

Altmetrics and Revolutions:

New metrics for a new era of Web-native Scholarship.

bit.ly/nih-smrb-altmetrics
@jasonpriem

June 5, NIH SMRB VOBR Mtg,
Washington DC

**What you do
matters so
much.**

**Communication is
the soul of
science.**

Ye Olde Letter

	The Letter
tech	pen and paper
products	letter
filters	personal

In 1665, the first revolution:

Oldenburg publishes Phil. Trans; applies the best available technology (printing press) to vastly improve dissemination.

A step forward: the journal

	The Letter	The Journal
tech	pen and paper	printing press
products	letter	article
filters	personal	peer-review

A second revolution is coming

	The Letter	The Journal	The DcJ
tech	pen and paper	printing press	the web
products	letter	article	everything
filters	personal	peer-review	altmetrics

But journals are already online!



Your revolution is over, sir!

["The Digital Publishing Revolution Is Over"](#)

Online journals are
paper journals
delivered by **faster
horses.**

**The First Revolution
promoted homogeneity
of outputs.**

The standardized article was born of
the need for industrial-scale replication
and interchangeability.

**The Second Revolution
will promote diversity of
outputs.**

With publication nearly free, it becomes trivial to capture the missing pieces of the scholarly record.

**Instead of moving
paper products
faster, we can create
web-native science.**

conversation stories analysis data

data



Submit Data Now!
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Dataset

When using this data, please cite the original article as:
Reader SM, Hager Y, Laland KN (2011) Social learning in the Royal Society B 366(1567): 1017-1024. doi:10.1098/rspb.2011.0174

Additionally, please cite the Dryad data package as:
Reader SM, Hager Y, Laland KN (2011) Data from: Social learning in the Royal Society B 366(1567): 1017-1024. doi:10.5061/dryad.t0q94

Dryad File Identifier doi:10.5061/dryad.t0q94

Description Please refer to Reader et al. (2011)

Keywords social learning, behavior

Date Deposited 2012-11-14T18:00:48Z

Scientific Names Primates

Contained in Data Package Data from: The evolution of social learning in the Royal Society B 366(1567): 1017-1024



My data Browse Upload J. Priem

Effect of i.t. administration of PD98059 on ERK phosphorylation in Vc neurons and nocifensive behavior.

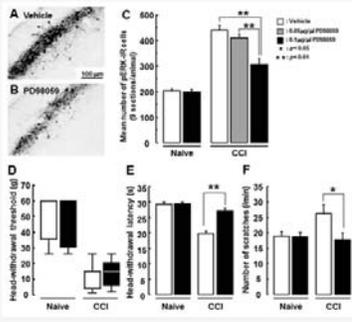
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Published on 23 Feb 2013 - 12:41 (GMT)
Filesize is 943.04 KB

This data is part of a published article: [Investment of ERK Phosphorylation of Trigeminal Ganglion Subnucleus Spinalis Nucleus in Thermal Hyperalgesia in Rats with Intraoral Nerve Injury](#)
Published by: 

Categories
• Physiology
• Neuroscience

Authors
Ryoko Suzuki
Yoshiaki Teuchi
Masamichi Shinoda
Kazuo Shibusawa
Kuniko Honda
Ayana Katagiri
Masaki Kiyomoto
Bamy J. Sesse



Group	Vehicle	PD98059	PD98059+PD98059
Naive	~200	~200	~200
CCI	~450	~400	~350

Group	Vehicle	PD98059	PD98059+PD98059
Naive	~15	~15	~15
CCI	~25	~20	~15

Group	Vehicle	PD98059	PD98059+PD98059
Naive	~15	~15	~15
CCI	~25	~20	~15

Group	Vehicle	PD98059	PD98059+PD98059
Naive	~15	~15	~15
CCI	~25	~20	~15

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Cite this: Effect of i.t. administration of PD98059 on ERK phosphorylation in Vc

analysis

earlywarning / 97 commits

file to write csv data files from cached rda data files

cboettig authored 5 days ago Latest commit b6635f2aab

R	10 months ago	avoid nans [cboettig]
data	a year ago	Merge branch 'master' of github.com:cboettig/earlywarning [cboettig]
inst	5 days ago	file to write csv data files from cached rda data files [cboettig]
man	a year ago	summary stat looping function, dependencies added [cboettig]
DESCRIPTION	8 months ago	updated description [cboettig]
NAMESPACE	a year ago	documentation etc [cboettig]
README.md	9 months ago	README file added [cboettig]

