

Research and Publication Ethics: dealing with and preventing misconduct

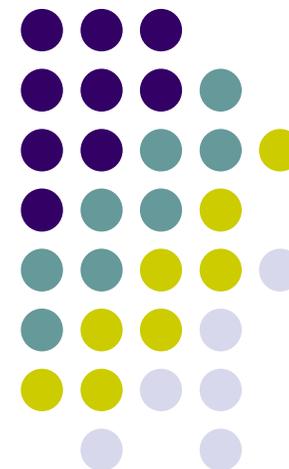
Margaret Rees

Reader Emeritus in Reproductive Medicine, University of Oxford

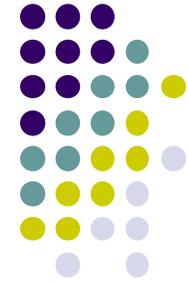
Visiting Professor, University of Glasgow, Karolinska Institute and
University of Turku

Adjunct Associate Professor in the
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at the University of Medicine and Dentistry of New Jersey

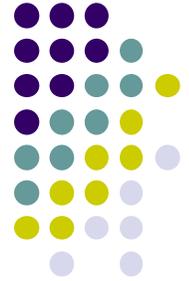
Editor in Chief Maturitas



Background: why am I giving this talk



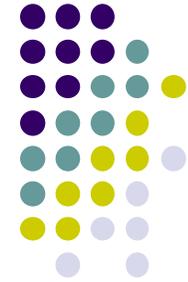
- Researcher
- Chair National Health Service Research Ethics Committee (NRES)
- Council member University of Oxford Research Ethics Committee (CUREC)
- Council member UK Association Research Ethics Committees (AREC)
- Council member of the Committee of Publication Ethics (COPE)
- Editor in Chief J Br Menopause Soc/ Menopause International 1998-2008
- Editor in Chief Maturitas, Elsevier 2008- present



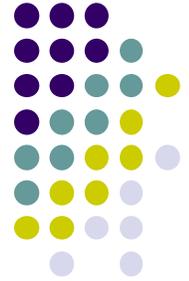
Publication ethics

- COPE Committee of Publication Ethics
<http://www.publicationethics.org.uk/>
- ICJME International Committee of Medical Journal Editors
<http://www.icmje.org/>
- WAME World Association of Medical Editors
<http://www.wame.org/>

COPE



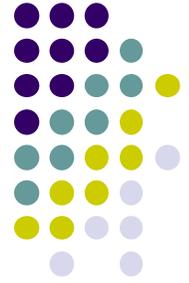
- COPE was established in 1997 by a small group of medical journal editors in the UK but now has over 7000 members worldwide from all academic fields.
- COPE provides advice to editors and publishers on all aspects of publication ethics and, in particular, how to handle cases of research and publication misconduct. It also provides a forum for its members to discuss individual cases (meeting four times a year in the UK and once a year in North America). COPE does not investigate individual cases but encourages editors to ensure that cases are investigated by the appropriate authorities (usually a research institution or employer).
- Does not intervene in editorial decisions or disputes between authors.



