



29 mars 2019

# Interroger la science



History of European Ideas 36 (2010) 330–339

Mapping the structure of the intellectual field using citation and co-citation analysis of correspondences\*

Yves Gingras

CIIRST, Département d'histoire, Université du Québec à Montréal, Canada

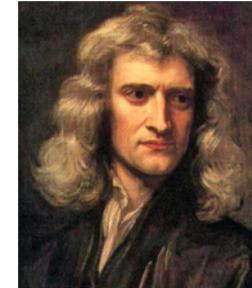


<http://republicofletters.stanford.edu>



Descartes

Newton



Franklin



Oxford, UK



Groupe D'Alembert, CNRS



IKCC



DensityDesign Research Lab

Learned Publishing, 27: 2-4  
doi:10.1087/20140101

EDITORIAL

# The first scientific journal

Early in 1665 Denis de Sallo started (he was called the 'premier instituteur' in the first volume) the *Journal des Sçavans*. (The singular form, sçavant, is Middle French for, unsurprisingly,

Bremen with Sweden, to stop them have been some innocent letters to invading (he was unsuccessful). He France after a Dutch raid on the UK.

# LE JOURNAL DES SCAVANS

Du Lundy V. Janvier M. DC. LXV.

Par le Sieur DE HEDOVILLE.



A PARIS.

Chez JEAN CVSSON, rue S. Jacques, à l'ima-  
ge de S. Jean Baptiste.

M. DC. LXV.

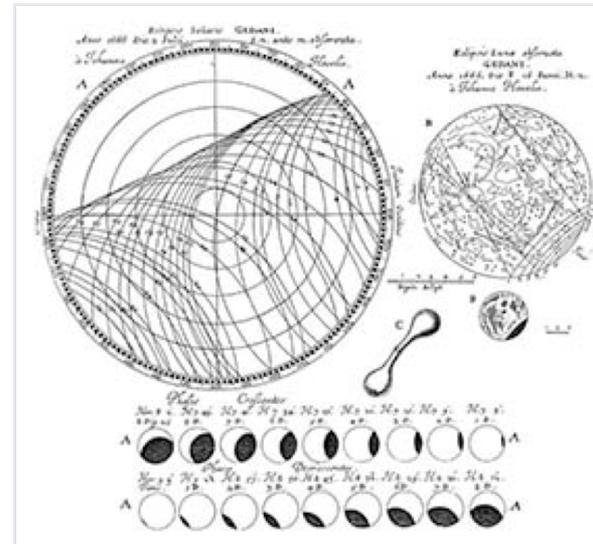
AVEC PRIVILEGE DV ROY.

# 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. for John Martyn at the Bell, a little with-  
out Temple-Bar, and James Allestry in Duck-Lane,  
Printers to the Royal Society,



*Scientometrics, Vol. 1. No. (1978) 65–84*

## STUDIES IN SCIENTIFIC COLLABORATION

### PART I. THE PROFESSIONAL ORIGINS OF SCIENTIFIC CO-AUTHORSHIP

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From a historical and sociological perspective, this essay presents and develops the first comprehensive theory of **scientific collaboration**: collaborative scientific research, formally acknowledged by co-authorships of scientific papers, originated, developed, and continues to be practiced as a response to the professionalization of science. Following an overview of the origins and early history of collaboration in the 17th and 18th centuries, a study of the first professionalized scientific community, that of **Napoleonic France**, confirms that, as the theory predicts, collaboration is a typical research style associated with professionalization. **In the early 19th century, virtually all joint research was performed by French scientists**; collaborative research only appeared much later in England and Germany when they, too, underwent professionalization. That historical finding, which constitutes a puzzling anomaly for any other view of scientific teamwork, here conforms to theoretical expectation. Several other predictions of the theory are presented, to be taken up in subsequent studies.



### PART II. SCIENTIFIC CO-AUTHORSHIP, RESEARCH PRODUCTIVITY AND VISIBILITY IN THE **FRENCH SCIENTIFIC ELITE**,

This essay investigates a number of the predictions of the theoretical view of scientific collaboration as a response to the professionalization of science: (1) that collaboration is **most typically practiced by the scientific elite**, or those who aspire to it, (2) that it increases individual research productivity, and (3) that it enhances the visibility of research to the larger scientific community. With respect to the first professionalized scientific community, that of Napoleonic France, the study focusses on the research practices and careers of members of the Society of Arceuil, the Philomatic Society, and the First Class of the Institut, as they illustrate and confirm the accuracy of those predictions.



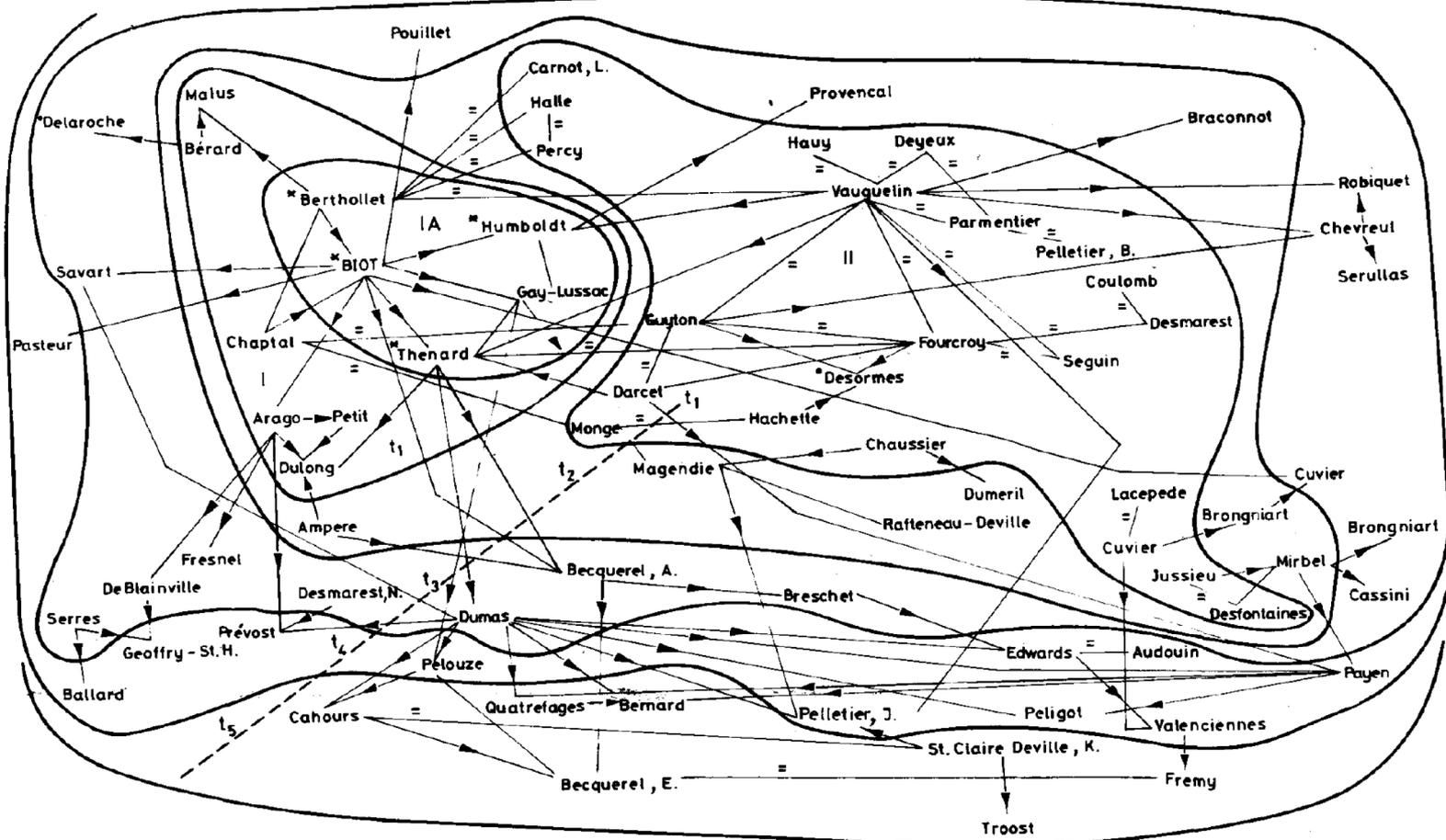
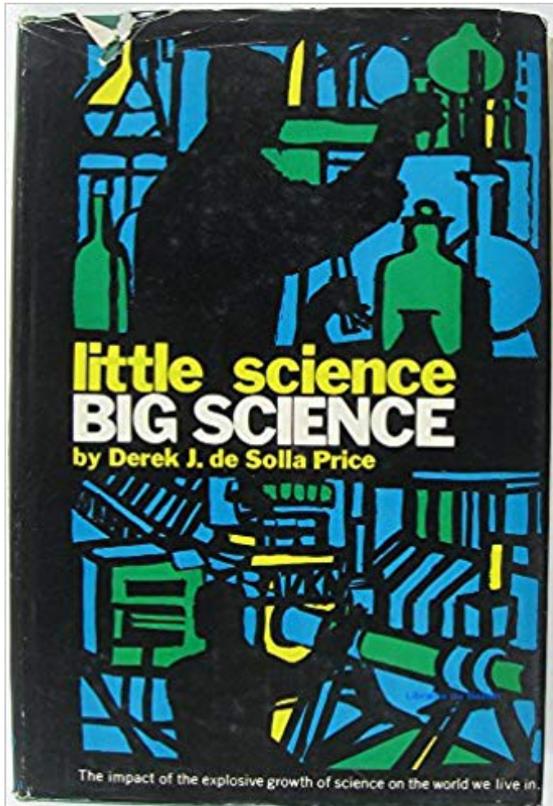


Fig. 2. A partial view of collaborative relationships among the elite members of the 19th century french scientific community.  
 Key: \* Indicates original member of the Society of Arceuil (members before 1807).  
 • Indicates an associate member of the Society of Arceuil.  
 = Alongside a line connecting two scientists indicates a symmetric status relation.  
 → Points in the direction of lower status.  
 Concentric circles are roughly indicative of time of entry into the elite (First Class membership).  
 Circle I indicates Society of Arceuil.  
 Circle II indicates earliest members of the First Class who did not belong to the Society of Arceuil.  
 ○ Not a member of the First Class.



1963

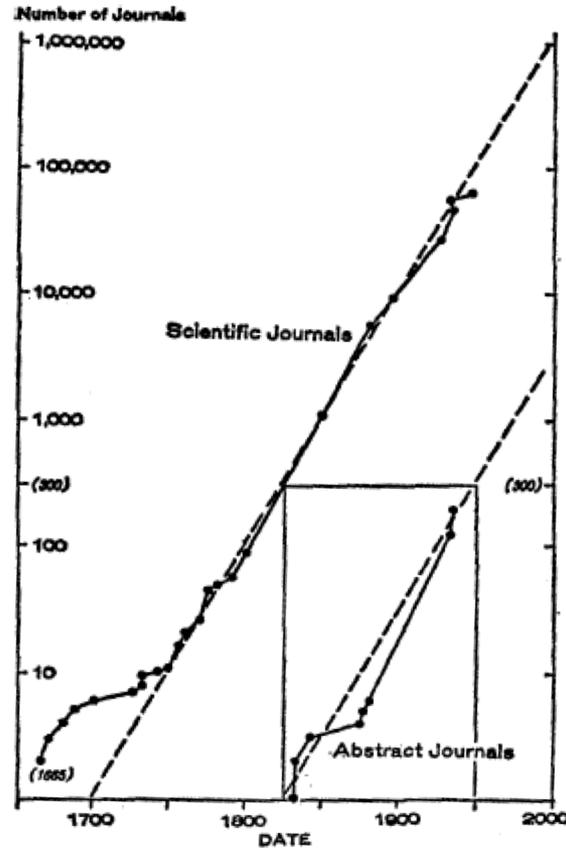


Fig. 1. TOTAL NUMBER OF SCIENTIFIC JOURNALS AND ABSTRACT JOURNALS FOUNDED, AS A FUNCTION OF DATE

Note that abstracts begin when the population of journals is approximately 300. Numbers recorded here are for journals founded, rather than those surviving; for all periodicals containing any "science" rather than for "strictly scientific" journals. Tighter definitions might reduce the absolute numbers by an order of magnitude, but the general trend remains constant for all definitions. From Derek J. de Solla Price, *Science Since Babylon* (New Haven, Yale University Press, 1961).





Merton, R.K (1942). Science and Technology a Democratic Order. *Journal of Legal and Political Sociology*, 1(1): 115-126. *Note on Science and Democracy*

...tive cooperation. The products of competition are communized,<sup>10</sup> and esteem accrues to the producer. Nations take up claims to priority, and fresh entries into the commonwealth of science are tagged with the names of nationals: witness the controversy raging over the rival claims of Newton and Leibniz to the differential calculus. But all this does not challenge the status of scientific knowledge as common property.

The institutional conception of science as part of the **public domain** is linked with the imperative for communication of findings. Secrecy is the antithesis of this norm; **full and open communication** its enactment.<sup>11</sup> The pressure for diffusion of results is reinforced by the institutional goal of 'advancing the boundaries of knowledge' and by the incentive of recognition which is, of course, contingent upon publication. A scientist who does not communicate his important discoveries to the scientific fraternity—thus, a Henry Cavendish—becomes the target for ambivalent responses. He is esteemed for his talent and, perhaps, for his modesty. But, institutionally considered, his 'modesty' is seriously misplaced, in view of the moral compulsive for 'sharing the wealth' of science. Lay

*open access*  
*p-122*

## UNESCO SCIENCE REPORT

### Towards 2030

#### Human resources

In 2013 there were an estimated **7.8 MILLION** SCIENTISTS WORLDWIDE

fondation

# SCIENCES CITOYENNES



**Anthony Caravaggi** @thonoir 22h  
In #icanhazpdf tweets: inc. link, lead author, date, your email address. Perhaps field too (e.g. 'physics'). Delete request once fulfilled.  
Expand Reply Retweet Favourite More

**Ahmed Moustafa** @AhmedMoustafa 26 Nov  
#icanhazpdf "@KlassenLab: "Syngiogenesis: Mechanisms, Evolutionary Consequences, and Systematic Implications" [annualreviews.org/doi/abs/10.114...](http://annualreviews.org/doi/abs/10.114...)"

## Publications

In 2014 there were an estimated **1.27 MILLION** SCIENTIFIC PUBLICATIONS

THIS REPRESENTS A 23.4% GROWTH SINCE 2008



## Requêter

*recherche d'information*

The problem of directing a user to stored information, some of which may be unknown to him, is the problem of "information retrieval."

*Calvin N. Mooers (1950, p. 572)*



## Questionner

*scientométrie*

In other words, scientometric research nowadays is at the crossroads among the social sciences, information science, and advanced computing with its efforts to capture patterns in 'big data.'

*Leydesdorff et Milojević (2015, p. 323)*



UNITED STATES DEPARTMENT OF COMMERCE • John T. Connor, *Secretary*  
NATIONAL BUREAU OF STANDARDS • A. V. Astin, *Director*

*Symposium on*  
**Statistical Association Methods  
For Mechanized Documentation**

Symposium Proceedings  
Washington 1964



National Bureau of Standards Miscellaneous Publication 269  
Issued December 15, 1965

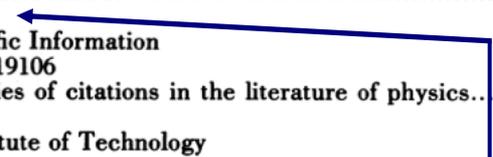


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 DEREK J. DESOLLA PRICE  
 Yale University  
 New Haven, Conn.

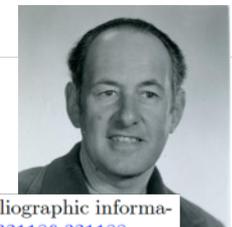
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 EUGENE GARFIELD  
 Institute for Scientific Information  
 Philadelphia, Pa. 19106

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 M. M. KESSLER  
 Massachusetts Institute of Technology  
 Cambridge, Mass.



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 GERARD SALTON  
 Harvard University  
 Cambridge, Mass. 02138





Computer Science > Information Retrieval

### Eugene Garfield, Francis Narin, and PageRank: The Theoretical Bases of the Google Search Engine

Stephen J. Bensman

(Submitted on 13 Dec 2013)

This paper presents a test of the validity of using Google Scholar to evaluate the publications of researchers by comparing the premises on which its search engine, PageRank, is based, to those of Garfield's theory of citation indexing. It finds that the premises are identical and that PageRank and Garfield's theory of citation indexing validate each other.

SCIENCE, VOL. 122 15 JULY 1955

## Citation Indexes for Science

A New Dimension in Documentation through Association of Ideas



Eugene Garfield

Mr. Garfield is a documentation consultant with offices at 1530 Spring Garden St., Philadelphia 1, Pa.

69,041,959 PY=1900-2019  
Indexes=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI, CCR-EXPANDED, IC

Web of Science Core Collection: Citation Indexes

- Science Citation Index Expanded (SCI-EXPANDED) --1900-present
- Social Sciences Citation Index (SSCI) --1956-present
- Arts & Humanities Citation Index (A&HCI) --1975-present
- Conference Proceedings Citation Index- Science (CPCI-S) --1998-present
- Conference Proceedings Citation Index- Social Science & Humanities (CPCI-SSH) --1998-present
- Emerging Sources Citation Index (ESCI) --2015-present

Web of Science Core Collection: Chemical Indexes

- Current Chemical Reactions (CCR-EXPANDED) --1985-present  
*(Includes Institut National de la Propriete Industrielle structure data back to 1840)*
- Index Chemicus (IC) --1993-present



fondé en 1960



acquis en 1992



acquis en 2017



## HOW TO DO A SEARCH

Starting point for most searches in the **SCI** is a specific work.  For example: suppose you are interested in the subject of Urey's article: "Lifelike Forms in Meteorites."

### Lifelike Forms in Meteorites

Are fossils present in carbonaceous meteorites? The evidence is suggestive but as yet inconclusive.

Harold C. Urey

At a meeting held 1 May 1962 at the New York Academy of Sciences, a group of meteorologists was presented dealing with the 1700 particles per milligram claimed by the Fordham group in contradiction to reports

mentioning my early skepticism in regard to the whole matter and my suggestion that additional experiment hydrocarbons extracted from meteorites be made by spectroscopic methods, to supplement the mass spectrographic analyses. In New York October 1961, Nagy had shown chemical and mineralogical data pointing to the possibility that there

H. C. Urey, *Science* 137, 623-628 (1962)

In the **SCI**, this subject is identified by the specific citation:

**UREY HC-----62-SCIENCE----- 137 623**

To find where a specific paper, book, thesis or technical note, etc. has been cited in a current journal article, look in the **Citation Index** section of the **SCI** under the specific citation.

