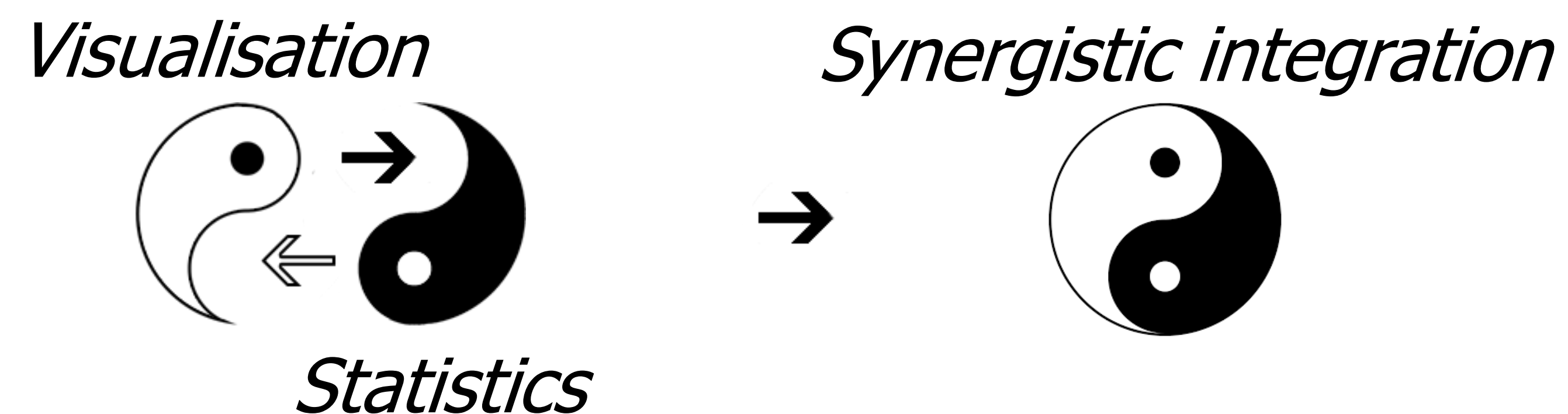
This is strengthened by way that JMP automatically generates JMP Scripting Language (JSL) code when you perform and action. This script captures all the information and action behind your analysis. When the script is run, it reproduces your analysis in all its glory, with no ambiguity, making JSL *the* language of analytical communication.

## How?

The process of using JSL to communicate is simple:

- Modify meta-data of variable columns
- Carry out analysis
- Save the script to data table
- E-mail table to the person you want to communicate with

This simple process allows readers to understand the analysis in depth:

- They can open analysis dialogue to see variables chosen
- They can run the analysis to see what you are doing
- They can read meta-data behind the variables
- They can propose solutions by saving new analyses to the data table

Using JSL to communicate analysis means that the ambiguity inherent in conversation is removed.

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## JSL helps leverage visualisation *and* analytics

Most software is good at *either* visualisation *or* analytics, making it hard to for Informatics Teams to create an integrated solution.

JSL allows Informatics to seamlessly access both visualisation and analytics, and to agilely develop applications to get to the minimum viable product (MVP) quicker.

*Example:* Scientists at a leading BigPharma use JMP to quickly define and create applications that can be immediately rolled out to other scientists. The specification is in JSL.

*How:* These scientists save JSL scripts to the data table to communicate the right analyses to informatics programmers, who then improve the user interface to create a deployable application.