Role of COPE

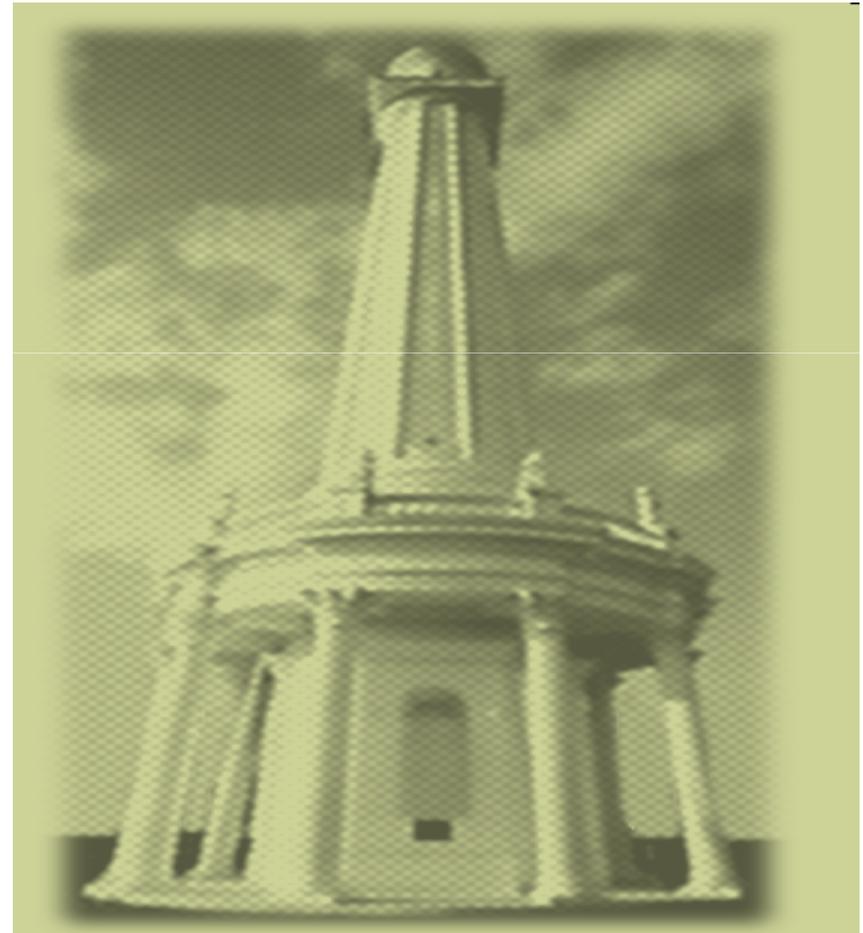
Aims to define best practice in the ethics of scholarly publishing and to assist editors, editorial board members, owners of journals and publishers to achieve this.

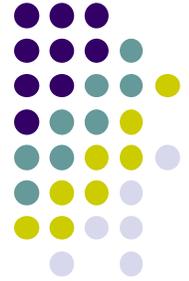
- Code of Conduct and Best Practice Guidelines for Journal Editors. (revised 2011)
- Code of Conduct for Journal Publishers 2011



Practicalities

- Authors
- Editors
- Reviewers
- Detecting and preventing misconduct
- Sanctions
- Retraction

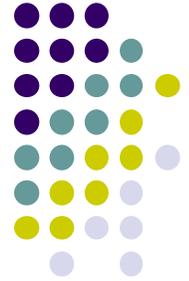




Authorship

- An “author” is generally considered to be someone who has made substantive intellectual contributions to a published study.
- Gift eg head of department automatically put on even though no contribution
- Ghost eg medical writer

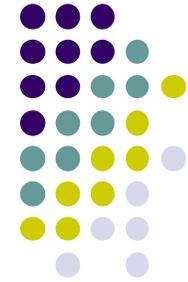
http://www.icmje.org/ethical_1author.html



Authorship disputes

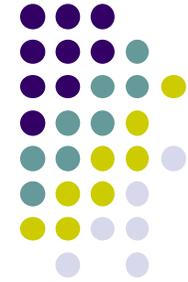
- Must be resolved by authors
- Editors will not get involved
- Will delay publication as editor has to get agreement from all authors about any changes
- After publication will be published as a correction, but needs agreement from all authors with justification
- Problem authors will be remembered by journals.....

Authorship flow charts from COPE web site



- (a) Corresponding author requests addition of extra author before publication
- (b) Corresponding author requests removal of author before publication
- (c) Request for addition of extra author after publication
- (d) Request for removal of author after publication
- (e) Suspected guest, ghost or gift authorship
- (f) Advice on how to spot authorship problems: impossibly long or short author list, role missing from contributor statement, industry-funder research with no author from the sponsor company

Examples of authorship problems



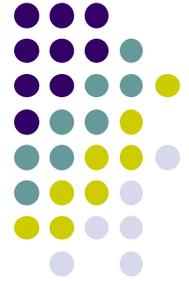
- Dead author
- Dropped author BJOG and Romero and Buhimschi
- Law in the Laboratory: A Guide to the Ethics of Federally Funded ...