CITED AUTHOR	CITING JOURNAL	CITING YEAR	PUBLICATION YEAR	CITING VOL	CITING PAGE
UREY HC	SI-INFO NEWS	62	1962	38	269
PILLAI MK	AIPT J CHEM	55	1958	28	281
THOMPSON U	J CHEM PHYS	32	1959	55	242
CHEN M	SI-INFO NEWS	65	1965	107	107
MUELLER G	SI-INFO NEWS	65	1965	1330	1330
MUELLER G	SI-INFO NEWS	65	1965	1330	1330
MUELLER G	SI-INFO NEWS	65	1965	1330	1330

#### CITATION INDEX SECTION

Any article cited during the period indexed is listed alphabetically under the first author's name. Each cited work by that author is arranged chronologically and indicated by a dashed line.  Beneath the cited item, you will find the list of current citing articles. In this instance, the 1962 article by H. C. Urey in *Science* 137, 623 was cited, in 1965, by G. Mueller, *Nature* 205, 1200.  Each citing item, other than journal articles, is characterized by a code indicating whether it is a review article, letter, correction, book review, meeting proceedings, editorial, etc. In this example "L" is the code for "letter."

To find the articles and other items published by a specific organization, look in the **Corporate Index** under the organization's name.

| U LOND BEEP COLL |
|------------------|------------------|------------------|------------------|------------------|------------------|
| U LOND BEEP COLL |
| U LOND BEEP COLL |
| U LOND BEEP COLL |
| U LOND BEEP COLL |

#### CORPORATE INDEX SECTION

To find the full titles, co-authors and bibliographic data for the citing works or works attributed to an organization, look in the **Source Index** under the first author's name.

| MUELLER G |
|-----------|-----------|-----------|-----------|-----------|-----------|
| MUELLER G |
| MUELLER G |
| MUELLER G |
| MUELLER G |

#### SOURCE INDEX WITH TITLES

All the current articles published in the period indexed are listed alphabetically by author.  The full title, as in the Mueller article above, is given.  All co-authors, journal, page, volume, year and the number of references it cites are given. Each item is coded, e.g. "C" for "correction," "B" for "book review," "L" for "letter," "M" for "meeting," etc.  The **SCI Source Index** is essentially a calendar year **author index** covering all the journal items processed by the closing date for the current year.  All journal issues available for any given year are included in the latest **SCI Annual**.  The **SCI Source Index** can also be used independently of the **Citation Index**.  While the **Citation Index** is a **subject index**, the **Source Index** is the **comprehensive author index** of science. All co-authors are cross-referenced.

#### CORPORATE INDEX SECTION

Under each organization you will find the citations for all items attributed to that organization which were published during the period indexed.  In this example, the 1965 article by Mueller is listed under University of London, Birkbeck College, with other articles attributed to that institution.

(Garfield, 1997)



# The Sociology of Science and the Garfield Effect: Happy Accidents, Unanticipated Developments and Unexploited Potentials

Harriet Zuckerman\*

Professor Emerita, Columbia University, New York City, NY, United States

Gene did so in 1962, asking in a letter whether a Science Citation Index might be useful in sociology. Some weeks later, Bob responded that Gene's letter and the materials that came along with it, made it clear to him that such an index would be "a rich source for the sociologist" and that he (Bob) needed precisely the kind of material Gene's citation index could provide for the work he was doing on multiple independent discoveries. Gene could not have known that Bob already had observed that citations were far more than bibliographic indicators. He saw them as playing a major role in science, serving he believed to be both as incentives to scientists to do the hard work scientific research requires and as rewards for it<sup>7</sup>.



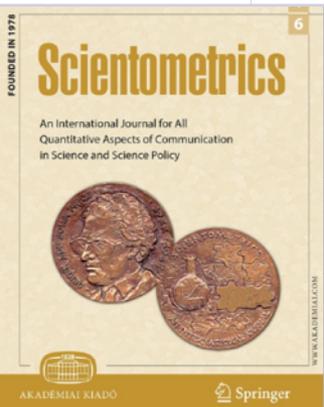
Robert Merton, Harriet Zuckerman et Eugene Garfield, 1962

Citationists /  
Bibliometricians



1963

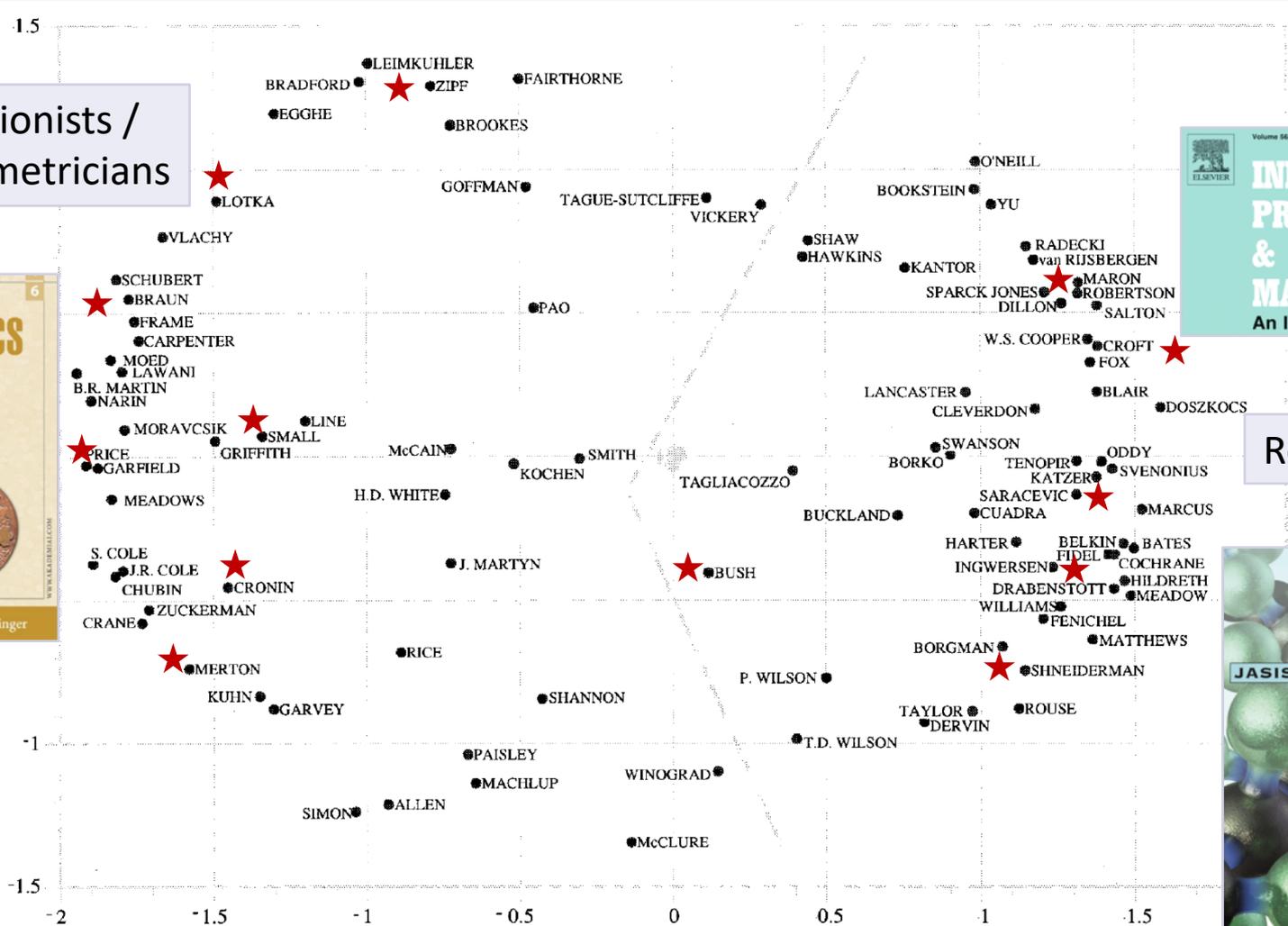
Retrievalists



1978

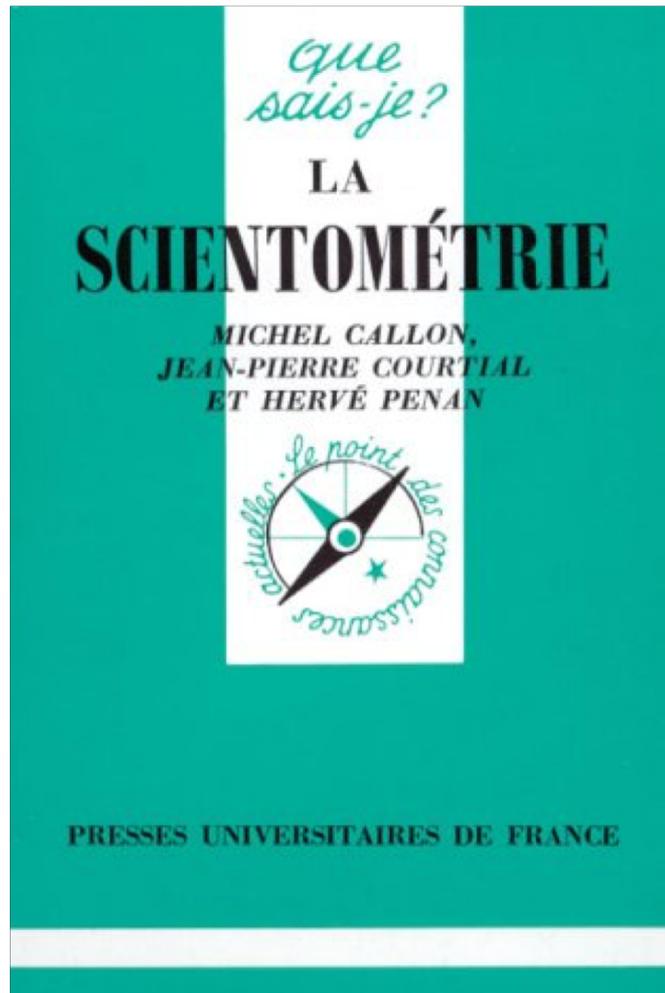


1950



**Figure 4** – Analyse factorielle des co-citations d’auteurs représentant “*The 100 authors in information science, 1988–1995*” (H. D. White & McCain, 1998, p. 347). Les *bibliometricians* figurent sur la gauche (Braun, Cronin, Lotka, Price, Narin...) tandis que les *retrievalists* figurent sur la droite (Croft, Spärck Jones, Robertson, Salton, van Rijsbergen...). Des bibliomètres pionniers tels que Goffman, Brookes et Vickery avaient la RI pour domaine initial (Mayr, Scharnhorst, Larsen, Schaer & Mutschke, 2014a, p. 799).





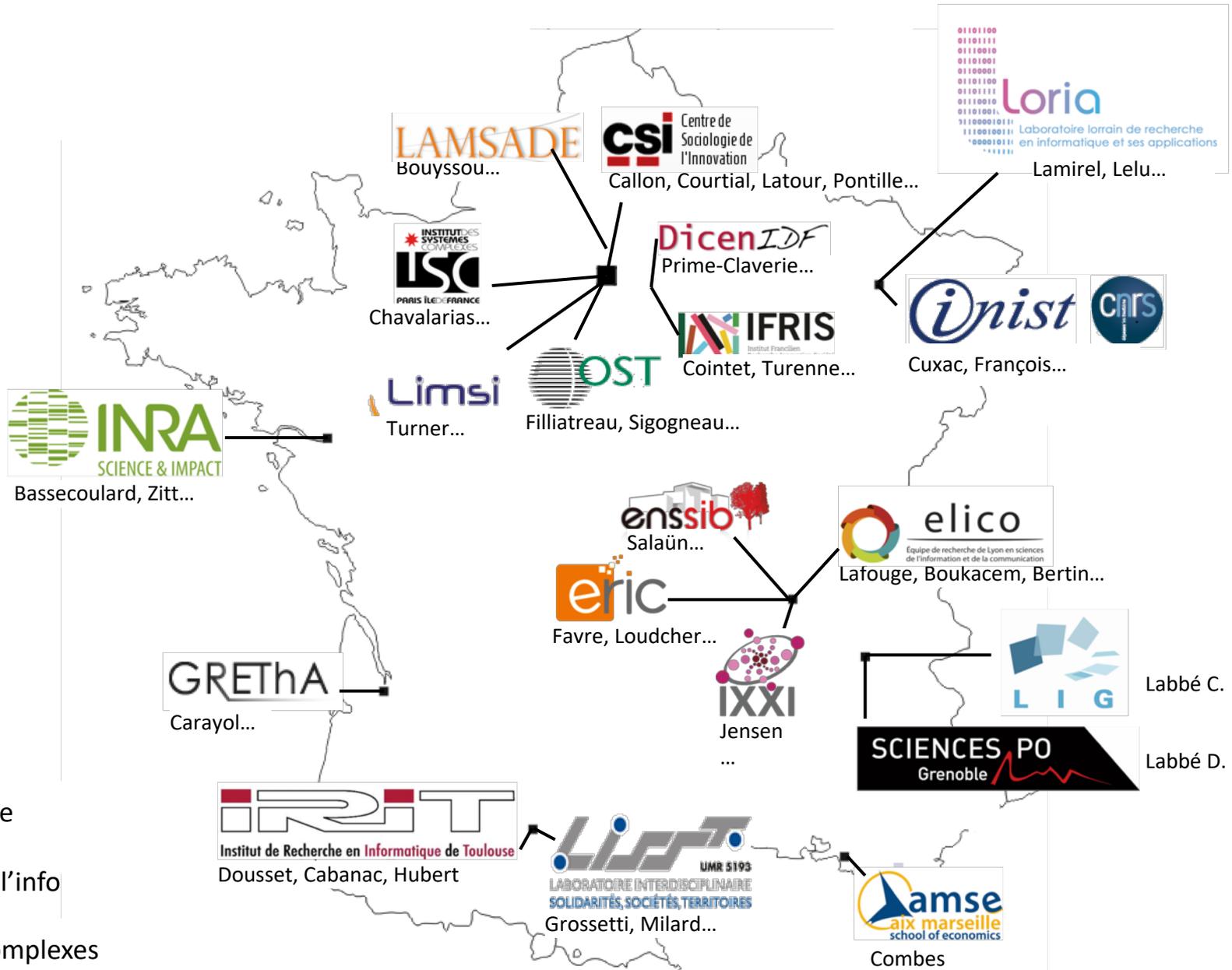
1993



Michel Zitt reçoit la médaille Derek de Solla Price

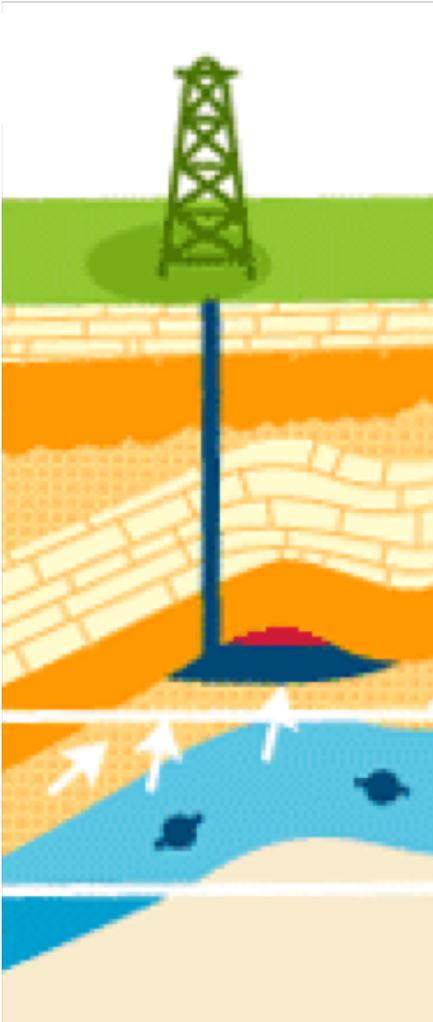


1999



- agronomie
- économie
- informatique
- linguistique
- sciences de l'info
- sociologie...
- systèmes complexes

# Interroger la science



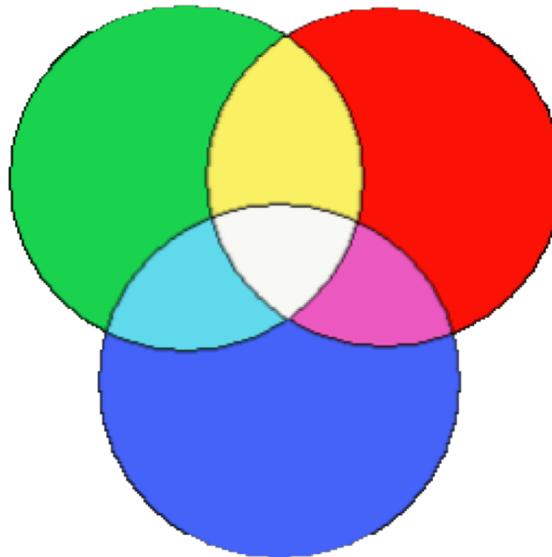
1. Aperçu des problématiques qui m'ont mobilisé
2. Le texte scientifique
3. Les réseaux scientifiques
4. Le processus d'évaluation
5. Des opportunités...

# Recherche de structures d'opportunités

If you find something interesting drop everything else and pursue it!  
*Burrhus Frederic Skinner (1904 – 1990)*

## Question de recherche :

- captivante
- originale / inattendue
- importante



## Revue de la littérature :

- interdisciplinaire
- sur le temps long

## Données et méthodes :

- données originales en libre accès, de préférence
- méthode mixte : quanti + quali

Collaboration  
Scientometrics 2015a



Partenariat  $\phi$ -index  
Scientometrics 2013



Work-life balance  
JASIST 2013a

# The Red Sneakers Effect: Inferring Status and Competence from Signals of Nonconformity

SILVIA BELLEZZA  
FRANCESCA GINO  
ANAT KEINAN

© 2013 by JOURNAL OF CONSUMER RESEARCH, Inc. • Vol. 41 • June 2014  
All rights reserved. 0093-5301/2014/4101-0003\$10.00. DOI: 10.1086/674870

This research examines how people react to nonconforming behaviors, such as entering a luxury boutique wearing gym clothes rather than an elegant outfit or wearing red sneakers in a professional setting. Nonconforming behaviors, as costly and visible signals, can act as a particular form of conspicuous consumption and lead to positive inferences of status and competence in the eyes of others. A series of studies demonstrates that people confer higher status and competence to nonconforming rather than conforming individuals. These positive inferences derived from signals of nonconformity are mediated by perceived autonomy and moderated by individual differences in need for uniqueness in the observers. An investigation of boundary conditions demonstrates that the positive inferences disappear when the observer is unfamiliar with the environment, when the nonconforming behavior is depicted as unintentional, and in the absence of expected norms and shared standards of formal conduct.

