GOOD PRACTICE IN PUBLISHING. THE INFLUENCE OF BIBLIOMETRICS AND ELECTRONIC COMMUNICATION ON PUBLICATION AND CITATION BEHAVIOR

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ECOOM

Structure of presentation

About good practice

- The issue of *good practice in publishing* is as old as documented scholarly communication.
- However, the notion of "good practice" has always been subject to factors, which have set thresholds and borderlines for good, acceptable and reprehensible behaviour.
- This notion has, particularly, changed due to human, social, ethical, intra-scientific and technical factors.

Changes in scholarly communication has different causes

- Changing dissemination of (scientific) information through new communication channels and techniques.
- Electronic publishing and the Web.
- Reproduction has become uncoupled from cognitive processes.
- Changing ethics and psychology in the creation process of scientific literature.
- Repercussion on the scientific community based on bibliometrics in science policy and research management.

What is a publication?

A scholarly publication is the written presentation of research results with the objective of communication with and for application by members of the scientific community.

Publications must be publicly available and accessible but not necessarily as public domain.

It is the main form of formalised dissemination of scientific information within the scientific communities and thus the main channel of documented form of scholarly communication.

Publication types and documents types

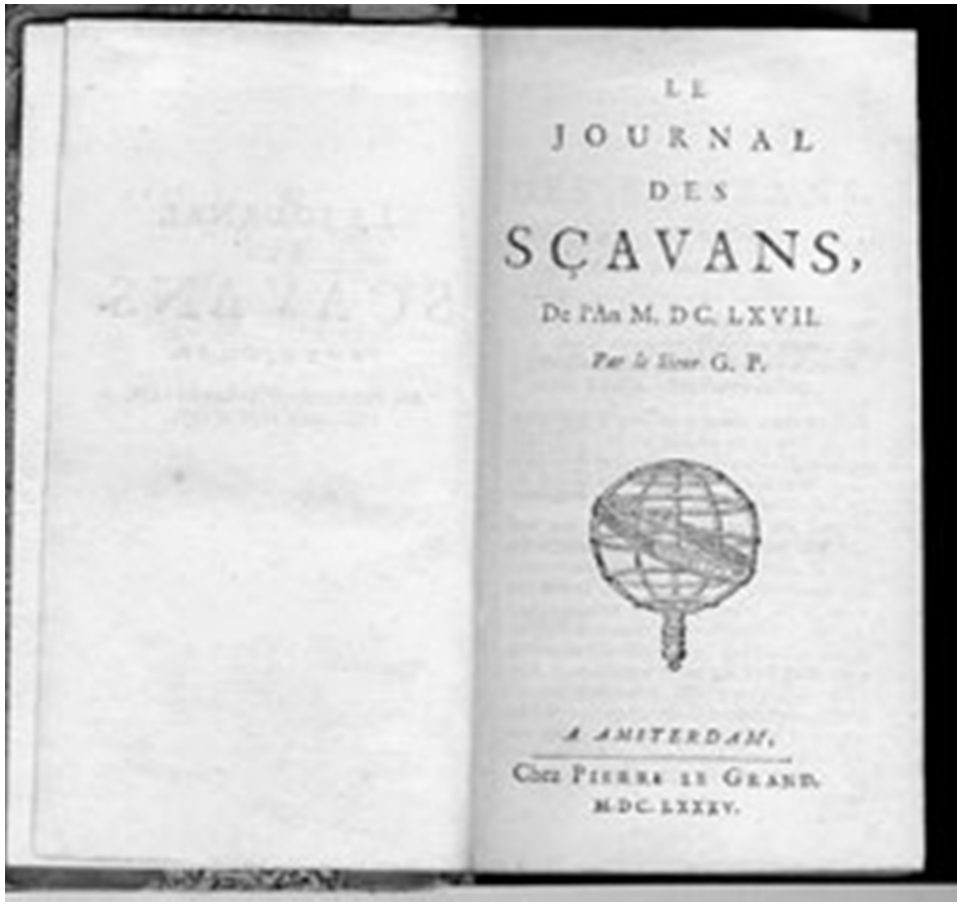
Minimum quality criteria for scientific publications: peer review or at least invitation and selection by editors or editorial boards.

Main publication types:
Scientific journals, proceedings, books, book series, monographs.

Subjects have usually specific publication types.
Pre-prints, working papers, technical reports etc. do not always meet these commonly accepted criteria.

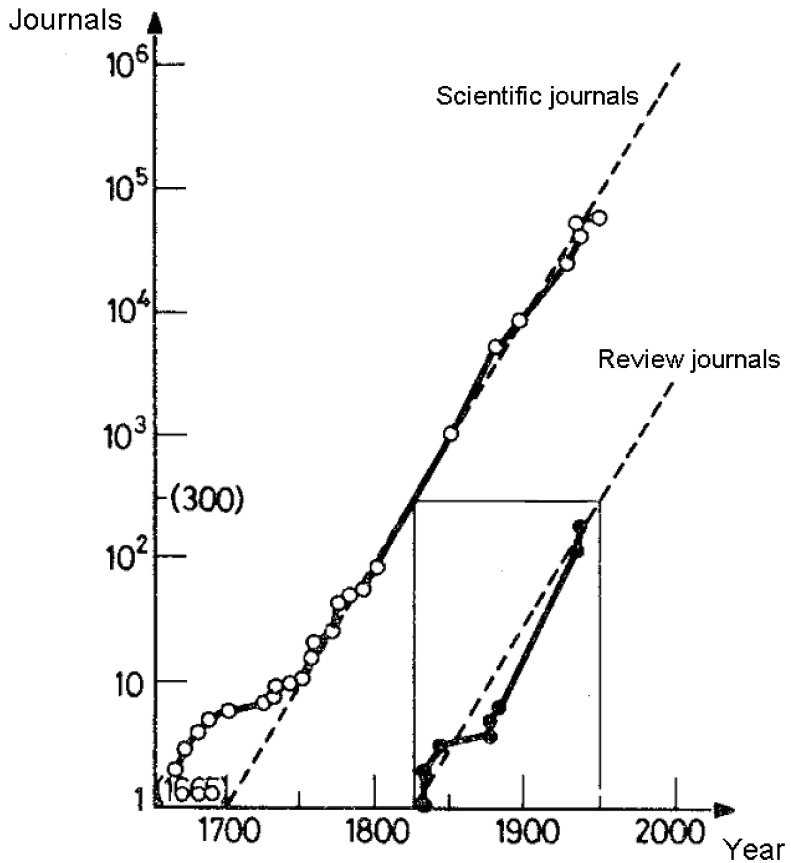
Main document types:
Research article (including brief communication), proceedings paper, review, letter to the editor, bibliography, editorial, correction, meeting abstract

Cover page of the first scientific Journal: *Journal des Sçavans* (1665)


LE
JOURNAL
DES
SÇAVANS,
De l'An M. DC. LXVII.
Par le Sieur G. P.
A AMSTERDAM,
Chez PIERRE LE GRAND.
M.DC.LXXXV.

Growth of the number of periodicals

Price, *Little Science, Big Science*, 1963



What is a citation?

