

# **UCLA**

## **Presentations**

### **Title**

Scholarship in the Networked World: Big Data, Little Data, noData

### **Permalink**

<https://escholarship.org/uc/item/38v6n99v>

### **Author**

Borgman, Christine L.

### **Publication Date**

2013-06-06

### **Copyright Information**

This work is made available under the terms of a Creative Commons Attribution-NonCommercial-NoDerivatives License, available at <https://creativecommons.org/licenses/by-nc-nd/4.0/>

# Scholarship in the Networked World: Big Data, Little Data, No Data

---

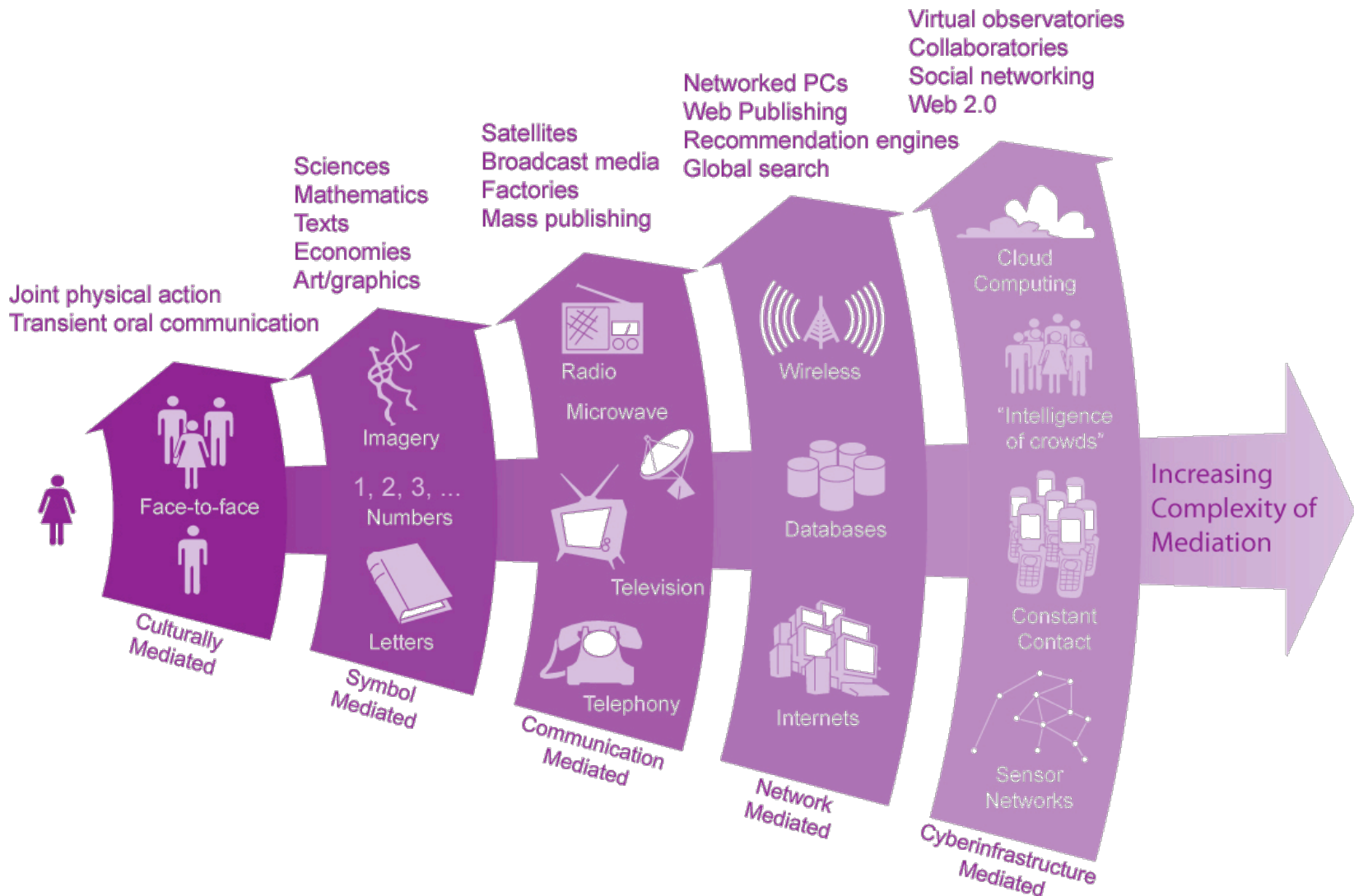
Christine L. Borgman

Oliver Smithies Visiting Fellow and Lecturer, Balliol College, Oxford  
Visiting Fellow, Oxford Internet Institute  
Visiting Fellow, Oxford eResearch Centre

Professor and Presidential Chair in Information Studies  
University of California, Los Angeles

Oliver Smithies Lecture, Balliol College, Oxford, 6 June 2013

# Technological advances in mediated communication



Borgman, C. L., Abelson, H., Dirks, L., Johnson, R., Koedinger, K. R., Linn, M. C., ... Szalay, A. (2008). *Fostering Learning in the Networked World: The Cyberlearning Opportunity and Challenge*. National Science Foundation. [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08204](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08204)



# Data sharing imperatives

- Research Councils of the UK
  - Open access publishing requirements
  - Provisions for access to data
- Wellcome Trust
  - Open access publishing
  - Data sharing requirements
- National Science Foundation
  - Data sharing requirements
  - Data management plans
- U.S. Federal policy-2013
  - Open access to publications
  - Open access to data



Supported by  
**wellcome**trust

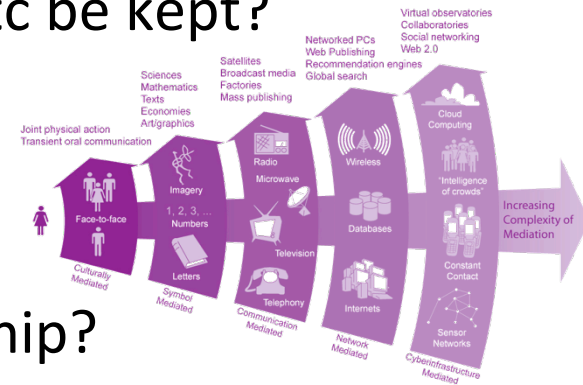


National Science Foundation  
WHERE DISCOVERIES BEGIN

# Scholarship in the Networked World:

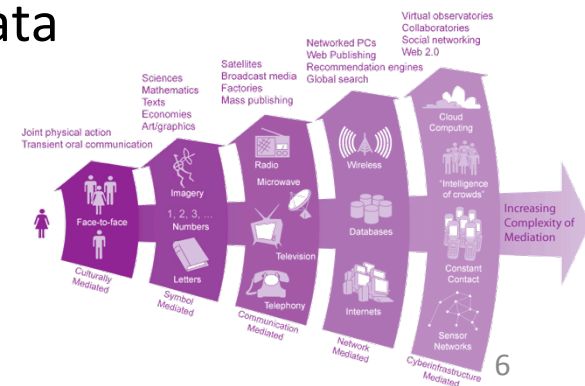
## Problem statement

- Scholarship is conducted in the open
- What are the opportunities? the challenges?
- How to value scholarly records from tweets to theses?
- Which records are worthy of scholarly credit? of curation?
- How should publications, data, software, etc be kept?
  - By whom?
  - For how long?
  - For what uses?
- What shall be the record of digital scholarship?
- How do these concerns vary by academic field?



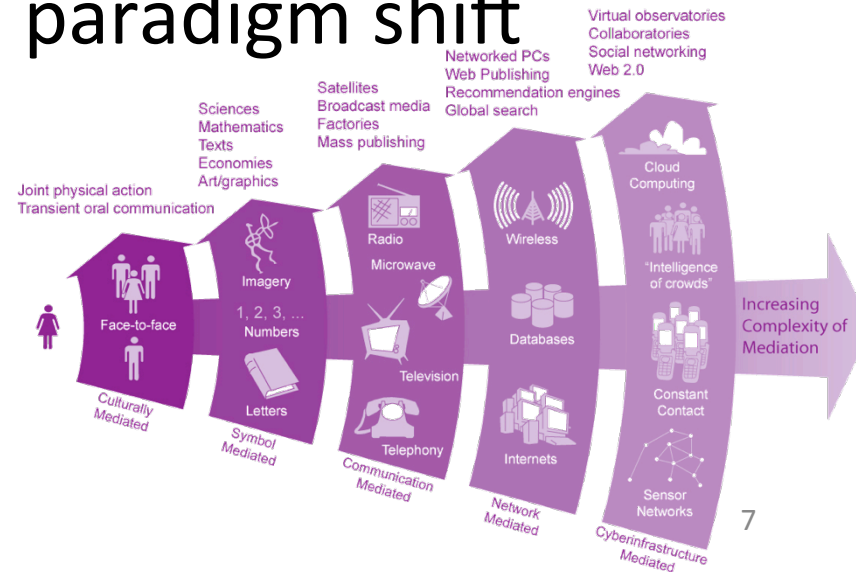
# Big Data, Little Data, No Data: Scholarship in the Networked World

- Section I: Data and Scholarship
  - Ch 1: Big Scholarship, Little Scholarship
  - Ch 2: Data-Intensive Scholarship
  - Ch 3: What are Data?
- Section II: The Diversity of Data: Case Studies
  - Ch 4: Science: Astronomy, Sensor-networked science
  - Ch 5: Social Science: Surveys/Social Networks; Qualitative studies
  - Ch 6: Humanities: Digital collections; Buddhist studies
- Section III Data Policy and Practice
  - Ch 7: Sharing, Reusing, and Repurposing Data
  - Ch 8: Credit and Attribution
  - Ch 9: Scholarship and Policy
  - Ch 10: Into the Future



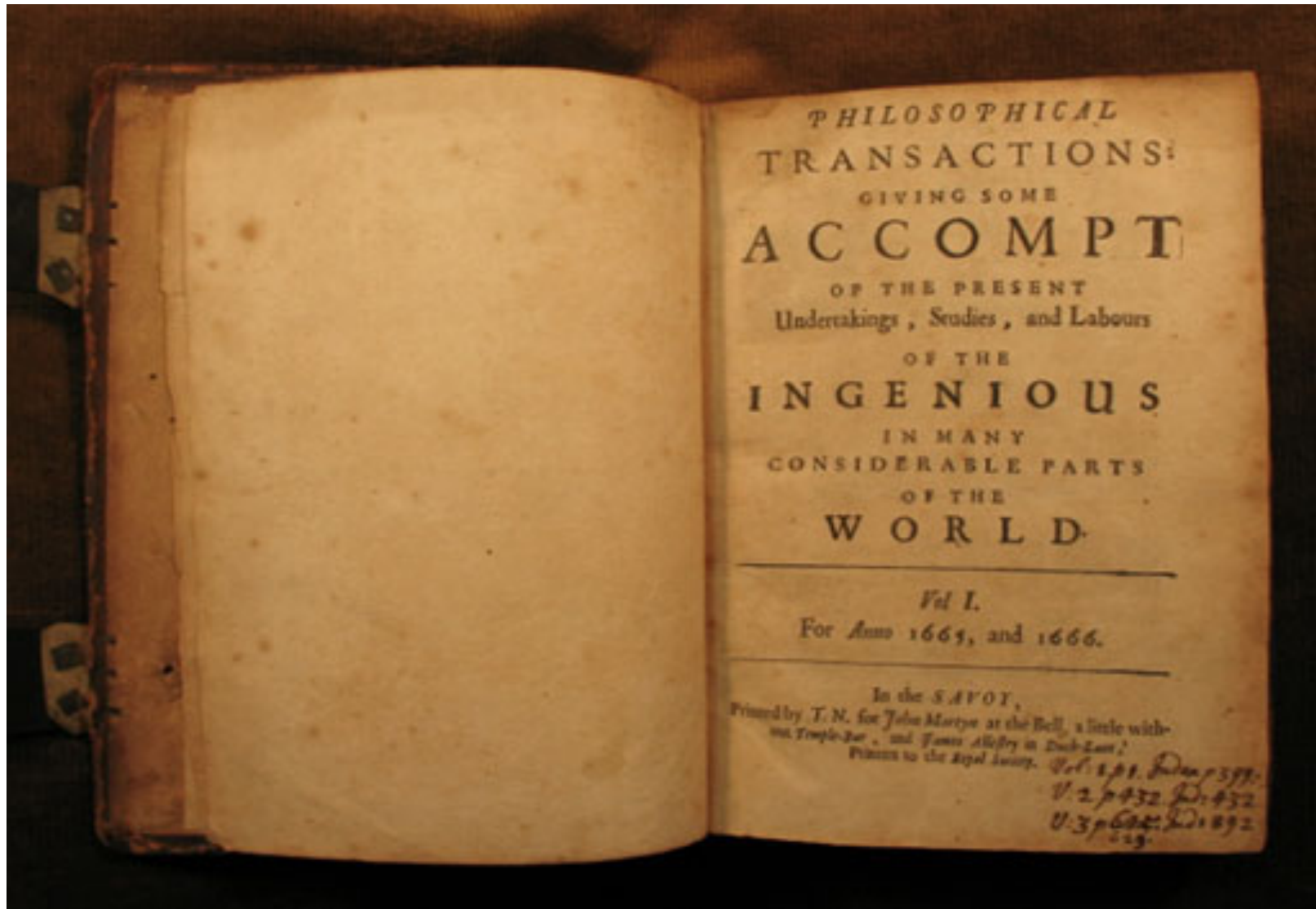
# Theories and themes

1. Open scholarship is the norm
2. Formal and informal scholarly communication are converging
3. Data practices are local
4. Open access to data is a paradigm shift