Robert Charrow - 2010 - Business & Economics - 336 pages
p 79 onwards. A lawsuit ensued with appeals.....

Romero and Buhimschi



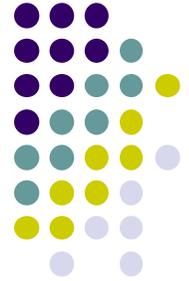
- Buhimschi submitted a paper to the The Lancet with Romero's name which she then removed which prompted the journal to decline publishing the piece.
- The British Journal of Obstetrics and Gynaecology ("BJOG") then published the paper without Romero's name even though they were aware of the authorship dispute.
- Consequences: investigation, litigation involving BJOG, new editor at BJOG.....



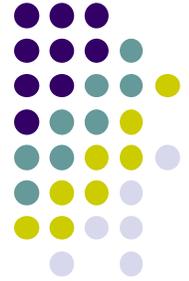
Fabrication and falsification

- Making up of research data/manipulation of research data
- Consequences:
- Can adversely affect human health
- Research agendas and funding can be inappropriate
- Adverse effects on the reputation of researchers and their institution

- Editorial Nature 453, 957 (19 June 2008) | Solutions, not scapegoats
- Scientific misconduct may be more prevalent than most researchers would like to admit. The solution needs to be wide-ranging yet nuanced.

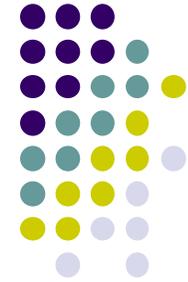


Repairing research integrity Titus et al Nature 2008
Jun 19; 453(7198):980-2.



- 201 cases misconduct observed by 164 scientists
- *"A post doc changed the numbers in assays in order to 'improve' the data."*
- *"A colleague duplicated results between three different papers but differently labelled data in each paper."*
- *"A colleague used Photoshop to eliminate background bands on a western blot to make the data look more specific than they were."*
- All levels from graduate student to professors

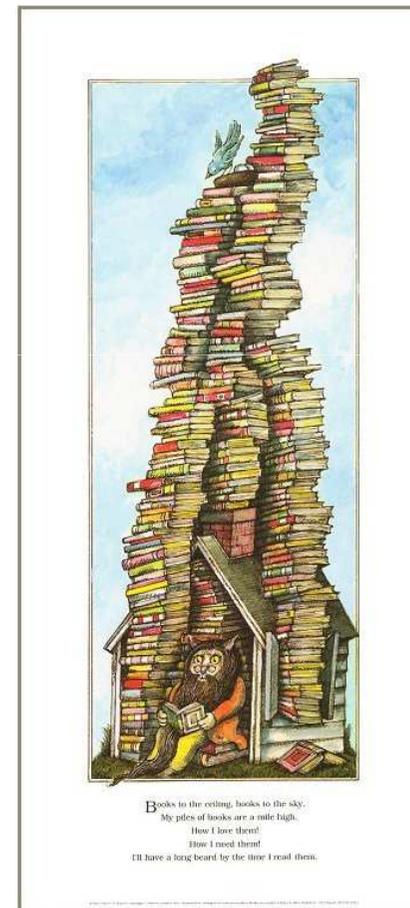
PLoS One. 2009 May 29;4(5):e5738. How many scientists fabricate and falsify research? A systematic review and meta-analysis of survey data. Fanelli D.



- To standardize outcomes, the number of respondents who recalled at least one incident of misconduct was calculated for each question, and the analysis was limited to behaviours that distort scientific knowledge: fabrication, falsification, "cooking" of data, etc...
- A pooled weighted average of 1.97% (N = 7, 95%CI: 0.86-4.45) of scientists admitted to have fabricated, falsified or modified data or results at least once--a serious form of misconduct by any standard--and up to 33.7% admitted other questionable research practices.
- In surveys asking about the behaviour of colleagues, admission rates were 14.12% (N = 12, 95% CI: 9.91-19.72) for falsification, and up to 72% for other questionable research practices.
- Considering that these surveys ask sensitive questions and have other limitations, it appears likely that this is a conservative estimate of the true prevalence of scientific misconduct.