In information science and scientometrics a citation is the indication of an information source used in underlying research and preparation of a publication and specified by a proper reference.

The notion of citation

Basically two notions of citations have become prevalent in bibliometrics, (1) the information science related and (2) the sociological approach.

1. *Information science*:

Citations are "... signposts left behind after information has been utilized."

Smith, *Library Trends*, 1981

What is a citation?

1. *Information science (contd.)*:

Citations are "... frozen footprints in the landscape of scholarly achievement ... which bear witness to the passage of ideas,"

🗎 Cronin, *Journal of Documentation*, 1981

"... one important form of use of scientific information within the framework of documented science communication,"
and although citations cannot describe the totality of the reception process, "... they give a formalised account of the information use and can be taken as a strong indicator of reception at this level."

🗎 Glänzel & Schoepflin, , *Information Processing & Management*, 1999

What is a citation?

2. *Sociology of science*:

Citations are part of the reward system in science, atoms of peer recognition.

- Merton, *Science*, 1968
- Merton, *ISIS*, 1988

The citation is only secondarily a reward system. Primarily, it is rhetorical-part of persuasively arguing for the knowledge claims of the citing document.

- Cozzens, *Scientometrics*, 1991

☛ Citations are thus *not primarily a measure of quality* although they significantly correlate with other quality measures.

- Holmes & Oppenheim, *Information Research*, 2001

15 different reasons for giving citations to others' work

(🗐 Garfield, *Current Contents*, 1970)

1. Paying homage to pioneers
2. Giving credit for related work (homage to peer)
3. Identifying methodology, equipment, etc.
4. Providing background reading
5. Correcting one's own work
6. Correcting the work of others
7. Criticising previous work
8. Substantiating claims
9. Alerting to forthcoming work
10. Providing leads to poorly disseminated, poorly indexed, or uncited work
11. Authenticating data and classes of facts – physical constants, etc.
12. Identifying original publications in which an idea or concept was discussed
13. Identifying original publications or other work describing an eponymic concept or term
14. Disclaiming work or ideas of others (negative claim)
15. Disputing priority claims of others (negative homage)

The ‘weight’ of citations from the viewpoint of information use

Citation = Citation? The first case

In KSh [18] (motivated by the remark contained in Shanbhag [29] and the results of Hamdan [11], Kotlarski [12], Shanbhag and Bhaskara Rao [31], and Gupta [9]) we also extended the concept of the *e.r.l. function* of a positive random variable to an arbitrary random variale and have given a representation for a probability distribution in terms of this function. Some possibilities of the applicability of the concept in practice have been indicated in KSh [18] and the references cited above. (Also, see Hall and Wellner [10], Hollander and Proschan [12], and Glänzel *et al.* [8] for further information and references on the e.r.l. function.) A variety of multivariate generalizations of this function can of course be constructed. However, we intend in this case to deal only with a certain construction that has features closely resembling those of the multivariate hazard function of the present section. The representation theorem in this latter case follows as a corollary of KSh [18]. In view of the prevailing analogy, we shall devote the second part of this section (i.e., part (b)) to discussing this particular version of e.r.l. functions and revealing some of its properties including the aformentioned theorem. For a related but independently carried out investigation of multivariate analogues of e.r.l. functions, the reader may wish to consult Zahedi [32]. This work is, however, along different lines.

Source: Shanbhag & Kotz, *Journal of Multivariate Analysis*, 1987

Citation = Citation? The second case

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algebraic manipulation. To meet the requirements, there must be as few parameters as possible in defining a member of the system.

In a recent paper, [4], Glänzel reported an interesting characterization result for arbitrary continuous real-valued random variables based on a simple relationship between two truncated moments (Theorem G below).

THEOREM G. *Let $(\Omega, \mathcal{A}, \mathbf{P})$ be a given probability space and let $H = [a, b]$ be an interval for some $a < b$ ($a = -\infty$ and $b = +\infty$ might as well be allowed). Let $X : \Omega \to H$ be a continuous random variable with the distribution function F and let g and h be two real functions defined on H such that*

$$\mathbf{E}\{g(X) \mid X \geqq x\} = \mathbf{E}\{h(X) \mid X \geqq x\}\lambda(x), \quad x \in H,$$

is defined with some real function λ. Assume that $g, h \in C^1(H)$, $\lambda \in C^2(H)$ and F is twice continuously differentiable and strictly monotone function on the set H. Finally, assume that the equation $h\lambda = g$ has no real solution in the interior of H. Then F is uniquely determined by the functions g, h and λ, particularly

$$F(x) = \int_a^{\infty} C \left| \frac{\lambda'(u)}{\lambda(u)h(u) - g(u)} \right| \exp\big(-s(u)\big)\, du,$$

where the function s is a solution of the differential equation $s' = \frac{\lambda' h}{\lambda h - g}$ and C is a constant, chosen to make $\int_H dF = 1$.

REMARK 1.1. In Theorem G, the interval H need not be closed.

Glänzel applied his Theorem G to present a characterization of the normal distribution and other distributions of Pearson's system. Following Glänzel's ideas, the present author gave (in [10]) a slightly different version of Glänzel's normal characterization and then applied Theorem G to present characterizations of the uniform and Cauchy distributions as well.

Source: HAMEDANI, *Studia Scientiarum Mathematicarum Hungarica*, 2006

Citation = Citation? The third case

Remark 8. If h_i $(i = 1, 2, ..., p)$ of Theorem 2 are taken as strictly increasing, the representation (2.7) for a survivor function is obviously valid in the case of every distribution satisfying the integrability condition of the theorem. One may be interested in seeing whether there exists a representation for the survivor function for $\mathbf{X}$ in terms of the conditional expectations corresponding to a fewer number of functions, which are appealing in some sense, at least when the domains of the definition of h_i are taken as Euclidean spaces with $h_i(X_i)$ considered above replaced by $h_i(\mathbf{X}^{(i)})$, $\mathbf{X}^{(i)}$ being a subvector of $\mathbf{X}$. However, it is not difficult to see that in general merely with the integrability condition such a representation does not exist. This could be verified by noting, for example, that if h_i, $i = 1, 2, ..., p-1$, are given to be real-valued Borel measurable functions on R^p, then there exist random vactors $\mathbf{X}$ and $\mathbf{Y}$ with distinct distributions having a common support (such as $\{(0,..., 0), (1, 0,..., 0),..., (0,..., 0, 1)\}$) such that

$$E\{h_i(\mathbf{X}) \mid \mathbf{X} \geqslant \mathbf{x}\} = E\{h_i(\mathbf{Y}) \mid \mathbf{Y} \geqslant \mathbf{x}\} \quad \text{for all} \quad \mathbf{x} \in R^p \text{ and } i = 1, 2,..., p-1.$$

Remark 9. Prakasa Rao [24] has essentially attempted to solve under some constraints the problem mentioned in Remark 8. He has given in this context a uniqueness theorem in the bivariate case under certain assumptions. The following example shows that the theorem is not valid.

Source: Shanbhag & Kotz, *Journal of Multivariate Analysis*, 1987

- ☛ Note that different communities have differing communication and citation cultures.