README.md

Quantifying the Detection of Early Warning Signals

This package contains the source code, analysis, and history of my research published in the Proceedings of the Royal Society Interface, *Limits to the Detection of Early Warning Signals for Critical Transitions* with Alan Hastings, May 2012. A preprint under CC-by license is freely available from my website

- Author: Carl Boettiger
- License: CC0
- Project navigation

stories

fiction:

short story, novella, novel, series, play, film, comic book, etc, etc...

scholarship:

paper, monograph,

video, blog posts, notebooks, infographics, slides, etc, etc

conversation

mathoverflow

Questions

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How many proofs that $\pi_n(S^n) = \mathbb{Z}$ are there?

15

☆
7

Offhand I can think of two ways in classical homotopy theory:

1. Show that $\pi_k(S^n) = 0$ for $k < n$ by deforming a map $S^k \rightarrow S^n$ to be non-surjective, then contracting it away from a point not in its image. Now use the Hurewicz theorem to show $\pi_n(S^n) = H_n(S^n) = \mathbb{Z}$, which is easy to calculate with cellular homology.
2. Use the Freudenthal suspension theorem to induct up from $\pi_1(S^1) = \mathbb{Z}$, which you can prove using (say) the universal covering space $\mathbb{R} \rightarrow S^1$.

What other ways are there to prove $\pi_n(S^n) = \mathbb{Z}$?

at.algebraic-topology homotopy-theory big-list

flag | cite

edited Feb 8 at 8:53
Ricardo Andrade

community wiki

- 4 this should be community wiki – Koushik Feb 8 at 0:43
A very silly option is: run an algorithm which given a simplicial decomposition of the sphere gives you the group. As algorithm exist, this is in principle viable :-)- Mariano Suárez-Alvarez Feb 8 at 2:39
- 3 Am I allowed to say "countably many"? :-)- Andrej Bauer Feb 8 at 11:31
- 1 @Tom: Is there a way to generalize that argument to $n > 2$? – Mike Shulman Feb 8 at 16:31
- 1 The deformation argument in (1) is superfluous. Just calculate π_1 and H_* from the cell decomposition. Then for simply connected spaces, Hurewicz shows that the minimum $i > 0$ for which $H_i \neq 0$ is the same as the minimum $i > 0$ for which $\pi_i \neq 0$, and that the groups coincide for this i . – unknown (google) Feb 9 at 21:53

show 3 more comments

3. "aps2013dc" @jasonpriem



Sue Frantz @WorthPsychTLC 1m
S.Fiske: Our person perceptions are a 2 (warm/bad intentions) x 2 (hi/lo competence at carrying out those intentions) #aps2013dc
Details

Old Strings retweeted



Geoffrey Miller @matingmind 3h
When creating a new story, dorsolateral prefrontal cortex is more active if telling the story to opposite sex - Kevin Dunbar #aps2013dc
Details

Randall Parker retweeted



Geoffrey Miller @matingmind 1d
Children's social games function mostly to learn how to play complex, differentiated roles within groups - Roy Baumeister at #aps2013dc
Details



Michael Carmichael @MDCar... 4m
Stanley Milgram's actual shock generator here at #aps2013dc in Washington DC!
pic.twitter.com/6MloF1Yfr
Details

