

Altmetrics and Revolutions:

New Products, New Metrics, and the
New Era of Web-native Scholarship.

[@jasonpriem](https://bit.ly/sla-altmetrics)

June 10, Special Libraries Association Mtg,
San Diego, CA

**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!
See how to submit

Dataset

When using this data, please cite the original article as:

Reader SM, Hager Y, Laland KN (2011) The evolution of social learning in primates. *Proceedings of the Royal Society B* 366(1567): 1017-1024. doi:10.1098/rspb.2010.2000

Additionally, please cite the Dryad data package as:

Reader SM, Hager Y, Laland KN (2011) Data from: The evolution of social learning in primates. 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, primates
Date Deposited	2012-11-14T18:00:48Z
Scientific Names	Primates
Contained in Data Package	Data from: The evolution of social learning in primates

My Account


Login or Register

Browse

Authors
Journal Title

Information

Depositing Data
Using Data
Dryad Members
Journal Archiving Policy
About Dryad
Dryad Blog



My data Browse Upload

J. Priem

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

[Claim article](#)

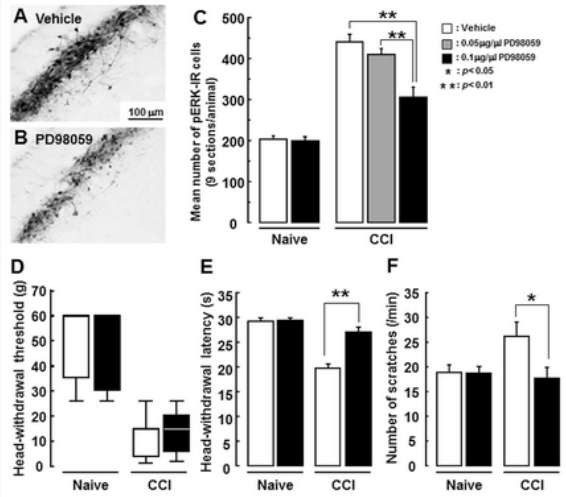


Figure Data:


Panel	Measure	Naive	CCI	Significance
C	Mean number of pERK-IR cells (9 sections/animal)	~200	~420	**
D	Head-withdrawal threshold (g)	~55	~30	
E	Head-withdrawal latency (s)	~30	~28	**
F	Number of scratches (min)	~20	~18	*

Legend: □ : Vehicle, ▨ : 0.05 µg/µl PD98059, ■ : 0.1 µg/µl PD98059. * : p < 0.05, ** : p < 0.01.

6 views 0 shares

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

This data is part of a published article:
[Involvement of ERK Phosphorylation of Trigeminal Spinal Subnucleus Caudalis Neurons in Thermal Hypersensitivity in Rats with Infraorbital Nerve Injury](#)




Published by: 

Categories

- [Physiology](#)
- [Neuroscience](#)

Authors


Ikuko Suzuki
Yoshiyuki Tsuboi
Masamichi Shinoda
Kazuo Shibuta
Kuniya Honda
Ayano Katagiri
Masaaki Miyamoto
Barry J. Sessle

Share this:  Share 0  Tweet 0  +1 0

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



[Enlarge](#) [Download](#)








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

Tags

Users

Badges

Unanswered

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

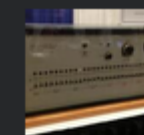


Geoffrey Miller @matingmind 1d
Children's social games function mostly to learn how to play complex, differentiated roles within groups - Roy Baumeister at #aps2013dc

