

Introduction to R

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1 Challenges

2 Opportunities

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2 Opportunities

Frustrations with your current software

- What frustrations **did** you have learning your current software?
- What frustrations **do you still have** with your current software?

Frustrations you will have with R

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- Lots of add-on packages (lightweight base software)
- Mistype or misspell commands
- Missing data handling
- Cryptic error messages

1 Challenges

2 Opportunities

Why should you use R?

- Because you want to do more

What can you do with R?

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- Everything

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But seriously...

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 - High-level visualization

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But seriously...

- Everything:
 - Statistical analysis
 - Texting processing
 - Machine learning
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 - High-level visualization
 - Sudoku

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- Because you can create a better scientific workflow

Why is R better for science?

- R will always be here
- Scripting
- Reproducible research tools
 - Scripting
 - Report generation
 - Data sharing

Reproducible Research

- All data and replication code is public
- All results come directly from code
- Analysis is about writing a script, not pointing and clicking
- Makes changes and collaboration easier

Scientific Workflow

- Store data in perpetually readable formats
- Write a complete analysis script
- Script should run analysis *and* output results
- Reports should import results directly
- Share data, script, and codebooks

Questions so far?

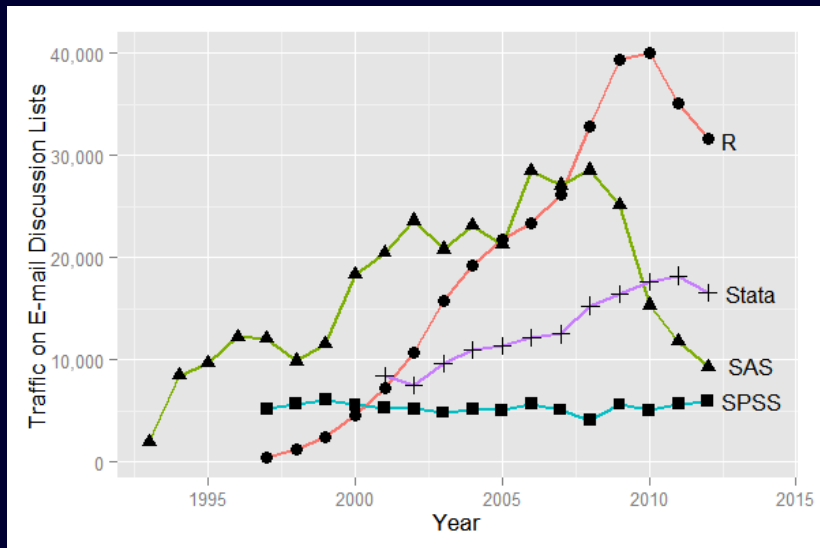
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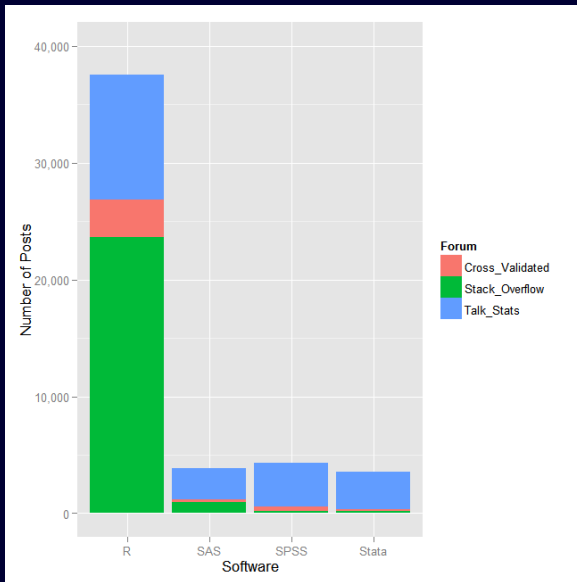
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- Because you want to do more
- Because you can create a better scientific workflow
- Because everyone else is doing it

What is everyone else doing?



What is everyone else doing?