  - "Negative" citations, i.e., citations expressing criticism can be part of argumentation in the social sciences and notably in the humanities.
    - Authors might express that they do not share standpoint and arguments of colleagues; here "negative" citations are therefore more frequent that in mathematics and the "hard" sciences, where such citations usually imply proofs of some incorrectness.

The role of author self-citations

Author self-citations reveal interesting aspects of an author's role in the system of science communication.

The almost *absolute lack of self-citations* over a longer period is just as pathological as an *always-overwhelming share*.

The first one may indicate lack of originality in research, whilst the latter symptom indicates isolation and lacking communication.

Selected literature

- MacRoberts & MacRoberts, *JASIS*, 1989
- MacRoberts & MacRoberts, *JASIS*, 1989
- Aksnes, *Scientometrics*, 2003
- Glänzel et al., *Scientometrics*, 2004

The origin of bibliometrics

Recently changes in scholarly communication with regard to both the scientists' publication and citation behaviour are experienced.

Scientists might feel that bibliometrics and electronic communication have contributed to the not always positive effects on their publication practice.

The spectacular evolution of bibliometrics in the 1990s is due in no small part to the sharp rise of IT development we recently witness.

What is bibliometrics?

There are two terms that are nowadays used almost simultaneously for quantitative and evaluative science studies.

Pritchard (1969) explained the term *bibliometrics* as "the application of mathematical and statistical methods to books and other media of communication".

Nalimov and Mulchenko (1969) defined *scientometrics* as "the application of those quantitative methods which are dealing with the analysis of science viewed as an information process".

What is bibliometrics

Necessity of a 'metrics'

- Growth of literature; information flood
- Big science; new funding mechanisms
- Interdisciplinarity, collaboration and globalisation

Characteristics of the situation

- Changing patterns in scientific communication
- Growing competition
- Access to funding

Objectives of the quantitative approach

- Assisting scientists in retrieving and accessing relevant information
- Assisting institutions in acquiring relevant literature and data
- Alerting scientists to current trends in their research field
- Informing science policy about performance and competitiveness of research

Derek de Solla Price (1922–1983)

In his book entitled “Little Science – Big Science” (1963), Price analysed the recent system of science communication and thus presented the first systematic approach to the structure of modern science applied to the science as a whole.

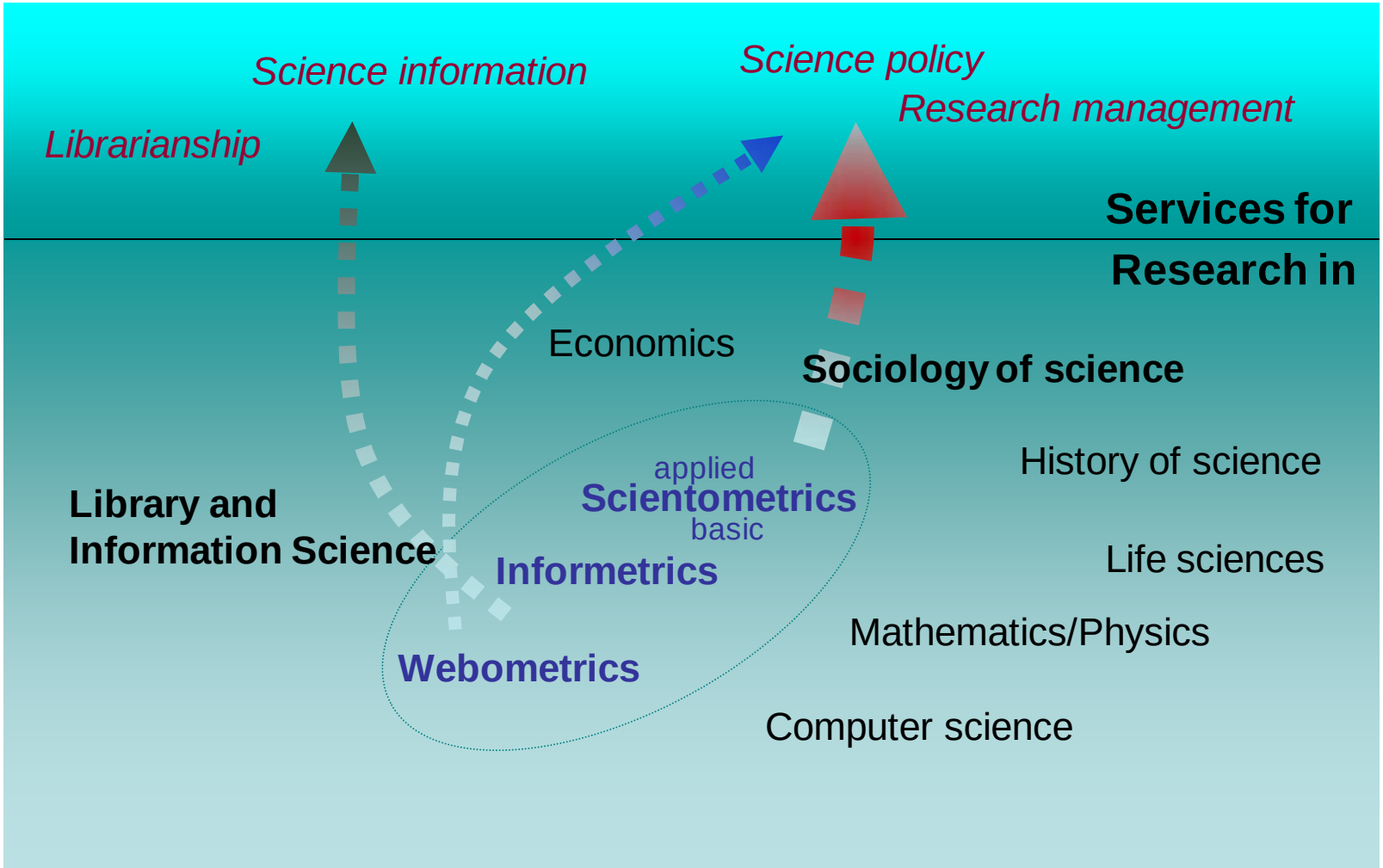
He also laid the foundation of modern research evaluation techniques. His work was more than pioneering; it was revolutionary.

Time was now ripe for the reception of his ideas since the development of science has reached a stage where traditional information, retrieval, evaluation and funding mechanisms became more and more difficult and expensive.

Three main target-groups and sub-areas of 'contemporary' bibliometrics.

1. *Bibliometrics for bibliometricians*
   Small but growing group: Basic bibliometric research which is traditionally funded.
2. *Bibliometrics for scientific disciplines*
   Bigger, but also heterogeneous interest-group: Extension of scientific information by metric means, with application to information retrieval.
3. *Bibliometrics for science policy and management*
   Most powerful target group: Research evaluation which is at present the most important field of application.

Links with science fields and application services



Eugene Garfield (1925–)

He was the founder and chairman of the *Institute for Scientific Information* (now part of Thomson Reuters). In the early 1960s he developed the *Science Citation Index*, the world's first large multidisciplinary citation database.

Although the the SCI was developed for the advanced information retrieval and for science-information services, it and its successors have become a common source for scientometric studies.