Your sweats, PJs and flip-flops are losing you money! . . . Do you crave more confidence, respect and power? . . . Find out how image connects to success. (Eve Michaels, author of *Dress Code*)

I have a number of super-successful Silicon Valley clients who dress in ripped denim, Vans shoes, and T-shirts. They are worth hundreds of millions, even more, but it's a status symbol to dress like you're homeless to attend board meetings. (Tom Searcy, *CBS Moneywatch*)

Silvia Bellezza (sbellezza@hbs.edu) is a doctoral candidate in marketing, Francesca Gino (fgino@hbs.edu) is associate professor of business administration, and Anat Keinan (akeinan@hbs.edu) is associate professor of marketing at the Harvard Business School, Boston, MA 02163. The authors are grateful for helpful comments received from participants in seminars and lab groups at Harvard and MIT. They thank John T. Gourville, Max H. Bazerman, Zoe Chance, Michael I. Norton, and Natalie Zakarian for their constructive feedback on earlier drafts of the article. The article is based on part of the first author's dissertation.

Mary Frances Luce served as editor and Rebecca Ratner served as associate editor for this article.

Electronically published December 18, 2013

Recommandations  
Thématique + Social  
Scientometrics 2011



Order Effects  
JASIST 2013b



Peer Choice  
BJET 2017



Downright Furies  
Learned Publishing 2017

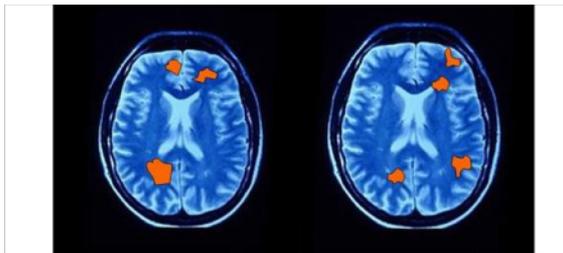


# Visuels tab/fig : solo vs multiauteur

JASIST 2014

# Visuels tab/fig : ♀ vs ♂

Scientometrics 2014a



# Écriture académique non conventionnelle

Festschrift J. Hartley 2015

Anger. "No, we are not acrobats, we do not stand on the shoulders of giants. We are in the field created by human thought—and nothing more." (Nalimov, 1987, p. 303).

# Panorama d'une spécialité via les gatekeepers

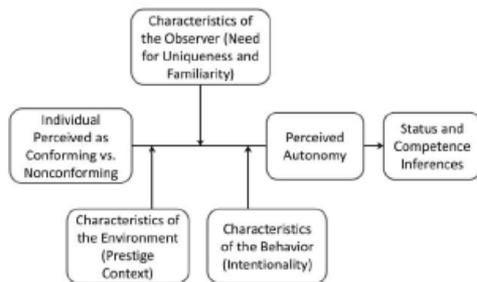
JASIST 2012



40

FIGURE 1

## THEORETICAL FRAMEWORK AND HYPOTHESES



strong disruption and violation of the norm. Accordingly, the manipulations in our studies center on creative nonconformity and avoidance of similarity—that is, manifestations of nonconformity within the realm of commonly accepted behaviors.

Study 1 examines the responses of shop assistants in luxury boutiques in Milan, Italy, and illustrates that noncon-

JOURNAL OF CONSUMER RESEARCH

alizations of nonconforming behavior to luxury stores. In study 1A, we manipulate nonconformity through style of dress (e.g., entering the store wearing a gym outfit vs. a dress), and in study 1B we examine consumers' use of well-known brand names (e.g., wearing a Swatch watch vs. a Rolex). We selected luxury boutiques as an experimental setting due to their established and commonly perceived behavioral norm of elegant dress. Thus, we expect that in this specific context, rather than in ordinary stores, a casual dress style will stand out and will be perceived as a deviation from the established standard. Moreover, we consider the case of people who are either familiar or less familiar with the context being examined by comparing the responses of two samples: shop assistants in luxury shops in downtown Milan, Italy, and women recruited in Milan's central train station. We predict that participants who are familiar with the context (i.e., the shop assistants) will confer greater status to the nonconforming client rather than to the conforming one. However, we expect the effect to be attenuated or even reversed for participants who are less familiar with the context (i.e., pedestrians recruited at the central station). Prior to running studies 1A and 1B, we conducted an exploratory interview in Rome with the store manager of a prestigious luxury brand. According to him, shoppers at high-end boutiques generally wear elegant and expensive clothing, in keeping with the store's luxury atmosphere. How-

# Écriture sur le temps long

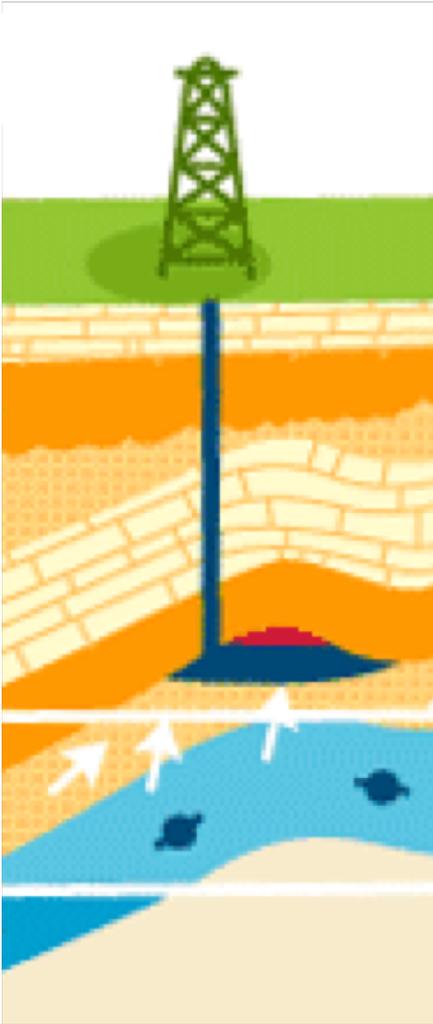
Scientometrics 2015b

Festschrift A. Schubert 2016

# Éponymes

Scientometrics 2014b

# Interroger la science



1. Aperçu des problématiques qui m'ont mobilisé
2. Le texte scientifique
3. Les réseaux scientifiques
4. Le processus d'évaluation
5. Des opportunités...

## Uncitedness III : l'importance de ne pas être cité



**Robert K. Merton**  
1910 - 1992

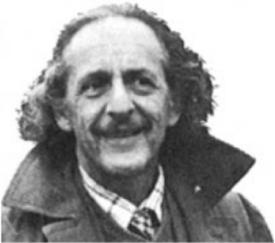
“mnemonic and commemorative device” (p. 121)

Merton, R. K. (1942). Science and technology in a democratic order. *Journal of Legal and Political Sociology*, 1(1), 115–126.

“the practice of **affixing the name of the scientist** to all or part of what he has found, as with the Copernican system, Hooke’s law, Planck’s constant, or Halley’s comet” (p. 643)

Merton, R. K. (1957). Priorities in scientific discovery: A chapter in the sociology of science. *American Sociological Review*, 22(6), 635–659.

### Current Comments<sup>®</sup>



What's in a Name?  
**The Eponymic Route to Immortality**

“Eponyms remind us that science and scholarship are the **work of dedicated people.**” (p. 393)

Number 47

November 21, 1983



# Appréciation implicite *via* les éponymes

## ■ Théories

- The Reward System of Science* (Merton, 1942, 1957)
- Obliteration by Incorporation* (Merton, 1988; McCain, 2011, 2012)
- Non-indexed Eponymal Citedness* (Száva-Kováts, 1994)

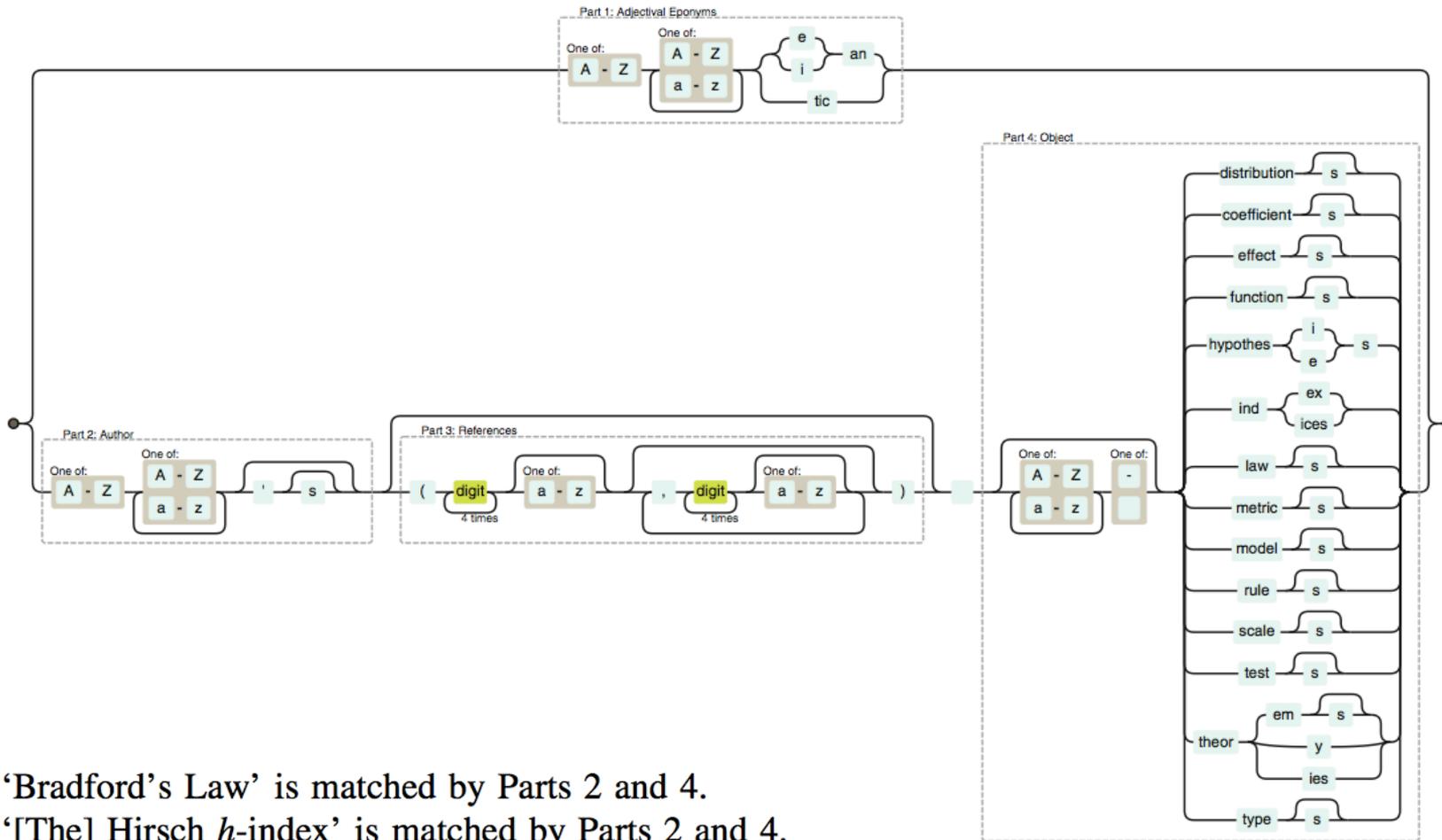
## ■ Extraire et quantifier les éponymes en plein texte

- Connaître les savants les plus influents d'un champ donné
- Amender un dictionnaire d'éponymes
- Identifier les tendances et l'incorporation de méthodes

*I have long worshiped the eponym as one of the last vestiges of humanism remaining in an increasingly numeralized and computerized society.*

(Robertson 1972)

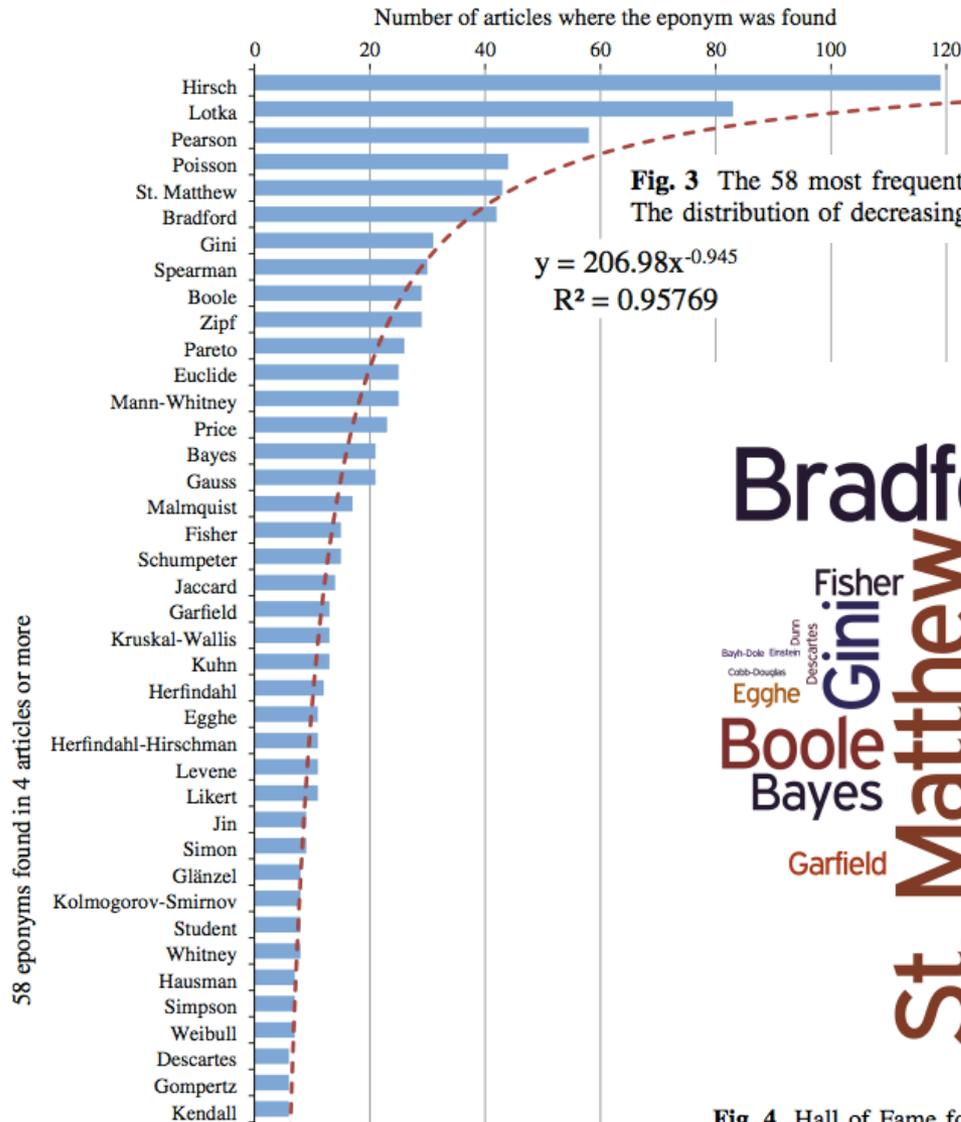
# Moissonnage d'éponymes en plein texte



- ‘Bradford’s Law’ is matched by Parts 2 and 4.
- ‘[The] Hirsch *h*-index’ is matched by Parts 2 and 4.
- ‘Vinkler’s (2010a, 2013)  $\pi_v$ -index’ is matched by Parts 2–4.