# 1. Open scholarship is the norm



# 1. Open scholarship is the norm



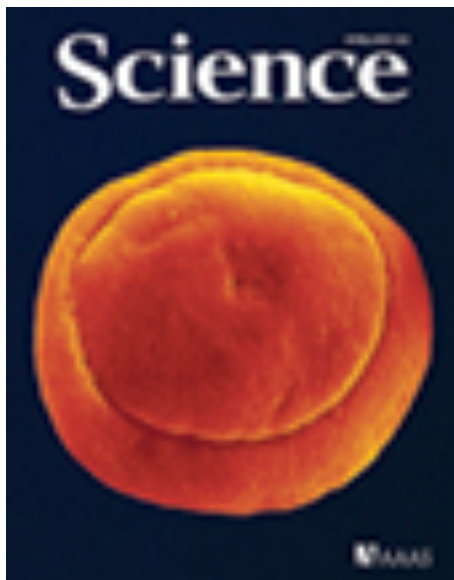
Brick inscribed with the Sutra on Dependent Origination *Gorakhpur district, late 5th century - early 6th century AD. Ashmolean Museum*

# 1. Open scholarship is the norm

PHILOSOPHICAL  
TRANSACTIONS:  
GIVING SOME  
ACCOMPT  
OF THE PRESENT  
Undertakings, Studies, and Labours  
OF THE  
INGENIOUS  
IN MANY  
CONSIDERABLE PARTS  
OF THE  
WORLD

Vol. I.  
For Anno 1665, and 1666.

In the *SAVOY*,  
Printed by T. N. Ice John Martyn at the Bell, a little with-  
out Temple-Bar, and James Allestry in Duck-Lane;  
Printers to the Royal Society.



**PLOS ONE** | Articles | For Authors | About Us

PLOS ONE is a Peer-Reviewed, Open Access Journal

Search  advanced

**Research Headlines**

in the news recent most viewed

**Featured Image**

Into the Wild: Dissemination of Antibiotic Resistance Determinants via a Species

A Novel Type of Nutritious Carnivorous Pitcher Plant: Pitcher Infauna

Two New Cave-Dwelling Whipscorpion Genus Row Hubbardiidae from Northern Dimorphism

Sleep Deprivation Impairs

**OLH**

Home About Media Get Involved Committees

**Editorial Recruitment**

MAY 2013  
Roadmap for Technical Pilot

MAY 2013  
Editorial Recruitment

MAY 2013  
Forms of Innovation

**Latest News**

April 17, 2013 | 0 Comments and 0 Reactions

**BIS Select Committee on Open Access**

On 16th April, OLH Project Director Dr Martin Eve was invited to give evidence at the Business, Innovation and Skills Committee, which is appointed by the UK House of Commons to examine the administration, expenditure and policy of the Department for Business, Innovation and Skills (BIS) and its associated public bodies, including Ofcom and the

WELCOME

Welcome to the Open Library of Humanities (OLH). This site aims to give the background to, and rationale for, our vision of building a low cost, sustainable, Open Access future for the humanities. Please feel free to look around the site and get in touch if you'd like to be involved.

RECENT POSTS

Roadmap for Technical Pilot

10

# 1. Open scholarship is the norm

Cornell University Library

We gratefully acknowledge support from the Simons Foundation and member institutions

arXiv.org

Search or Article-id  [\(help | Advanced search\)](#) [Login](#)

Open access to 846,777 e-prints in Physics, Mathematics, Computer Science, Quantitative Biology, Quantitative Finance and Statistics

Subject search and browse:

29 Aug 2012: Simons Foundation funds new arXiv sustainability model  
See cumulative "What's New" pages. Read robots beware before attempting any automated download

## Physics

- **Astrophysics (astro-ph new, recent, find)**  
Includes: Cosmology and Extragalactic Astrophysics; Earth and Planetary Astrophysics; Astrophysics; Solar and Stellar Astrophysics
- **Condensed Matter (cond-mat new, recent, find)**  
Includes: Disordered Systems and Neural Networks; Materials Science; Mesoscale & Mechanics; Strongly Correlated Electrons; Superconductivity
- **General Relativity and Quantum Cosmology (gr-qc new, recent, find)**
- **High Energy Physics - Experiment (hep-ex new, recent, find)**
- **High Energy Physics - Lattice (hep-lat new, recent, find)**
- **High Energy Physics - Phenomenology (hep-ph new, recent, find)**
- **High Energy Physics - Theory (hep-th new, recent, find)**
- **Mathematical Physics (math-ph new, recent, find)**
- **Nonlinear Sciences (nlin new, recent, find)**  
includes: Adaptation and Self-Organizing Systems; Cellular Automata and Lattice &
- **Nuclear Experiment (nucl-ex new, recent, find)**
- **Nuclear Theory (nucl-th new, recent, find)**
- **Physics (physics new, recent, find)**

ORA Oxford University Research Archive

Research publications from the University of Oxford

Search | Contribute | Browse | Help

## SEARCH CONtribute BROWSE

Metadata Only

### Top Downloads

Malcolm David Birdling, (2012). Correction of miscarriages of justice in New Zealand and England. DPhil. University of Oxford.

John Baines, The Sebekholpe VIII inundation stela: an additional fragment. Acta Orientalia, 37, 11-20.

John Baines, The inundation stela of Sebekholpe VIII. Acta Orientalia, 36, 39-54.

Thomas Outdrige, (2011). Coarse-grained modelling of DNA and DNA self-assembly. DPhil. University of Oxford.

Elna Kilpi, (2010). The education of children of immigrants in Finland. DPhil. University of Oxford.

### Latest Additions

Nicole Giroly and Andrew Honey, (2012). The conservation of two composite Anselm manuscripts from the twelfth century: two contrasting approaches?.

Debopam Bhattacharya, Shin Kanaya and Margaret Stevens, (2013). Are university admissions academically fair?.

Mark Irwin, (2013). The synthesis and characterisation of metal complexes containing chemically reduced bipyridyl ligand systems. DPhil. University of Oxford.

Andrea Polo, (2012). Essays in corporate restructuring, reputation and law. DPhil. University of Oxford.

Keith Hyams and Tina Fawcett, (2013-March/April). The ethics of carbon offsetting. WIREs Climate Change, 4 (2), 91-98.

[Follow @oxforduni\\_repo](#)

UNDP Human Development Report Office Joins ERN Government & Public Agency Research Paper Series

Announcing New Cyberspace Law - Student Authors and Intellectual Property Law - Student Authors eJournals on SSRN

Announcing IICM 2012 11th Indian Institute of Capital Markets Conference Online Proceedings on SSRN

Regulatory Institutions Network (RegNet) Joins Law Research Centers Papers

Capitalism & Society Published in FEN Partners in Publishing Journals

Singapore Management University Joins Accounting Research Centers Papers

Site Copyright © 2008 Oxford University Research Archive. All rights reserved.

Site not yet optimized for viewing in mobile devices.

Downloads

Social Science Research Network

SSRN USER HQ

USER ID

PASSWORD

Forgot ID or Password? Help

Accounting ARN Research Network

Anthropology & Archaeology Research Network ARAN

Cognitive Science Network CSN

Corporate Governance Network CGN

Economics ERN Research Network

Entrepreneurship Research & Policy Network ERPN

Financial Economics Network FEN

Health Economics Network HEN

Information Systems & eBusiness Network ISN

Innovation Research & Policy Network IRPN

Leadership Research Network LRN

Legal Scholarship Network LSN

Management Research Network MRN

Marketing Research Network MKT

Negotiations Research Network NG

Home Search Browse Submit Subscribe Shopping Cart My Briefcase

### SSRN eLibrary

Top Papers Top Authors Top Institutions

Search Browse

Research Paper Series

Partners in Publishing

Institution Home Pages

### Leading Social Science Research Delivered Daily

Social Science Research Network (SSRN) is devoted to the rapid worldwide dissemination of social science research and is composed of a number of specialized research networks in each of the social sciences. We have received several excellence awards for our web site.

Each of SSRN's networks encourages the early distribution of research results by publishing Submitted abstracts and by soliciting abstracts of top quality research papers around the world. We now have hundreds of journals, publishers, and institutions in Partners in Publishing that provide working papers for distribution through SSRN's eLibrary and abstracts

SSRN's Objective and Commitments to Users

20th Anniversary Message from: Michael C. Jensen, SSRN Chairman

### Recent Announcements

SSRN has again been named the Number 1 Open Access Repository in the World (for July, 2012) by the Ranking Web of World Repositories. Our thanks to all of the SSRN community who helped make this happen.

UNDP Human Development Report Office Joins ERN Government & Public Agency Research Paper Series

Announcing New Cyberspace Law - Student Authors and Intellectual Property Law - Student Authors eJournals on SSRN

Announcing IICM 2012 11th Indian Institute of Capital Markets Conference Online Proceedings on SSRN

Regulatory Institutions Network (RegNet) Joins Law Research Centers Papers

Capitalism & Society Published in FEN Partners in Publishing Journals

Singapore Management University Joins Accounting Research Centers Papers

# Open scholarship is the norm




## The Open Biological and Biomedical Ontologies

[Ontologies](#)
[Resources](#)
[Participate](#)
[About](#)

The OBO Foundry is a collaborative experiment involving developers of science-based ontologies who are establishing a set of principles for ontology development with the goal of creating a suite of orthogonal interoperable reference ontologies in the biomedical domain. The groups developing ontologies who have expressed an interest in this goal are listed below, followed by other relevant efforts in this domain.

In addition to a listing of OBO ontologies, this site also provides a statement of the OBO Foundry principles, discussion fora, technical infrastructure, and other services to facilitate ontology development. We welcome feedback and encourage participation.

Click any column header to sort the table by that column. The  link to the term request trackers for the listed ontologies.