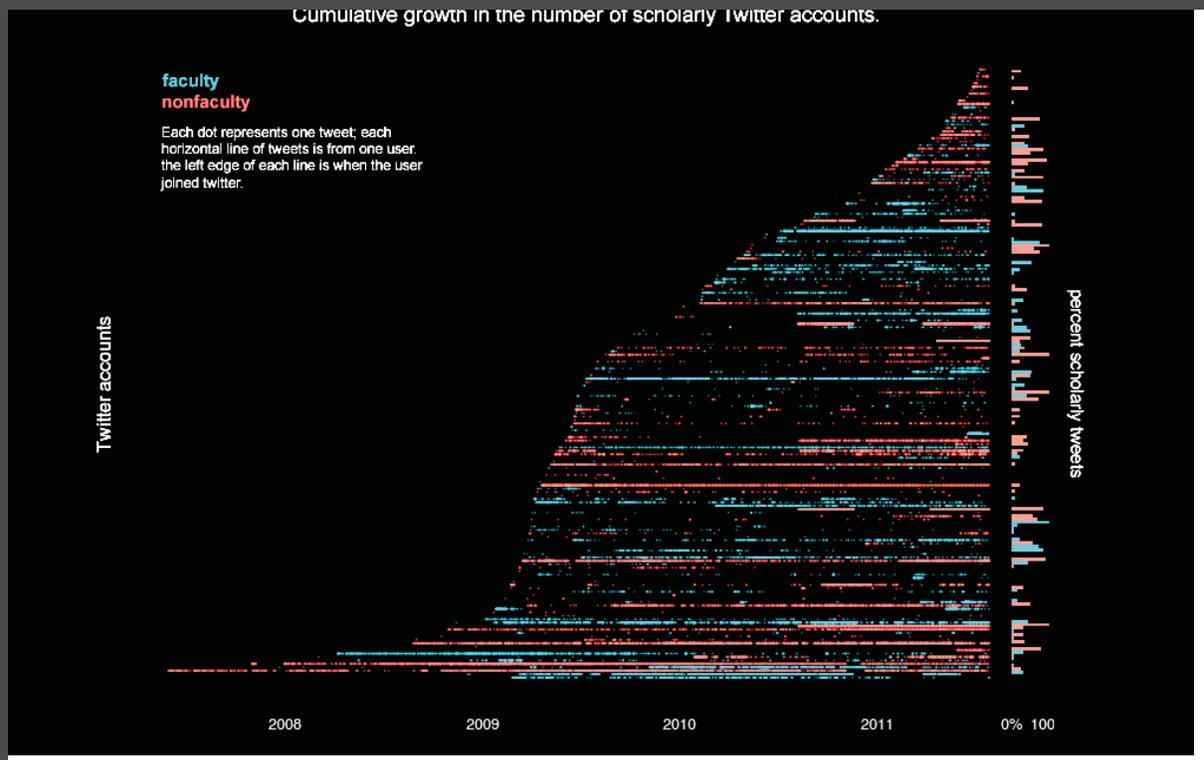
Examples: Twitter

In one month, over 58k citations from Twitter to scholarly articles (citwaitions?)

It is like having a jury preselect what will probably interest you.... Occasionally there will be something that people will link to, and it will change what I think, or what I'm doing, or what I'm interested in.

-study participant
(Priem and Costello, 2010)

Examples: Twitter



(Priem, Costello, and Dzuba 2011)

Web-native science
means we can start
making public, not
merely "Publishing."

Here's my journal:

The image shows a screenshot of the TweetDeck application interface. It is organized into five vertical columns:

- Column 1: Home** - Contains tweets from Khadijah M. Britton, Jennifer Granick, Jeff Atwood, John Herрман, and Tom Scheinfeldt.
- Column 2: Interactions @jasonpriem** - Shows interactions with Jason Priem, including follows from Crowd4Discovery and Ecology Report, and retweets from Coltharp Fillmore and Kelly Ruggles.
- Column 3: "altmetrics" @jasonpriem** - Features tweets about altmetrics, including a retweet from Research2.0 and tweets from March Metrics and Jean-Frédéric.
- Column 4: Tweets @researchremix** - Displays tweets from Heather Piwowar, Paul Hobson, Open Science Fedn, UBC Library, and Heather Piwowar.
- Column 5: Interactions @imp** - Shows interactions with Adora Doro and Mark Zastr.

Here's how I publish:

The Decoupled Journal article: a case study.