Keeping source data

- Legislation: clinical trials/ studies in children
- Inspection by journals
- Wakefield MMR lead to underuse of vaccine and deaths in children
- <http://blogs.bmj.com/bmj/2011/01/10/liz-wager-does-the-wakefield-et-al-case-mean-we-should-demand-public-access-to-raw-data/>





Science fraud: from patchwork mouse to patchwork data — The FASEB Journal - Mozilla Firefox

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http://www.fasebj.org/content/20/6/587.full

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Science fraud: from patchwork m...

Young Investigator Grant
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Two grants in the amount of \$50,000.
Young investigators committed to basic research on gastrointestinal microbiota, probiotics and their role in health and wellness should apply.
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The Journal of the Federation of American Societies for Experimental Biology

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(The FASEB Journal. 2006;20:587-590.)
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Science fraud: from patchwork mouse to patchwork data

Gerald Weissmann, Editor-in-Chief

Summerlin pulled two white mice from the container. While they wriggled and squeaked in protest, he inspected the sites of the black skin grafts. Impulsively, Summerlin took his felt-tipped pen out of the breast pocket of his white coat and applied it briefly to the grafted patches on the two white animals. The ink made them look darker. Then he replaced the mice in the bin and strode out ...

From *The Patchwork Mouse*, an account of William T. Summerlin's 1974 false claim of skin transplantation without immunosuppression (1) ▶ .

Fraud was so much simpler a generation ago. All one had to do was to take a felt-tipped pen and color a square patch of mouse skin. The incriminating patchwork was also easy to detect. Summerlin's faked "transplants" were discovered by a laboratory assistant who washed off the black ink with a ball of cotton soaked in a little alcohol. Yet the scandal and its upshot in 1974 were just as great as those aroused by the more complex frauds of today. The patchwork incident was described by Jane Brody in *The New York Times* as "a medical Watergate" that reflected "dangerous trends in current efforts to gain scientific acclaim and funds for research." Indeed, Robert A. Good, Summerlin's chief and co-author, was accused of "manipulating national attention and attracting an enormous amount of money for the Institute." (2) ▶ Soon afterward, Good stepped down as director of Sloan-Kettering, and that was the end of transplantation without immunosuppression. It sank without a trace in the literature: Summerlin's

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This Article

doi:
10.1096/fj.06-0401ufm
April 1, 2006
The FASEB Journal
vol. 20 no. 6 587-590

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January 2011, 25 (1)



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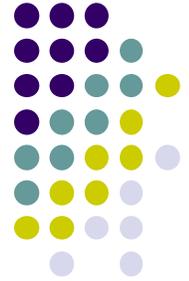
Librarian's Resource

Activate Online

Detection tools: image manipulation



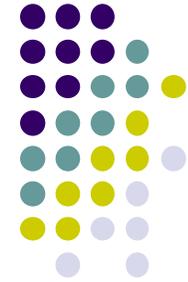
- EMBO Molecular Medicine
<http://www.embomolmed.org/view/0/authorInstruction.html>
- Digital image enhancement is acceptable practice. However, during manipulation of images a positive relationship between the original data and the resulting electronic image must be maintained to avoid the presentation of unrepresentative data as well as the loss of meaningful signals. If a figure has been subjected to significant electronic manipulation, the specific nature of the enhancements must be noted in the figure legend or in the 'Materials and methods' section. The Editors reserve the right to request original versions of figures and the original images that were used to assemble the figure from the authors of a paper under consideration. Rejection of the manuscript may occur in cases where the original data is not presented or was misrepresented.