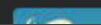
Details



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



Details



Sue Frantz @WorthPsychTLC 4m

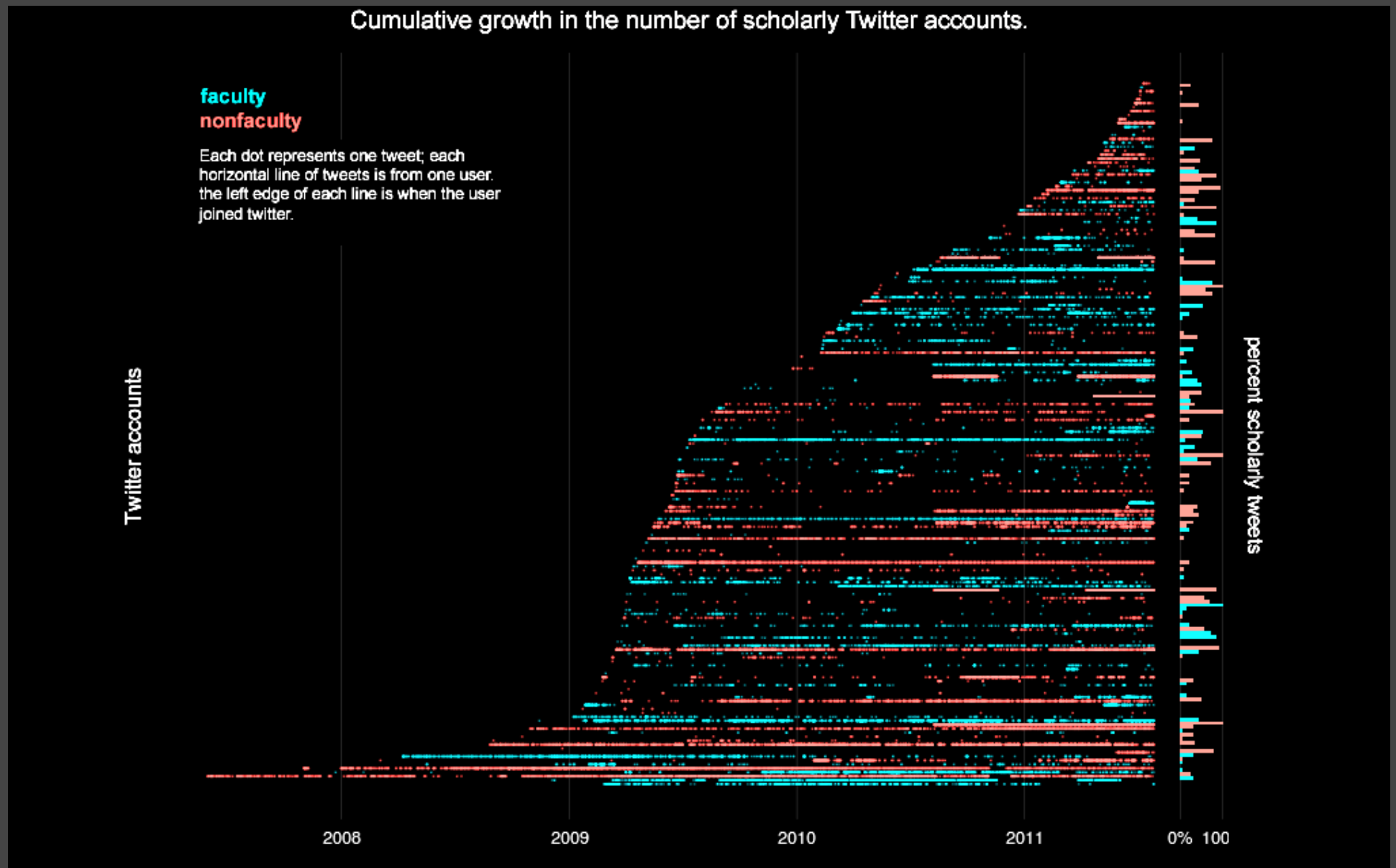
Examples: Twitter

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:

TweetDeck

ListsAdd Column

Columns

Search

1. Home

Khadijah M. Britton retweeted

Jennifer granick @granick

Petition to Free the Cell Phone:
Now is the Time
[cyberlaw.stanford.edu/blog/2013/02/p...
Phone unlocking needs your support.](#)
Details

Jeff Atwood @codinghorror

HAYYY GUYZZ we have venture capital!
[pic.twitter.com/WizJt8Fh](#)

Khadijah M. Britton retweeted

John Herman @jwherrman

The last thing Culture will see before it dies is two anthropomorphized brands consoling each other on Twitter
[twitter.com/jep/status/30...](#)
Details

Tom Scheinfeldt @foundhistory

Was a UC-Irvine professor booted from his MOOC for trying to maintain standards? [bit.ly/Xmj7AA](#)
Details

Alex Garnett @axfelix

New Yorker writes a thing

2. Interactions @jasonpriem

Crowd4Discovery followed you

Crowd4Discovery @Crowd4Discovery

This is the official feed for the Crowd4Discovery project! Follow our open, interactive model of basic biomedical research. Tweets by @eperIste.

Ecology Report followed you

Ecology Report @EcologyReport

Your source for the latest news on Ecology

Coltharp Fillmore retweeted

Jason Priem @jasonpriem

.@foldit participant: "It's better than any other game, 'cause I can change the world."
#youJustDescribedSciencePrettyWell #AASmtg #AASsms
Details

Ana Nelson favorited

Jason Priem @jasonpriem

@stevsilberman @ananelson Yeah, but picks wrong denominator. "Redshirts die" trope applies to redshirts w/ "screentime", not just in crew.
Conversation

Kelly Ruggles followed you

Kelly Ruggles @kruggle

3. "altmetrics" @jasonpriem

Research2.0 @Research2_0

RT: Have you planned your strategy for @MarchMetrics yet? Only 9 days until the competition launch!
#science #innovation #altmetrics
Details