"The SCI was not originally created either to conduct quantitative studies, calculate impact factors, nor to facilitate the study of history of science".

- Garfield, *From information retrieval to scientometrics – is the dog still wagging its tail?* 2009

Eugene Garfield (1925–)

First applications of bibliometrics served as extensions of scientific information and information retrieval.

- The journal *Impact Factor* was first used as a measure for comparing journals independently of "size" and to help select journals for the *Science Citation Index* (SCI).
  - Garfield & Sher, *American Documentation*, 1963
- The co-citation based Atlas of Science developed and issued by the Institute for Scientific Information (ISI) was considered a new kind of "review literature" which is also suited to help students in choice of career in science.
  - Garfield, *Current Comments*, 1975

Garfield later recognised the power of the IF for journal evaluation and considered it also a journal performance indicator.

In the 1970's and 1980's, scientometrics evolved gradually towards research evelaution, but still provides tools for retrieval and information.

Robert K. Merton (1910–2003)

Robert K. Merton represents the sociologists' view of scientometrics. Among his most famous ideas related to science and its measurement, the *Matthew effect* and his notion of citation as a reward system (currency of science) should be mentioned.

According to the sololog ists' view communication in science is not merely linked to cognitive processes (cf. information science), but also characterised by the position scientists hold in the community.

- Kaplan, *American Documentation*, 1965
- Merton, *Social Theory and Social Structure*, 1968
- Merton, *Science*, 1968

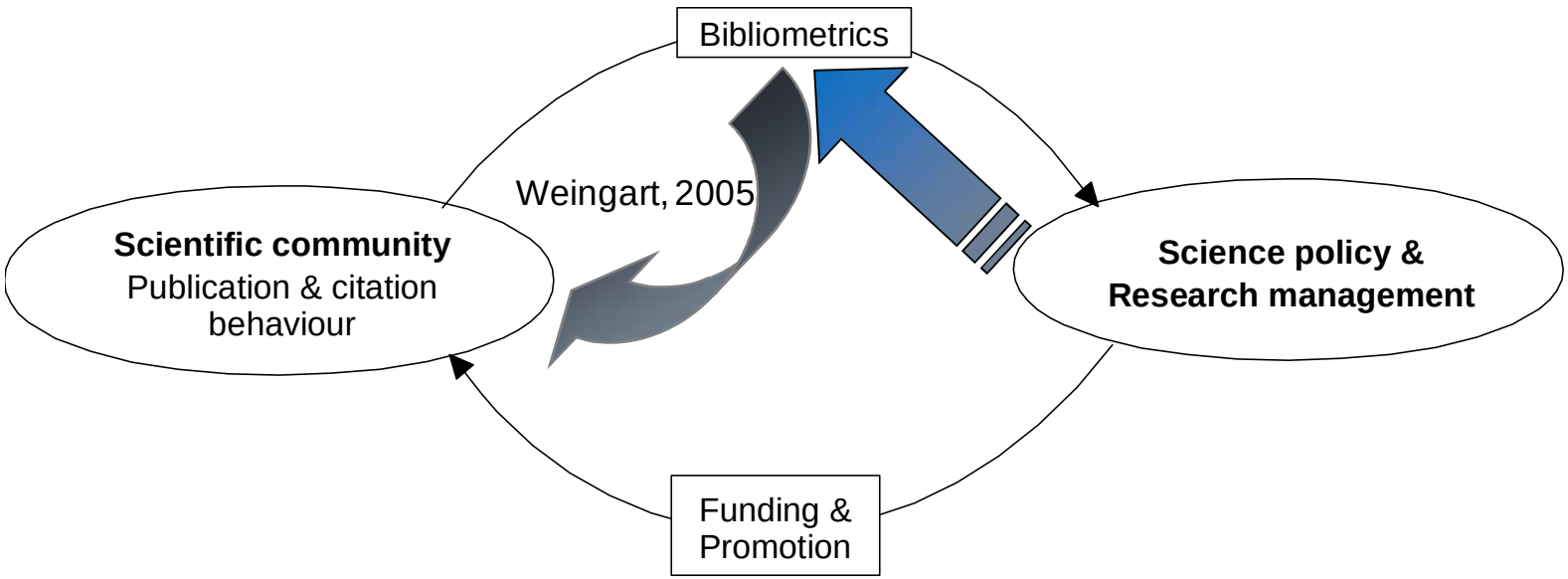
Problems of bibliometric application

Policy use of bibliometric data is a sensitive issue. Bibliometric application by science policy, research management and scientific journalism might induce repercussions on the scientific community.

Even if policy use is correct, it might distort scientists' publication and citation behaviour.

Uninformed use and misuse forms an even more serious problem.

The feedback of policy use of bibliometrics on the scientific community



The example of the *Impact Factor*

The Impact Factor evolved to an evaluation tool as it plays an important part in the evaluation of research groups and individuals.

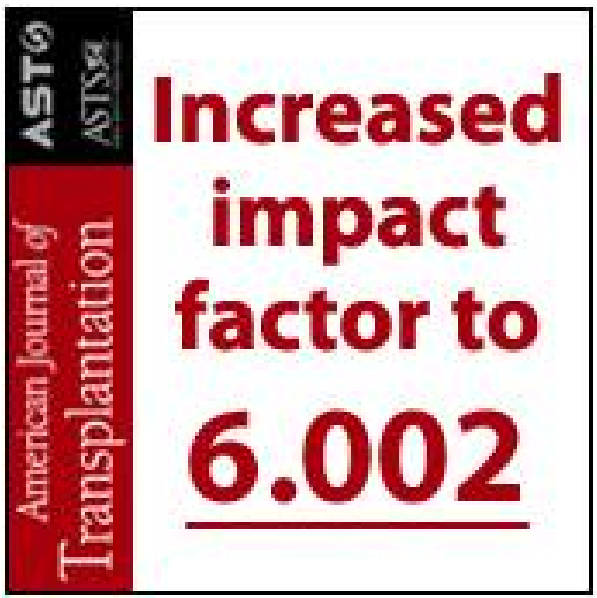
The IF seems to have become the common currency of scientific quality in research evaluation and has already influence on scientists' funding and carrier. (Sevinc, *Swiss Medical Weekly*, 2004)

According to van Raan, the Impact Factor is the "poor man's" tool for citation analysis (Adam, *Natur*, 2002).

Several journals have been accused of manipulating impact factor.
Smith, *BMJ*, 1997; Weingart, *Scientometrics*, 2005

☛ The often observed normative way of IF needs to be avoided.

The role of the Impact Factor



"**American Journal of Transplantation is the leading journal in its field**
New impact factor for 2005 – 6.002 –
Still the #**1 transplantation journal**
(Ranked second in the surgery category)"

Source: http://www.blackwellpublishing.com/journal.asp?ref=1600-6135&site=1
Accessed on 15 September 2006

Consequences for the use of the IF

The Impact Factor can be considered *one (but not the only)* "performance" measure of journals, can be obtained from empirical citation distributions as *statistical functions*.

☛ The Impact Factor is by no means a performance measure of individual articles published in the journal in question nor of the authors of these papers.