Fig. 2 Syntax diagram of the regular expression used in Listing 1 to extract eponyms from text. The upper sub-expression (i.e., Part 1) matches adjectival eponyms (e.g., ‘Mertonian’), whilst the lower sub-expression (i.e., Parts 2–4) matches nominal eponyms, such as ‘Vinkler’s (2010a, 2013)  $\pi_v$ -index.’ This diagram was produced by <http://www.regexp.com>

# Révélation du panthéon scientifique implicite



**Fig. 3** The 58 most frequent person names cited in 821 *Scientometrics* articles published in 2010–2013. The distribution of decreasing name occurrences fits a power law ( $R^2 = 0.9577$ )

$$y = 206.98x^{-0.945}$$

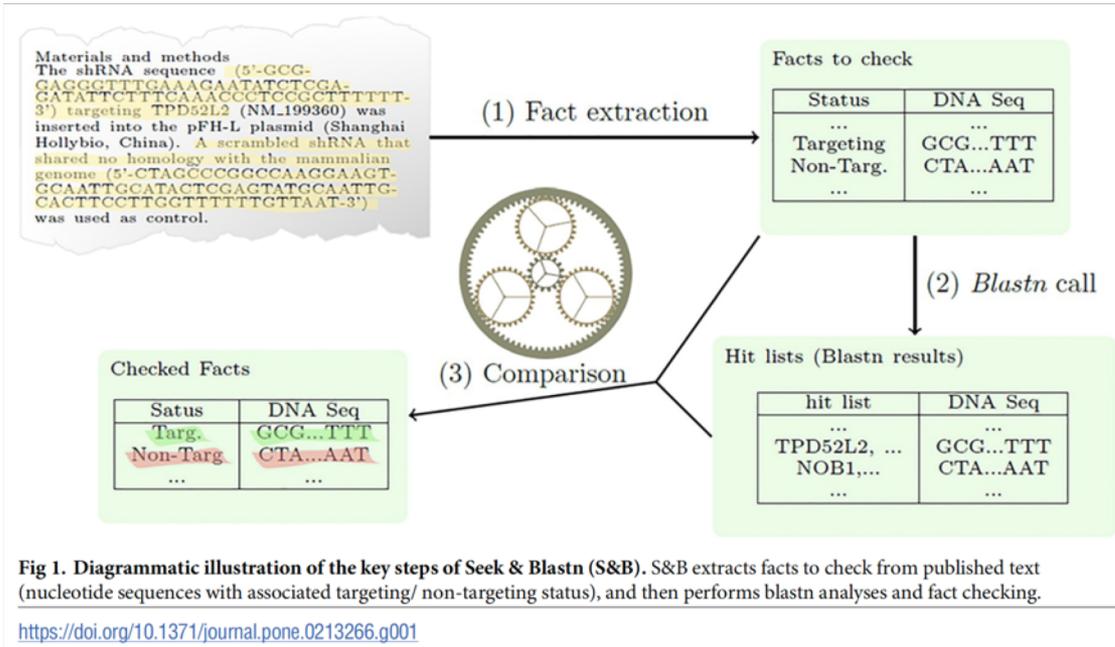
$$R^2 = 0.95769$$



**Fig. 4** Hall of Fame for the eponimised persons extracted from 821 *Scientometrics* articles published in 2010–2013 (see Fig. 3). This word cloud was produced by <http://www.wordle.net>

# Semi-automated fact-checking of nucleotide sequence reagents in biomedical research publications: The Seek & Blastn tool

Cyril Labbé<sup>1\*</sup>, Natalie Grima<sup>2</sup>, Thierry Gautier<sup>3</sup>, Bertrand Favier<sup>4</sup>, Jennifer A. Byrne<sup>2,5\*</sup>



## JENNIFER BYRNE: Error sleuth

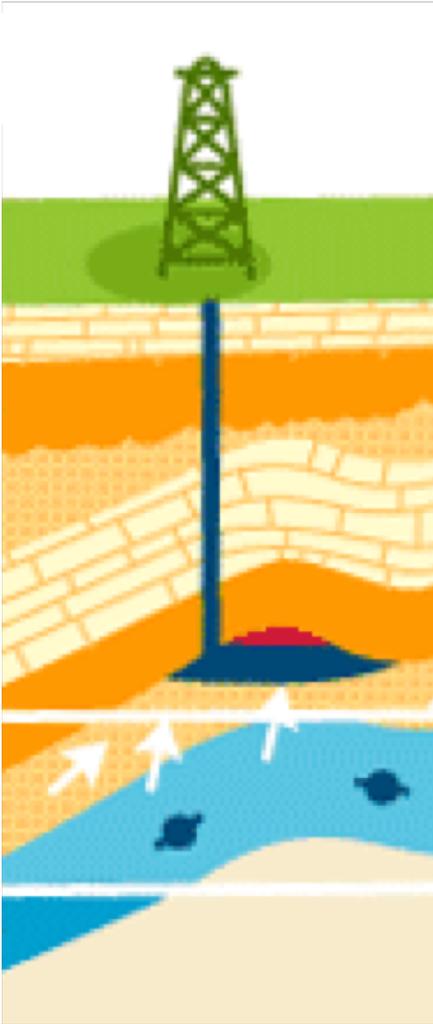
A researcher on a mission to expose flawed papers helped build a tool to detect them.

BY NICKY PHILLIPS

Byrne, who works at the Children's Hospital at Westmead in Sydney, Australia, has so far spotted dozens of papers with DNA-sequence errors. Most of them have other suspicious features, such as poor-quality graphics and chunks of text that overlap with other manuscripts. Byrne suspects misconduct is involved in some cases, although that hasn't been proven.

Her tenacious work is now making waves. Journals have retracted nine papers as a result of Byrne's work — seven this year. And in October, she and French computer scientist Cyril Labbé released an online program called *Seek & Blastn* to help automatically detect similar problems. "When I'm on my deathbed, I'll look back and be really proud of this work," she says.

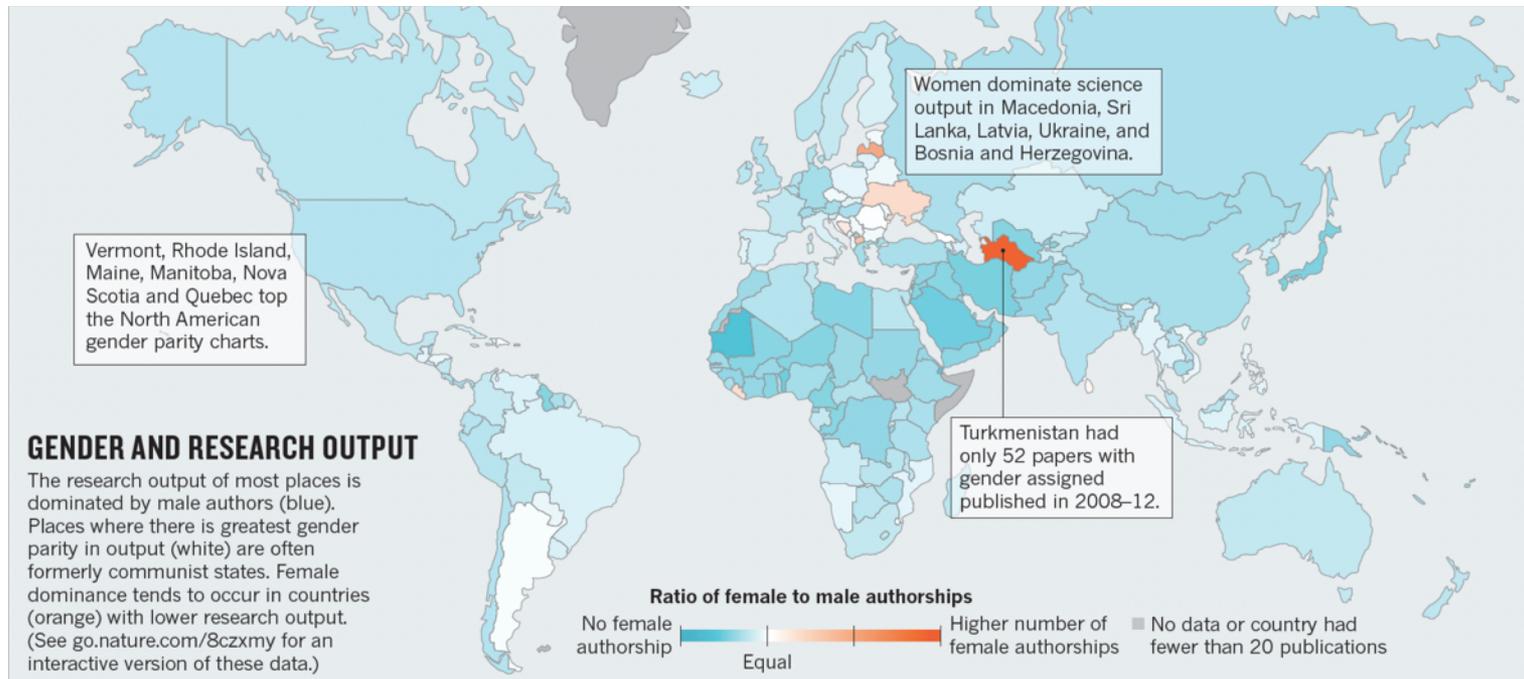
# Interroger la science



1. Aperçu des problématiques qui m'ont mobilisé
2. Le texte scientifique
3. Les réseaux scientifiques
4. Le processus d'évaluation
5. Des opportunités...

# Global gender disparities in science

Cassidy R. Sugimoto and colleagues present a bibliometric analysis confirming that gender imbalances persist in research output worldwide.

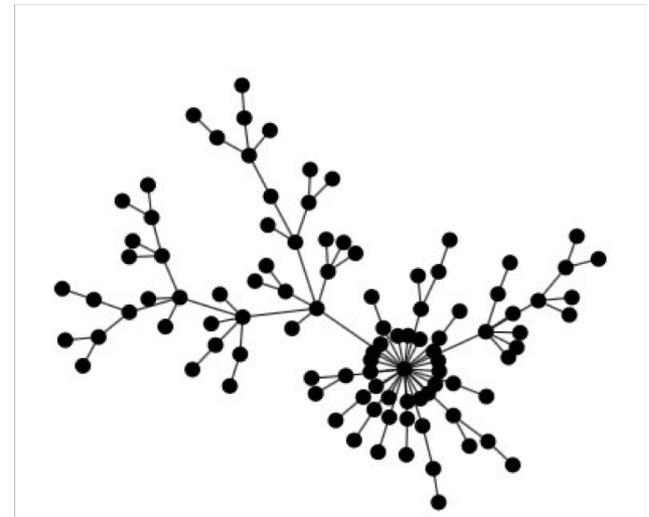


# Emergence of Scaling in Random Networks

Albert-László Barabási\* and Réka Albert

Systems as diverse as genetic networks or the World Wide Web are best described as networks with complex topology. A common property of many large networks is that the vertex connectivities follow a scale-free power-law distribution. This feature was found to be a consequence of two generic mechanisms: (i) networks expand continuously by the addition of new vertices, and (ii) new vertices **attach preferentially** to sites that are already well connected. A model based on these two ingredients reproduces the observed stationary scale-free distributions, which indicates that the development of large networks is governed by robust self-organizing phenomena that go beyond the particulars of the individual systems.

SCIENCE VOL 286 15 OCTOBER 1999



Physica A 311 (2002) 590–614

## Evolution of the social network of scientific collaborations

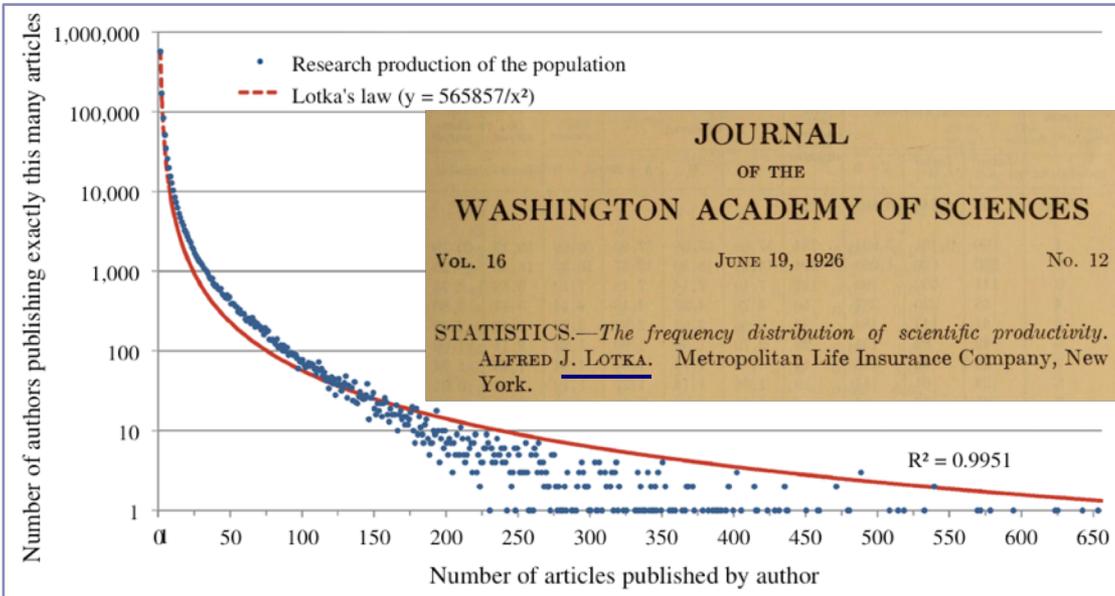
A.L. Barabási<sup>a,b,\*</sup>, H. Jeong<sup>a</sup>, Z. Néda<sup>a,b,c</sup>, E. Ravasz<sup>a</sup>,  
A. Schubert<sup>d</sup>, T. Vicsek<sup>b,e</sup>

these quantities. The results indicate that the network is scale-free, and that the network evolution is governed by preferential attachment, affecting both internal and external links. However, in

(i) *New nodes*: For a new author, that appears for the first time on a publication, preferential attachment has a simple meaning. It is more likely that the first paper will be co-authored with somebody that already has a large number of co-authors (links) that with somebody less connected. As a result “old” authors with more links will increase



La population  
( $N = 1\,870\,054$ )

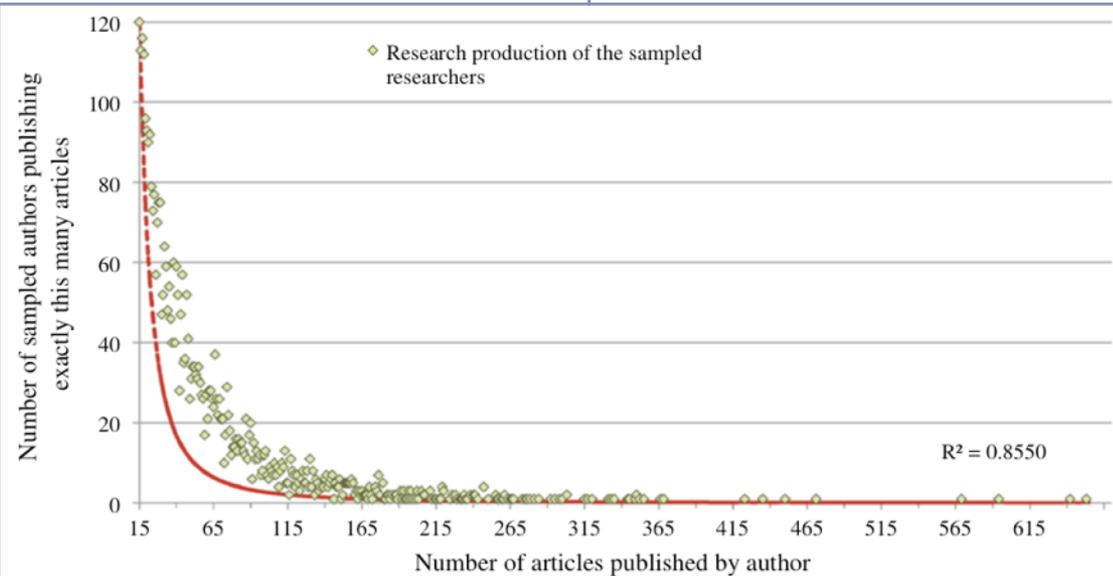


**Fig. 2** Research production of the population of articles ( $N = 1,870,054$ ), as recorded in the DBLP



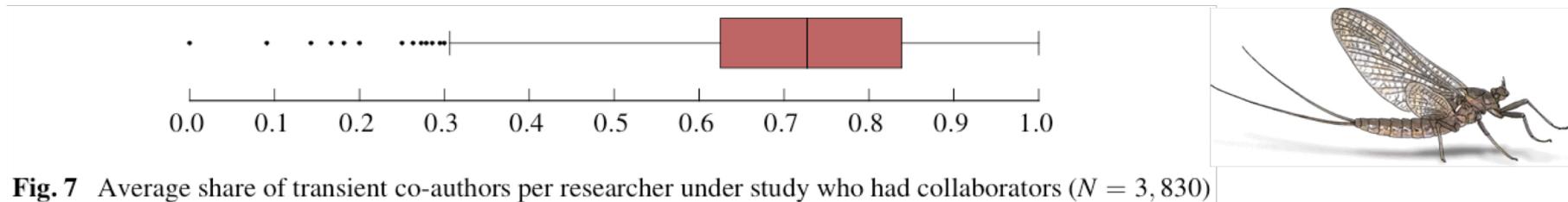
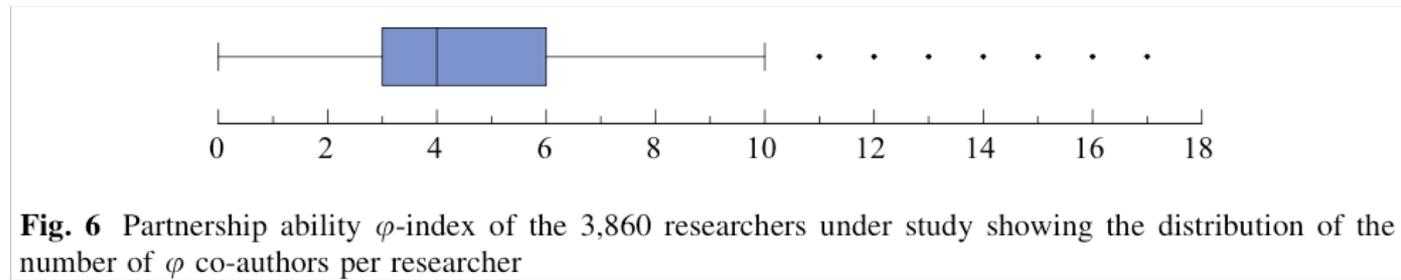
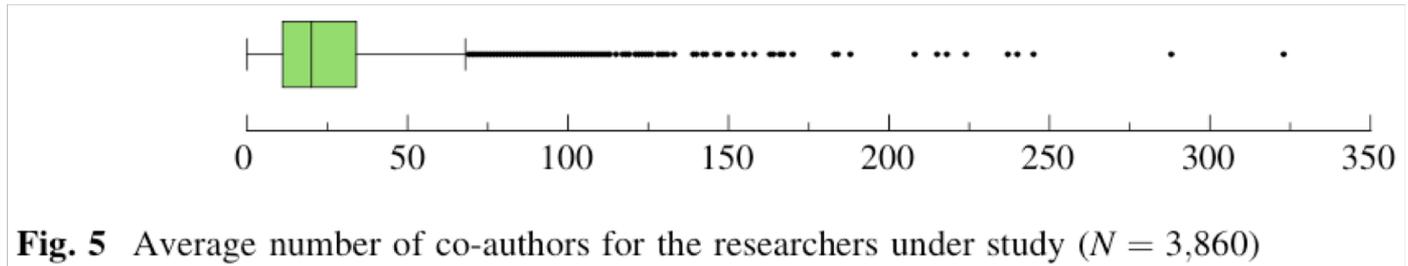
Source: <https://projects.groep.be/~emedia>

L'échantillon des  
« quinquas »  
( $N = 209\,377$ )