March Metrics @MarchMetrics

Have you planned your strategy for #MarchMetrics yet? Only 9 days until the competition launch!
#science #research #innovation #altmetrics
Details

Jean-Frédéric @JeanFred

#Altmetrics: reflect the impact of scholarship in the era of social media, collaborative tools, etc.
[altmetrics.org \(@ReaderMeter\)](#)
Details

Llewellyn retweeted

March Metrics @MarchMetrics

This is how ideas are born.
#marchmetrics #altmetrics #science #research2.0 @Research2_0 #innovation
[pic.twitter.com/J1s6SGUE](#)
Details

March Metrics @MarchMetrics

4. Tweets @researchremix

Heather Piwowar retweeted

Paul Hobson @pmhobson

Engineers: y'all too!
"@openscience: Scientist, meet version control: from personal workflows to open #science: [buff.ly/Xkvb0g](#)"
Conversation

Heather Piwowar retweeted

Open Science Fedn @openscie...

Scientist, (please) meet version control: from personal workflows to open collaboration: [buff.ly/Xkvb0g](#)
#openscience by @fperez_org
Details

Heather Piwowar retweeted

UBC Library @ubcblibrary

Open Scholar Award call for submissions - The Open Scholar Award is open to UBC Vancouver graduate students. Submis...
[ow.ly/2uYSRn](#)
Details

Heather Piwowar @researchremix

@jenica26 Yeah I hear you. Give me a shout if I can help, hope you find proper bed soon.
Conversation

Heather Piwowar @researchremix

@jenica26 Are you stranded in Vancouver? Do ya need help? I'm local, can help!

5. Interactions @imp

Adora Doro @adora___

Researcher i
Info, etc... :-)

Mark Zastro @ZastroPhys

Temporary i
@MarkZastr
reactivates r
Apparently,
many people

Helen Kenna @helenkenna

Repository i
of Salford. I
Open Access
Academic Lib

dr. mala sauramaia @saoramala

engineer. sci

AMLgirl follows AMLgirl @AMLgirl

Ph.D. student buff, wanna pet lover, and interested in science in ne

Here's how I publish:

The Decoupled Journal article: a case study.

Decoupling the scholarly journal PREREVIEW ☆ 📁

File Edit View Insert Format Tools Table Help Last edit was made 6 days ago by wordslikethis