- Seglen, *BMJ*, 1997
- Neuberger & Counsell, *Eur. J. Gastroenterol. Hepatol.*, 2002

Consequences for the use of the IF

Journal impact measures proved useful auxiliary tools in research evaluation, nevertheless, the use of journal *Impact Factors* for the evaluation of individual publications and scientists is methodologically incorrect.

These measures do actually not reflect the "quality" of the papers nor the research performance of their authors.

The use of IF rankings and "IF filters" (e.g., according to thresholds), above all, in a normative way is dangerous and needs to be avoided.

Rise of IT and electronic communication

Apart from bibliometrics, the rise of information technology and electronic media have strong effect on scientific communication.

Some important effects are listed below.

- Productive effects
  - volume of data storage
  - availability and access of information
  - dissemination and exchange of information (temporal and spatial)
  - facilitation of preparation of publications
- Counterproductive effects
  - increased time pressure
  - selection of relevant information
  - information recycling

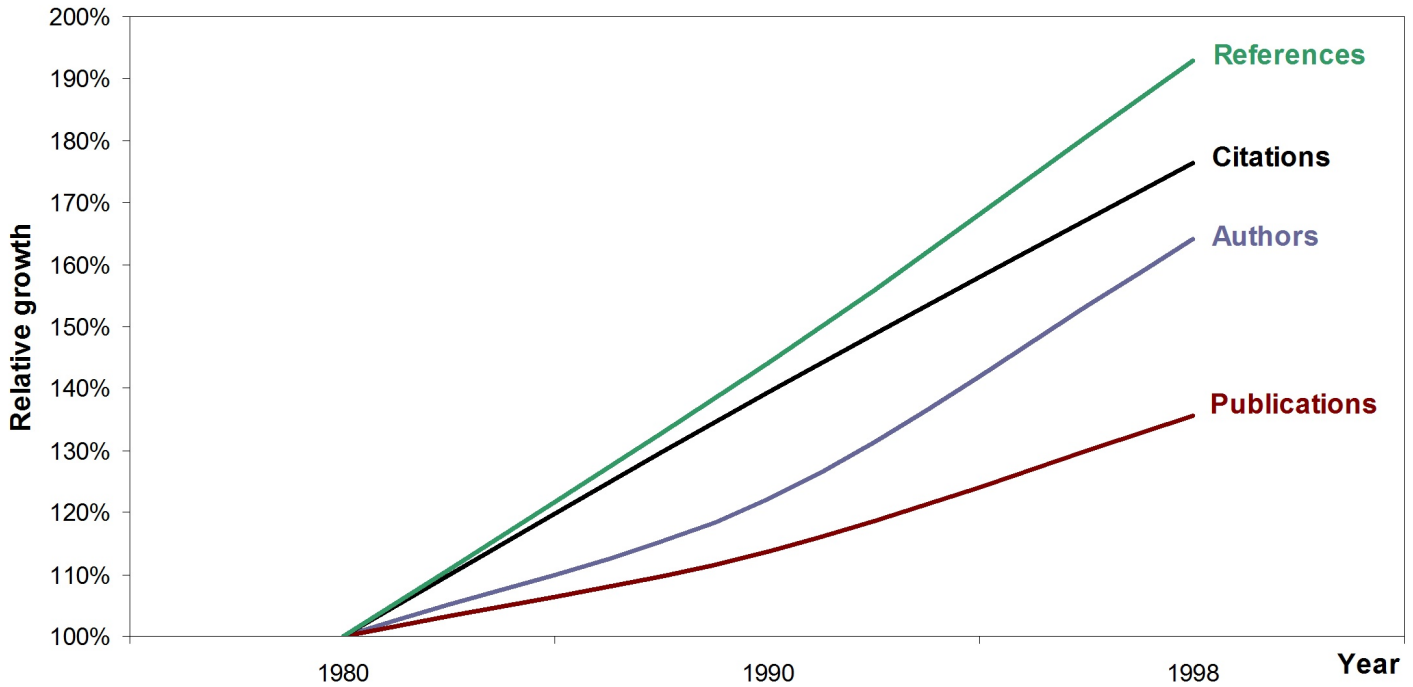
Consequences might be positive ('good practice')
– or even negative.

Positive effects on communication behaviour

- Improves and broaden availability of information.
- Provides assistance with identification, access and retrieval of relevant information.
- Speeds-up communication, retrieval and publication process.
- Stimulates collaboration.
- Might have positive effects on topic choice and publication strategy.
- Helps avoid parallel and redundant research.

Changing publication behaviour

Relative growth of publications, authors, references and citations (Persson et al., *Scientometrics*, 2004)



Source: ISI – Science Citation Index

18 purposes for which people collaborate

(Beaver, *Scientometrics*, 2001)

1. Access to expertise.
2. Access to equipment, resources, or "stuff" one doesn't have.
3. Improve access to funds.
4. To obtain prestige or visibility; for professional advancement.
5. Efficiency: multiplies hands and minds; easier to learn the tacit knowledge that goes with a technique.
6. To make progress more rapidly.
7. To tackle "bigger" problems (more important, more comprehensive, more difficult, global).
8. To enhance productivity.
9. To get to know people, to create a network, like an "invisible college".
10. To retool, learn new skills or techniques, usually to break into a new field, subfield, or problem.
11. To satisfy curiosity, intellectual interest.
12. To share the excitement of an area with other people.
13. To find flaws more efficiently, reduce errors and mistakes.
14. To keep one more focussed on research, because others are counting on one to do so.
15. To reduce isolation, and to recharge one's energy and excitement.
16. To educate (a student, graduate student, or, oneself)
17. To advance knowledge and learning.
18. For fun, amusement, and pleasure.

The case of co-authorship

Reasons for collaboration like ‘improving access to funds’, ‘obtaining prestige or visibility’, ‘collaboration for professional advancement’ should be research-related.

Beaver, *Scientometrics*, 2001

Co-authorship can become uncoupled from regular communication processes: Mechanisms of funding and professional advancement might indirectly foster strategic co-authorship.

Symptoms of such inflationary tendencies: strategic co-authorship, e.g., *honorific authorship* and *hyper-authorship*

Cronin, *JASIST*, 2001.

The case of co-authorship

The other side of the coin – suppressed acknowledgement of collaboration:

Involvement in research is not always properly acknowledged in publications.

Laudel, *Research Evaluation*, 2002

Not all forms of involvement justifies co-authorship – but adequate acknowledgement of collaboration is part of 'good practice' in publishing.

Worrying trends in communication behaviour

- Trends towards strategic communication behaviour.
- Attempts of increasing own visibility and suppressing that of others.
- "Inflationary values" observed in bibliometrics.

This includes

- "Multiple" publication
- Splitting papers into 'least publishable units'
- "Omnipresence"
- Conference attendance by rotation
- Strategic co-authorship
- Visibility over targeting
- Speed over quality

Bibliometrics and IT might act as catalyst in this process (but they have not initiated it).

Academic spam

"This is a personal reminder: We have not received your invited paper yet. Maybe, we could not identify it in our server.

Up to now, two Special Issues has been arranged only with the invited papers in the following journal:
***** which has high impact

...