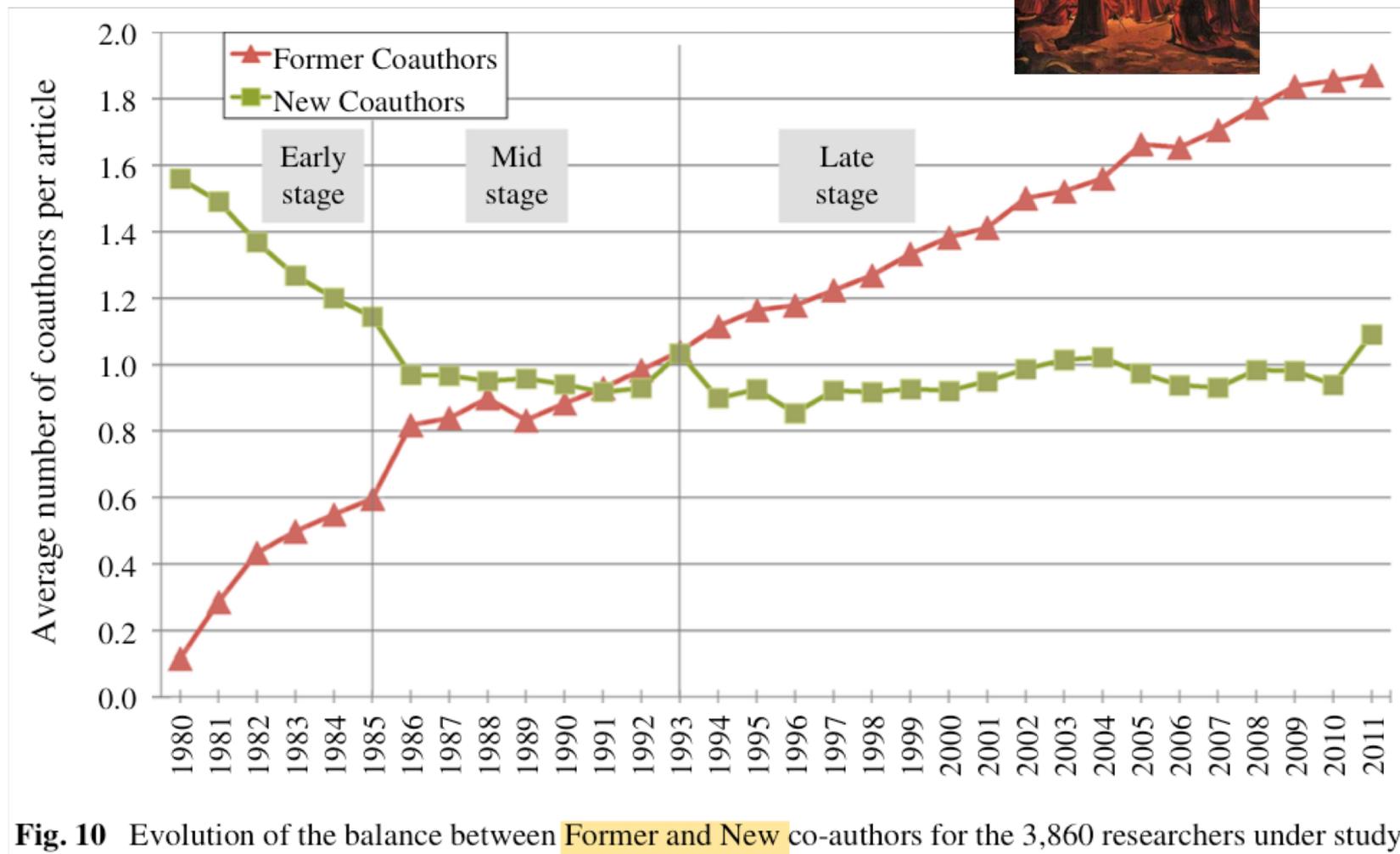


**Fig. 4** Research production of the 3,860 sampled researchers, in terms of conference papers and journal articles ( $N = 209,377$ ), as recorded in the DBLP. This distribution fits the Lotka's law ( $R^2 = 0.8550$ )

# Collaborations entretenues *versus* éphémères

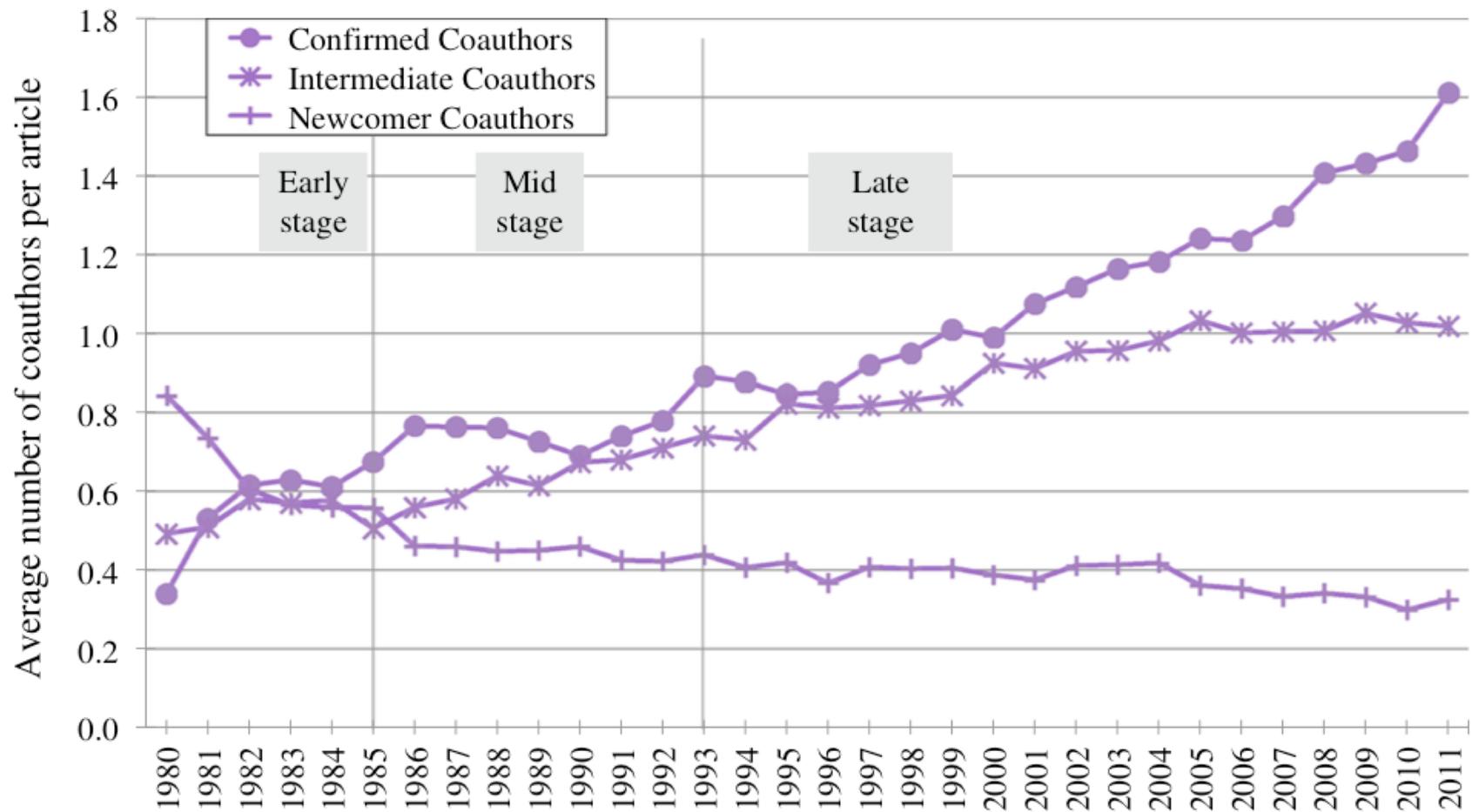


# Renouvellement



**Fig. 10** Evolution of the balance between Former and New co-authors for the 3,860 researchers under study

# Effet Matthieu et homophilie



**Fig. 11** Evolution of the balance between **Newcomer, Intermediate, and Confirmed** co-authors for the 3,860 researchers under study

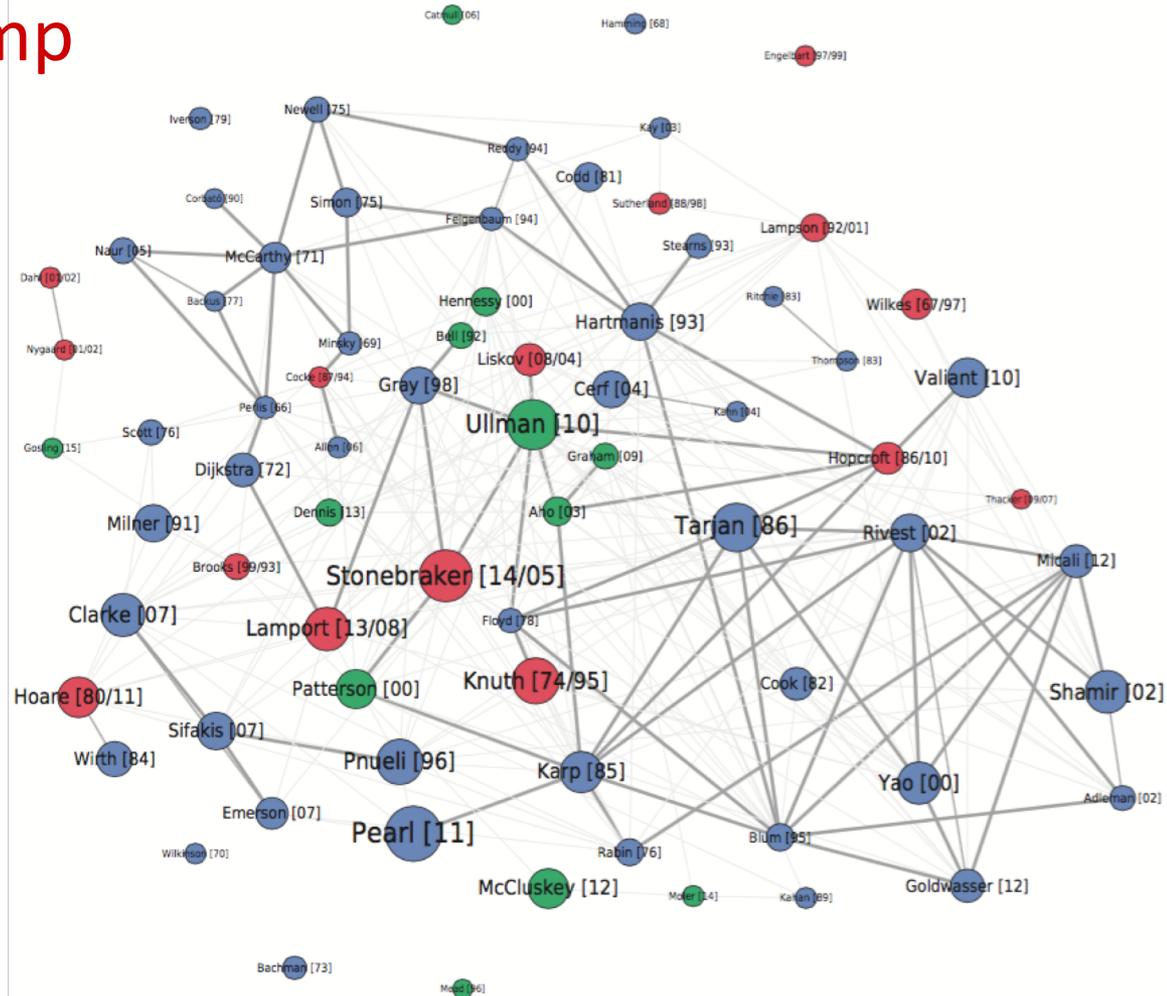
# Positions dans le champ

The network spreads, with complicated inter-connections.



Milgram, S. (1967). The small-world problem. *Psychology Today*, 1(1), 61-67.

Co-authorships of the ACM Turing and IEEE Von Neumann Awardees

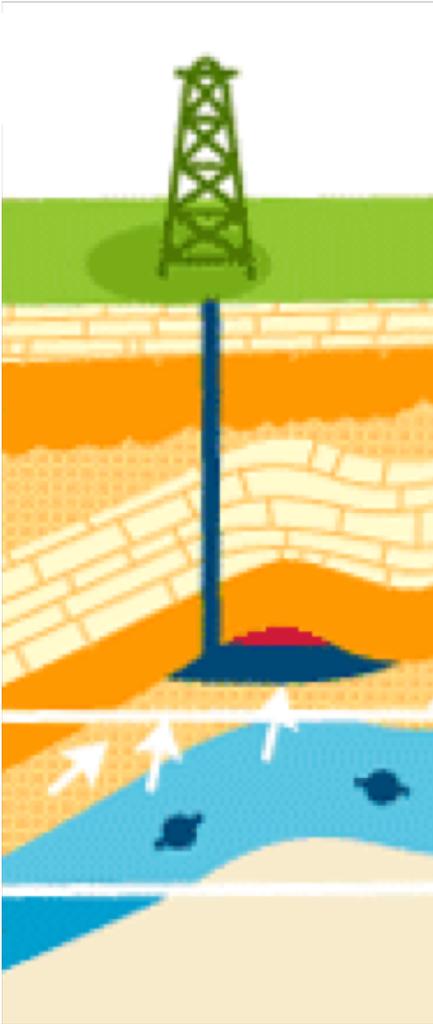


This figure shows the co-authorships of computer scientists who received:

- The ACM A.M. Turing Award
- The IEEE John von Neumann Medal
- Both of these awards

Edges in dark grey link two co-authors. Edges in light grey link two awardees who never co-authored a paper but they share at least one co-author (these are opportunities for collaborations).

# Interroger la science



1. Aperçu des problématiques qui m'ont mobilisé
2. Le texte scientifique
3. Les réseaux scientifiques
4. Le processus d'évaluation
5. Des opportunités...

# Différences entre champs disciplinaires : les confs

DOI:10.1145/1859204.1859234 Massimo Franceschet

## Virtual Extension

### The Role of Conference Publications in CS

*A bibliometric view of the publishing frequency and impact of conference proceedings compared to archival journal publication.*

COMMUNICATIONS OF THE ACM | DECEMBER 2010 | VOL. 53 | NO. 12

DOI:10.1145/1839676.1839701

**Citations represent a trustworthy measure of CS research quality—whether in articles in conference proceedings or in CS journals.**

BY JILL FREYNE, LORCAN COYLE, BARRY SMYTH, AND PADRAIG CUNNINGHAM

## Relative Status of Journal and Conference Publications in Computer Science

Although it is more difficult to get published in journals, the effort is ultimately rewarded with a higher impact.

COMMUNICATIONS OF THE ACM | NOVEMBER 2010 | VOL. 53 | NO. 11



# Conférences : et si la date de soumission importait ?

## ■ Évaluation par les pairs

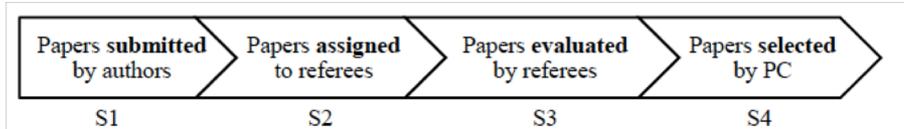


Fig. 1 Stages of the peer review process for conference paper selection

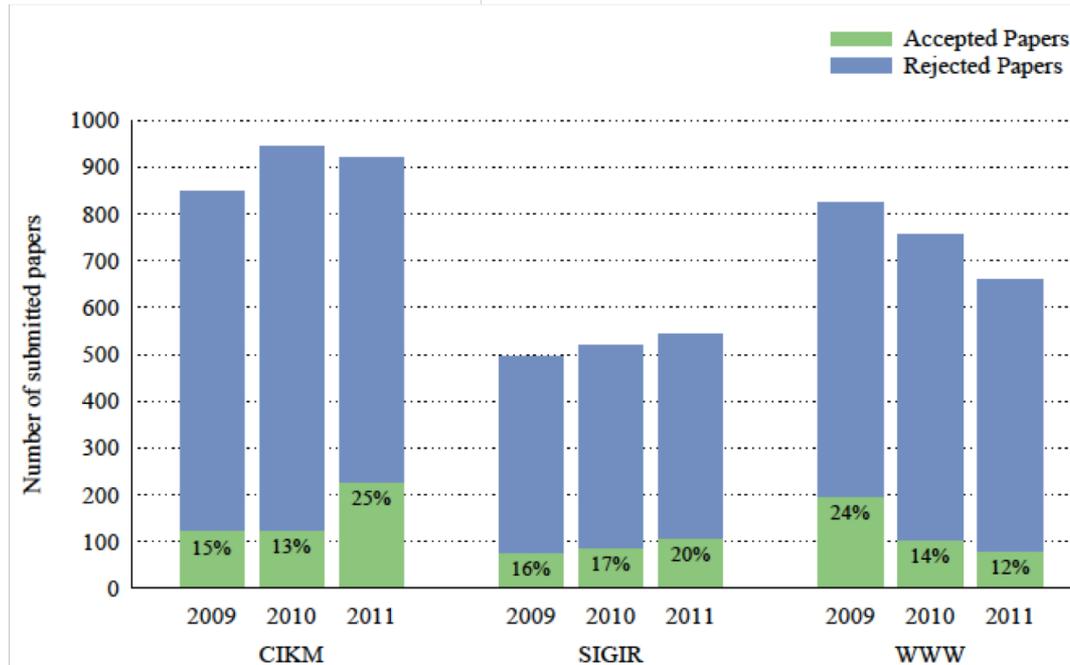


Fig. 2 Number of papers submitted to three leading Computer Science conferences held between 2009 and 2011. Accepted papers are shown in green, while rejected papers are shown in blue. (Source: the ACM Digital Library <http://dl.acm.org>)



PUBLIC OPINION QUARTERLY, FALL, 1954

# Why an Order Effect

By SAM L. BECKER

The author of this article contends that determining the effect of position on an item in a check-list question is much more complicated than is ordinarily assumed. Among the factors which he thinks must be considered are; the setting of the interview, the length of the list, and the length of the questionnaire.

Sam. L. Becker is Associate Professor in the Radio-TV-Film Division of the Speech Department at the University of Iowa.



(Figure 1, it would appear that the later on a check-list that a program type is listed, the less the chance that someone will select it as one of his five favorites. In general, the chances of a program type being chosen as a "favorite" seem to improve steadily as the program type moves from the sixteenth to the first position on the check-list.

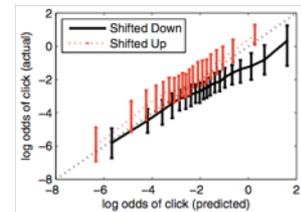


Miller, J.M., & Krosnick, J.A. (1998). The impact of candidate name order on election outcomes. *Public Opinion Quarterly*, 62(3), 291-330. doi:10.1086/297848

Craswell, N., Zoeter, O., Taylor, M., & Ramsey, B. (2008). An experimental comparison of click position-bias models. *WSDM '08: Proceedings of the first ACM international conference on web search and data mining* (pp. 87-94). New York: ACM.