### OBO Foundry ontologies

Title	Domain	Prefix	File	Last changed
<a href="#">Biological process</a>	biological process	GO	<a href="#">go.obo</a> 	
<a href="#">Cellular component</a>	anatomy	GO	<a href="#">go.obo</a> 	
<a href="#">Chemical entities of biological interest</a>	biochemistry	CHEBI	<a href="#">chebi.obo</a> 	
<a href="#">Molecular function</a>	biological function	GO	<a href="#">go.obo</a> 	
<a href="#">Phenotypic quality</a>	phenotype	PATO	<a href="#">quality.obo</a> 	
<a href="#">PRotein Ontology (PRO)</a>	proteins	PR	<a href="#">pro.obo</a> 	
<a href="#">Xenopus anatomy and development</a>	anatomy	XAO	<a href="#">xenopus_anatomy_edit.obo</a> 	
<a href="#">Zebrafish anatomy and development</a>	anatomy	ZFA	<a href="#">zebrafish_anatomy.obo</a> 	2013/04/12

### OBO Foundry candidate ontologies and other ontologies of interest

Title	Domain	Prefix	File	Last changed
<a href="#">Adverse Event Reporting Ontology</a>	health	AERO	<a href="#">aero.owl</a>	
<a href="#">Amphibian gross anatomy</a>	anatomy	AAO	<a href="#">AAO_v2_edit.obo</a> 	
<a href="#">Amphibian taxonomy</a>	anatomy	ATO	<a href="#">amphibian_taxonomy.obo</a>	
<a href="#">Anatomical Entity Ontology</a>	anatomy	AEO	<a href="#">aero.obo</a>	2012/06/01
<a href="#">Ascomycete phenotype ontology</a>	phenotype	APO	<a href="#">ascomycete_phenotype.obo</a>	2013/05/02
<a href="#">Basic Formal Ontology</a>	upper	BFO	<a href="#">1.1</a>	
<a href="#">Bilateria anatomy</a>	anatomy	BILA	<a href="#">bilateria_mrca.obo</a>	
<a href="#">Biological imaging methods</a>	experiments	FBbi	<a href="#">image.obo</a>	2011/05/24
<a href="#">BRENDA tissue / enzyme source</a>	anatomy	BTO	<a href="#">BrendaTissueOBO</a>	
<a href="#">C. elegans development</a>	anatomy	WBls	<a href="#">worm_development.obo</a>	
<a href="#">C. elegans gross anatomy</a>	anatomy	WBbt	<a href="#">WBbt.obo</a> 	


#### Quick Links

-  [Mappings between ontologies](#)
-  [Download alternate formats](#)
-  [About the OBO Foundry](#)
-  [Current events](#)
-  [How to join](#)
-  [OBO Foundry paper in Nature Biotechnology](#)  
November 2007

#### Other Ontology Lists

-  [BioPortal](#) (NCBO's ontology repository)
-  [Ontology Lookup Service \(OLS\)](#)  
term lookup)


# 1. Open scholarship is the norm



Humanities and Social Sciences


[about](#) [search](#) [site map](#) [people](#) [donate](#) [contact](#) [help](#)

FRANÇAIS | 한국어



INTERNATIONAL COUNCIL OF MUSEUMS

## The CIDOC Conceptual Reference Model



[Home](#) | [The CIDOC CRM](#) | [Activities](#) | [People](#) | [Resources](#) | [FRBR-CRM](#) | [External References](#)

### CIDOC CRM Home page

Site Search  
 [GO](#)

#### What is the CIDOC CRM

The **CIDOC Conceptual Reference Model (CRM)** provides definitions and a formal structure for describing the implicit and explicit concepts and relationships used in cultural heritage documentation.

The **CIDOC CRM** is intended to promote a shared understanding of cultural heritage information by providing a common and extensible semantic framework that any cultural heritage information can be mapped to. It is intended to be a common language for domain experts and implementers to formulate requirements for information systems and to serve as a guide for good practice of conceptual modelling. In this way, it can provide the "semantic glue" needed to mediate between different sources of cultural heritage information, such as that published by museums, libraries and archives.

The **CIDOC CRM** is the culmination of over 10 years work by the **CIDOC Documentation Standards Working Group** and **CIDOC CRM SIG** which are working groups of **CIDOC**. Since 9/12/2006 it is official standard **ISO 21127:2006**.

**Current Page:**  
**What is CIDOC CRM**

**Who we are**

**Sitemap**

**WIKI Forum**

**Official Release**

**What's New?**

Site hosted by FORTH

Last Updated: 18-01-2013

[H-Net Affiliates](#)

[more information.](#)

**[Partner Programs for Online Book Vendors](#)**

H-Net readers can now earn money for H-Net by purchasing titles directly from vendor links at our

**Recent Reviews**

Reviewer: Sarah Mak

[East Asian National Identities:](#)

Title:

online book & multimedia reviews

13

Disseminate data, figures, slides, images...

# 1. Open scholarship is the norm

ORA  
Oxford University  
Research Archive  
Research publications from the University of Oxford

SEARCH CONTRIBUTOR BROWSE

Top Downloads

Latest Additions

The Dataverse Network Project

A Web Application for Sharing, Citing, Analyzing and Preserving Research Data

ABOUT SOFTWARE DATA MANAGEMENT GUIDES

A repository for research data that takes care of **long term preservation** and **good archival practices**, while researchers can **share, keep control of** and **get recognition** for their data.

Supports the sharing of open data and enables reproducible research.

WHY the Dataverse Network?

03:48 vimeo

figshare

Browse Upload

shareable

discoverable

- Secure and accessible
- Easy to manage your research data
- 1GB private space
- Unlimited public space

Find out more

get credit for all your research

or store it privately for FREE\*

Find out more

SEARCH Harvard Dataverse Network

TWEETS

THE DATA BLOG

UK DATA SERVICE NOW ONLINE

After months of planning, the newly formed UK Data Service launched its website on 21 March 2013.

READ MORE

DEPOSITING YOUR DATA

FINDING DATA TO USE

OUR DATA IN USE

CITING DATA

PREPARING YOUR DATA

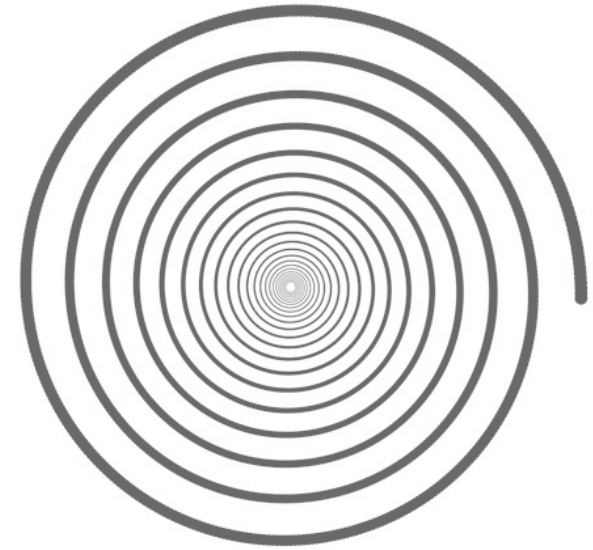
MRC Medical Research Council

NATURAL ENVIRONMENT RESEARCH COUNCIL

MRC is committed to supporting long-term environmental data management to enable continuing access to these data.

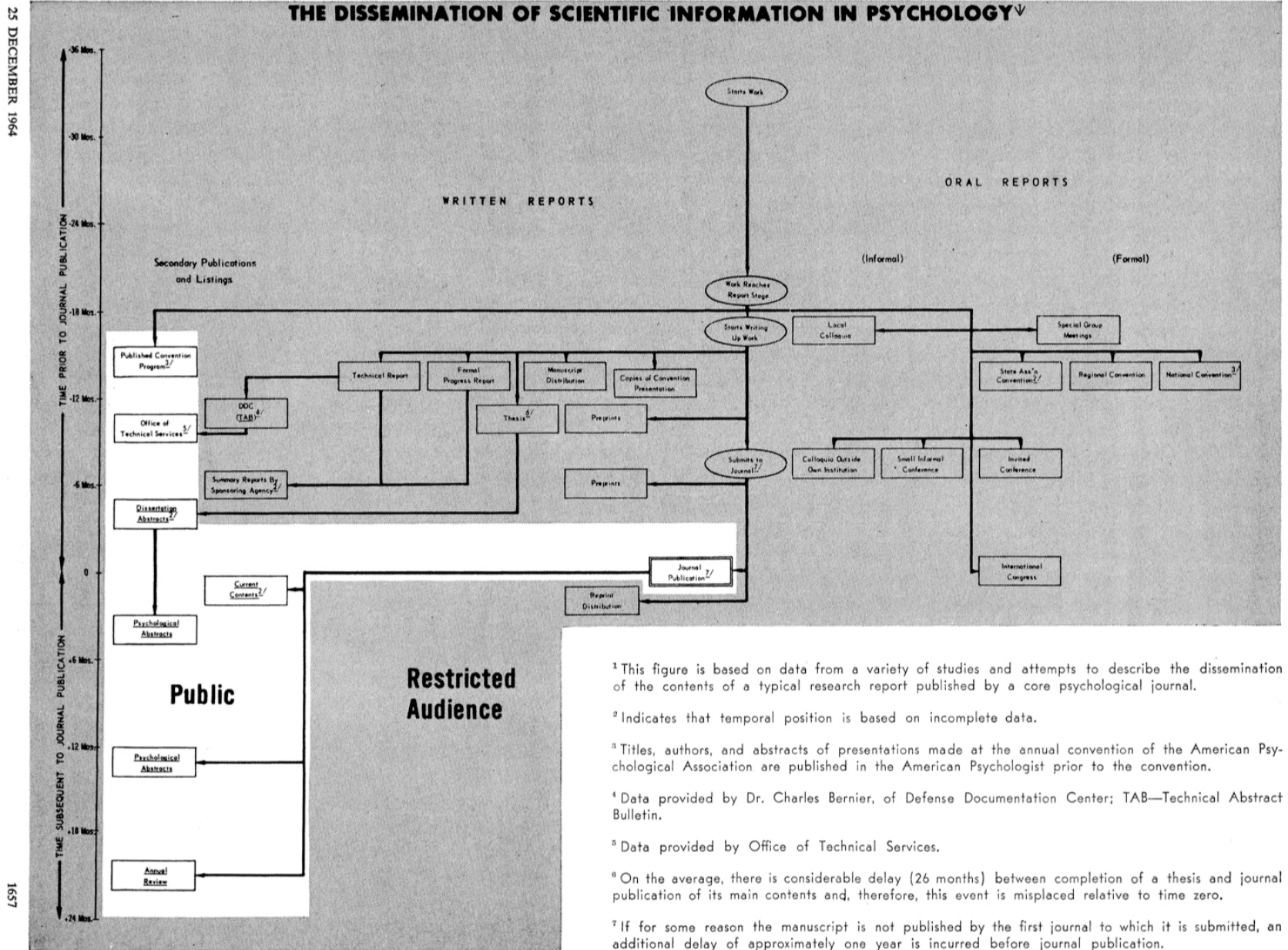
# Release data, software, and methods

- Begets rigour
- Prevents fraud
- Speeds the pace of research
- Begets free riders
- Risks misuse and and misinterpretation
- Violates the confidentiality of human subjects
- Raises conflicts between policies of universities, funders, publishers, and research partners
- I don't do data



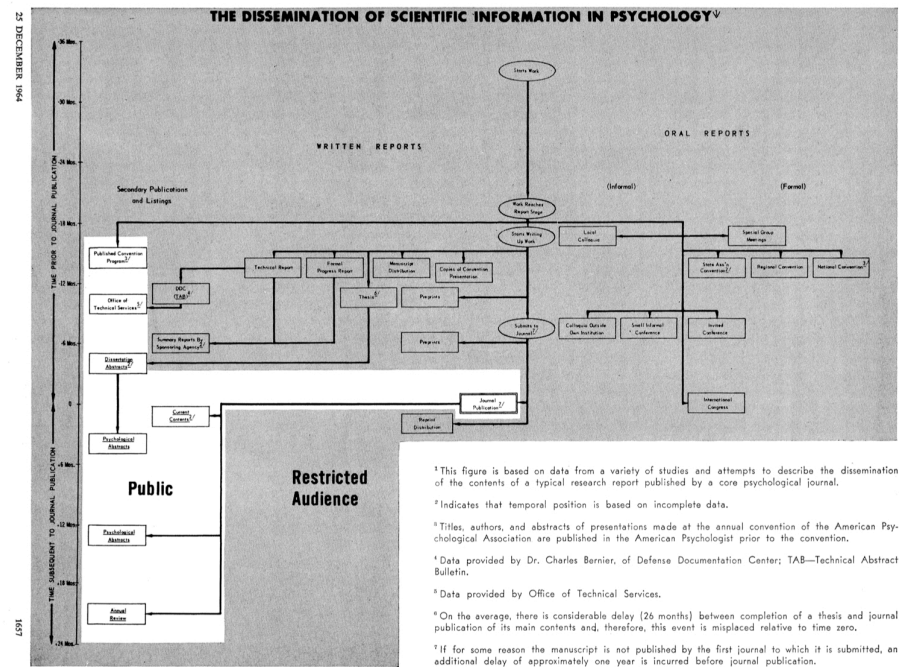


## 2. Formal and informal scholarly communication are converging



# Credit for formal scholarly communication

- Quality of content
- Citations to article
- Citations to journal
- Reviews of books
- Derived metrics
  - Impact factors
  - H-index