Detection: statistics

- Data that are recorded (or invented) by people (as opposed to machines) tend to show preferences for certain numbers, such as rounding to the nearest 5 or 10. This is seen in the last recorded digit of numbers, and is called “digit preference.” This digit preference should be similar between groups formed just by a chance process—randomisation.
- Digit preference can occur in all legitimate data based on human recording, but any pattern of this preference should be similar between groups formed using randomisation.
- BMJ 2005; 331 : 267 doi: [10.1136/bmj.331.7511.267](https://doi.org/10.1136/bmj.331.7511.267)

Jon Sudbo



- In January 2006 it was revealed that his October 2005 fast track submission to The Lancet was based upon fraudulent patient data. The article had suggested that drugs like ibuprofen diminish the risk of oral cancer in smokers. However, it turned out that the whole patient material was fictional. The Norwegian newspaper Dagbladet reported that of the 908 subjects in the Lancet study 250 had the same birthday.
- Sudbø has later acknowledged that he has used fictional data in at least two more papers, published in the New England Journal of Medicine and the Journal of Clinical Oncology.
- After investigation in November 2006 his authorization as a physician and a dentist was revoked by the Norwegian Board of Health Supervision.

Schon

Beasley, Malcolm R.; Supriyo Datta, Herwig Kogelnik, Herbert Kroemer (September 2002). "Report of the Investigation Committee on the possibility of Scientific Misconduct in the work of Hendrik Schon and Coauthors" (pdf). Bell Labs.



- Schön's field of research was condensed matter physics and nanotechnology. He received his Ph.D. from the University of Konstanz in 1997. In late 1997 he was hired by Bell Labs.
- In 2001 he was listed as an author on an average of one research paper every eight days. In that year he announced in Nature that he had produced a transistor on the molecular scale, a significant advance. Schön claimed to have used a thin layer of organic dye molecules to assemble an electric circuit that, when acted on by an electric current, behaved as a transistor.
- Professor Lydia Sohn, then of Princeton University, noticed that two experiments carried out at very different temperatures had identical noise. When the editors of Nature pointed this out to Schön, he claimed to have accidentally submitted the same graph twice.
- Professor Paul McEuen of Cornell University then found the same noise in a paper describing a third experiment.
- This triggered a series of reactions that quickly led Lucent Technologies (which ran Bell Labs) to start a formal investigation.
- Many papers retracted.