Normal text ▾ | Ubuntu ▾ | 11 ▾ | **B** *I* U A ▾ | | | | ▾

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?**

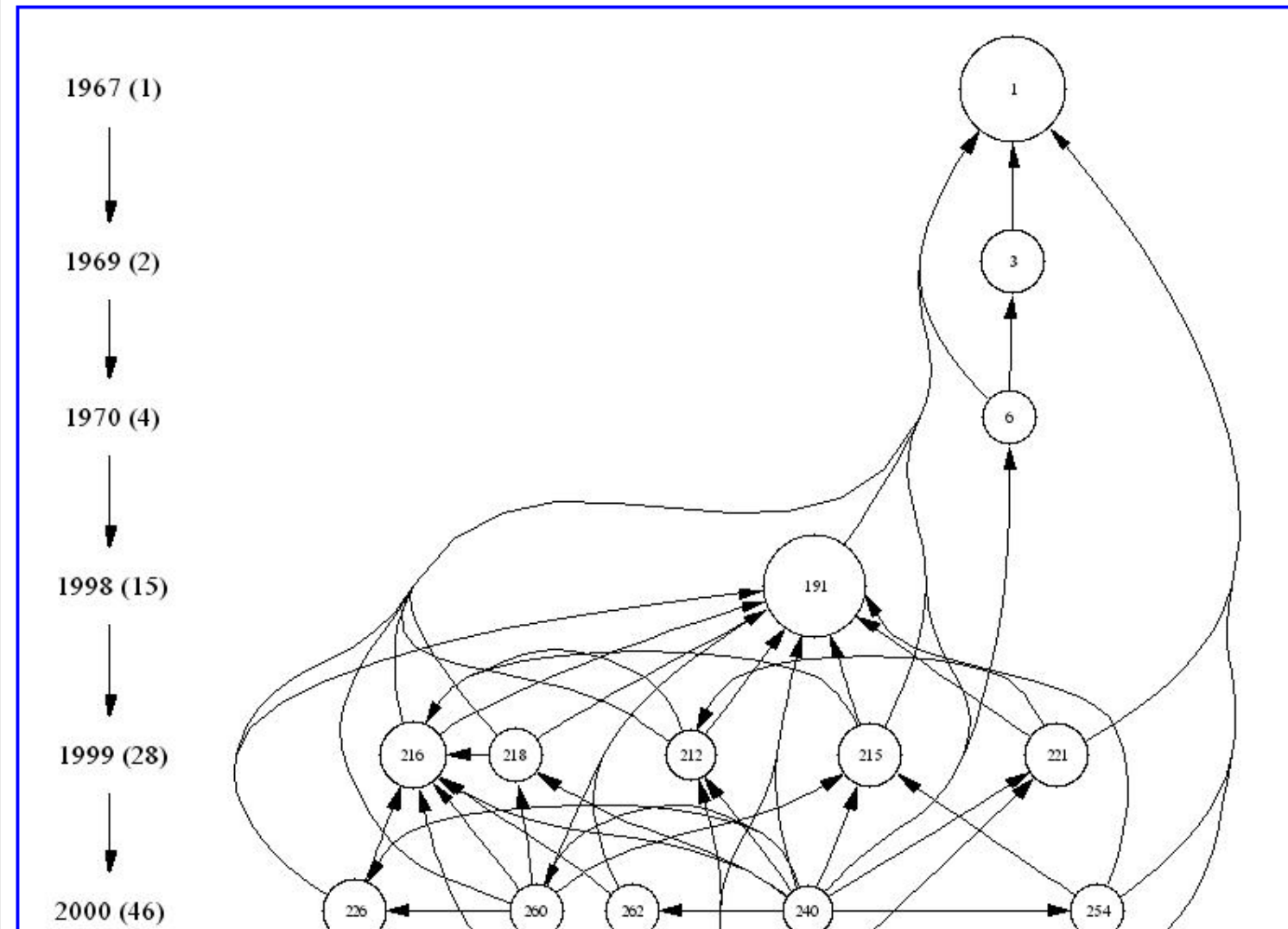
**Don't turn off
the taps,**

Build boats.

The old way:
countin' citations

And that's awesome!

LCS ≥ 20



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 Piwowar
Jason Priem



ALFRED P. SLOAN
FOUNDATION

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, Jeliazkova, 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, Blinov et al. *Magn. Reson. Chem.*

highly saved cited saved

Automated dielectric single cell spectroscopy - temperature dependence of electrorotation(2002) Mitchen, 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) Piwowar, 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?

- Fairer evaluation.
- Faster evaluation.
- Etc, etc.
- Ultimately, most important: **we can fundamentally change the way we filter research.**

This changes the game. And the game needs to be changed.

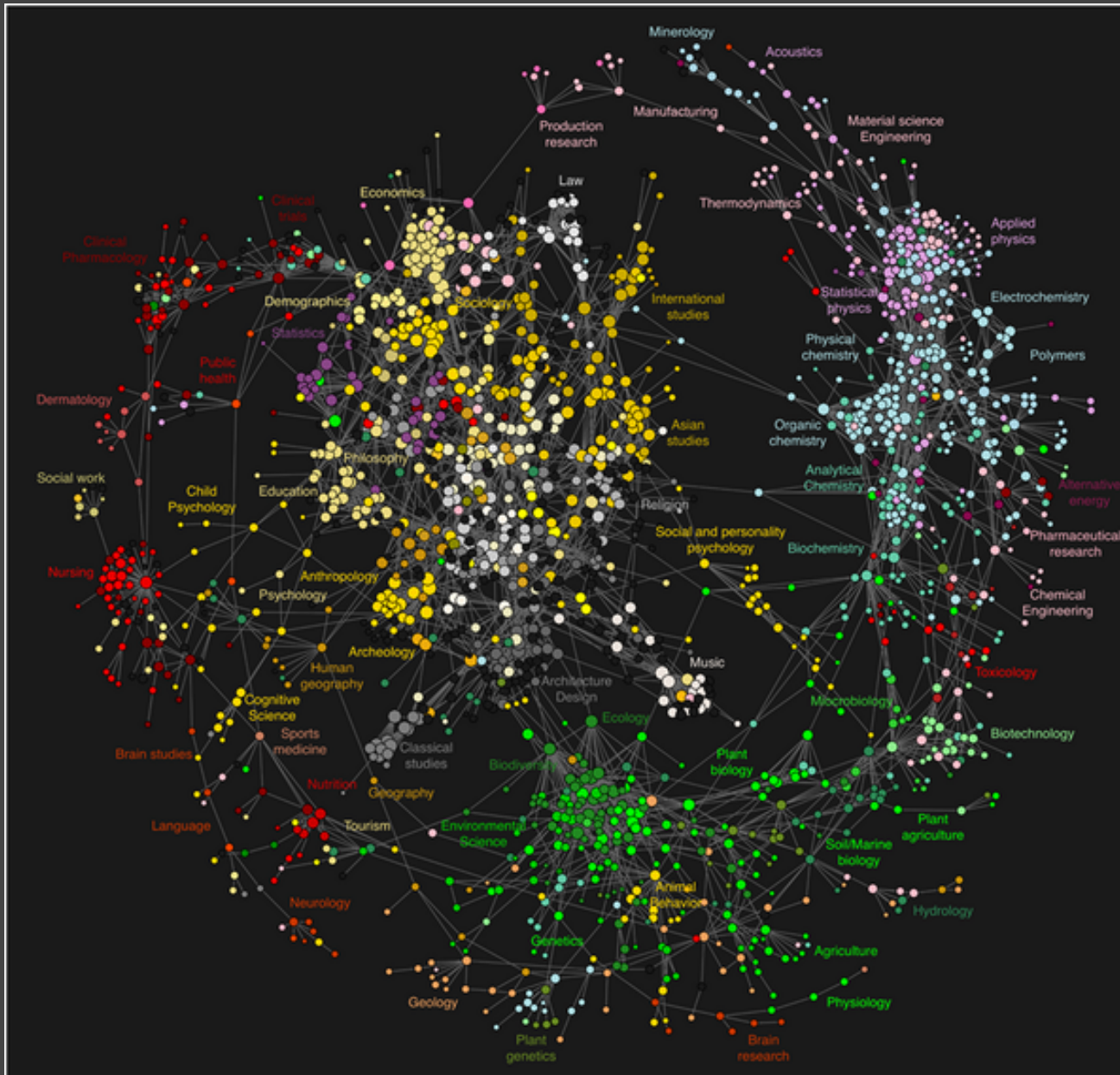
Today's journals are the
best scholarly
communication system
possible using 17th-century
technology.