The image shows a screenshot of a word processor window titled "Decoupling the scholarly journal PREREVIEW". The window includes a menu bar (File, Edit, View, Insert, Format, Tools, Table, Help) and a status bar indicating the last edit was made 6 days ago by "wordslkethis". The main text area contains the following paragraph:

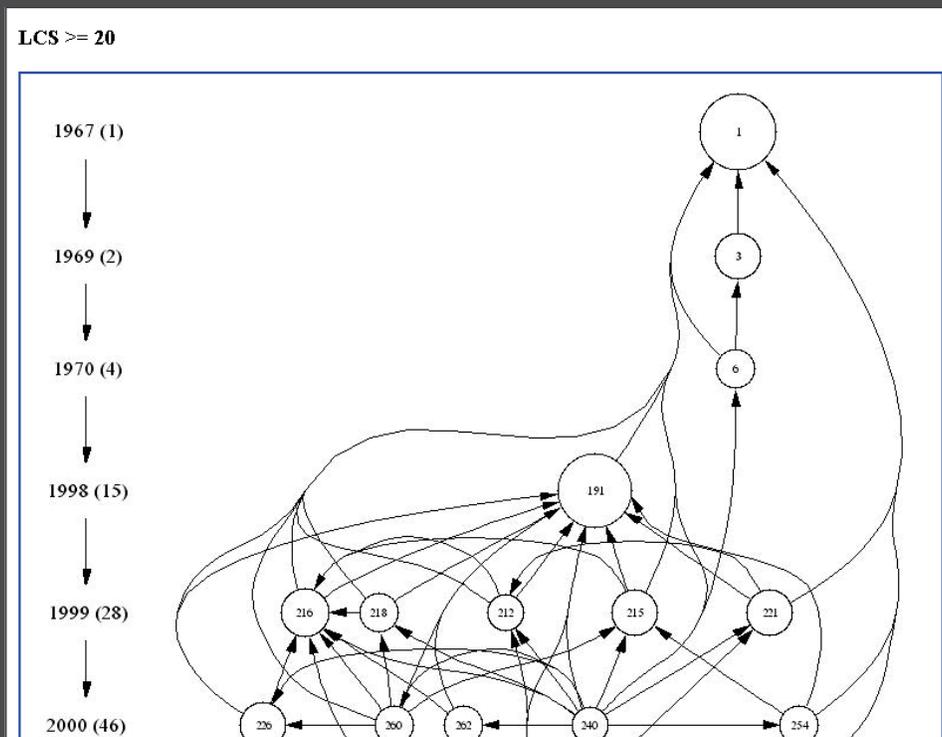
This is a **pre-publication copy**, submitted to the *Frontiers in Computational Neuroscience* special issue "[Beyond open access: visions for open evaluation of scientific papers by post-publication peer review](#)" and posted here with permission. It is still under peer review. Comments, ideas, and arguments are welcome.

**But how do we
filter? How do
we measure?**

**Don't turn off
the taps,
Build boats.**

The old way: countin' citations

And that's awesome!



[histcite](#) example

But citations only tell part of the story

Spotting emerging research fronts will require tracking "formal and informal communication" (Kuhn, 1977)

Heart of scholarly communication is "visits, personal contacts, and letters." (Bernal, 1944)

"...there are undoubtedly highly useful journals that are not cited frequently." (Garfield, 1972)

Impact has multiple dimensions:

Audience: scholars, public

Engagement type: views, discussion, saves, citation, recommendation

Impact has multiple dimensions:

	scholarly	public
recommended		
cited		
discussed		
saved		
scholarly		

Bibliometrics measures **citation**

	scholarly	public
recommended		
cited	traditional citation	
discussed		
saved		
scholarly		

Altmetrics measures impact:

	scholarly	public
recommended	faculty of 1000	popular press
cited	traditional citation	wikipedia
discussed	scholarly blogs	blogs, twitter
saved	mendeley, citeulike	delicious
scholarly	pdf views	html views

Bibliometrics mined impact on the first scholarly Web.

altmetrics mines impact on the next one.

ImpactStory.

An open-source, nonprofit startup to gather and share altmetrics.

Heather Piowar
Jason Priem



ALFRED P. SLOAN
FOUNDATION

ImpactStory. create about follow register log in **BETA** Send us your feedback!