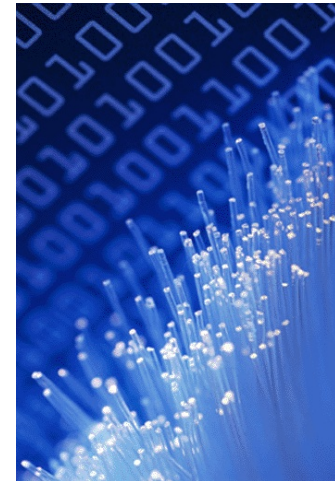
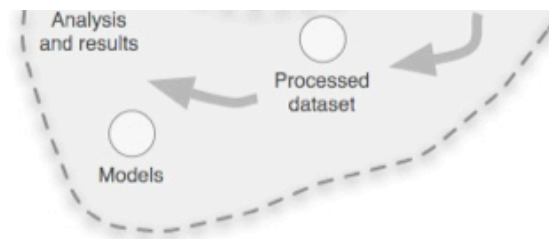
## 2. Formal and informal scholarly communication are converging



```
<!-- Dismount 6.02-->
<Border Grid.Row="16" Grid.Column="22">
  <UniformGrid Rows="1" Columns="2">
    <Button Grid.Column="0" DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_tucked]}" />
    <Button Grid.Column="1" DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_tucked_180]}" />
  </UniformGrid>
</Border>
<Border Grid.Row="16" Grid.Column="23">
  <UniformGrid Rows="1" Columns="3">
    <Button Grid.Column="0" DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_tucked_360]}" />
    <Button Grid.Column="1" DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_stretched]}" />
    <Button Grid.Column="2" DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_stretched_180]}" />
  </UniformGrid>
</Border>
<Border Grid.Row="16" Grid.Column="24">
  <UniformGrid Rows="1" Columns="2">
    <Button Grid.Column="0" DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_piked_360]}" />
    <Button Grid.Column="1" DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_piked_540]}" />
  </UniformGrid>
</Border>
<Border Grid.Row="16" Grid.Column="25">
  <Button DataContext="{Binding Path=.ApparatusSymbolItems[dmt_salto_fw_stretched_720]}" />
</Border>
<Border Grid.Row="16" Grid.Column="26" />
<Border Grid.Row="16" Grid.Column="27">
  <Button DataContext="{Binding Path=.ApparatusSymbolItems[dmt_2_salto_fw_tucked]}" />
</Border>
<Border Grid.Row="16" Grid.Column="28" />
```

[http://3.bp.blogspot.com/-bj29MM\\_7Nuk/UBzpOz2JXPI/AAAAAAAAAFA/vDpCD2dW0iE/s1600/GS\\_Code\\_Example.png](http://3.bp.blogspot.com/-bj29MM_7Nuk/UBzpOz2JXPI/AAAAAAAAAFA/vDpCD2dW0iE/s1600/GS_Code_Example.png)

Pepe, A., Mayernik, M. S., Borgman, C. L. & Van de Sompel, H. (2010). From Artifacts to Aggregations: Modeling Scientific Life Cycles on the Semantic Web. *Journal of the American Society for Information Science and Technology*, 61(3): 567–582.



[http://datalib.ed.ac.uk/GRAPHICS/blue\\_data.gif](http://datalib.ed.ac.uk/GRAPHICS/blue_data.gif)



<http://www.itadvicex.com/wp-content/uploads/2013/05/blogs-5.jpg>

2



NYU PRESS

BOOKS

PARTNERS

NEWS

for AUTHORS

CONTACT

Search by Title, Author

y

:

ACTIVITY

Search input field with Search, Register, and Log in buttons.

Activity list area with multiple empty rows.

media.com open scholarship i

### Planned O

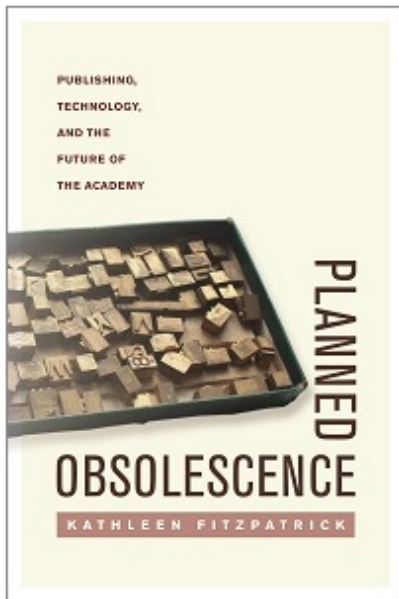
1 Note: *Planned Ob*  
*paperback and Ki*  
*Barnes & Noble.*

2 *It's not the nine*  
*changed with a*

3 There's a delicious  
physical object — 1  
yet a book, though  
change the world,  
reside.

4 And it's attemptin  
that this text argu  
insisting that peer  
and more effective  
what it preaches, 2

5 I'll be relying on th  
all goes according  
sending the manu:



## Planned Obsolescence

Publishing, Technology, and the Future of the Academy

Kathleen Fitzpatrick

256 pages  
16 illustrations  
November, 2011  
ISBN: 9780814727874

Introduction  
Table of Contents

**\$79.00** Cloth  
also available in **Paper, eBook**  
click here for **exam copies**

**BUY**

SHARE [social media icons]

Search Inside the Book

powered by Google

DESCRIPTION

AUTHOR

REVIEWS

AUDIO/VIDEO

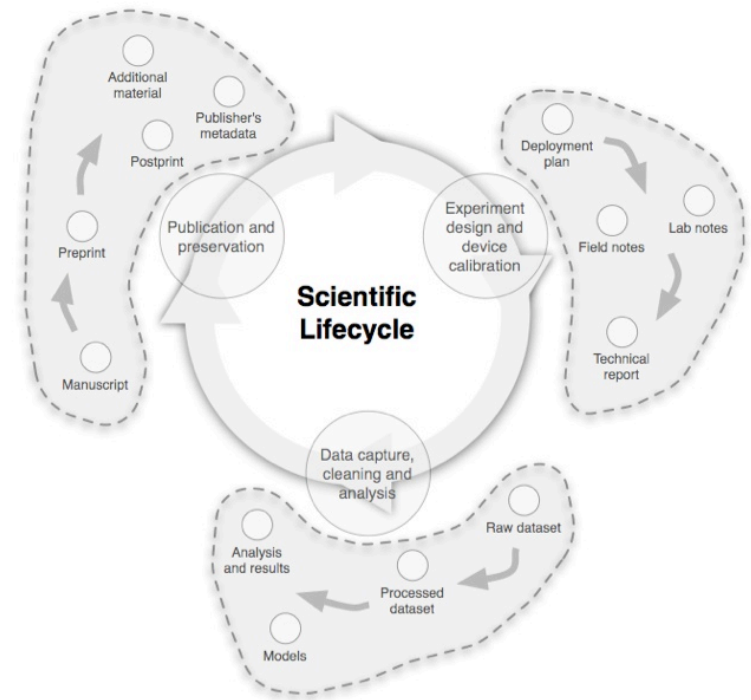
Subjects: Media Studies, Science & Technology, Cultural Studies

Choice's Outstanding Academic Title list for 2013

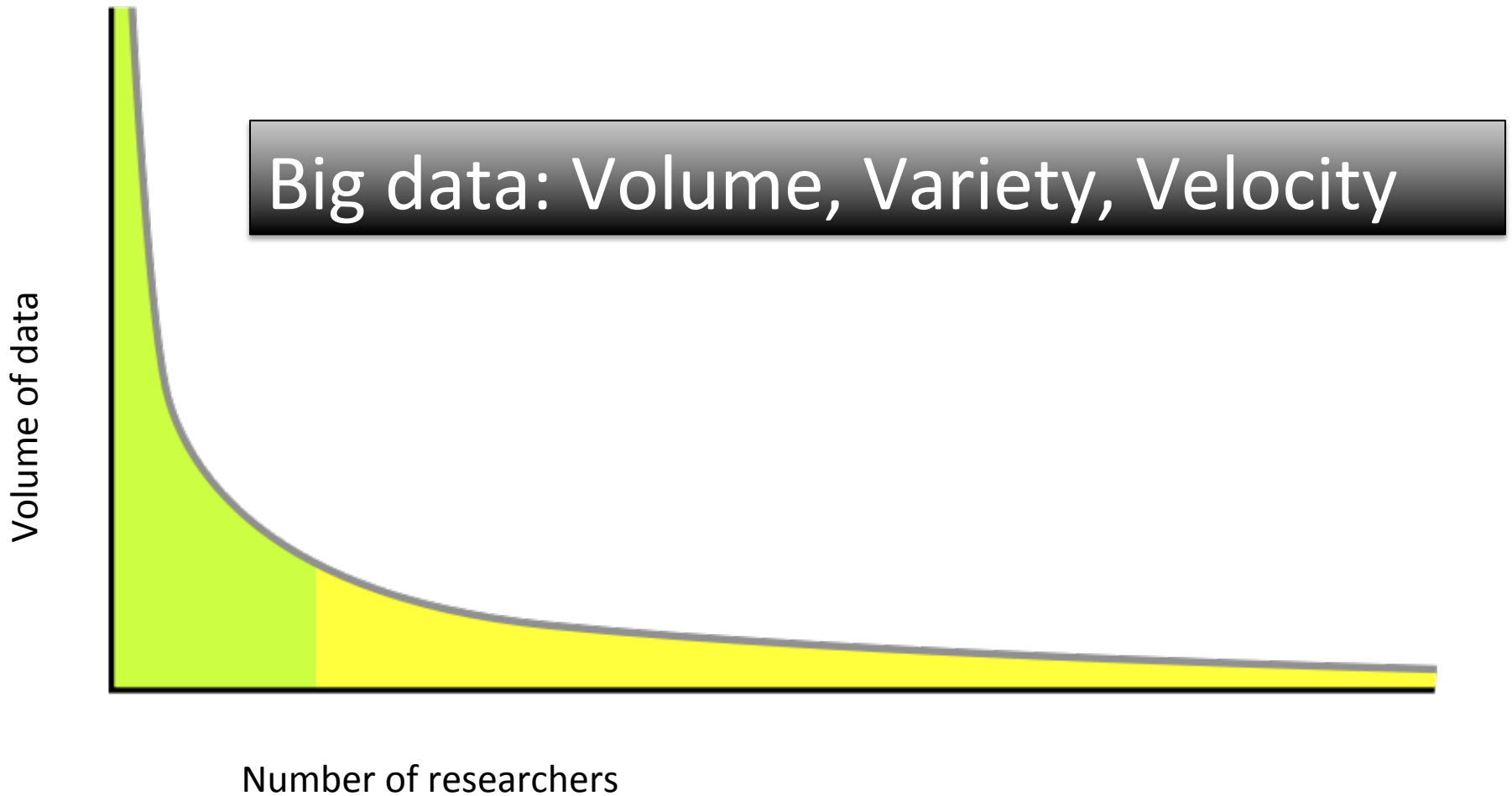
Academic institutions are facing a crisis in scholarly publishing at multiple levels: presses are stressed as

# Credit for informal scholarly communication

- Altmetrics
  - Downloads of articles, preprints, books...
  - Tweets and retweets about person, pubs, etc.
  - Grants received
  - Blog posts
  - Citations to data
  - Citations to software
  - Experimental designs
  - Talks
  - Slides
  - Figures
  - Tables
  - ....