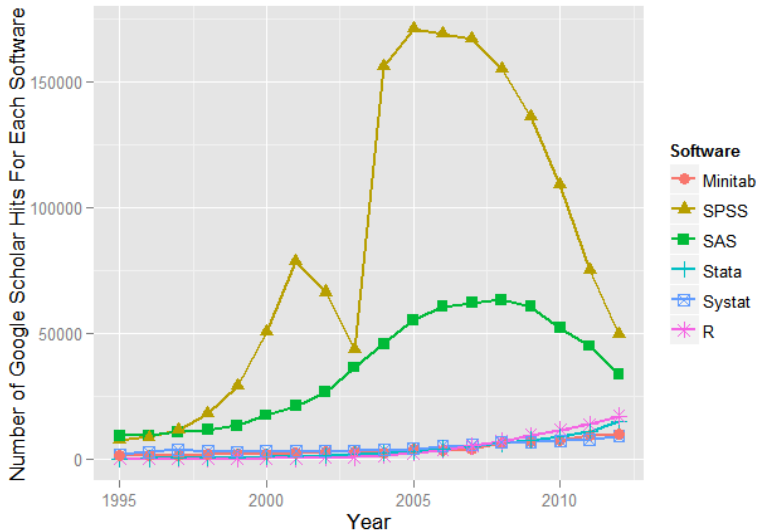


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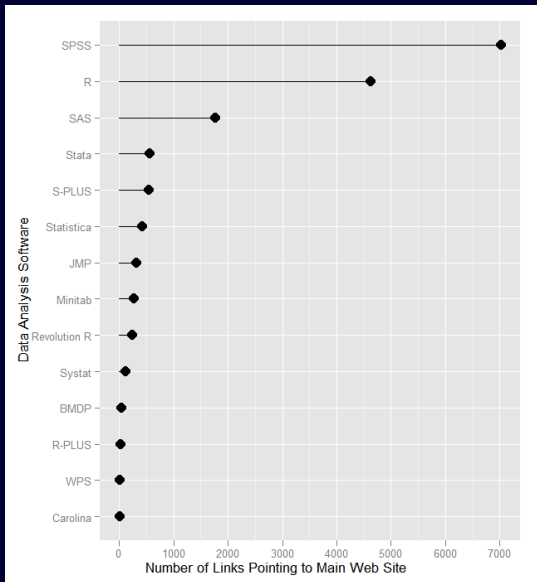
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Impact of popularity

- Huge community support
- Cutting edge techniques
- Versatile

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- Because it is free

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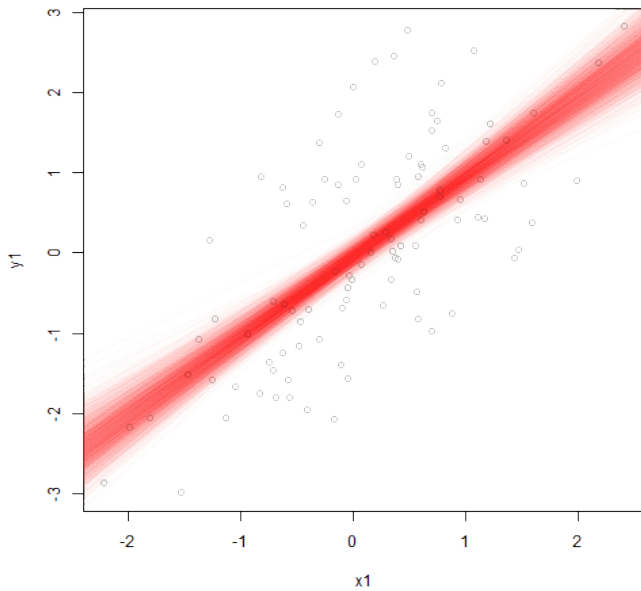
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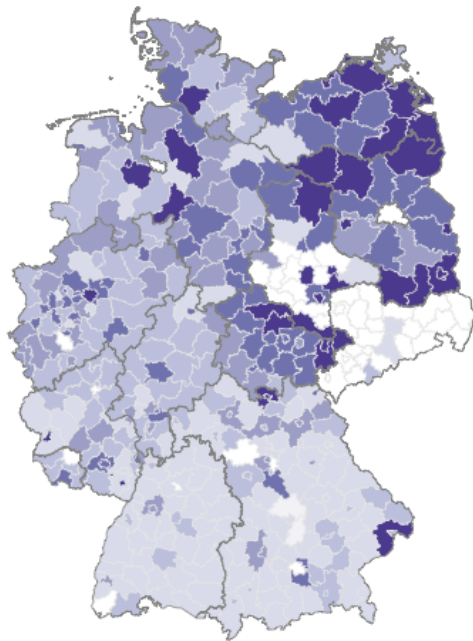
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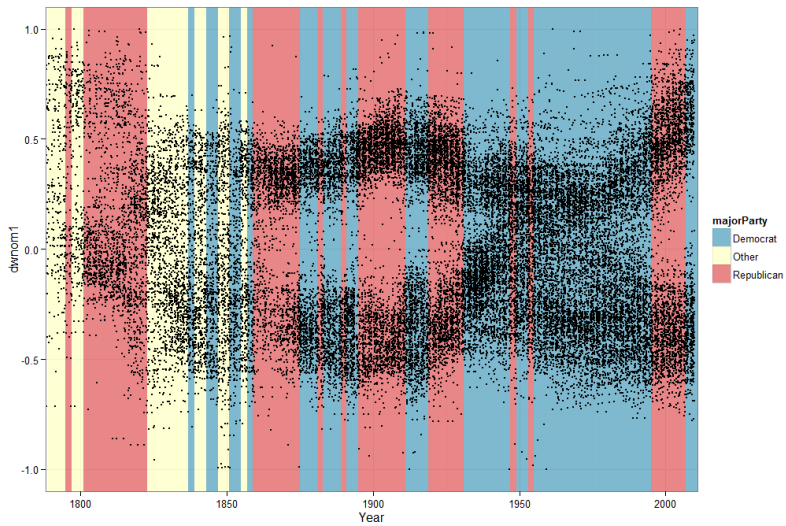
- Because you want to do more
- Because you can create a better scientific workflow
- Because everyone else is doing it
- Because it is free
- Because R is beautiful