We don't use the Web.

Berners-Lee created the Web as a scholarly communication tool.

Today the Web has revolutionized *everything but* scholarly communication.

The network is the key



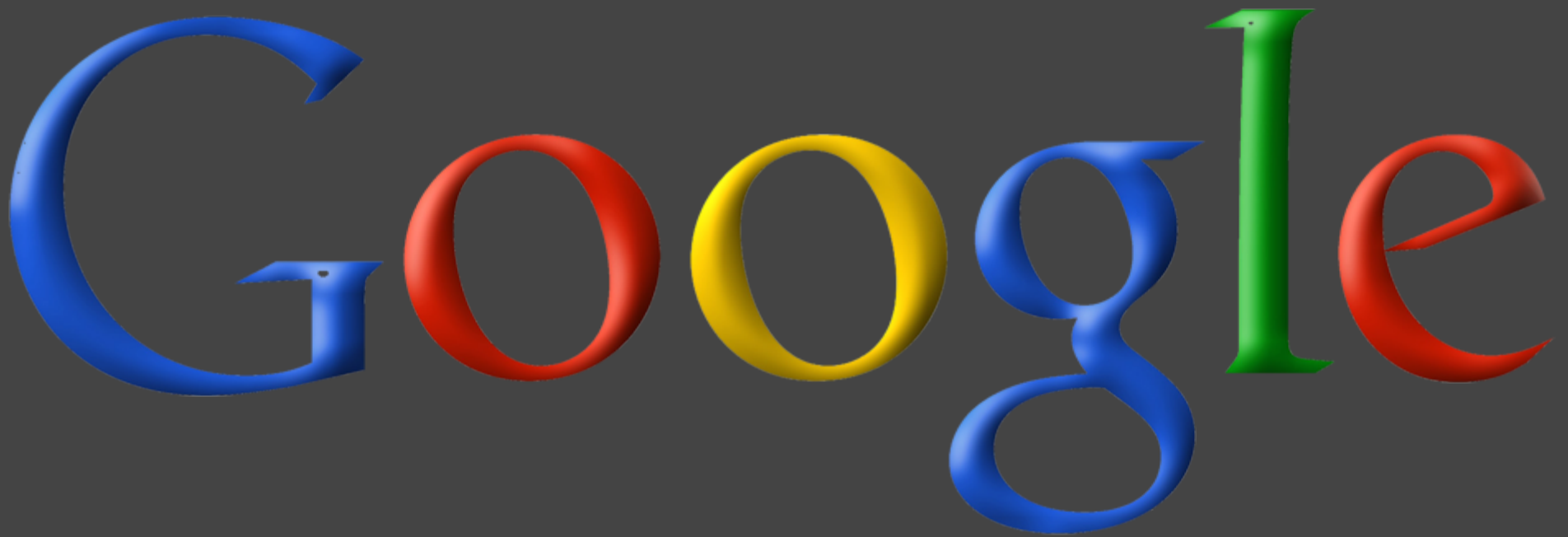
Bollen, J., Van de Sompel, H., Hagberg, A., Bettencourt, L., Chute, R., Rodriguez, M. A., & Balakireva, L. (2009). Clickstream Data Yields High-Resolution Maps of Science. *PLoS ONE*, 4(3), e4803. doi:10.1371/journal.pone.0004803

At web scale, the value isn't in
manual curation...