### 3. Data practices are local



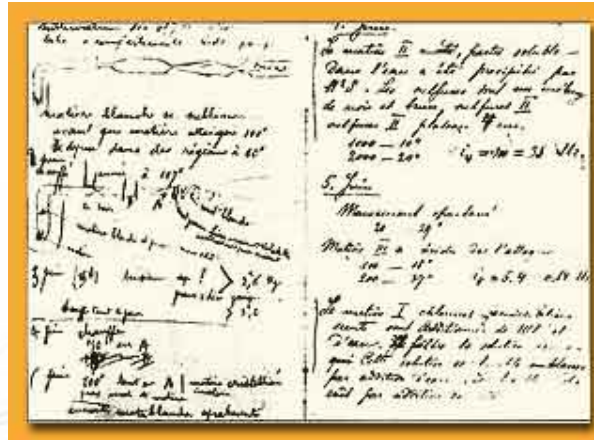
# 3. Data practices are local



NASA Astronomy Picture of the Day



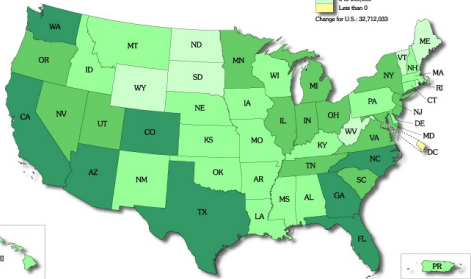
hudsonalpha.org



Marie Curie's notebook aip.org

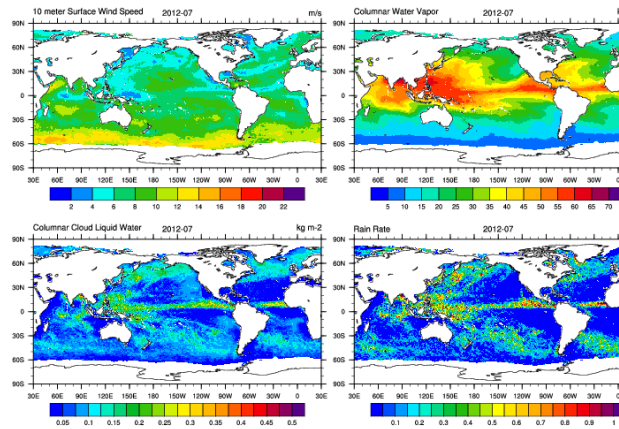


Figure 2. Numeric Change in Resident Population for the 50 States, the District of Columbia, and Puerto Rico: 1990 to 2000



<http://www.census.gov/population/cen2000/map02.gif>

Monthly Mean: f17\_ssmis\_201207v7.nc



ncl.ucar.edu

Date: 1/2.07.75 Place: Sakaltutan Zafor

He will grow old in his present house; new house is for sons - 5 sons. Not sure they want to live in village. He will only build another if they want him to. eS came from Germany and did the plastering. He arranged the carpentry in Kayseri. Çok para gitti. (much money went) Has a tractor.

Date: July 1980 Place: Sakaltutan Zafor:

Household now Zafor and wife; Nazif Unal and wife and youngest son, still a boy. They run two dolmuş; one with a driver from Süleymanlı. Goes in and out once a day. He gets 8,000 a month. Zafor then said, keskin deoil. (not sharp - i.e.? not profitable) I said he did very well on 8,000 TL with only two journeys a day. Nazif Unal has "bought" a Durak (dolmuş stop) from Belediye and works all day in Kayseri.

[http://onlineqda.hud.ac.uk/Intro\\_QDA/Examples\\_of\\_Qualitative\\_Data.php](http://onlineqda.hud.ac.uk/Intro_QDA/Examples_of_Qualitative_Data.php)

# 3. Data practices are local

Industrial methods

Artisanal methods





# 3. Data practices are local

## LETTERS

# A role for self-gravity at multiple length scales in the process of star formation

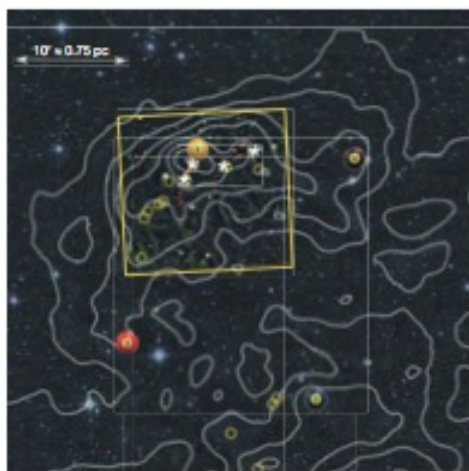
Alyssa A. Goodman<sup>1,2</sup>, Erik W. Rosolowsky<sup>2,3</sup>, Michelle A. Borkin<sup>1,†</sup>, Jonathan B. Foster<sup>2</sup>, Michael Halle<sup>1,4</sup>, Jens Kauffmann<sup>1,2</sup> & Jaime E. Pineda<sup>2</sup>

Self-gravity plays a decisive role in the final stages of star formation, where dense cores (size  $\sim 0.1$  parsecs) inside molecular clouds collapse to form star-plus-disk systems<sup>1</sup>. But self-gravity's role at earlier times (and on larger length scales, such as  $\sim 1$  parsec) is unclear; some molecular cloud simulations that do not include self-gravity suggest that 'turbulent fragmentation' alone is sufficient to create a mass distribution of dense cores that resembles, and sets, the stellar initial mass function<sup>2</sup>. Here we report a 'dendrogram' (hierarchical tree-diagram) analysis that reveals that self-gravity plays a significant role over the full range of possible scales traced by <sup>13</sup>CO observations in the L1448 molecular cloud, but not everywhere in the observed region. In particular, more than 90 per cent of the compact 'pre-stellar cores' traced by peaks of dust emission<sup>3</sup> are projected on the sky within one of the dendrogram's self-gravitating 'leaves'. As these peaks mark the locations of already-forming stars, or of those probably about to form, a self-gravitating cocoon seems a critical condition for their existence. Turbulent fragmentation simulations without self-gravity—even of unmagnetized isothermal material—can yield mass and velocity power spectra very similar to what is observed in clouds like L1448. But a dendrogram of such a simulation<sup>4</sup> shows that nearly all the gas in it (much more than in the observations) appears to be self-gravitating. A potentially significant role for gravity in 'non-self-gravitating' simulations suggests inconsistency in simulation assumptions and output, and that it is necessary to include self-gravity in any realistic simulation of the star-formation process on subparsec scales.

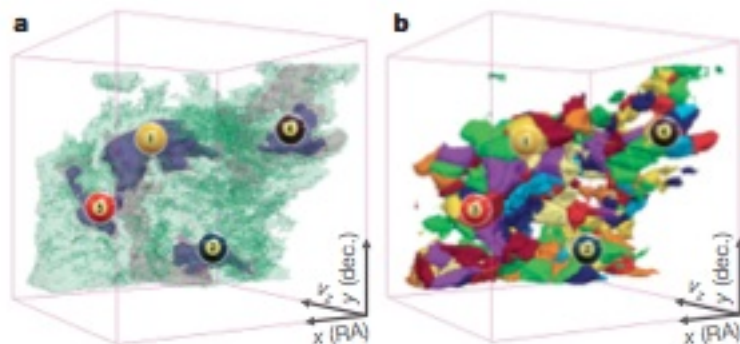
Spectral-line mapping shows whole molecular clouds (typically tens to hundreds of parsecs across, and surrounded by atomic gas) to be marginally self-gravitating<sup>5</sup>. When attempts are made to further break down clouds into pieces using 'segmentation' routines, some self-gravitating structures are always found on whatever scale is sampled<sup>6,7</sup>. But no observational study to date has successfully used one spectral-line data cube to study how the role of self-gravity varies as a function of scale and conditions, within an individual region.

Most past structure identification in molecular clouds has been explicitly non-hierarchical, which makes difficult the quantification of physical conditions on multiple scales using a single data set. Consider, for example, the often-used algorithm CLUMPFIND<sup>8</sup>. In three-dimensional (3D) spectral-line data cubes, CLUMPFIND operates as a watershed segmentation algorithm, identifying local maxima in the position-position-velocity (p-p-v) cube and assigning nearby emission to each local maximum. Figure 1 gives a two-dimensional (2D) view of L1448, our sample star-forming region, and Fig. 2 includes a CLUMPFIND decomposition of it based on <sup>13</sup>CO observations. As with any algorithm that does not offer hierarchically nested or

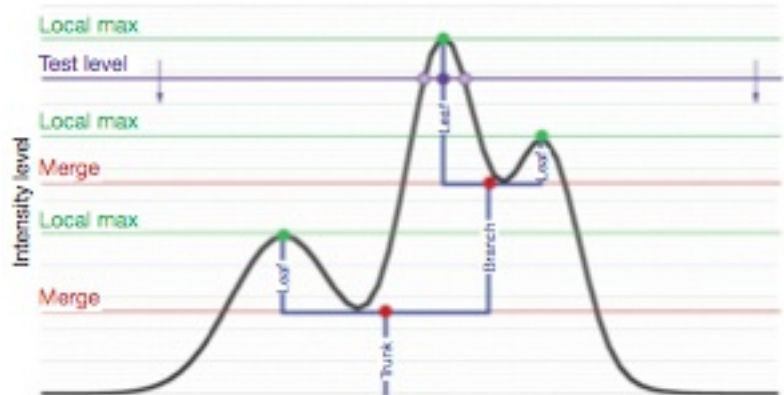
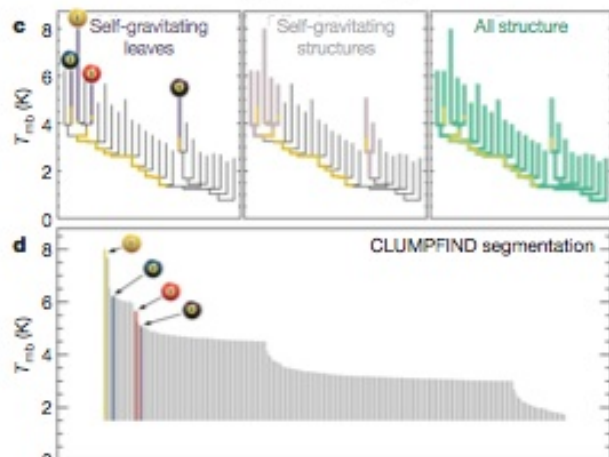
overlapping features as an option, significant emission found between prominent clumps is typically either appended to the nearest clump or turned into a small, usually 'pathological', feature needed to encompass all the emission being modelled. When applied to molecular-line



**Figure 1** | Near-infrared image of the L1448 star-forming region with contours of molecular emission overlaid. The channels of the colour image correspond to the near-infrared bands J (blue), H (green) and K (red), and the contours of integrated intensity are from <sup>13</sup>CO(1-0) emission<sup>9</sup>. Integrated intensity is monotonically, but not quite linearly (see Supplementary Information), related to column density<sup>10</sup>, and it gives a view of 'all' of the molecular gas along lines of sight, regardless of distance or velocity. The region within the yellow box immediately surrounding the protostars has been imaged more deeply in the near-infrared (using Calar Alto) than the remainder of the box (2MASS data only), revealing protostars as well as the scattered starlight known as 'Cloudshine'<sup>11</sup> and outflows (which appear orange in this colour scheme). The four billiard-ball labels indicate regions containing self-gravitating dense gas, as identified by the dendrogram analysis, and the leaves they identify are best shown in Fig. 2a. Asterisks show the locations of the four most prominent embedded young stars or compact stellar systems in the region (see Supplementary Table 1), and yellow circles show the millimetre-dust emission peaks identified as star-forming or 'pre-stellar' cores<sup>3</sup>.