Graphs are beautiful

You can make data look like art

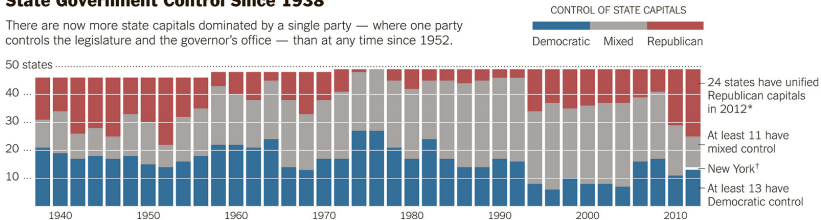






State Government Control Since 1938

There are now more state capitals dominated by a single party — where one party controls the legislature and the governor's office — than at any time since 1952.



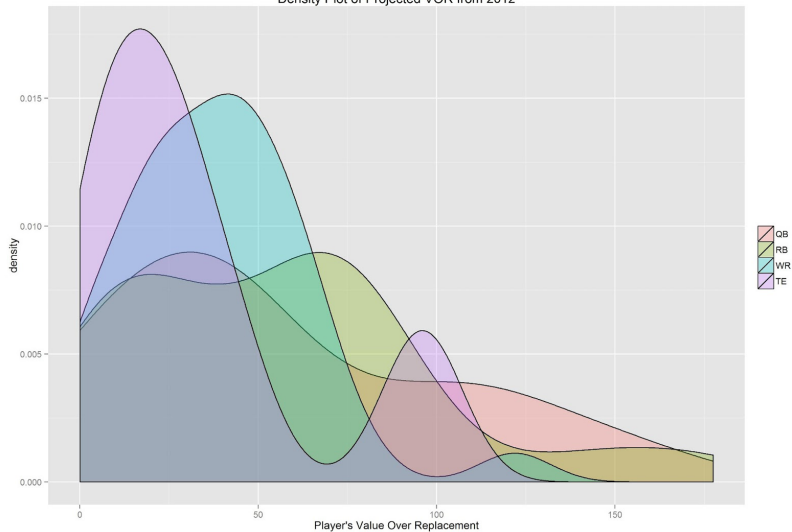
* Virginia is counted as unified Republican because its State Senate is tied and its tiebreaker, the lieutenant governor, is a Republican.

† Early results appeared to show that New York had unified Democratic control, but votes are still being counted in many races.

Source: National Conference of State Legislatures

THE NEW YORK TIMES

Density Plot of Projected VOR from 2012



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