Schon

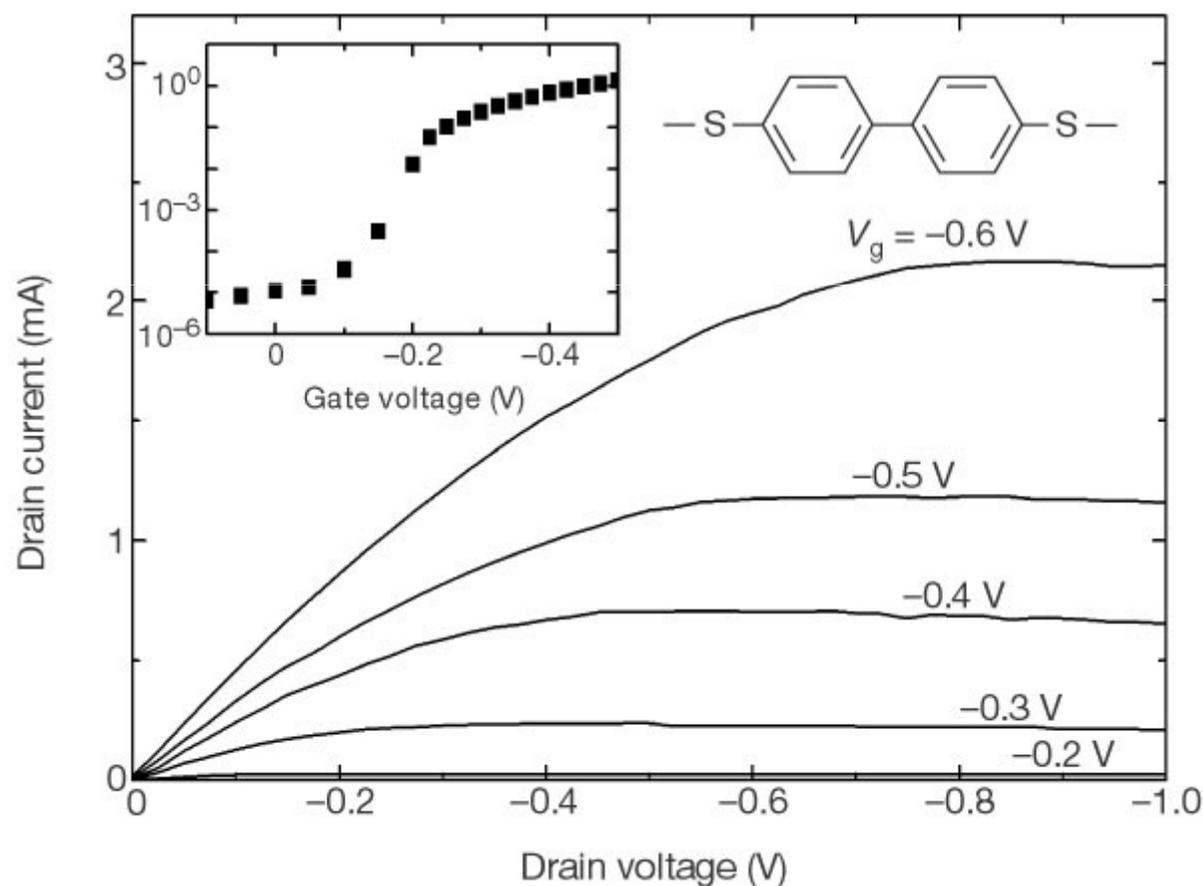
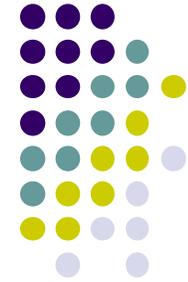


FIGURE 2. Transistor characteristics of a 4,4'-biphenyldithiol (molecule 2) SAMFET at room temperature. From the following article:
Self-assembled monolayer organic field-effect transistors
Jan Hendrik Schön,
Hong Meng and
Zhenan Bao
Nature 413, 713-716(18 October 2001)

Plagiarism

<http://www.wame.org/resources/publication-ethics-policies-for-medical-journals#plagiarism>



- Plagiarism is the use of others' published and unpublished ideas or words (or other intellectual property) without attribution or permission, and presenting them as new and original rather than derived from an existing source. The intent and effect of plagiarism is to mislead the reader as to the contributions of the plagiarizer. This applies whether the ideas or words are taken from abstracts, research grant applications, Institutional Review Board applications, or unpublished or published manuscripts in any publication format (print or electronic).
- Plagiarism is scientific misconduct and should be addressed as such.
- Self-plagiarism or text recycling refers to the practice of an author using portions of their previous writings on the same topic in another of their publications, without specifically citing it formally in quotes. This practice is widespread and sometimes unintentional, as there are only so many ways to say the same thing on many occasions, particularly when writing the Methods section of an article. Although this usually violates the copyright that has been assigned to the publisher, there is no consensus as to whether this is a form of scientific misconduct, or how many of one's own words one can use before it is truly "plagiarism."



What is Cross Check?



Cross Check is a database used by the software iThenticate, owned and created by iParadigms.

iThenticate can be accessed with a username/password combination.

CrossCheck uses iThenticate originality detection software to compare manuscripts with both a web repository and the CrossCheck database and thereby detect text similarities which may indicate plagiarism.



Strategy & Journal Services

What does it check?



CrossCheck uses originality detection software to compare manuscripts with a database of over 25 million scientific articles. The total number articles in the CrossRef database is about 50 million.

CrossCheck's database contains articles from large publishers, including Elsevier, IOP, Nature, Springer and Oxford University Press amongst others.



Limitations?