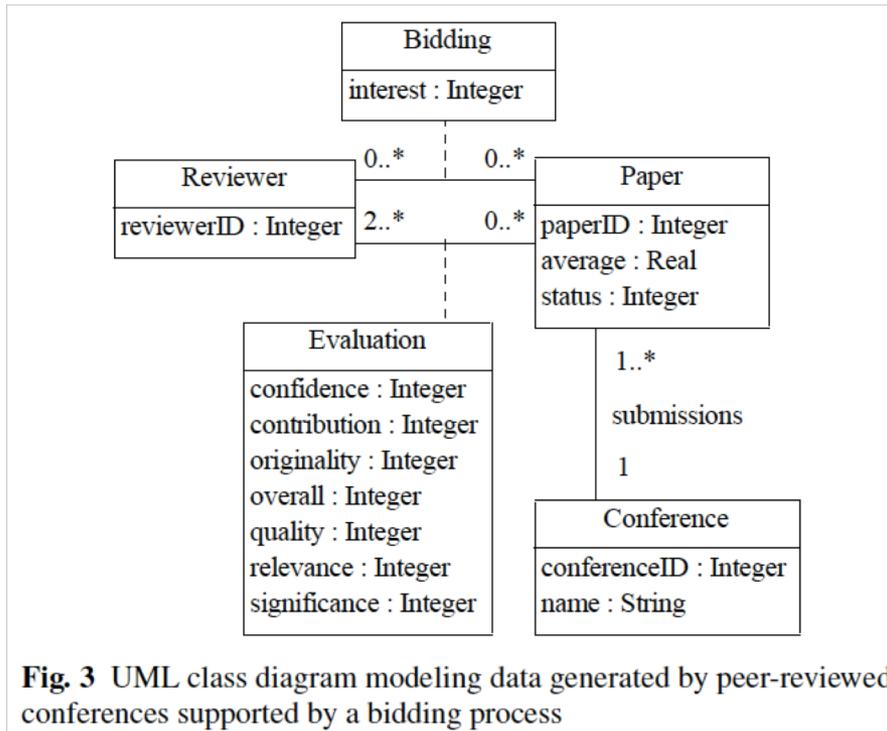
Bruine de Bruin, W. (2005). Save the last dance for me: Unwanted serial position effects in jury evaluations. *Acta Psychologica*, 118(3), 245-260. doi:10.1016/j.actpsy.2004.08.005



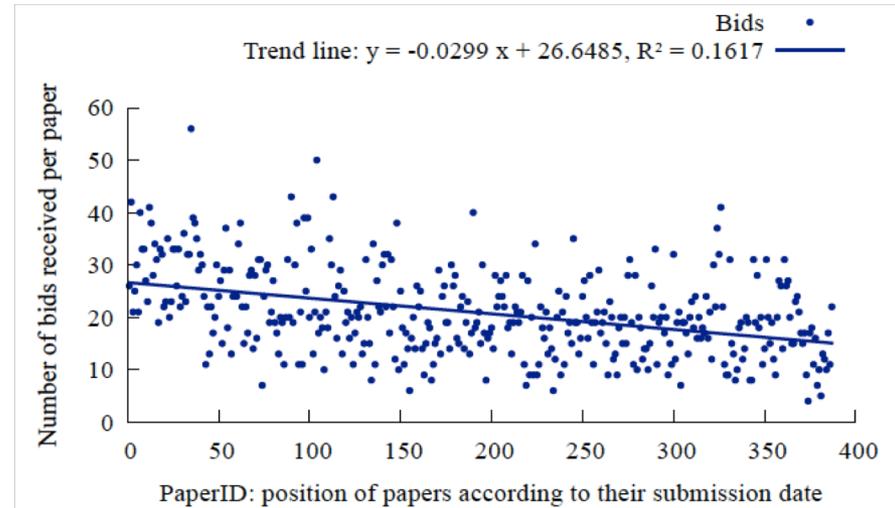
Mantonakis, A., Rodero, P., Lesschaeve, I., & Hastie, R. (2009). Order in choice: Effects of serial position on preferences. *Psychological Science*, 20(11), 1309-1312. doi:10.1111/j.1467-9280.2009.02453.x

# Le biais de la date de soumission

- Données de *ConfMaster* : 42 conférences en informatique



**Fig. 3** UML class diagram modeling data generated by peer-reviewed conferences supported by a bidding process



**Fig. 4** Scatter plot for conference number 3903 (see Appendix A) showing the number of bids received per paper position, as well as the trend line for the data points (linear least squares regression with associated coefficient of determination  $R^2$ )

# Biais de la date de soumission

## ■ Influence sur les enchères (*bids*)

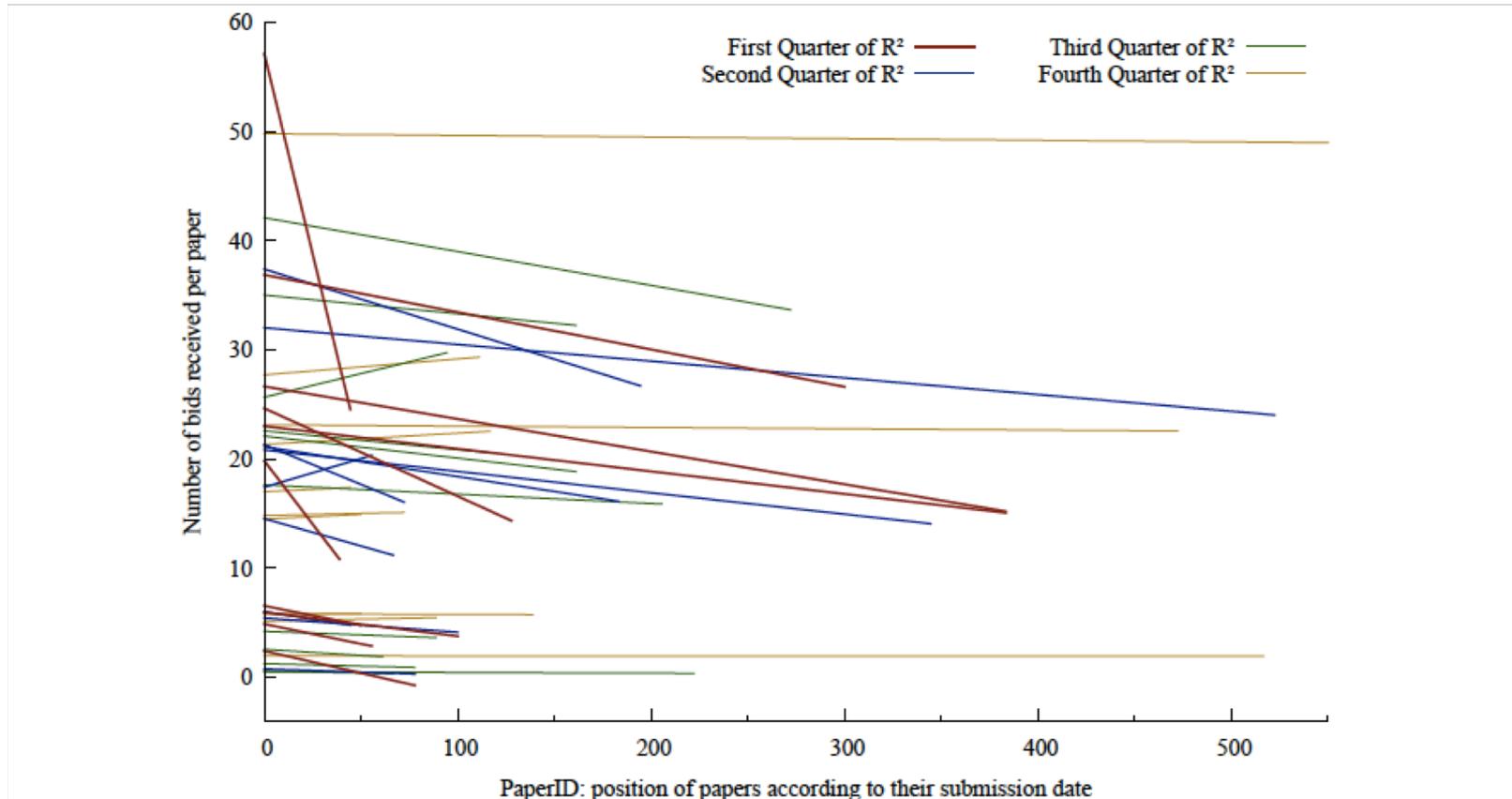
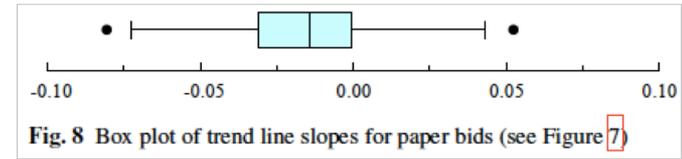


Fig. 7 Trend lines for bids given to papers submitted to the 42 peer-reviewed conferences. Line width is proportional to goodness of fit ( $R^2$ ). Note that the x axis is cut at position 550 for readability concerns (only one conference has 831 papers).

# Faites évaluer par ceux qui le veulent !

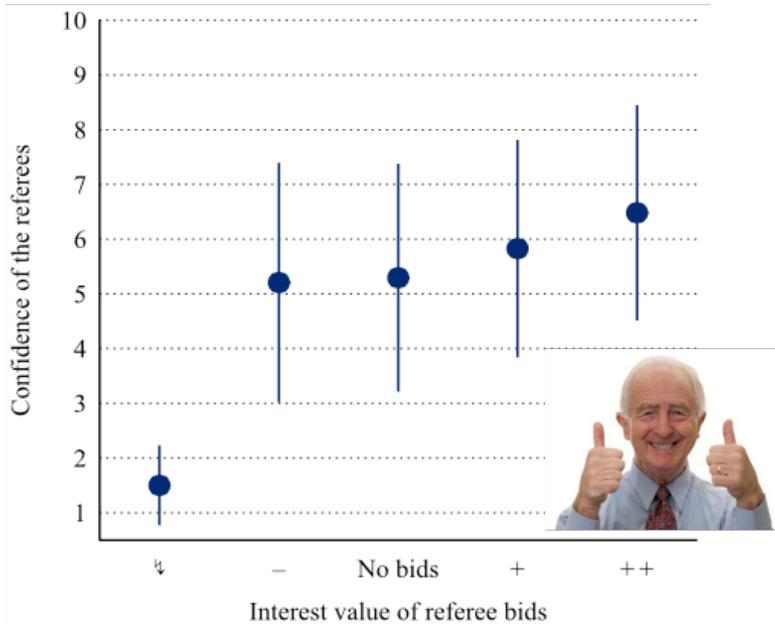


FIG. 9. Confidence of referees as stated in the reviews they made for papers they bid on (with a given interest value) and were assigned to. The mean ( $\mu$ ) and the standard deviation ( $\sigma$ ) of confidence values are showed by bullets ( $\mu$ ) and bars ( $\mu \pm \sigma$ ).

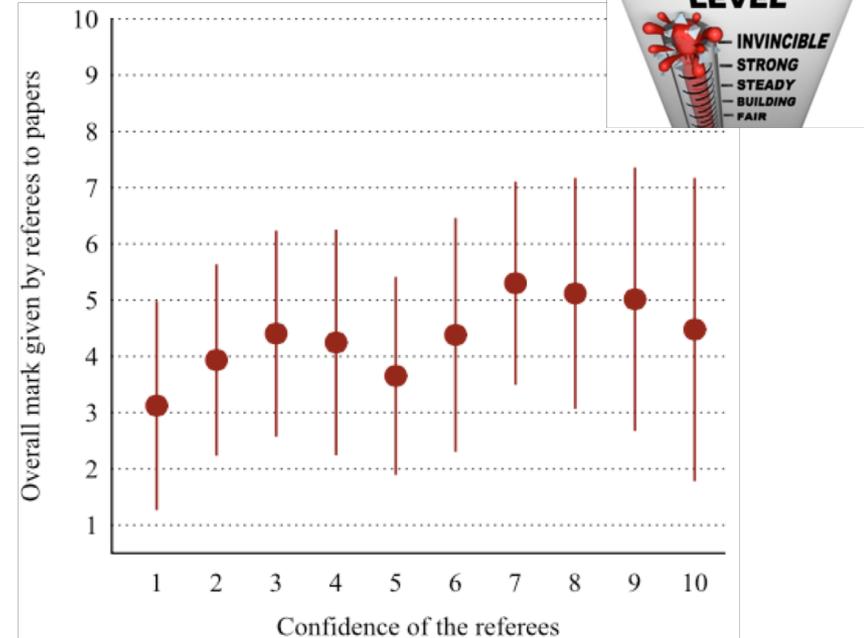
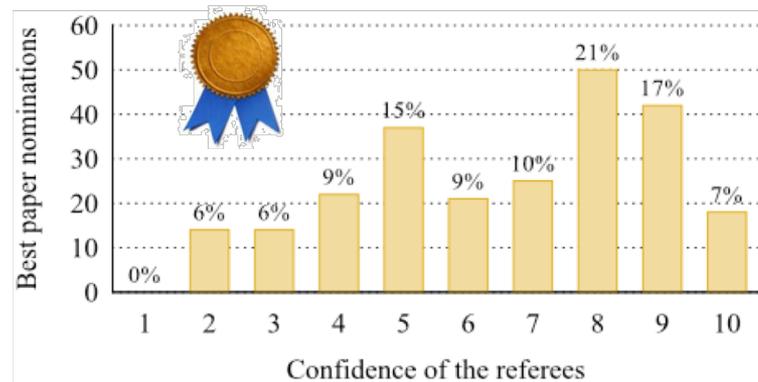


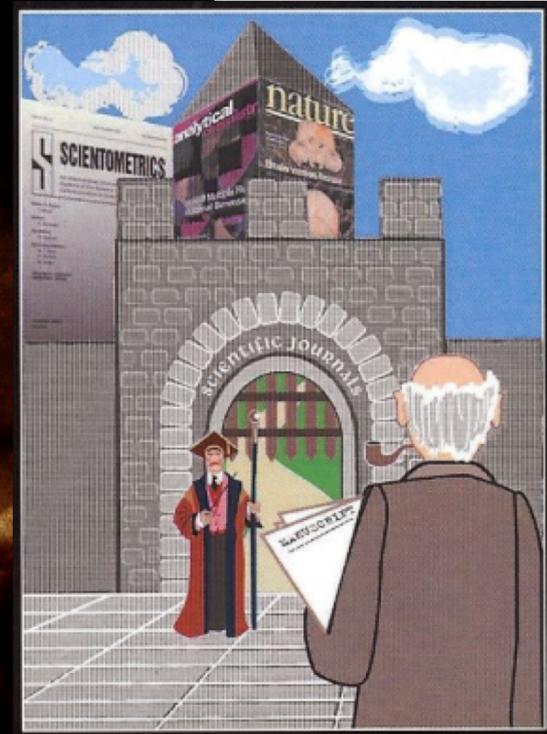
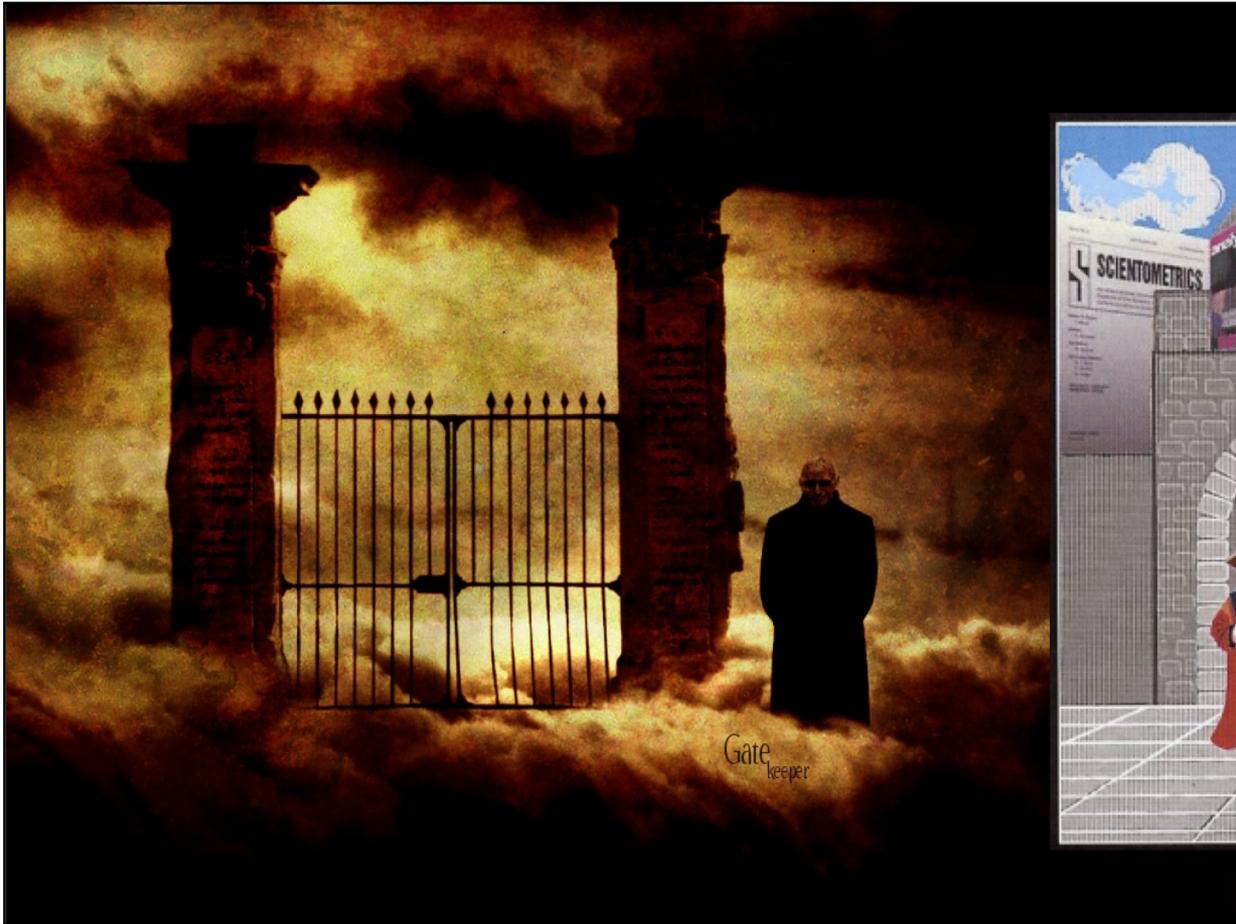
FIG. 12. Overall mark given to papers by referees according to their confidence ( $N = 19,108$  reviews). The mean ( $\mu$ ) and the standard deviation ( $\sigma$ ) of overall mark values are showed by bullets ( $\mu$ ) and bars ( $\mu \pm \sigma$ ).