YAHOO!®

(ask these guys)

It's in mining the network

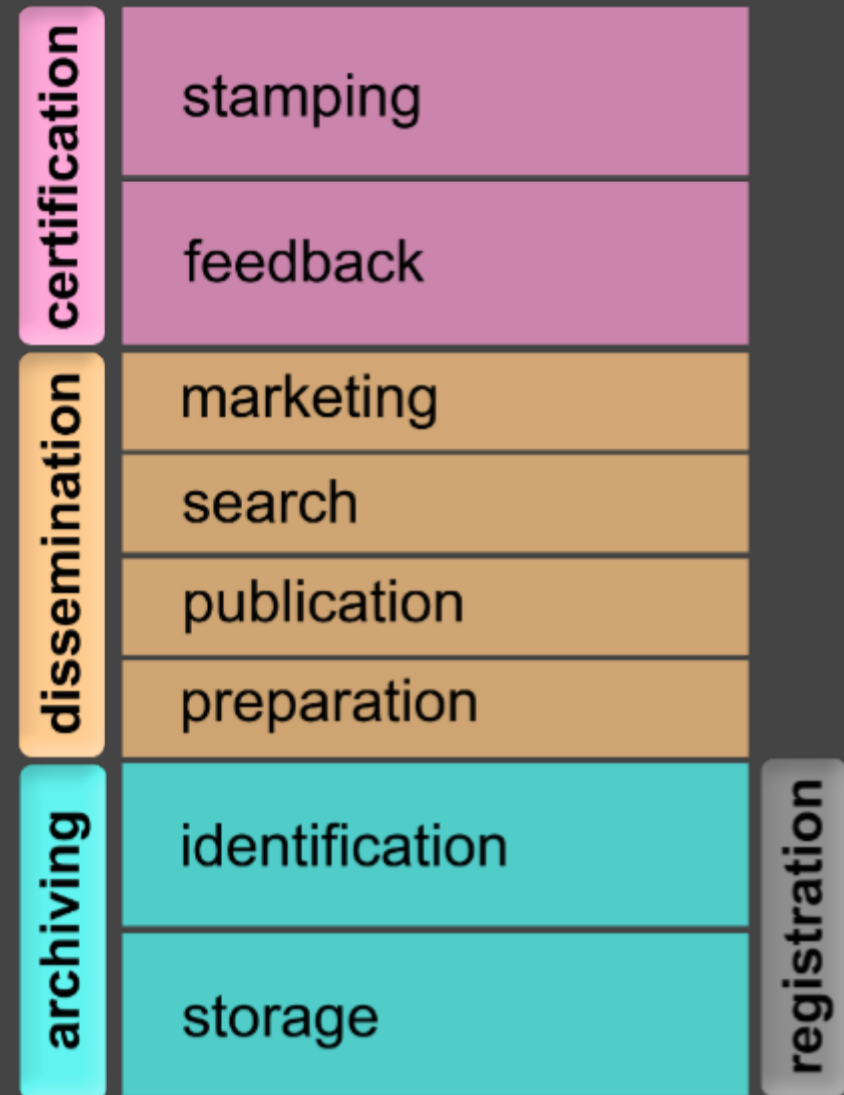


(ask these guys)

What does the system do now?