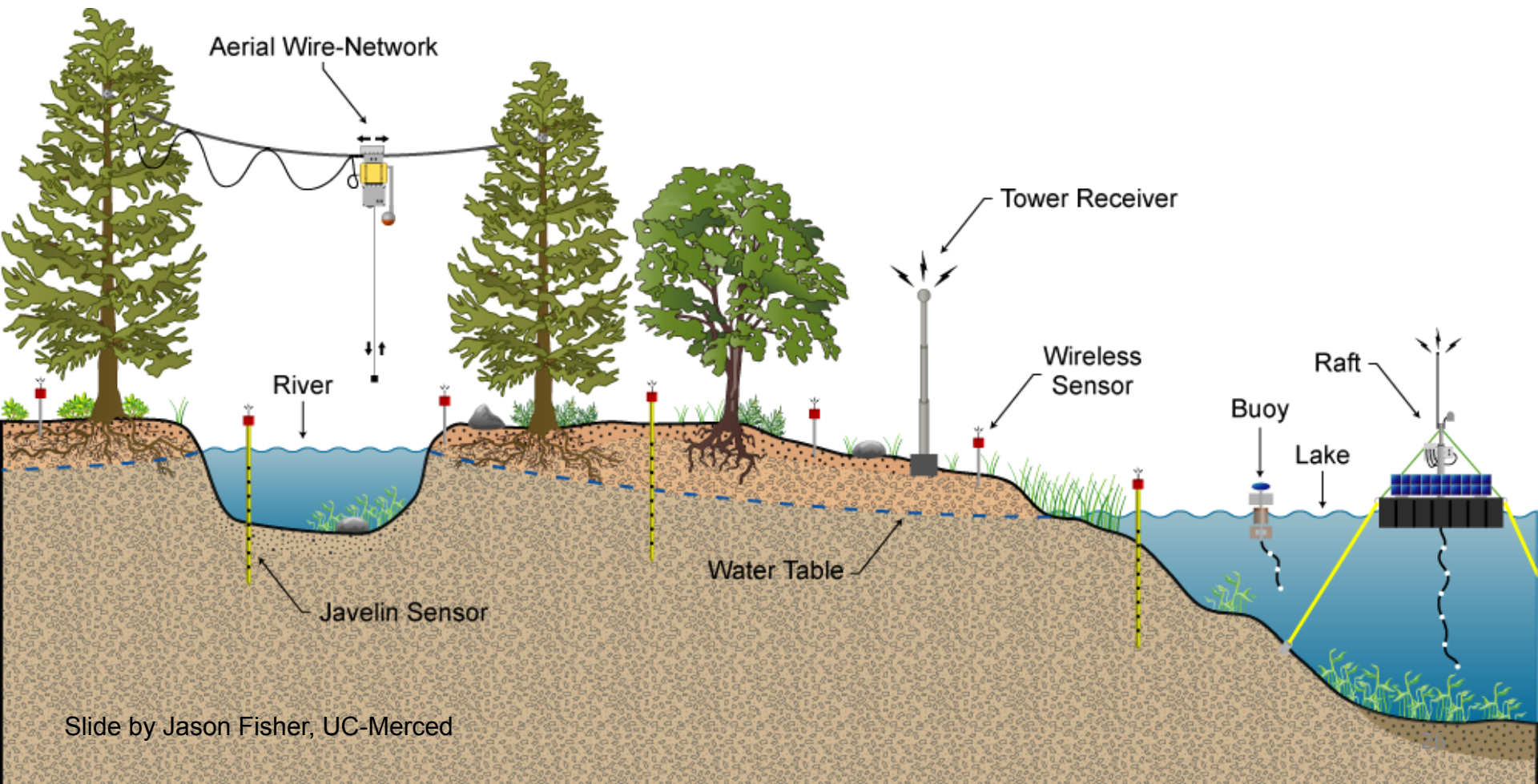
Click to rotate



**Figure 3** | Schematic illustration of the dendrogram process. Shown is the

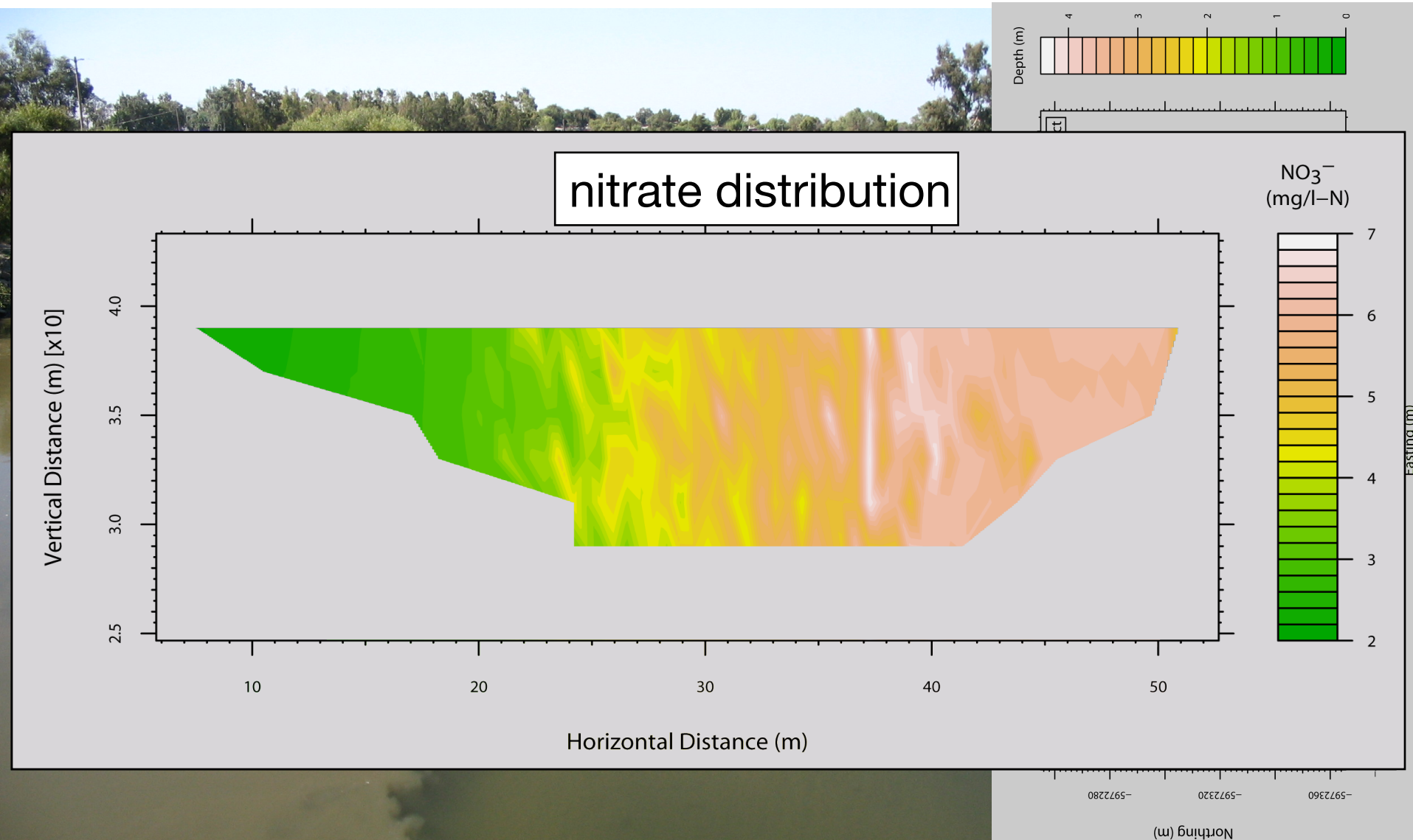
<sup>1</sup>Initiative in Innovative Computing at Harvard, Cambridge, Massachusetts 02138, USA. <sup>2</sup>Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts 02138, USA. <sup>3</sup>Department of Physics, University of British Columbia, Vancouver, Kelowna, British Columbia V1V 1V7, Canada. <sup>4</sup>Surgical Planning Laboratory and Department of Radiology, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts 02115, USA. <sup>†</sup>Present address: School of Engineering and Applied Sciences, Harvard University, Cambridge, Massachusetts 02138, USA.

# 3. Data practices are local



Slide by Jason Fisher, UC-Merced

# 3. Data practices are local

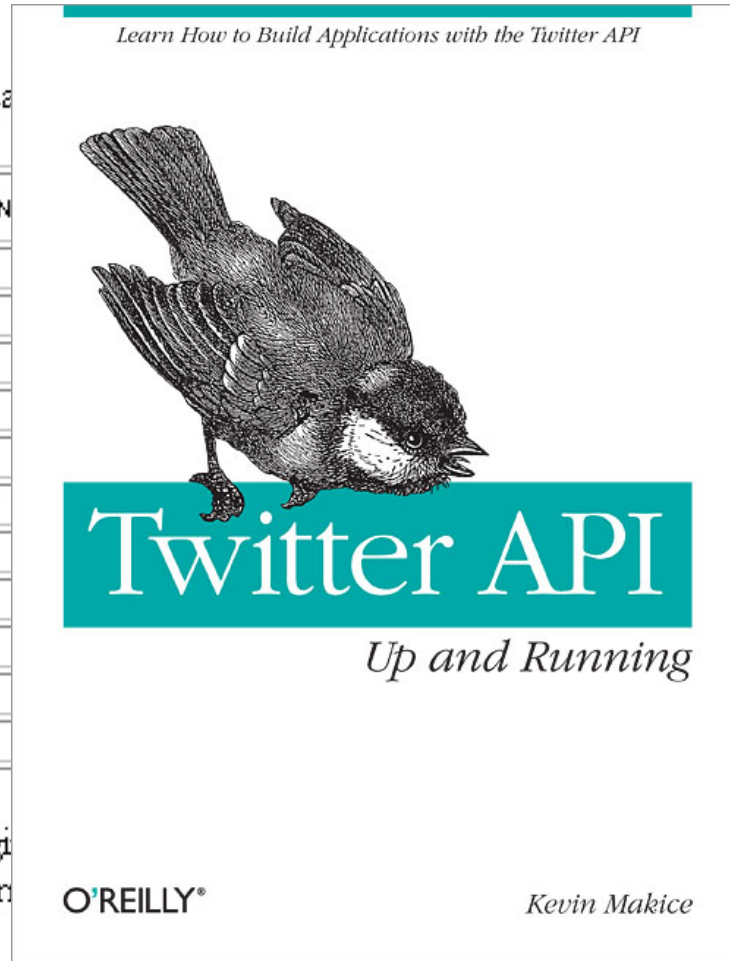


# 3. Data practices are local

6. Generally speaking, do you usually use the Internet to get news, information, or entertainment independent, or what?

RESPONSE	PUN
Strong Democrat	
Not very strong Democrat	
Independent, close to Democrat	
Independent (Neither, No response)	
Independent, close to Republican	
Not very strong Republican	
Strong Republican	
Other party, refused to say	
Don't know	
No answer	

See Appendix D: Recodes, for original responses across surveys. If planning to perform analysis, see No. 56.



independent, or what?

	1994	1996	1998	COL: 240
7	423	400	370	6,046
1	644	577	597	8,756
0	341	356	349	4,581
5	369	457	477	4,882
8	282	258	244	3,379
9	519	500	484	6,265
0	321	307	239	3,479
7	44	43	63	530
0	0	0	0	10
9	49	6	9	188

Appendix N for changes in GSS Methodological Report

## SYNOPTIC EDITION OF THE GUANG ZAN JING – CHAPTER 1: 光讚品

karmāntājtvā  
virahitakuśalakāyavānmanas-  
karmāntājtvā<sup>109</sup> ca bhavanti sma

§ 1.66 (1.47c-2b-1.48a-1) 一切眾生得平等心，展轉相瞻如父、如母、如兄、如弟、如姊、如妹，各各同心，等無偏邪，皆行慈心。

PG 4r 4-5 (Ś 18, 22-19, 1; PD 10, 1-2; PSL *kā* a 4-5): sarvasatvās ca sarvasatveṣu samacittā abhūvan\* yad uta<sup>110</sup> mātāpitṛbhrātr̥bhaginīsamacittāḥ mitrajñātisahāyasamacittāḥ<sup>111</sup>

§ 1.67 (1.49a-1-2) 一切群萌悉修十善，清淨梵行，無有塵埃。

PD 10, 2-3 (PG 4r 5-6; Ś 19, 2-3; PSL *kā* a 5): daśakuśalakarmapathasevinaś ca bhavanti sma<sup>112</sup> / brahmacāriṇaḥ śucayo nirāmayagandhāḥ<sup>113</sup>

§ 1.68 (1.49a-2-4) 一切黎庶悉獲安隱，所得安隱猶如比丘得第三禪。于時眾生而致智慧，而悉具足善快調定，離於卑劣，逮得和雅。

PG 4r 6-8 (PD 10, 3-8; PSL *kā* a 5-6; Ś 19, 3-8): sarvasatvās tasmin samaye sarvasukhasamarpitā abhūvan\* evaṃrūpeṇa sukheṇa samanvāgatā<sup>114</sup> tadyathā {s} ṛṭṭiyadhyānasamāpannasya bhikṣoḥ sukhaṃ sarvasatvās ca tasmin samaye evaṃrūpayā prajñayā samanvāgatā abhūvan\* yad evaṃ jānanti sma<sup>115</sup> • sādhu dānaṃ sādhu damaḥ sādhu saṃnyamaḥ<sup>116</sup> sādhu satyaṃ • sādhu apramādaḥ sādhu maitri sādhu karuṇā sādhu avihimsā prāṇibhūteṣu<sup>117</sup> •

<sup>110</sup> sarvasatvās ... yad uta: not in PD & PSL.

