

The culture of open scholarship

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kbroman.org

Slides: bit.ly/broman2023



These are slides for a 10-15 min talk on open scholarship for the Big 10 Academic Alliance libraries, in Jan 2023.

Slides (pdf): https://kbroman.org/Talk_Big10Libs/oa2023.pdf

Slides with notes (pdf): https://kbroman.org/Talk_Big10Libs/oa2023_notes.pdf

Source: https://github.com/kbroman/Talk_Big10Libs

open access

open source

open science

About me

- ▶ Applied statistician working in genetics
- ▶ Co-author on 170 papers and 1 book
- ▶ Reviewer for 90 different journals
- ▶ Formerly
 - Associate editor and Senior editor at *Genetics*
 - Associate editor at *Biostatistics*
 - Associate editor at *Journal of the American Statistical Association*
 - Academic editor at *PeerJ*
 - Editorial Board member of *BMC Biology*

kbroman.org/broman_cv.pdf

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I thought I should say a bit about my experience with the publication process.

My research spans genetics and statistics, but the majority of my publications are in the genetics or biology literature; I only have a couple of papers in statistics journals.

I've reviewed for a lot of different journals, and I spent a decade as an editor for the society journal, *Genetics*.



Data Organization in Spreadsheets

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ABSTRACT

Spreadsheets are widely used software tools for data entry, storage, analysis, and visualization. Focusing on the data entry and storage aspects, this article offers practical recommendations for organizing spreadsheet data to reduce errors and ease later analyses. The basic principles are: be consistent, write dates like YYYY-MM-DD, do not leave any cells empty, put just one thing in a cell, organize the data as a single rectangle (with subjects as rows and variables as columns, and with a single header row), create a data dictionary, do not include calculations in the raw data files, do not use font color or highlighting as data, choose good names for things, make backups, use data validation to avoid data entry errors, and save the data in plain text files.

ARTICLE HISTORY

Received June 2017
Revised August 2017

KEYWORDS

Data management; Data organization; Microsoft Excel; Spreadsheets

doi.org/gdz6cm

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1							
2	Date	11/3/14					
3	Days on diet	126					
4	Mouse #	43					
5	sex	f					
6	experiment		values			mean	SD
7	control		0.186	0.191	1.081	0.49	0.52
8	treatment A		7.414	1.468	2.254	3.71	3.23
9	treatment B		9.811	9.259	11.296	10.12	1.05
10							
11	fold change		values			mean	SD
12	treatment A		15.26	3.02	4.64	7.64	6.65
13	treatment B		20.19	19.05	23.24	20.83	2.17

<div> <div>Editorial</div> <div> <div></div> <div>The ASA Statement on p-Values: Context, Process, and Purpose ></div> </div> <div> <div>Ronald L. Wasserstein & Nicole A. Lazar</div> <div>Published online: 9 Jun 2016 (Vol.70, No.2, 2016)</div> </div> </div>	<div> <div>611997</div> <div>Views</div> </div> <div> <div>3036</div> <div>CrossRef citations</div> </div> <div> <div>2,267</div> <div>Altmetric</div> </div> <div> <div>FREE ACCESS</div> <div></div> </div>
<div> <div>Editorial</div> <div> <div></div> <div>Moving to a World Beyond “$p < 0.05$” ></div> </div> <div> <div>Ronald L. Wasserstein, Allen L. Schirm & Nicole A. Lazar</div> <div>Published online: 20 Mar 2019 (Vol.73, No.sup1, 2019)</div> </div> </div>	<div> <div>315184</div> <div>Views</div> </div> <div> <div>1246</div> <div>CrossRef citations</div> </div> <div> <div>1,443</div> <div>Altmetric</div> </div> <div> <div></div> <div></div> </div>
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Cory Doctorow mostly AFK until Nov 7

@doctorow

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That's where "Data Organization in Spreadsheets" -
[@kara_woo](#) and [@kwbroman](#)'s 2017 paper in
[@AmstatNews](#) comes in. It lays out a crisp set of best
practices for avoiding common errors, upping your CVS
catastrophe game to really powerful mistakes!

tandfonline.com/doi/full/10.10...

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data organization organizing data in spreadsheets

My collaborators sometimes ask me, "In what form would you like the data?" My response is always, "In its current form!" If the data need to be reformatted, it's much better for me to write a script than for them to do a bunch of cut-and-paste. I'm a strong proponent of data analysts being able to handle any data files they might receive.

But in many cases, I have to spend **a lot** of time writing scripts to rearrange the layout of the data. And how would you like your data analysts to spend their time? Reorganizing data, or really analyzing data?

Most of my collaborators enter and store their data in spreadsheets, and mostly Microsoft Excel. Before starting to enter data into a spreadsheet, it's good to spend some time thinking about the layout. The way that you organize the data in spreadsheets can have a big impact on your data analyst's quality of life.

This is a tutorial on that topic: *how to organize data in spreadsheets*. For complex, high-dimensional data, it may be better to use a formal database. But for many projects, spreadsheets are perfectly fine. But data in spreadsheets can be pretty and easy to work with, or they can be a sloppy mess requiring serious downstream reorganization efforts. We want to avoid the latter.

I don't think these ideas come naturally to anyone. So if you're not happy with the structure of your current data files, don't despair! And also don't apply tedious and potentially error-prone hand-editing to revise the arrangement. Rather, apply these principles when designing the layout for your next dataset, to help make analyses easier.

- [Be consistent.](#)
- [Write dates as YYYY-MM-DD.](#)
- [Fill in all of the cells.](#)

Data organization in spreadsheets

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September 11, 2018

Abstract

Spreadsheets are widely used software tools for data entry, storage, analysis, and visualization. Focusing on the data entry and storage aspects, this paper offers practical recommendations for organizing spreadsheet data to reduce errors and ease later analyses. The basic principles are: be consistent, write dates like YYYY-MM-DD, don't leave any cells empty, put just one thing in a cell, organize the data as a single rectangle (with subjects as rows and variables as columns, and with a single header

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Lessons

- ▶ Continued attachment to journal articles
- ▶ Open access → more readers

What has changed?

- ▶ Rise of preprints in biology
- ▶ Rise of *Nature Communications*
- ▶ PubMed Central: expansion, with no embargo
- ▶ Emphasis on computational reproducibility

What hasn't changed?

- ▶ Attachment to Impact Factor
- ▶ Attachment to Science, Nature, and Cell
- ▶ Researchers don't read much

The journal Genetics recently sent out a newsletter that included an announcement of new associate editors. The bio for one of them had “...including more than 30 articles in Nature, Science, Cell, and Nature Genetics.”

Barriers to OA

- ▶ Most scientists don't seem to care
- ▶ Cost