FIG. 13. Distribution of the 243 best paper nominations (among 19,108 reviews) with respect to referee confidence.





# Les gardiens de l'évaluation par les pairs : *gatekeepers*



(Braun, 2009)



# 77 revues « cœur » en IS selon une autorité : le WoS

**Table 2** Leading 77 IS journals ranked by decreasing 5YJIF. Categories A, B, C, and D are delimited by the quartiles of the 5YJIF distribution

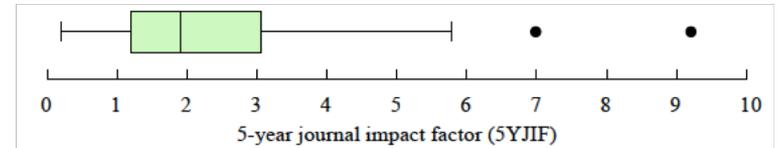
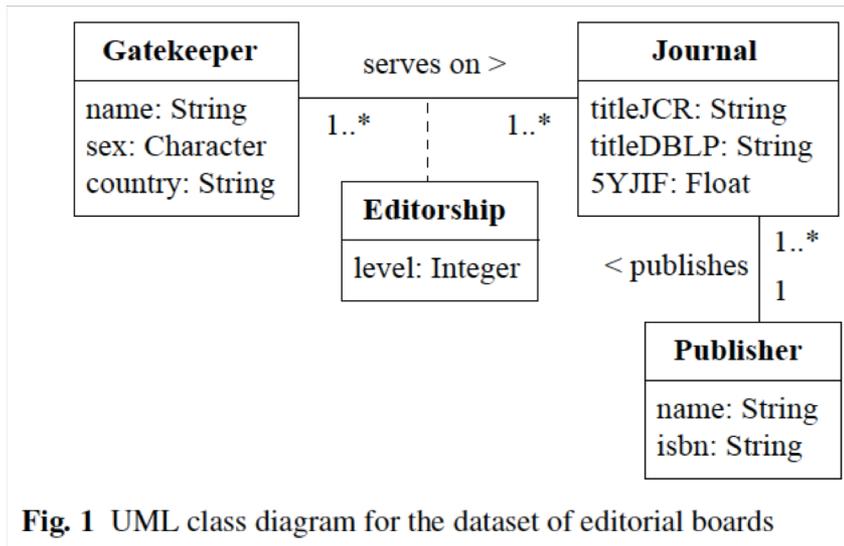
Rank	JCR abbreviated title	Publisher	5YJIF	Category	Rank	JCR abbreviated title	Publisher	5YJIF	Category
1	<i>Mis Quart</i>	U. Minnesota	9.208	A	40	<i>IEEE Secur Priv</i>	IEEE	1.830	C
2	<i>VLDB J</i>	Springer	6.987	A	41	<i>Wirel Netw</i>	Springer	1.784	C
3	<i>ACM T Inform Syst</i>	ACM	5.774	A	42	<i>Inform Retrieval</i>	Springer	1.752	C
4	<i>J Am Med Inform Assn</i>	BMJ	5.199	A	43	<i>Mobile Netw Appl</i>	Springer	1.725	C
5	<i>IEEE T Wirel Commun</i>	IEEE	4.534	A	44	<i>Comput Secur</i>	Springer	1.718	C
6	<i>Data Min Knowl Disc</i>	Springer	4.432	A	45	<i>Comput Netw</i>	Elsevier	1.610	C
7	<i>IEEE Pervas Comput</i>	IEEE	4.395	A	46	<i>World Wide Web</i>	Springer	1.564	C
8	<i>Inform Manage-Amster</i>	Elsevier	4.297	A	47	<i>Distrib Parallel Dat</i>	Springer	1.543	C
9	<i>J ACM</i>	ACM	4.200	A	48	<i>Eur J Inform Syst</i>	Palgrave	1.534	C
10	<i>IEEE T Mobile Comput</i>	IEEE	3.956	A	49	<i>Int J Coop Inf Syst</i>	World Scientific	1.468	C
11	<i>IEEE T Inform Theory</i>	IEEE	3.936	A	50	<i>Inform Syst Manage</i>	Taylor & Francis	1.436	C
12	<i>IEEE T Knowl Data En</i>	IEEE	3.691	A	51	<i>Inform Software Tech</i>	Elsevier	1.426	C
13	<i>IEEE T Depend Secure</i>	IEEE	3.649	A	52	<i>Geoinformatica</i>	Springer	1.396	C
14	<i>J Chem Inf Model</i>	ACS	3.631	A	53	<i>J Vis Commun Image R</i>	Elsevier	1.389	C
15	<i>IEEE Network</i>	IEEE	3.529	A	54	<i>Int J Inf Tech Decis</i>	World Scientific	1.379	C
16	<i>ACM T Database Syst</i>	ACM	3.290	A	55	<i>Internet Res</i>	Emerald	1.346	C
17	<i>J Manage Inform Syst</i>	M.E. Sharpe	3.215	A	56	<i>Inform Syst Front</i>	Springer	1.298	C
18	<i>Inform Sciences</i>	Elsevier	3.089	A	57	<i>J Intell Inf Syst</i>	Springer	1.207	C
19	<i>Enterp Inform Syst</i>	Elsevier	3.085	A	58	<i>Comput J</i>	Oxford	1.194	C
20	<i>Int J Med Inform</i>	Elsevier	3.061	A	59	<i>Online Inform Rev</i>	Emerald	1.111	D
21	<i>Decis Support Syst</i>	Elsevier	2.842	B	60	<i>Comput Commun Rev</i>	ACM	1.079	D
22	<i>ACM T Web</i>	ACM	2.813	B	61	<i>Acta Inform</i>	Springer	1.072	D
23	<i>ACM T Auton Adap Sys</i>	ACM	2.707	B	62	<i>Comput Commun</i>	Elsevier	1.012	D
24	<i>J Inf Technol</i>	Palgrave	2.664	B	63	<i>Int J Distrib Sens N</i>	Taylor & Francis	0.882	D
25	<i>J Strategic Inf Syst</i>	Elsevier	2.531	B	64	<i>Inform Process Lett</i>	Elsevier	0.877	D
26	<b><i>J Am Soc Inf Sci Tec</i></b>	<b>Wiley</b>	<b>2.480</b>	<b>B</b>	65	<i>Informatica-Lithuan</i>	IOS Press	0.854	D
27	<i>IEEE T Multimedia</i>	IEEE	2.372	B	66	<i>Multimedia Syst</i>	Springer	0.852	D
28	<i>Int J Geogr Inf Sci</i>	Taylor & Francis	2.303	B	67	<i>J Org Comp Elect Com</i>	Taylor & Francis	0.851	D
29	<i>Inform Syst</i>	Elsevier	2.302	B	68	<i>IEEE Syst J</i>	IEEE	0.825	D
29	<i>Knowl Inf Syst</i>	Springer	2.302	B	69	<i>J Res Pract InfTech</i>	ACS	0.752	D
31	<i>IEEE T Inf Technol B</i>	IEEE	2.268	B	70	<i>Multimedia Tools Appl</i>	Springer	0.712	D
32	<i>SIGMOD Rec</i>	ACM	2.224	B	71	<i>J Signal Process Sys</i>	Springer	0.578	D
33	<i>Inform Process Manag</i>	Elsevier	2.106	B	72	<i>Sci China Ser F</i>	Springer	0.473	D
34	<i>Wirel Commun Mob Com</i>	Wiley	2.069	B	73	<i>Bell Labs Tech J</i>	Wiley	0.459	D
35	<i>Data Knowl Eng</i>	Elsevier	2.053	B	74	<i>RAIRO-Theor Inf Appl</i>	EDP Sciences	0.451	D
35	<i>J Database Manage</i>	IGI Global	2.053	B	75	<i>J High Speed Netw</i>	IOS Press	0.442	D
37	<i>IEEE Multimedia</i>	IEEE	2.020	B	76	<i>J Inf Sci Eng</i>	Academia Sinica	0.390	D
38	<i>J Inf Sci</i>	Sage	1.996	B	77	<i>KSII T Internet Inf</i>	KSII	0.200	D
39	<i>Requir Eng</i>	Springer	1.907	B					

THOMSON REUTERS  
WEB OF SCIENCE

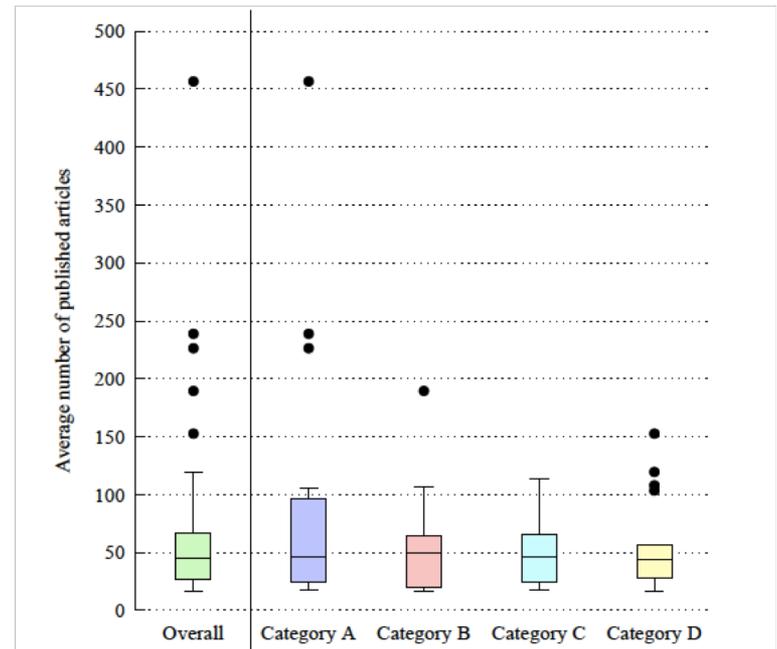


# Analyse exploratoire des données recueillies

- 77 revues
- 2 846 *gatekeepers*



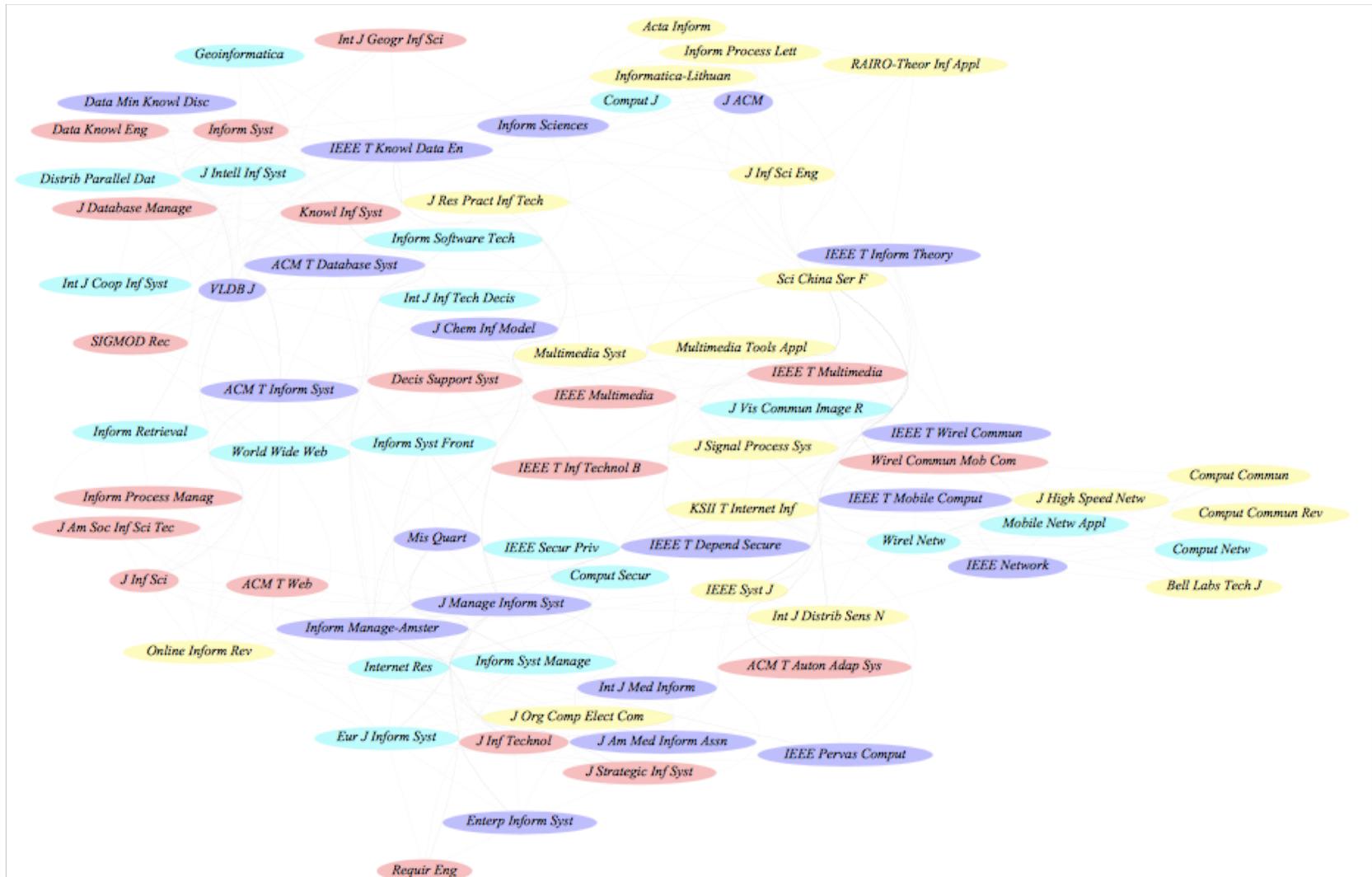
**Fig. 2** Box plot of 5YJIF values for the 77 leading IS journals



**Fig. 4** Box plots of the average number of published articles per year for the 77 leading IS journals

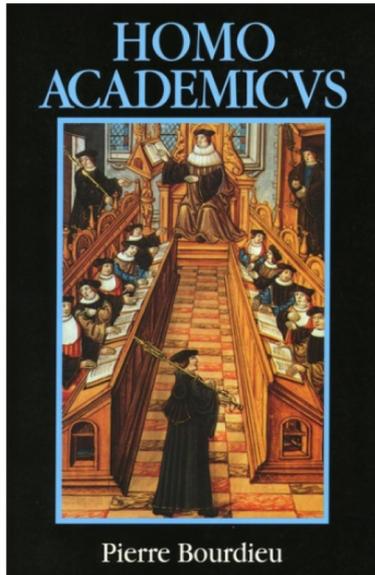


# Graphe thématique des 77 revues référencées en SI



**Fig. 9** Map of the 77 leading IS journals laid out according to their topic similarity. Each vertex of the graph represents a journal, whose category is shown by the color of the vertex ( A , B , C , or D ). An edge connects two vertices; its length is inversely proportional to similarity between the vertices. Vertices were laid out using Kamada and Kawai's (1989) force-directed placement algorithm.

# Influence, pouvoir, verrouillage...



(1984)

**Table 4** Top 50 gatekeepers serving on the 77 leading IS journals in year 2011

Rank	Gatekeepers' involvement				Gatekeepers' weighted involvement			
	Gatekeeper	Country	Sex	#Journals	Gatekeeper	Country	Sex	Score
1	Elisa Bertino	us	f	8	Elisa Bertino	us	f	3.50
2	Andrew B. Whinston	us	m	5	Andrew B. Whinston	us	m	3.17
3	Athanasios V. Vasilakos	gr	m	5	Hsiao-Hwa Chen	tw	m	2.58
4	Benjamin W. Wah	us	m	5	Benjamin W. Wah	us	m	2.25
5	Qian Zhang	hk	f	5	Anthony S. Acampora	us	m	2.17
6	Anthony S. Acampora	us	m	4	Pericles Loucopoulos	uk	m	2.17
7	Edward A. Fox	us	m	4	Justin Zobel	au	m	2.08
8	Fabio Crestani	ch	m	4	Imrich Chlamtac	it	m	2.00
9	Hsiao-Hwa Chen	tw	m	4	Qian Zhang	hk	f	2.00
10	Johannes Gehrke	us	m	4	Fabio Crestani	ch	m	1.92
11	Justin Zobel	au	m	4	James R. Marsden	us	m	1.92
12	Kalle Lyytinen	us	m	4	Lotfi A. Zadeh	us	m	1.92
13	Lotfi A. Zadeh	us	m	4	Ricardo A. Baeza-Yates	cl	m	1.92
14	Matthias Jarke	de	m	4	Amit P. Sheth	us	m	1.83
15	Robert J. Kauffman	us	m	4	Beng Chin Ooi	sg	m	1.83
16	Sid L. Huff	nz	m	4	Mike P. Papazoglou	nl	m	1.83
17	Sudha Ram	us	f	4	Sudha Ram	us	f	1.83
18	Aidong Zhang	us	f	3	Leonid Libkin	uk	m	1.75
19	Amit P. Sheth	us	m	3	Marianne Winslett	us	f	1.75
20	Andrzej Skowron	pl	m	3	Robert J. Kauffman	us	m	1.75
21	Antonio Capone	it	m	3	Ugur Çetintemel	us	m	1.75
22	Athman Bouguettaya	au	m	3	Athanasios V. Vasilakos	gr	m	1.67
23	Beng Chin Ooi	sg	m	3	Clyde W. Holsapple	us	m	1.67
24	Bernard C. Y. Tan	sg	m	3	Gary J. Koehler	us	m	1.67
25	Blaize Horner Reich	ca	f	3	Kian-Lee Tan	sg	m	1.67
26	Bruce W. Weber	uk	m	3	Leonard Kleinrock	us	m	1.67
27	ChengXiang Zhai	us	m	3	Mischa Schwartz	us	m	1.67
28	Chris Jermaine	us	m	3	Mohsen Guizani	kw	m	1.67
29	Christina Fragouli	ch	f	3	Philip A. Bernstein	us	m	1.67
30	Colette Rolland	fr	f	3	Sid L. Huff	nz	m	1.67
31	Daniel Dajun Zeng	us	m	3	Wen-Lian Hsu	tw	m	1.67
32	David L. Olson	us	m	3	Witold Pedrycz	ca	m	1.67
33	Dominik Slezak	ca	m	3	Keng Siau	us	m	1.60
34	Douglas W. Oard	us	m	3	Edward A. Fox	us	m	1.58
35	Eddie M. Rasmussen	us	f	3	Johannes Gehrke	us	m	1.58
36	Fabrizio Sebastiani	it	m	3	Minho Jo	kr	m	1.58
37	Gary J. Koehler	us	m	3	Bernard C. Y. Tan	sg	m	1.50
38	Hasan Pirkul	us	m	3	ChengXiang Zhai	us	m	1.50
39	Ian Ruthven	uk	m	3	Erol Gelenbe	uk	m	1.50
40	Iris Vessey	us	f	3	Ling Liu	us	f	1.50
41	James R. Marsden	us	m	3	Marek Rusinkiewicz	us	m	1.50
42	Javier Lopez	es	m	3	Nigel Davies	uk	m	1.50
43	Jayant R. Haritsa	in	m	3	Prabuddha De	us	m	1.50
44	Jiangchuan Liu	ca	m	3	Richard Baskerville	us	m	1.50
45	John C. Henderson	us	m	3	Srinivasan Keshav	ca	m	1.50
46	John Leslie King	us	m	3	Vijay K. Vaishnavi	us	m	1.50
47	Jon Crowcroft	uk	m	3	Matthias Jarke	de	m	1.48
48	Kar Yan Tam	hk	m	3	Siheh Amer-Yahia	us	f	1.42
49	Kian-Lee Tan	sg	m	3	Kalle Lyytinen	us	m	1.40
50	Leonard Kleinrock	us	m	3	Colette Rolland	fr	f	1.35