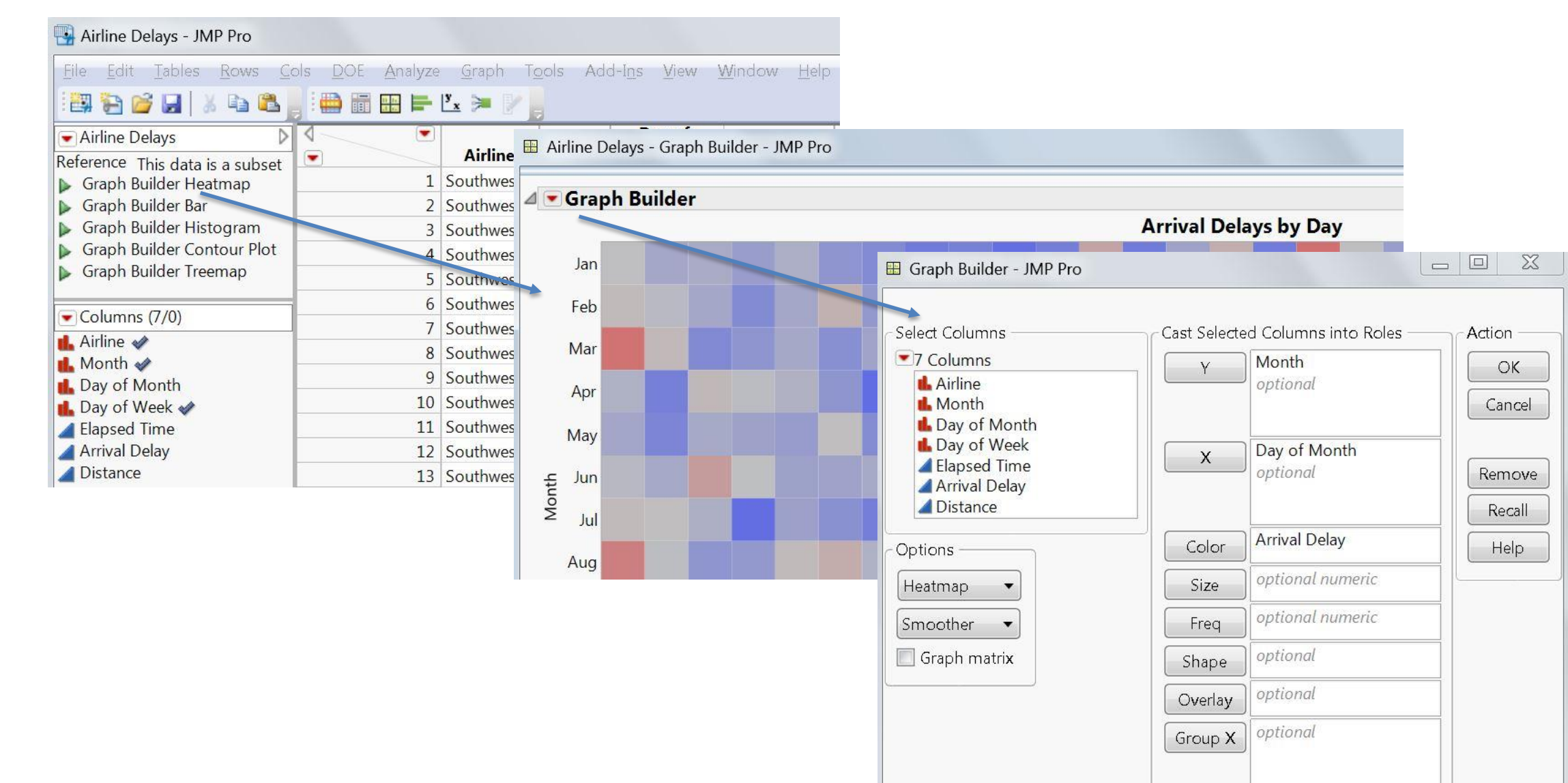Complex applications with great GUIs can be prototyped agiley to make the MVP
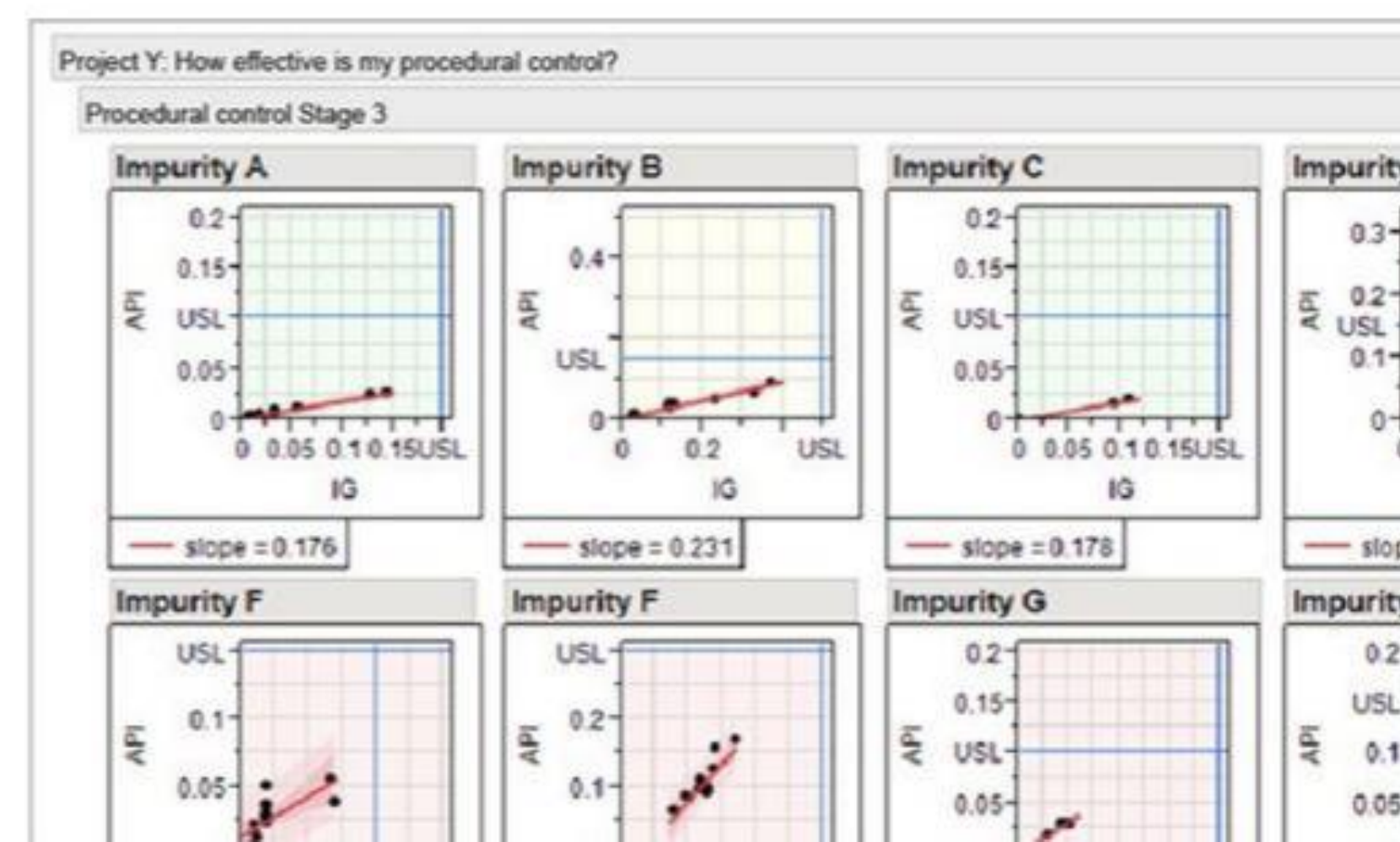
## JSL helps with peer review