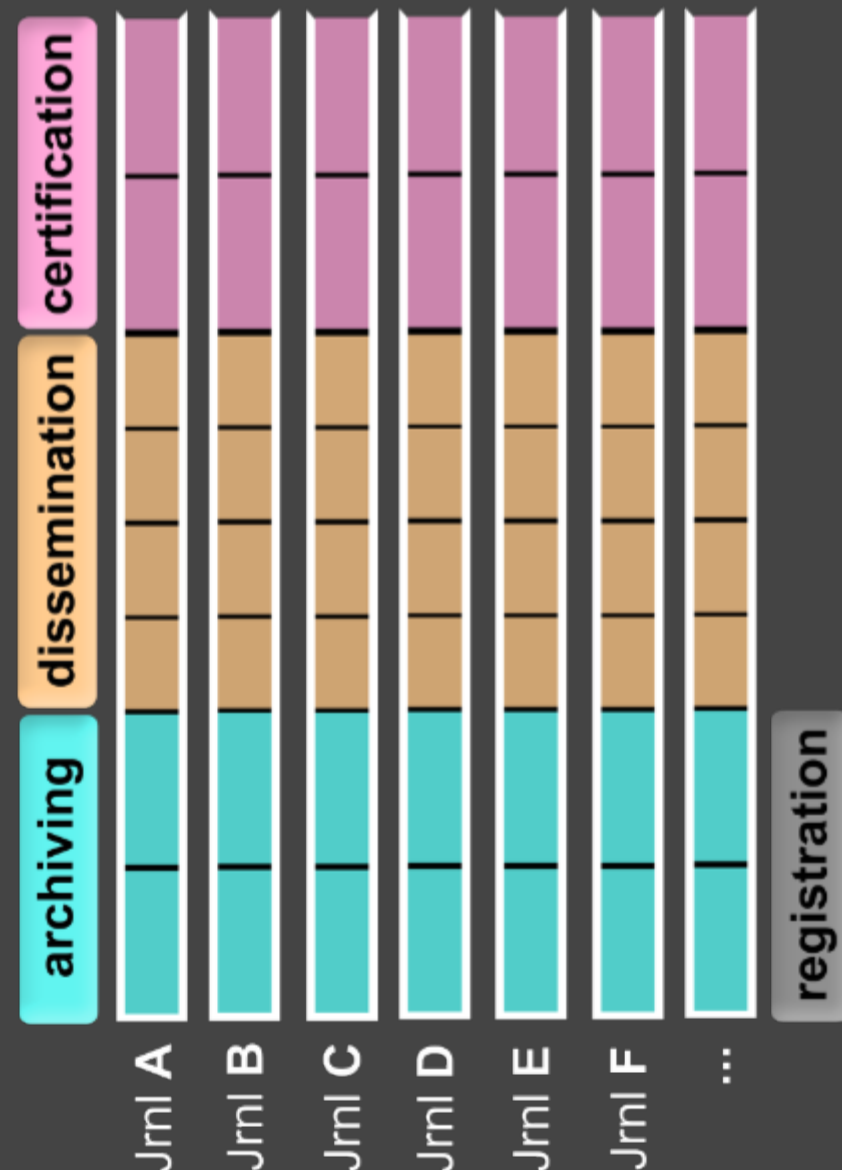
Any modernization will have to do everything the current system does, better.

Journals have four “traditional functions.”



How does this system work?

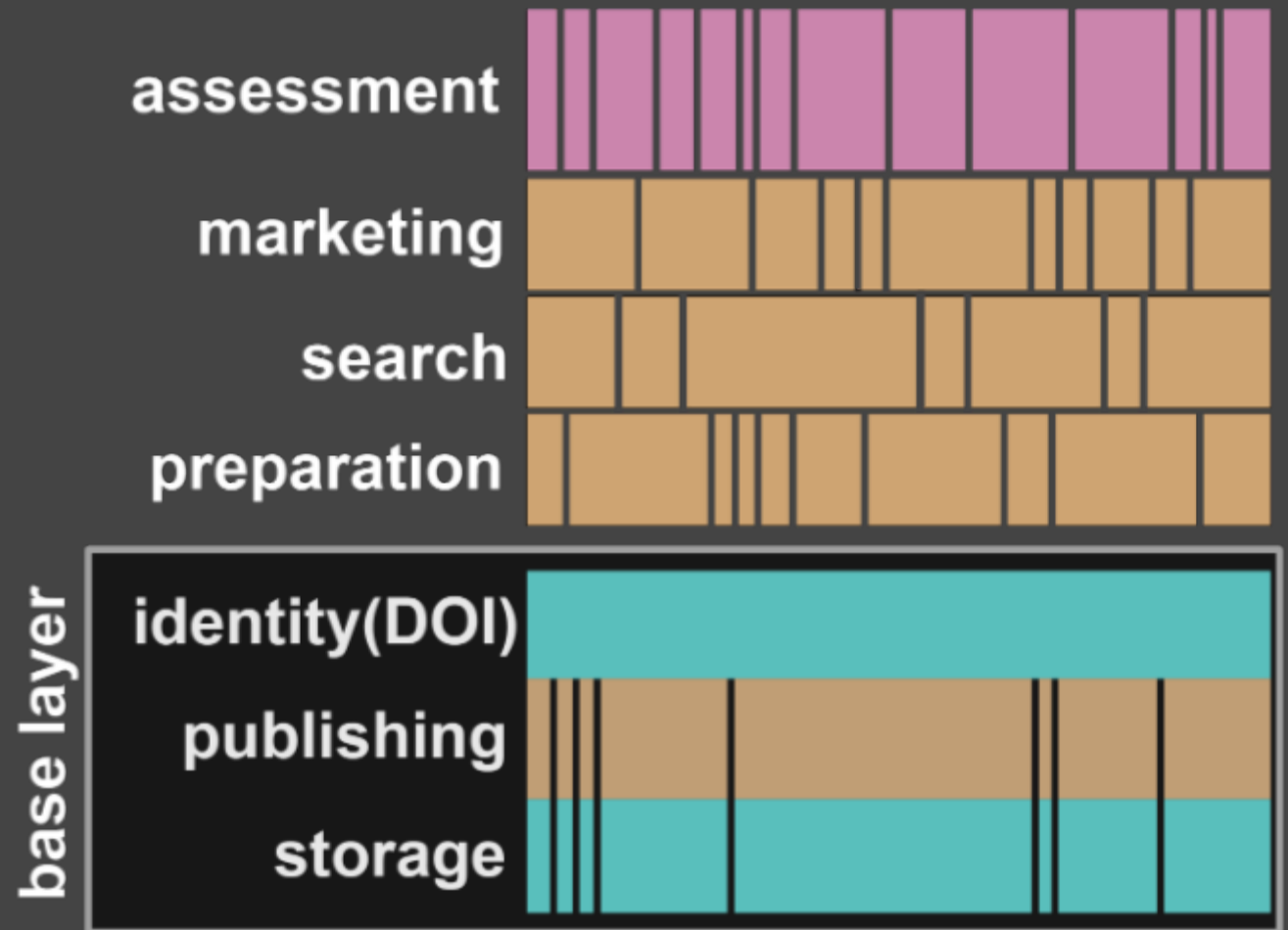
Every journal does every function itself. Each produces the same product. Little variety, little choice: publishing as a fixed-price menu.