<sup>111</sup> PG wrongly repeats verbatim this latter compound. PD 10, 2 and PSL have at this point a longer reading: mitramātyajñātisālohitasamacittā. Note that Ś has all the words construed as one compound.

<sup>112</sup> PG 4r 5-6 & Ś 19, 2: daśakuśalakarma(tha)samanvāgatā [Ś without daśa-] abhūvan.

<sup>113</sup> PG 4r 6, Ś 19, 3 and PSL *kā* a 5: nirāmagandhāḥ, which seems to be the correct reading; after this word, PG & Ś + sarvakuśalavīṭarkavigatāḥ.

<sup>114</sup> PD 10, 4 & PSL *kā* a 5: idr̥ṣaṃ sukhaṃ pratilabhante sma.

<sup>115</sup> yad ... sma: PD 10, 6 & PSL *kā* a 6: yad anyabuddhakṣetrasthā buddhā bhagavanta evam [PSL + udānam] udānanti sma.

<sup>116</sup> Ś 19, 7: saṃnyamaḥ.

<sup>117</sup> sādhu dānaṃ ... prāṇibhūteṣu: PD 10, 7-8 & PSL *kā* a 6: sādhu damaḥ [PSL + sādhu śamaḥ] sādhu saṃnyamaḥ sādhu cīrṇo brahmacaryyāvāsaḥ sādhu prāṇibhūteṣu avihimsati.



CBETA

▼ CBETA 首頁

▼ 電子佛典集

CBETA 首頁

熱門連結

Zacchetti, S. (2005). In Praise of the Light: A Critical Synoptic Edition with an Annotated Translation of Chapters 1-3 of Dharmarakṣa's Guang zan jing, Being the Earliest Chinese Translation of the Larger Prajnaparamita. Tokyo, Japan: The International Research Institute for Advanced Buddhism, Soka University. Retrieved from [http://iriab.soka.ac.jp/orc/Publications/BPPB/index\\_BPPB.html](http://iriab.soka.ac.jp/orc/Publications/BPPB/index_BPPB.html)



我們也有 專頁

登入 | Register

Google™ 自訂搜尋

大藏經搜尋

## 新的討論版主題

CBETA電子佛典部落格 編輯報告 2013/05/20

《緒高僧傳》牛頭智巖的標點

「磻溪王氏子。壯歲謁河庵。勤剪髮。聞別傳之旨。」的標點

CBETA電子佛典部落格 編輯報告 2013/04/20

佛說摩利支天經

閱讀全文

## 最新回應

RE: 《廣弘明集》卷29錯字 1 週 4 天前

RE: 《緒高僧傳》牛頭智巖的標點 1 週 4 天前

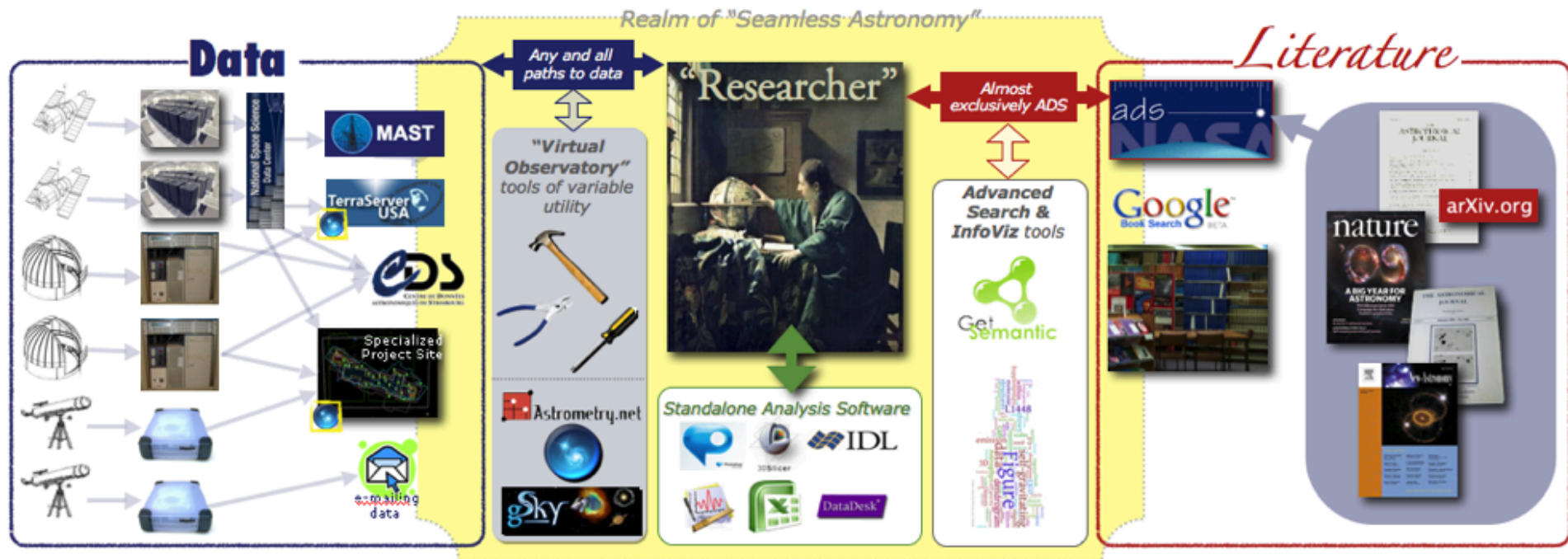
非常準確，棣，就是梅字。英也花，棣也是花。不過，未見

1 週 5 天前

樓主斷句顯為更勝，呵。 29

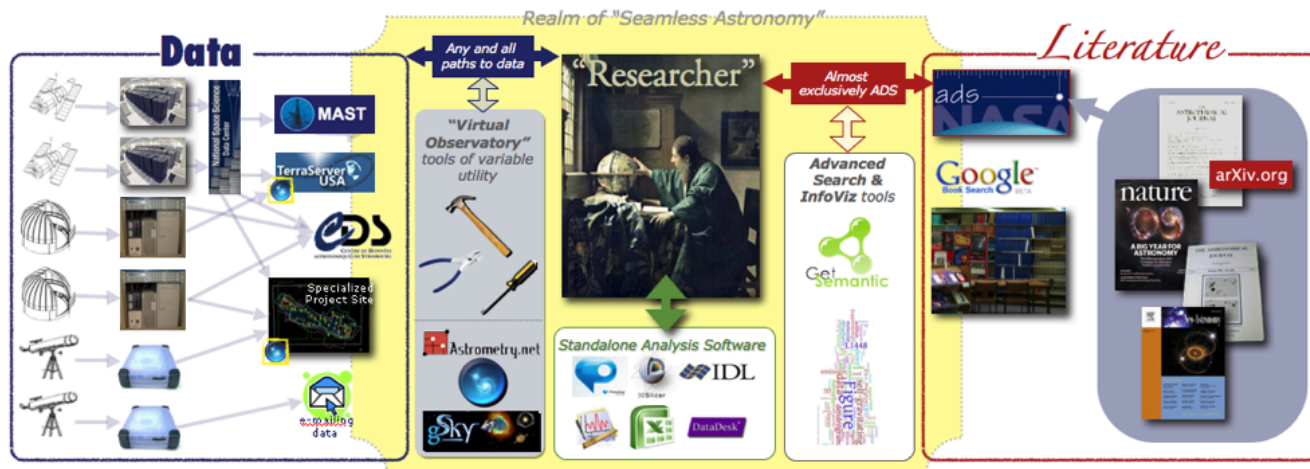
同理，最後一句也可改為

# 4. Open access to data is a paradigm shift



# 4. Open access to data is a paradigm shift

- Goal of research project
  - Publication
  - Data reusable by others





# 4. Open access to data is a paradigm shift

Industrial methods

Artisanal methods

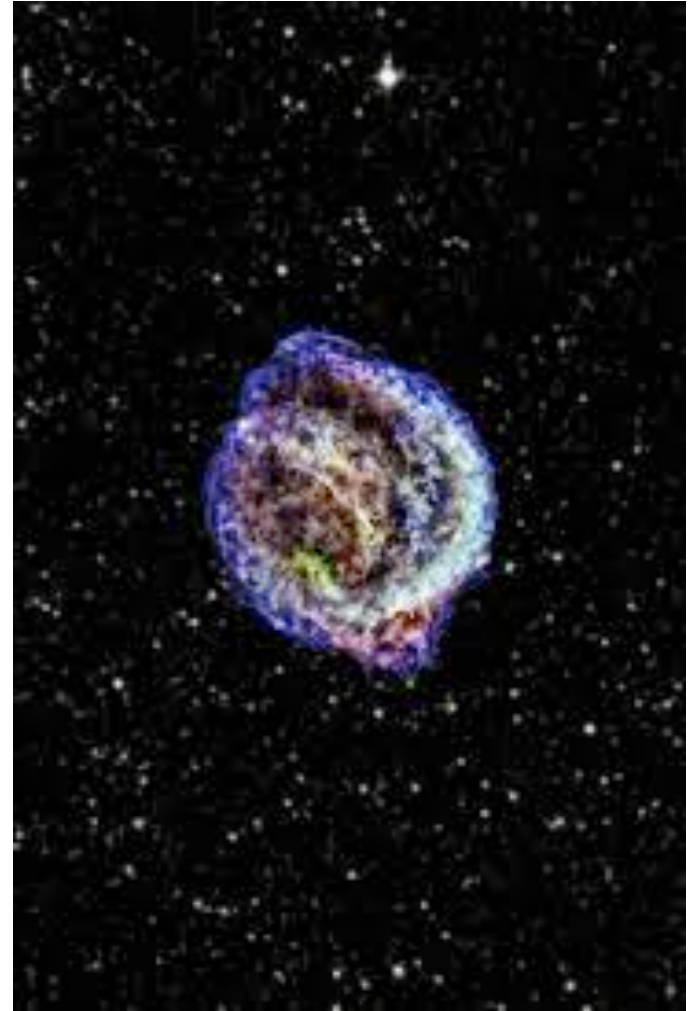


Replication

Interpretation

# 4. Open access to data is a paradigm shift

- Reuse by investigator
- Reuse by collaborators
- Reuse by colleagues
- Reuse by unaffiliated others
- Reuse at later times
  - Months
  - Years
  - Decades
  - Centuries



# Simple Rules for the Care and Feeding of Scientific Data\*

1. Good science requires good data
2. Make your science inspectable by others
3. Conduct your science with provenance in mind
4. Do not reduce your data more than necessary
5. Make your data available
6. Make your workflows available
7. Publish all software, even small scripts
8. Foster a “data community” for your community
9. Describe how you want to be acknowledged
10. Attribute the sources of data that you use

# 4. Open access to data is a paradigm shift

CLA

- Search Collections
- Creating Resources
- Depositing Resources
- News and Events
- About the AHDS
- Projects
- Search Site

Built on the  
Rome, CLA  
research co  
Informatio  
Technologi  
searching c  
university  
museums.

