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How to write a scientific manuscript and get it published

Katie Eve, Elsevier Energy Journals

Budapest March 2015

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Outline

What will we cover?

- Setting the scene
- Before writing your paper
- Structuring and writing your article
- English language
- Submitting your paper
- The review process
- Ethics
- Promoting your research

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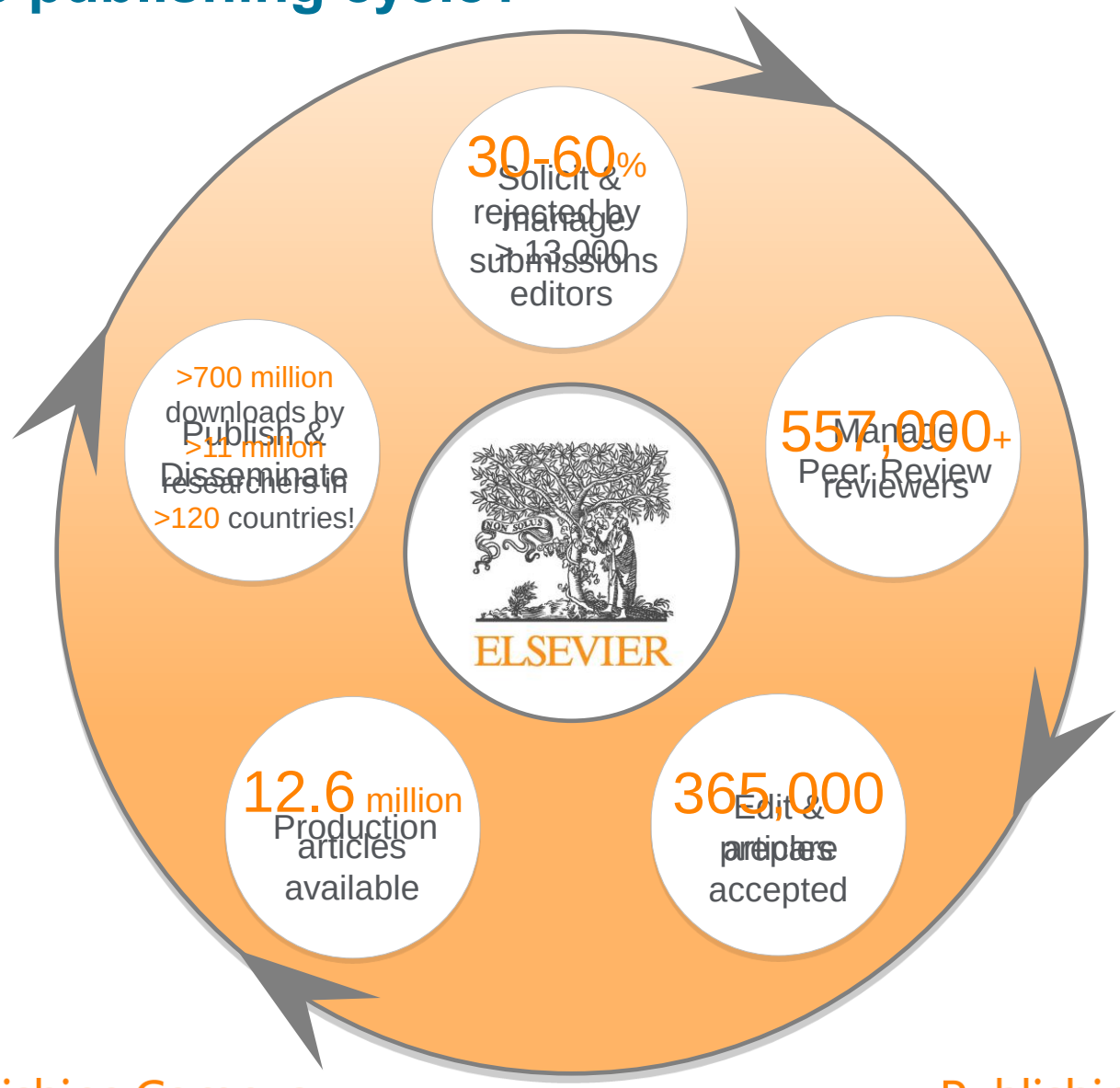
Setting the scene

What is the publishing cycle?