So, I would like to invite you, personally, to be INVITED SPEAKER in the conferences of ***** and *****."

Crossing the borderline of acceptable communication behaviour

Further forms of academic spam:

- *Active*
  - Unrequested mass circulation of own publications using mailing lists
- *Passive*
  - Multiple self-archiving of derivatives of the same publication in institutional, open archives and private repositories.

Plagiarism and fraudulent 'work'

Unethical behaviour in scientific publishing is as old as scholarly communication.

Two main forms are *plagiarism* and *fraud* (such as falsification or manufacturing of data or results).

The borderline between *cryptomnesia* ("an unconscious plagiarism in which creative ideas expressed as new are actually unrecalled memories of another's idea") and *plagiarism* is, of course, rather fuzzy.

🗐 Garfield, *Current Contents*, 1980

Plagiarism and fraudulent 'work'

Competition, time pressure, the race for funds, research evaluation, scientific ranking and spreading of "Champions league" mentality have paved the way for the increasing number of plagiarism and fraudulent literature.
The development of information technology has facilitated this development.

Besides the concerned authors themselves, their co-authors (!) as well as the reviewers and editors bear a large part of responsibility in avoiding or detecting unethical behaviour and misconduct.

🗐 Glänzel, *ISSI Newsletter*, 2010

Bringing up a painful subject: SCIgen

The original purpose for creating a programme to auto-generate submissions was to unmask conferences with very low submission standards and so-called bogus conferences.

> *"SCIgen – An Automatic CS Paper Generator SCIgen is a program that generates random Computer*
>
> *Science research papers, including graphs, figures, and citations. It uses a hand-written context-free grammar to form all elements of the papers. Our aim here is to maximize amusement, rather than coherence."*
>
> Source: http://pdos.csail.mit.edu/scigen/

The "author" interface of SCIgen

Generate a Random Paper

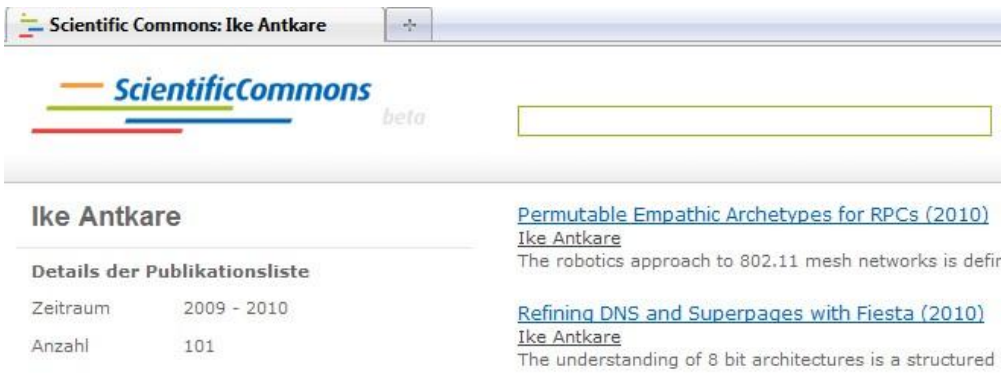
Want to generate a random CS paper of your own? Type in some optional author names below, and click "Generate".

Author 1:
Author 2:
Author 3:
Author 4:
Author 5:
Generate Zurücksetzen

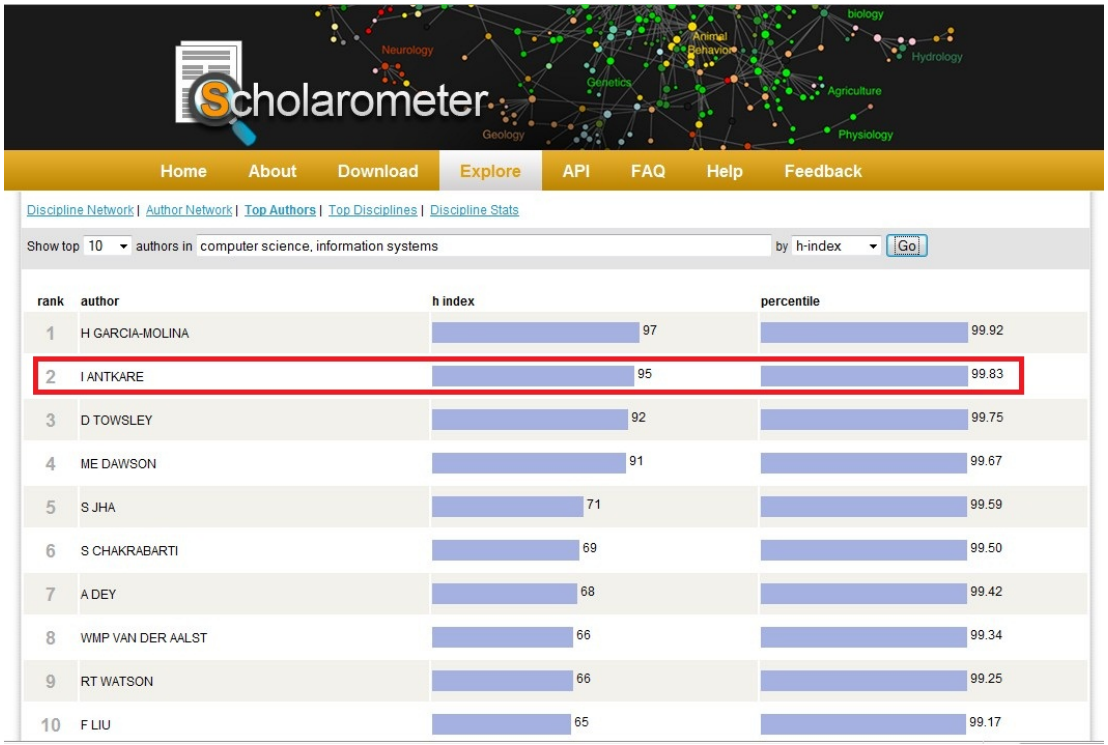
SCIgen currently supports Latin-1 characters, but not the full Unicode character set.

Source: http://pdos.csail.mit.edu/scigen/

An unusual experiment by C. Labbé – Indexed papers by I. Antkare



An unusual experiment by C. Labbé – I. Antkare ranks 2nd in CS



rank	author	h index	percentile
1	H GARCIA-MOLINA	97	99.92
2	I ANTKARE	95	99.83
3	D TOWSLEY	92	99.75
4	ME DAWSON	91	99.67
5	S JHA	71	99.59
6	S CHAKRABARTI	69	99.50
7	A DEY	68	99.42
8	WMP VAN DER AALST	66	99.34
9	RT WATSON	66	99.25
10	F LIU	65	99.17

An unusual experiment by C. Labbé – I. Antkare in the daily press

Bibliometrics and IT might not only act as catalyst in this process; they also provide the tools to measure and uncover fraudulent literature:

Duplicate and fake publications in the scientific literature: how many SCIgen papers in computer science?