Scientific discovery is a solitary activity. Scientists need to know that their findings make sense so want them verified by subject matter experts. This requires the scientists to provide "reproducible research".

*Example:* Scientists at a leading CPG company send their findings as JSL embedded in data tables to their statisticians for review.

*How:* The scientists save their analyses as JSL scripts to the data table and send these to the statistician for review. These scripts communicate the method and variables used in the analysis, and the meta-data behind the variables is held in the columns creating a picture of how their findings were arrived at.

Running the script creates the analysis, which includes complete details of how it was carried out

## JSL helps future-proof experiments

Scientific companies are investigating experiments conducted in the past to see if they contain information that could create new business. This data mining is difficult because often the data is in paper form for older experiments or in a legacy database. In a sense, JSL is a vehicle to create a historian in the organisation.

*How:* Experiments carried out in JMP automatically save the experimental description as JSL in the experiment data table, which can then be archived until useful again, e.g. if materials become viable to make the product or experiments need to be carried out in a previously unexplored region of the design.

All the details of the experiment including how the design, results and model are saved to the data table



## JSL helps achieve regulatory approval

Regulation is a key driver behind scientific and engineering endeavour. Communicating analyses clearly and easily with regulators allows them to review and approve products more easily.

*Example:* This is such a fundamental aspect to clinical trials that JMP has created a JSL application to enable pharmaceutical companies to communicate with regulation agencies such as the EMA, FDA and PMDA. This application is called JMP Clinical.

JMP Clinical provides regulator-ready reports for submission to the FDA and other agencies