My Collection 9 items (expand all) update json csv Tweet 0

article

Mega-phylogeny approach for comparative biology: an alternative to supertree and supermatrix approaches
(2009) Smith, Beaulieu, Donoghue *BMC Evol Biol*
highly saved highly cited
highly recommended highly cited
discussed saved

Computational toxicology using the OpenTox application programming interface and Bioclipse.
(2011) Willighagen, Jelliazkova, Hardy et al. *BMC research notes*
highly saved highly discussed cited
saved

Multistep correlations via covariance processing of COSY/GCOSY spectra: opportunities and artifacts
(2008) Martin, Hilton, Bilinov et al. *Magn. Reson. Chem.*
highly saved cited saved

Automated dielectric single cell spectroscopy - temperature dependence of electrorotation
(2002) Mletchen, Schnelle, Muller et al. *Journal of Physics D: Applied Physics*
saved cited saved

Pyramid symmetry transforms: From local to global symmetry
(2007) Zavidovique, Di Gesù *Image and Vision Computing*
saved cited saved

dataset

Data from: Data archiving is a good investment
(2011) Piowar, Vision, Whitlock et al. *Dryad Digital Repository*
highly viewed highly discussed saved
saved

artifacts highly saved cited saved

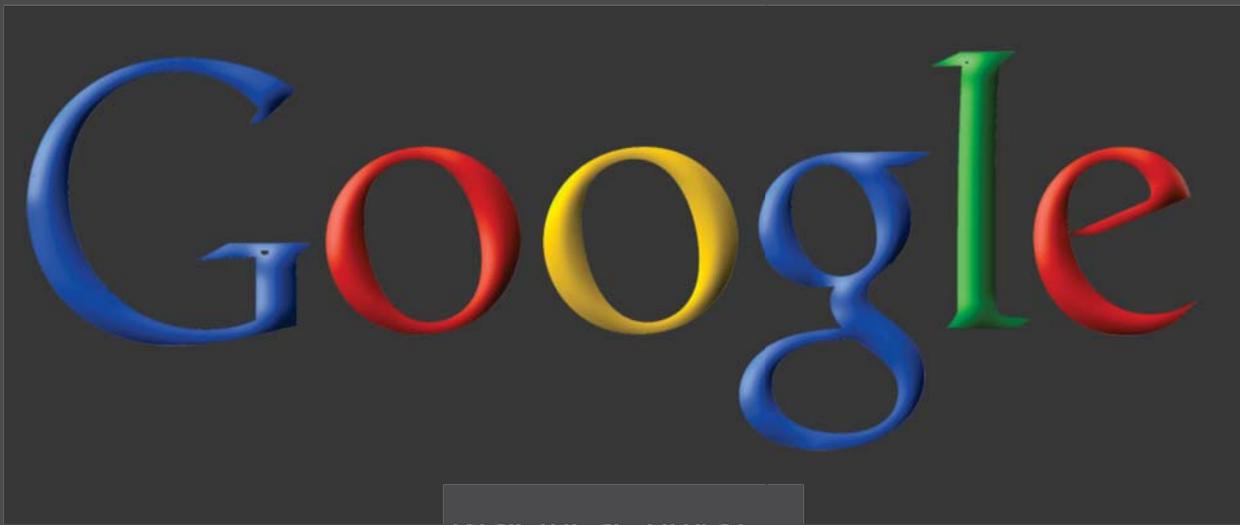
Highly saved by scholars

This item has 6 Mendeley readers. That's better than 76% of items indexed by Web of Science in 2008, suggesting it's highly saved by scholars. Click to learn more.

Why altmetrics?

- Faster evaluation.
- Reward broader impacts.
- Reward web-native products.
- Build web-native filters

It's in mining the network



The second revolution has started.

Once we have altmetric data, it's too useful to ignore; alternative filters and even certification paths based on this data will open.

As Peter Vinkler says, citation graph data is like Chekhov's gun: once on stage, it has to be fired.

A wise man, that Chekov.



Thanks!

Advisors:

- Brad Hemminger,
- Todd Vision



Funders:

- Alfred P. Sloan Foundation
- DataONE
- Dryad
- National Science Foundation
- Open Society Foundations
- Royster Society of Fellows



Questions?

Jason Priem @jasonpriem, <http://jasonpriem.org>

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