1. iThenticate is not able to compare 2 manuscripts against each other and then show the exact similarities between those 2 manuscripts.
2. iThenticate is a text only originality detection software and will not be able to compare figures, tables and diagrams.



Strategy & Journal Services

A brief overview

When you log in, you will be directed to your accounts page. You can upload a new document for checking by following the 'upload a file' link on the right. Articles you have already checked will be listed under 'My documents'.

The screenshot shows the iThenticate user interface. At the top, there is a navigation bar with links for 'Folders', 'Settings', 'Account Info', and 'Manage Users'. A welcome message 'Welcome Tracey Miller' and a 'Logout' link are visible. Below this, the iThenticate logo and a 'Welcome Back Tracey Miller' message are displayed. The main content area is divided into three sections:

- Left sidebar:** 'My Folders' section containing 'My Folders', 'My Documents', and 'Trash'.
- Center:** 'My Documents' section with a table of documents. The table has columns for 'Title', 'Report', 'Author', 'Processed', and 'Actions'. Two documents are listed:

Title	Report	Author	Processed	Actions
Title of article	91%	A. Author		[Trash] [Checkmark]
Title of article	22%	A. Author		[Trash] [Checkmark]

Below the table, there is a 'page 1 of 1' indicator. To the right of the table, there is a 'Submit a document' section with a yellow arrow pointing to the 'Upload a File' link. Other links in this section include 'Zip File Upload', 'Drag & Drop Upload', and 'Cut & Paste'. At the bottom right, there is a 'View: Recent Uploads' section and a 'New folder' section with links for 'New Folder' and 'New Folder Group'.



A brief overview

When you upload an article, CrossCheck will generate a report, you can see the % similarity and list of sources in the example below.

iThenticate **Title of article.** **Similarity Index**
A.Author **91%**
As of Jul 26, 2010 3:46:16 PM BST
6,037 words - 61 matches - 9 sources

Mode: Similarity Report [Exclude Quotes](#) [Exclude Bibliography](#) [Exclude small matches](#)

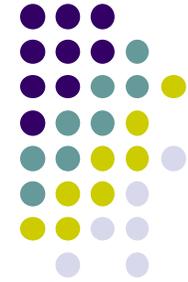
Match #	Source	Words	Similarity %	Source
1	Available online at www.sciencedirect.com Energy Conversion and Management	4,210	68%	CrossCheck
2	Full title of article	605	10%	Internet from Jul 26, 2010
3	Received 30 May	423	7%	CrossCheck
4	2007; accepted 14 January 2008 Available online 21 March 2008	170	3%	Internet from Nov 23, 2009
5	Abstract	122	2%	Internet from Jul 26, 2010
6		25	< 1%	Internet from Feb 25, 2010

Plagiarising in another language



- Midgard R, Seland JH, Hovdal H et al. Optic neuritis – diagnosis, treatment and followup [in Norwegian]. Tidsskr Nor Lægeforen 2005; 125: 425–8.
- Plagiarised from the Lancet
- Hickman SJ, Dalton CM, Miller DH, Plant GT. Management of acute optic neuritis. Lancet. 2002 Dec 14;360(9349):1953-62.

Redundant publication: Duplicate/ salami slice submission



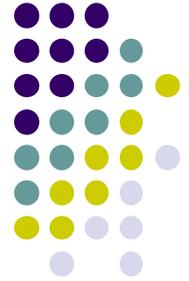
- **Don't:** will be picked up by reviewers and readers and will lead to retraction if detected after publication.
- COPE flow charts
- (a) Suspected redundant publication in a submitted manuscript
- (b) Suspected redundant publication in a published article

A case from COPE Date: 2001

Case Number: 01-18



- The newly appointed editor of Journal A noticed that an article he had just published in his journal bore remarkable similarities to an article published a couple of months earlier in Journal B. When the editors of both journals discussed the matter, they confirmed that they had not been told about the other article. On detailed review, the articles were indeed very similar and came to an identical conclusion. In places, sentences had been rearranged and it was hard to escape the conclusion that this had been done deliberately. The editors wrote to the authors, who were the same for both articles, to ask for an explanation.
- The authors replied, explaining that the paper published in Journal A reported preliminary findings whereas that published in Journal B reported the final results based on a larger double data set.
- The reply was thought to be somewhat convenient. There seems to be some intent to mislead and the second paper would not have been published if the first had been known about.
- If a systematic review was undertaken it would be assumed that two separate groups of patients had been studied.
- A notice of inadvertent publication was simultaneously published in both journals.