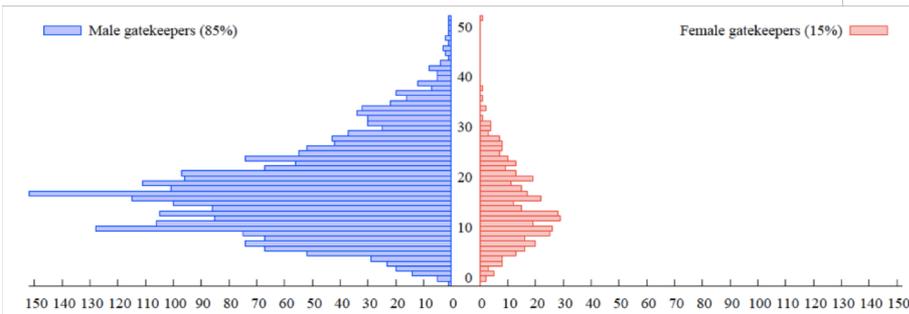
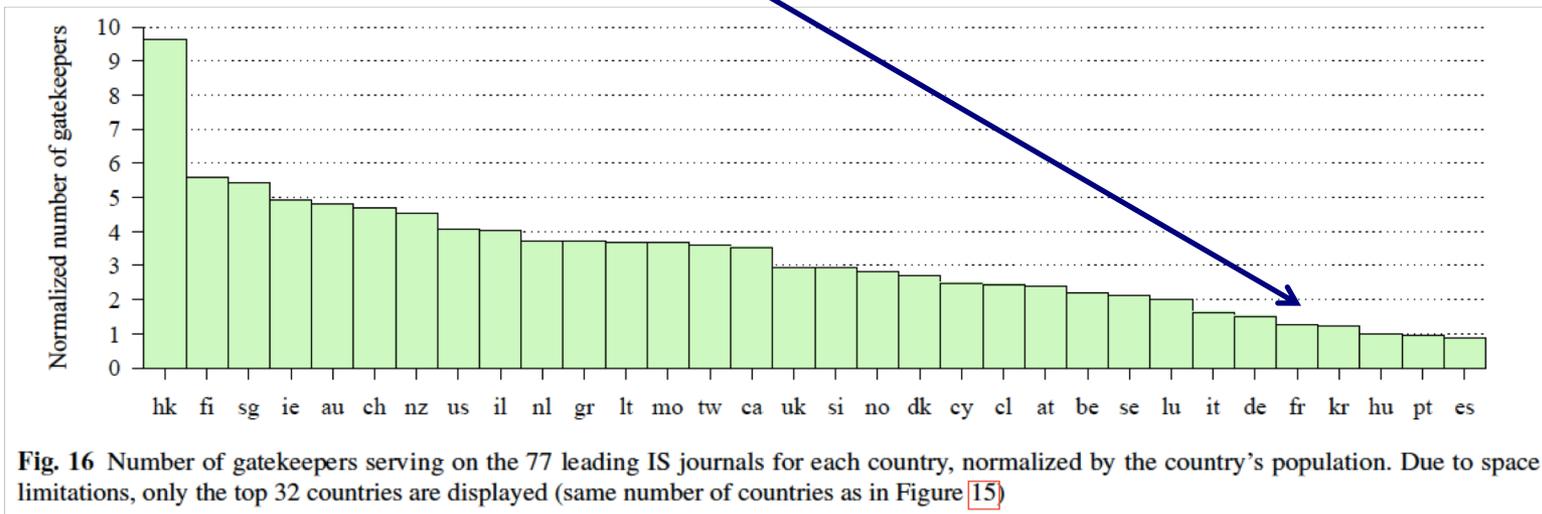
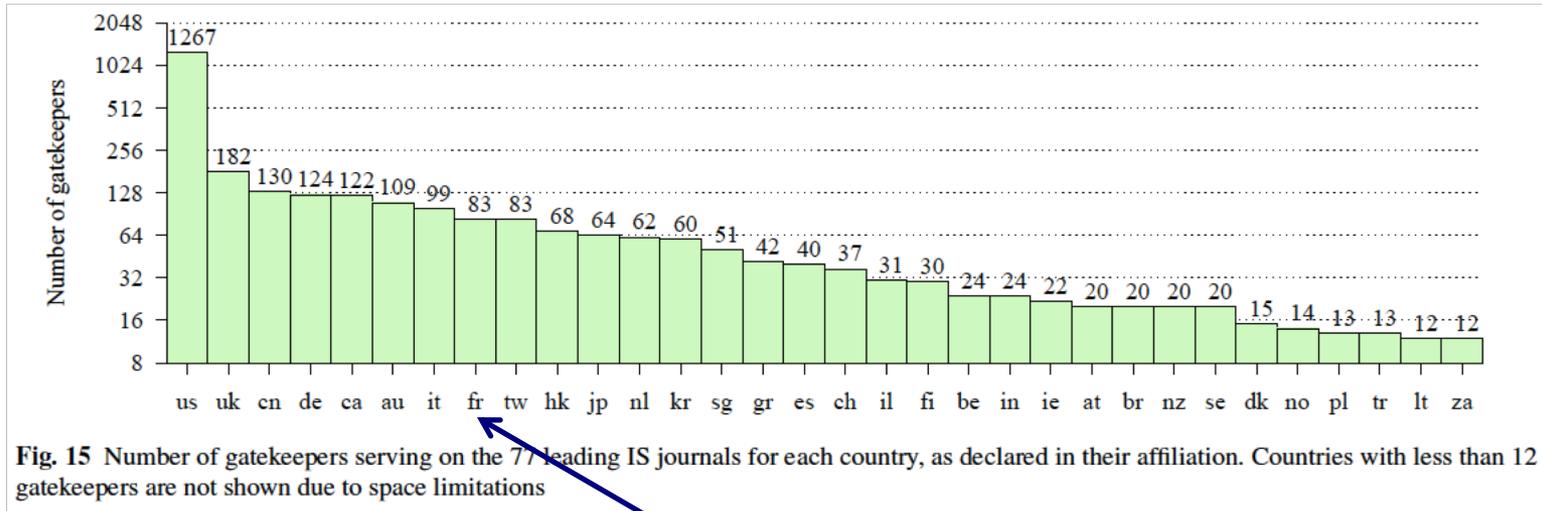
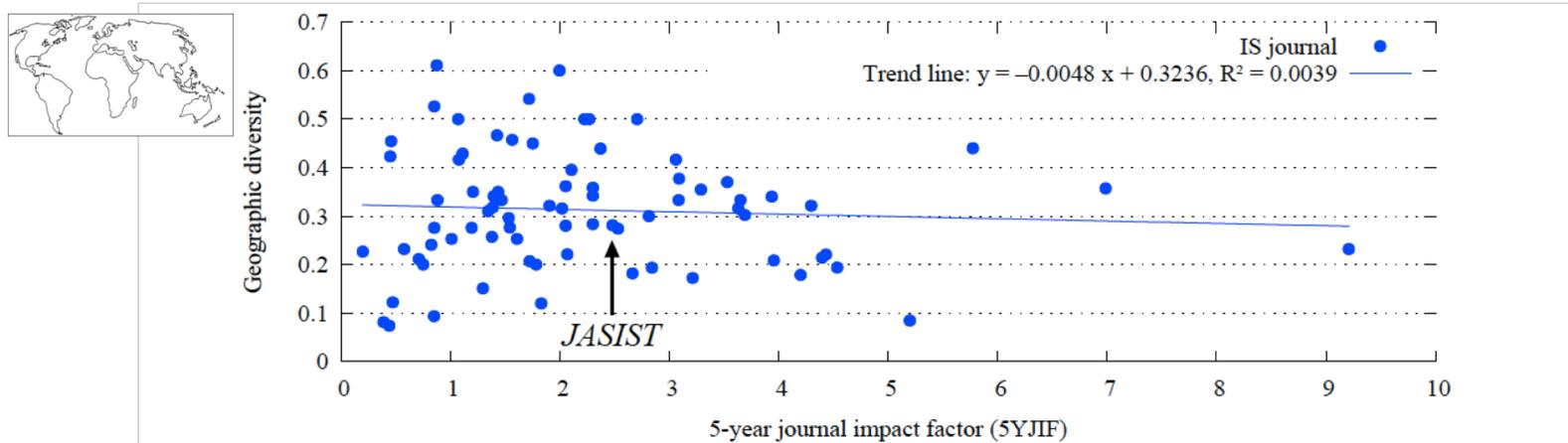


Fig. 12 Population pyramid of gatekeepers serving on the 77 leading IS journals, showing the distribution of seniority (i.e., number of years since first published scholarly article) with respect to gender

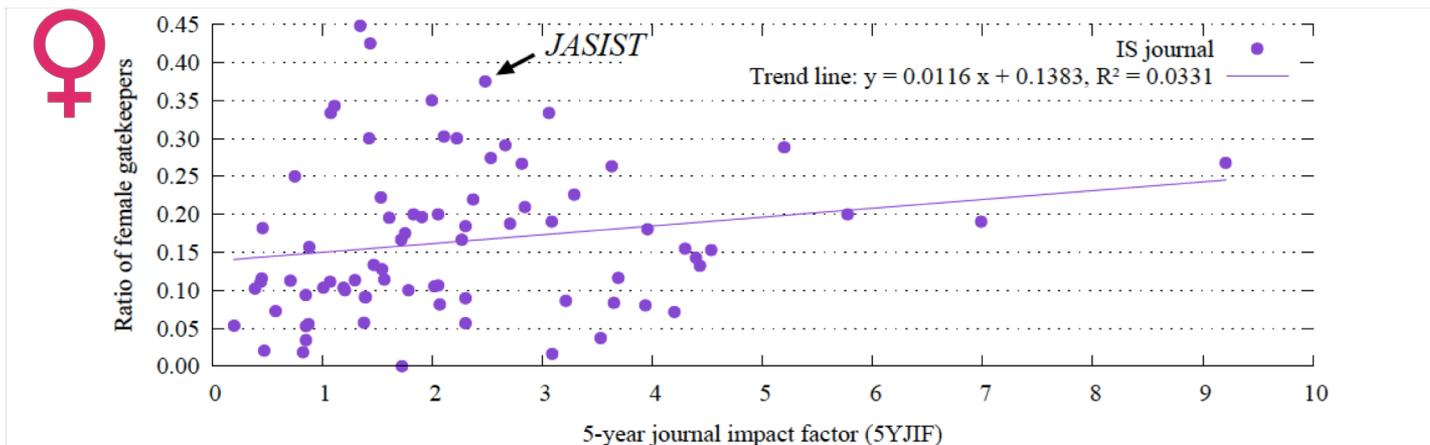
# Un siège à la table des négociations ?



# (Manque de) Diversité géographique et de genre

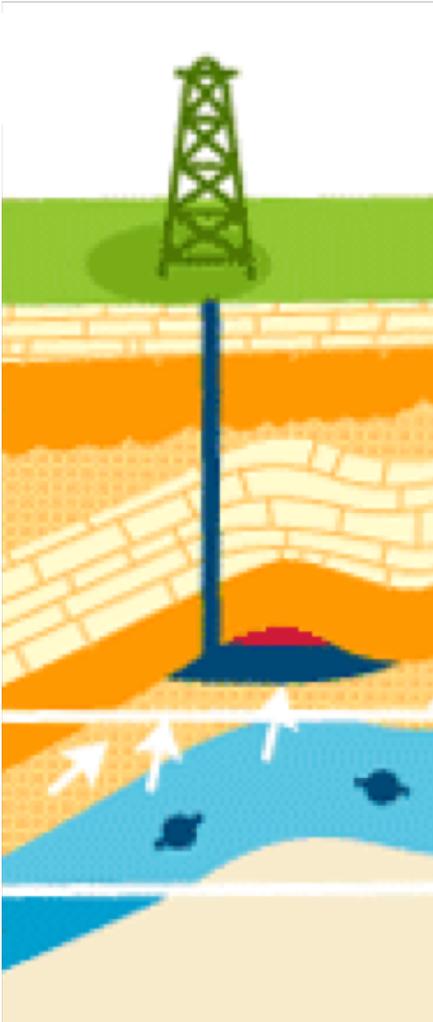


**Fig. 19** Scatter plot showing the geographic diversity of gatekeepers in the 77 leading IS journals. Each data point represents a journal according to its 5YJIF (x axis) and its geographic diversity: the ratio of distinct countries from editors' affiliations over the number of editors serving on its editorial board (y axis)



**Fig. 21** Scatter plot showing the proportion of female gatekeepers in the boards of the 77 leading IS journals. Each data point represents a journal according to its 5YJIF (x axis) and the ratio of female over male gatekeepers serving on its board (y axis)

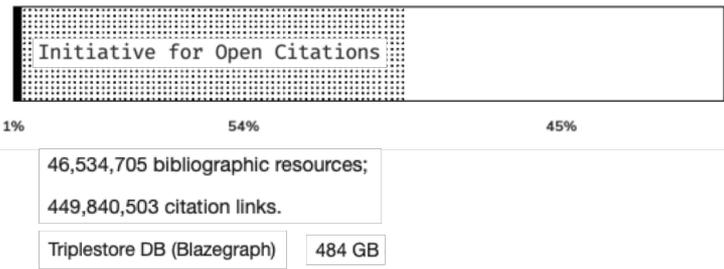
# Interroger la science



1. Aperçu des problématiques qui m'ont mobilisé
2. Le texte scientifique
3. Les réseaux scientifiques
4. Le processus d'évaluation
5. Des opportunités...

■ Du matériau

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8th BIR workshop: Bibliometric-enhanced IR



4th Joint BIRNDL workshop: BIR and NLP for DL



Fig. 1. Main topics of the BIR and BIRNDL workshop series (2014–2018) as extracted from the titles of the papers published in the proceedings, see <https://dblp.org/search?q=BIR.ECIR>.



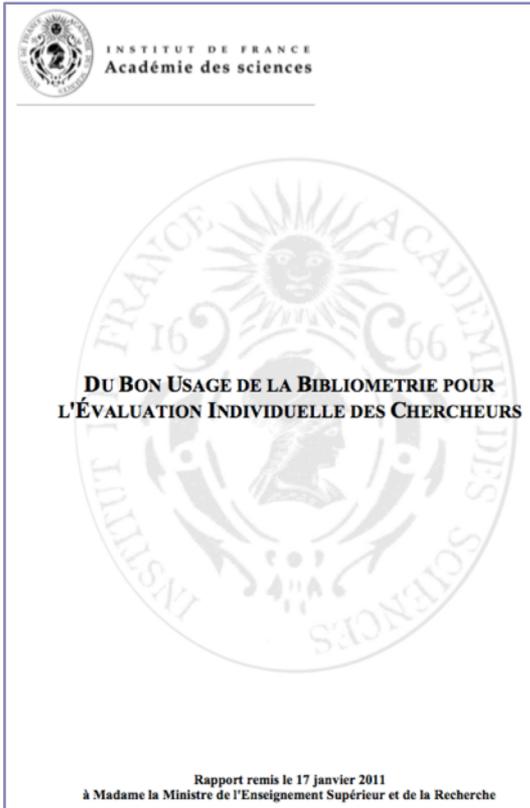
I. Frommholz P. Mayr G. Cabanac

## Conclusion et perspectives

- Étudier le texte scientifique
  - Prospection à visée évaluatrice
  - Prospection à visée analytique
  
- Pourquoi : éclairer sur
  - ... les mondes sociaux scientifiques
  - ... la création des connaissances →
  - ... la circulation des savoirs
  
- Comment : des opportunités
  - ... données accessibles librement
  - ... questions interdisciplinaires
  - ... méthodes diverses et complémentaires



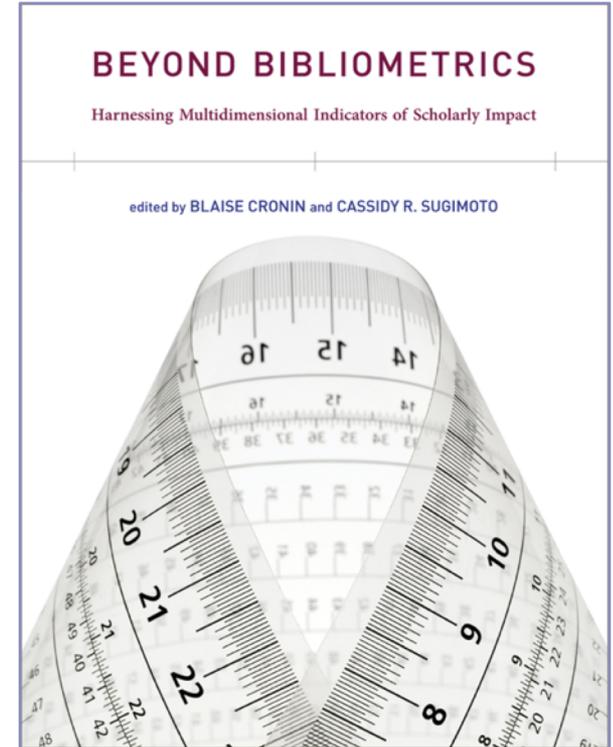
# Bibliographie



2011



2014



2014



# PLAN NATIONAL POUR LA SCIENCE OUVERTE

Mercredi 4 Juillet 2018

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