Metaprogramming with R

I explored how R could automate processing while keeping calculations transparent to colleagues who use Excel.

Excel and R: Friends or Enemies? · A monthly data analytics meetup · 2020

4 selected slides · one-page overview

Slide order follows the original presentation

01 Keep Excel's strengths

Excel is the primary tool of choice

Excel has some big benefits:



1. *Ease of use*
2. Spatial clarity
3. Transparency

and some drawbacks: . . .

Familiar tools offer ease of use, spatial clarity and transparency.

02 Automate with R

Enter R



- Automates data collection from StatsCan, OECD, etc
- Automates calculations
- Various output formats (Plots, Static and Interactive dashboards, PDF, Excel output)

Drawbacks of R?

Retrieve data, perform calculations and generate different output formats.

03 Give data a hierarchy

data.tree package

Uses

1. Hierarchical information of economic data
2. Tree structure is one of those fundamental way of visualization data (Windows Explorer, Mac Finder)

Features

- Can create trees from dataframes
- Can have many levels not restricted to the database schema
- Can generate much more user friendly visualizations of the underlying data
- Can perform queries, filters, calculations on tree branches, nodes

Use data.tree to organise information and work with branches and nodes.

04 Keep formulas readable

Non-standard evaluation

Uses

- Transparent formulas
- Easy to read
- Named formulas

Works well with some of the *pivot_longer* and *pivot_wider* tidyr functions

Advantages

1. Reduces the black box effect of R code to non-R users
2. Non R users can make a change to a formula in the table and it reflects in the calculations

Named formulas help non-R users understand and adjust calculations.

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Selected slides from the original presentation, lightly edited for publication. Captions and summaries provide context.
Contact me to discuss this work.

Credits: Package reference: data.tree. · R logo: The R Foundation. Excel is a Microsoft product.