Cyril Labbé · Dominique Labbé

> *"Unfortunately, duplicate and fake publications are appearing in scientific conferences and, as a result, in the bibliographic services. We demonstrate a software method of detecting these duplicate and fake publications. Both the free services (such as Google Scholar and DBLP) and the charged-for services (such as IEEE Xplore) accept and index these publications."*

Labbé & Labbé, *Scientometrics*, 2012

Possible problematic citation behaviour

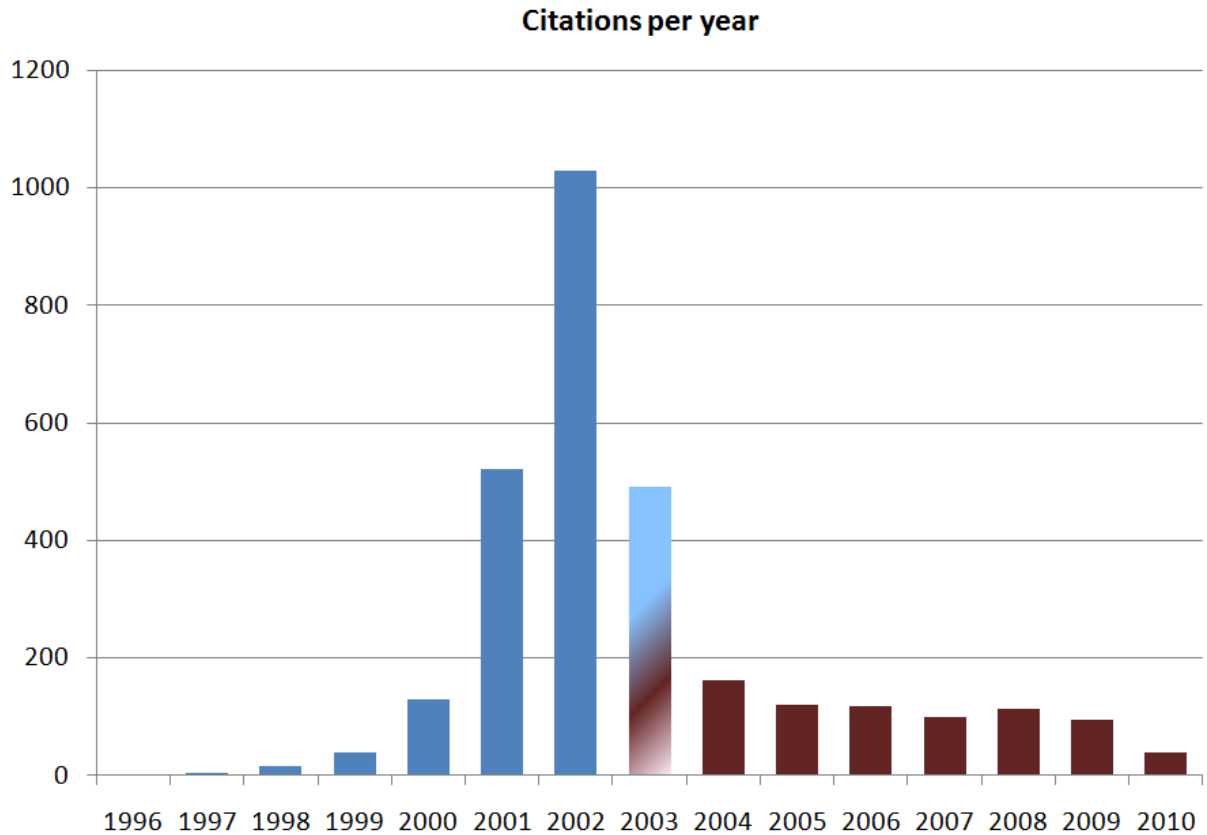
Citations can be used to

- artificially strengthen the authors' position in the community by
  - forming 'citation cliques'
  - exaggerate author self-citations
- weaken the position of 'competitors' by
  - forming 'schools'
  - ignoring relevant work by others

'Fair' and good publishing in science also comprises correct citation behaviour.

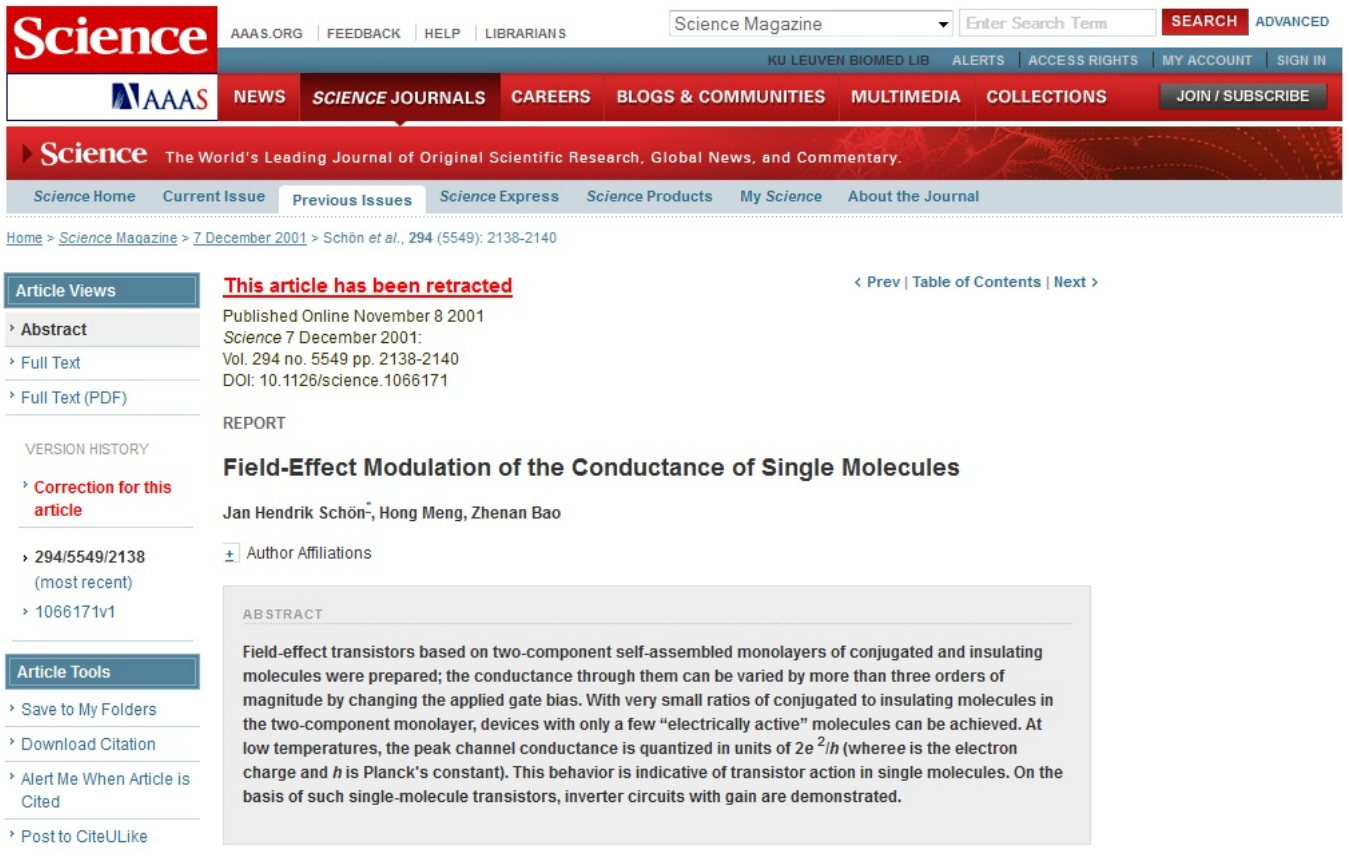
Authors, referees as well as editors are responsible for correct citations as well.