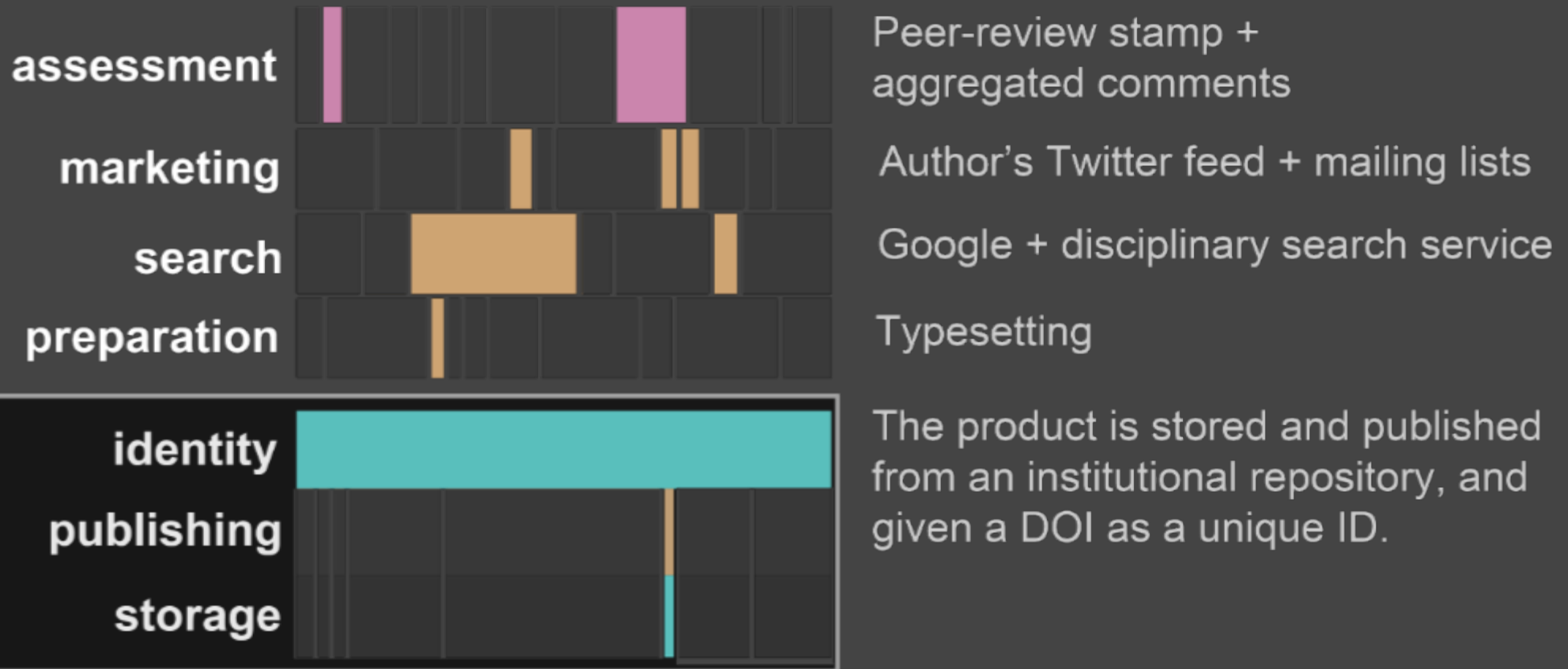
The decoupled journal (DcJ)

Functions are offered as individual services; authors pick which ones they want:

Publishing a la carte.



A DcJ example



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



ALFRED P. SLOAN
FOUNDATION



Questions?

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

This is a living document; if a particular version is important to you, make sure you link to that revision.