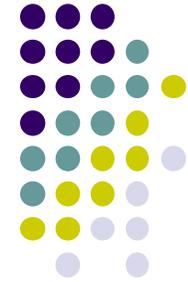


Reviewers

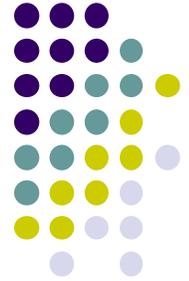
- Journals are desperate for reviewers
- Databases may be clogged up by names of people who did nothing
- Must adhere to deadlines
- Must be scientifically fair

Reviewer misconduct

<http://publicationethics.org/category/keywords/reviewer-misconduct>

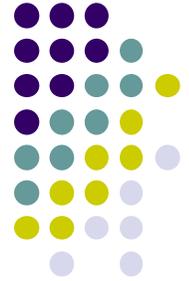


- When reviewers:
 - fail to treat submissions in confidence
 - use information for their own benefit from a submission they have been asked to review (e.g. reporting data as if it were their own, plagiarising text, stealing data or ideas and using them in grant applications)
 - try to delay publications from rivals/competitors
 - submit a biased review or inappropriate recommendations in the hope of preventing or delaying publication by a rival
 - fail to declare competing interests



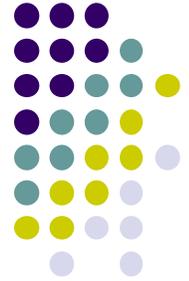
Sanctions by editors

- Retraction
- Report to IRB/ ethics committees
- Report to institution
- Professional body eg medical
- Consequences eg lack of grant funding



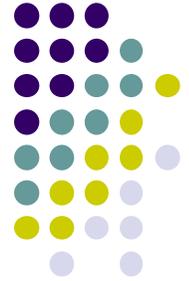
Retraction: COPE 2009

- Journal editors should consider retracting a publication if:
 - they have clear evidence that the findings are unreliable, either as a result of
 - misconduct (e.g. data fabrication) or honest error (e.g. miscalculation or experimental error)
 - the findings have previously been published elsewhere without proper cross referencing, permission or justification (i.e. cases of redundant publication)
 - it constitutes plagiarism
 - it reports unethical research



Retraction

- Retractions in the scientific literature: is the incidence of research fraud increasing? R Grant Steen *J Med Ethics* *jme.2010.04092*
- Error was more common than fraud (73.5% of papers were retracted for error (or an undisclosed reason) vs 26.6% retracted for fraud). Eight reasons for retraction were identified; the most common reason was scientific mistake in 234 papers (31.5%), but 134 papers (18.1%) were retracted for ambiguous reasons.
- *Web site Retraction watch*

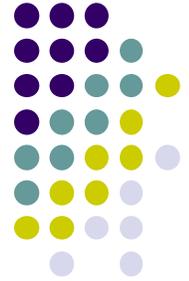


Retraction Watch

<http://retractionwatch.wordpress.com/>

- In August 2010, Ivan Oransky co-founded the blog Retraction Watch with Adam Marcus. Since its launch, the site has logged 1.1 million page views and has covered more than 200 retractions.
- ‘Tremendous variation in how journals deal with retractions. Some make notices crystal clear, while others seem to want to make them as opaque as possible.’
- ‘On track for 400 retractions this year, according to Thomson Reuters — is a vanishingly small percentage of the 700,000 papers published annually.’

Conclusion



- Be honest
- Be transparent
- Can have significant effects on public health grant funding institutions delay scientific advances
- Sanctions can be severe