Some "wild shoots" – citations to J.H. Schön's articles



Source: Thomson Reuters – Web of Science

One of the retracted articles



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- Alert Me When Article is Cited
- Post to CiteULike

This article has been retracted

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REPORT

Field-Effect Modulation of the Conductance of Single Molecules

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ABSTRACT

Field-effect transistors based on two-component self-assembled monolayers of conjugated and insulating molecules were prepared; the conductance through them can be varied by more than three orders of magnitude by changing the applied gate bias. With very small ratios of conjugated to insulating molecules in the two-component monolayer, devices with only a few "electrically active" molecules can be achieved. At low temperatures, the peak channel conductance is quantized in units of $2e^2/h$ (wheree is the electron charge and h is Planck's constant). This behavior is indicative of transistor action in single molecules. On the basis of such single-molecule transistors, inverter circuits with gain are demonstrated.

Source: http://www.sciencemag.org/content/294/5549/2138

A concise guideline for good practice

Authors should aim at

- reaching the relevant readership and aim at true communication
  - choose publication channel accordingly
- publishing new research results or well-organised overview of topical research
- enriching the body of knowledge of the respective subject
  - avoid redundant information

A concise guideline for good practice (contd.)

Authors should

- keep in mind that research collaboration is of mutual benefit and substantial contribution to the study is acknowledged by co-authorship
  - avoid honorific and strategic co-authorship without real contribution
  - note that co-authors are not necessarily co-writers
    (🗎 Cronin, *JASIST*, 2004)
- cite *used* information that is *relevant* for the research underlying the publication and necessary for the understanding of the work
  - position their papers properly and note that giving citations is neither a “favour” nor part of any career strategy

What is Open Access

According to Harnad, “Open Access (OA) is free, immediate, permanent online access to the full text of research articles for anyone, webwide”.

Source: http://www.eprints.org/openaccess/

The aim is to make all scientific articles open access, i.e., available and accessible to everybody. This can be achieved by the

- journals that provide OA to their articles (“gold OA”),
- authors who provide OA to their own articles (“green OA”).

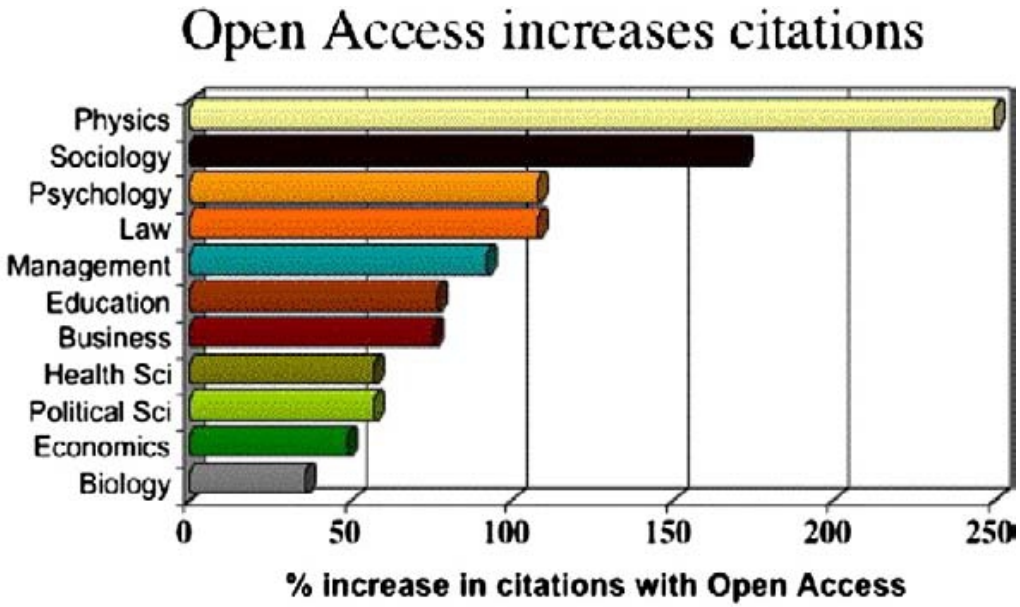
What is Open Access

- Green OA is based on eprints (pre-prints and/or post-prints, the primary target content) with links to the official version of the publisher who owns the copyright.
  - ☛ Self-archiving is not self-publishing. Peer review is substantial part of green OA.
- Gold OA usually implies open-access publication fee (that is usually rather expensive).
  - Several journals offer Gold OA (e.g., so-called *Open Choice*) against payment of a fee in addition to "conventional" publication.

Main benefits for the community

- OA facilitates and speeds up publication and dissemination of scientific information.
- OA facilitates the access to relevant information.
- OA increases visibility and impact.

Main benefits for the community



Range = 36%-200%
(Data: Brody & Harnad 2004; Hajjem et al. 2005)

Source: Harnad et al., *Serials Review*, 2008

The other side of the coin

Green OA

- Formalisation not yet implemented – Institutional Open Access Mandate (ROARMAP)
- A new type of "grey" literature gains currency (e.g., private electronic dissemination and "unofficial" archiving).
- Unlike in the case of Gold OA, ethical, even legal issues might arise from the "grey sector" of Green OA. Also copyright and the role of reviewers might be at the stake.

The other side of the coin

Gold OA

- Publication fee puts less wealthy institutions and countries at a disadvantage.
- Gold OA increases a new type of inequality that is more difficult to overcome than inequality in access to information.
- Publishers increase profit by publishing more articles not by "selling" products.
- Private communication (e.g., electronic reprints) undermines official communication channels (cf. 1st Green OA)

Some concluding remarks

- Mechanisms of funding and professional advancement might indirectly foster inflationary tendencies in scientific communication.
- Co-authorship can be used in the interest of career advancement, as means to increase visibility or to easier get access to funding.
- IT development, electronic communication and storage of information have strongly influenced publication and citation behaviour and challenged existing models.
- OA gives scientific publishing a new dimension but also implies several unsolved issues.

Some concluding remarks (contd.)

- Some statements remain valid independently from recent and future developments:
  - The scientific responsibility is above all assumed by (co-)authors but by peers, editors and publishers as well.
  - 'Fair' communication behaviour instead of strategic publication and citation behaviour might help to compensate negative trends.

☛ Scientists should keep in mind that publishing is primarily designed for communication, not for statistics and scoring.

Thank you very much for your attention.

Vielen Dank für Ihre Aufmerksamkeit!

Hartelijk dank voor uw aandacht!

¡Muchísimas gracias por su atención!

Köszönöm szépen a figyelmüket!

Molte grazie per la vostra attenzione.

Muito obrigado pela vossa atenção.