AHDS Executive Address:  
26 - 29 Drury Lane  
3rd Floor  
King's College London  
LONDON, WC2B 5RL  
Tel: 020 7848 1988  
Fax: 020 7848 1989  
[Email the AHDS](#)

## Enabling Digital Resources for the Arts and Humanities

### Latest News

From April 2008 the Arts and Humanities Data Service (AHDS) will no longer be funded to provide a national service. However, the JISC have very kindly provided funding for a further year to keep the website available, to maintain and update the AHDS cross-search catalogue, and for the Centres to continue to deliver AHDS collections. The catalogue will allow users to search across the collections of the AHDS partners, including new collections added after 31st March. To use the cross-search catalogue please use the link on the left hand side.

Despite the loss of central funding, the host institutions of the AHDS are committed to working separately and together to retain the expertise and skills of the staff of the AHDS, and to provide a revised set of services for the arts and humanities research community. For further details about the services on offer please click on the links on the right:

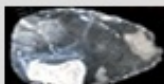
- [Centre for e-Research](#) at King's College London
- [Archaeology Data Service](#)
- [Oxford Text Archive](#)
- [History Data Service](#)
- [Performing Arts Data Service](#)
- [Visual Arts Data Service](#)

### AHDS website content



Executive

For [Management, strategy, e-infrastructure developments](#) and shared repository services.

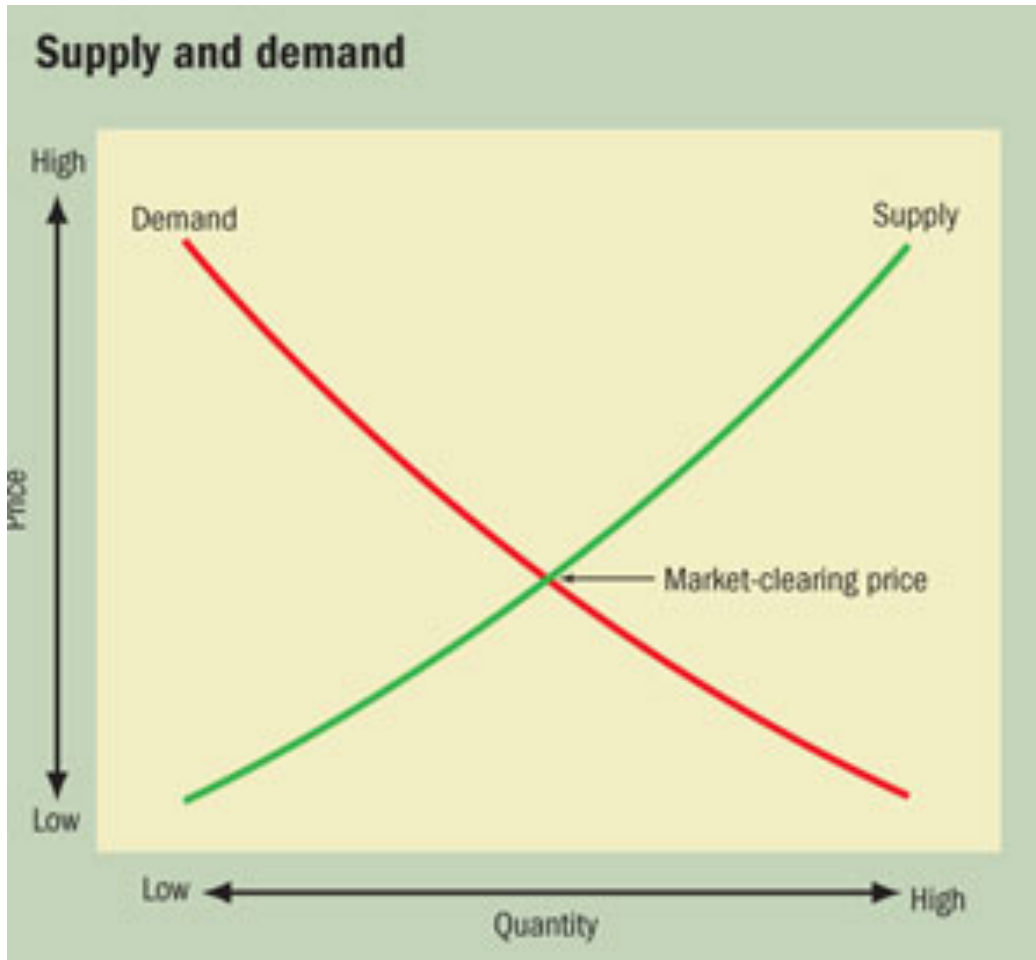


For Archaeology resources and services from AHDS Archaeology

Podcast of (2011, Wolfs

Podcast from ResearchSh Humanities The World

Supply =  
continuity,  
trust



Demand =  
investment,  
risk

# Data reuse is difficult

- Identify
- Retrieve
- Open
- Read
- Interpret
- Evaluate
- Compute upon
- Replicate
- Combine
- Describe
- Annotate
- License/rights
- Provenance
- Trust
- Attribution...

## **For Attribution—**

Developing Data Attribution and  
Citation Practices and Standards

### **Summary of an International Workshop**

Uhlir, P. F. (Ed.). (2012). *For Attribution -- Developing Data Attribution and Citation Practices and Standards: Summary of an International Workshop*. Washington, D.C.: The National Academies Press. Retrieved from [http://www.nap.edu/catalog.php?record\\_id=13564](http://www.nap.edu/catalog.php?record_id=13564)

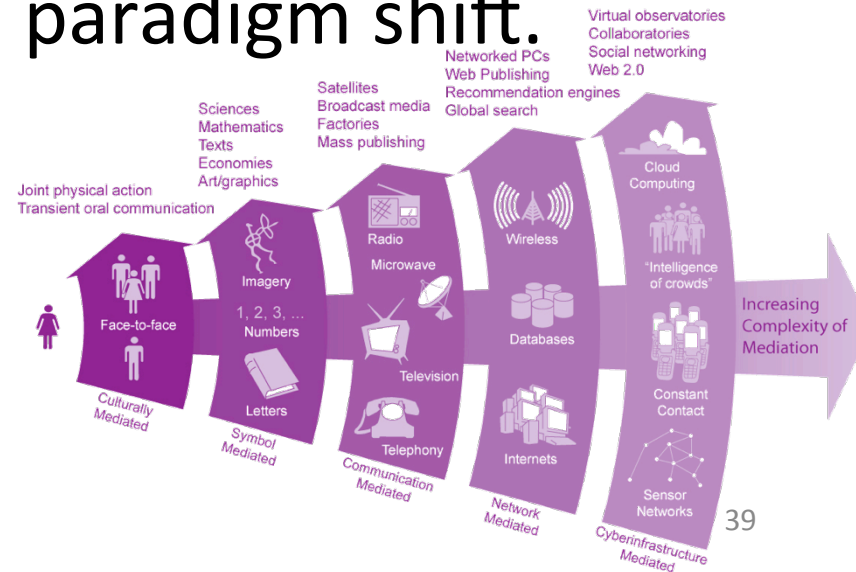
# 4. Open access to data is a paradigm shift

- Infrastructure investments
  - Data archives
  - Tools, services, support
  - Data curation workforce
  - Data management training
- Alignment of incentives
  - Data release
  - Data reuse
  - Publishing
  - Grants and funding
  - Credit and promotion



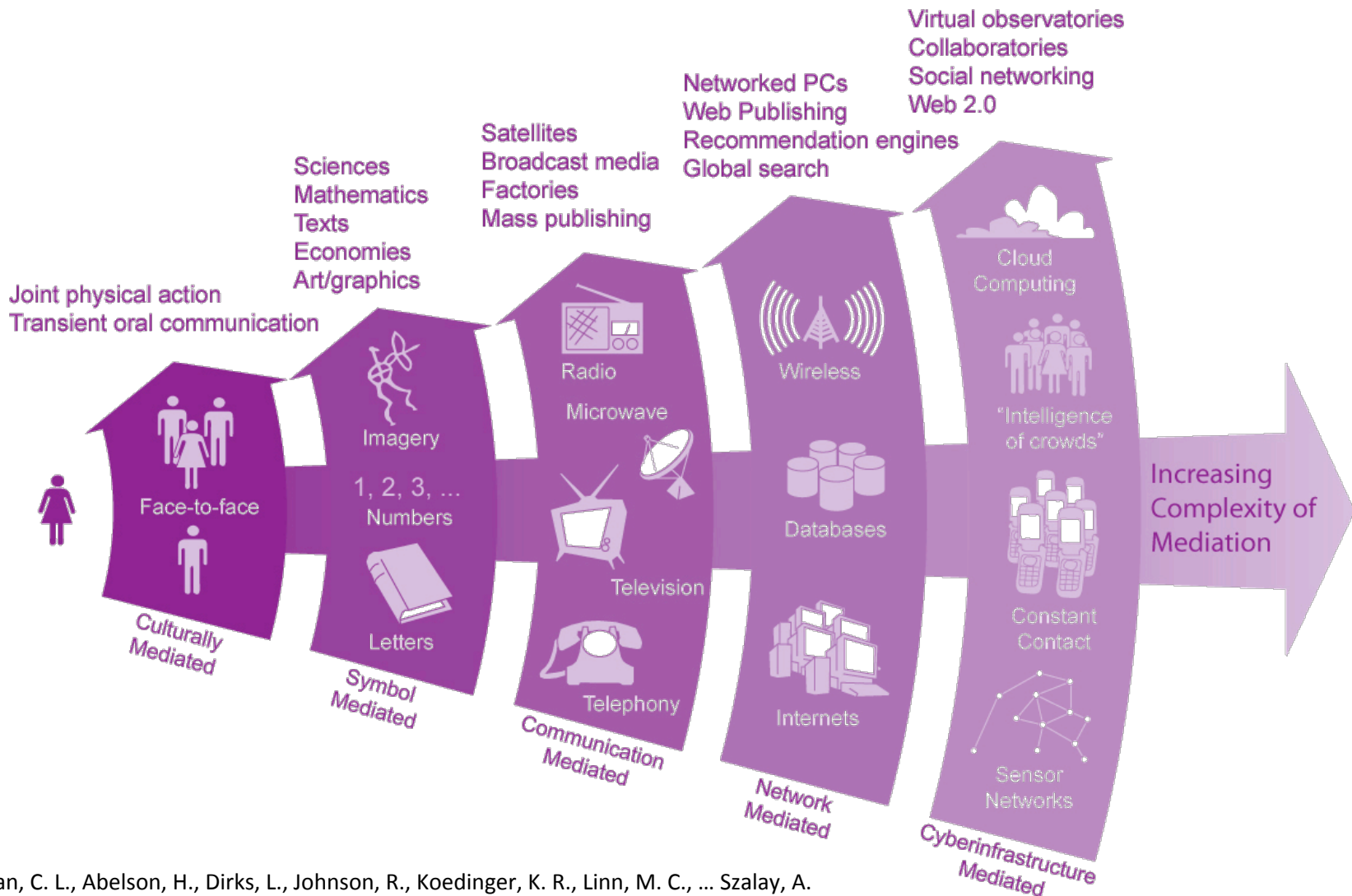
# Conclusions

1. Open scholarship is the norm.
2. Formal and informal scholarly communication are converging.
3. Data practices are local.
4. Open access to data is a paradigm shift.





# Technological advances in mediated communication



Borgman, C. L., Abelson, H., Dirks, L., Johnson, R., Koedinger, K. R., Linn, M. C., ... Szalay, A. (2008). *Fostering Learning in the Networked World: The Cyberlearning Opportunity and Challenge*. National Science Foundation. [http://www.nsf.gov/publications/pub\\_summ.jsp?ods\\_key=nsf08204](http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf08204)

# Acknowledgements

---

- UCLA Data Practices team

- Rebekah Cummings, Peter Darch, David Fearon, Ariel Hernandez, Matthew Mayernik, Alberto Pepe, Ashley Sands, Katie Shilton, Sharon Traweek, Jillian Wallis, Laura Wynholds

- Research funding

- National Science Foundation
- Alfred P. Sloan Foundation
- Microsoft External Research



**Microsoft®**

- University of Oxford

- Balliol College
- Oliver Smithies Fellowship
- Oxford Internet Institute
- Oxford eResearch Center
- Bodleian Library