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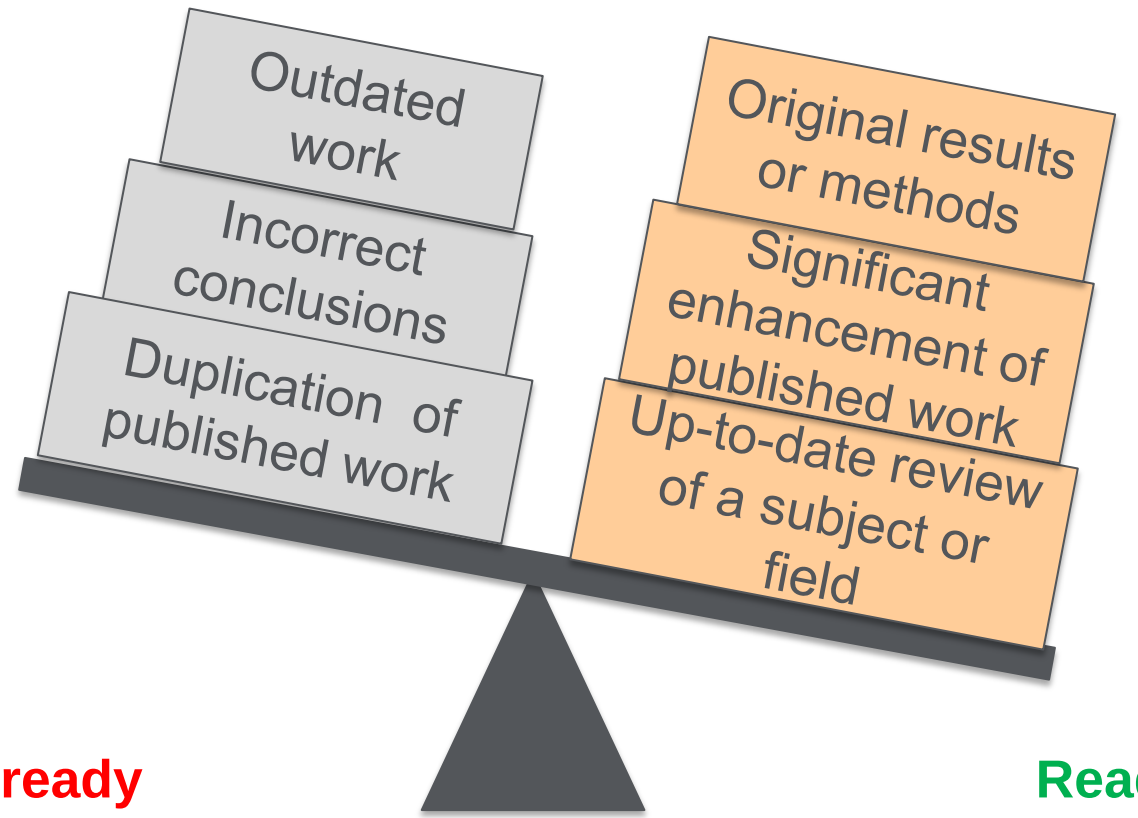
Before writing your paper

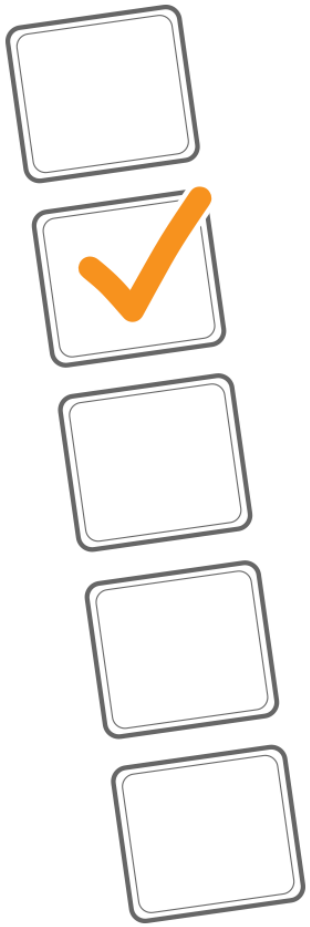
Am I ready to publish?



Not ready
Work has no scientific interest

Ready
Work advances the field

What makes a strong manuscript?



- Clear and useful message
- A logical manner
- Readers grasp the research

Editors, reviewers and readers all want to receive well presented manuscripts that fit within the aims and scope of their journal.

What article type should I choose?

Full articles

- Substantial, complete and comprehensive pieces of research
  Is my message sufficient for a full article?

Letters or short communications

- Quick and early communications
  Are my results so thrilling that they should be shown as soon as possible?

Review papers

- Summaries of recent developments on a specific top
- Often submitted by invitation

What about if I have a methods, data or software paper?

- Adaptations and customizations to methods
  (Example journal: MethodsX)

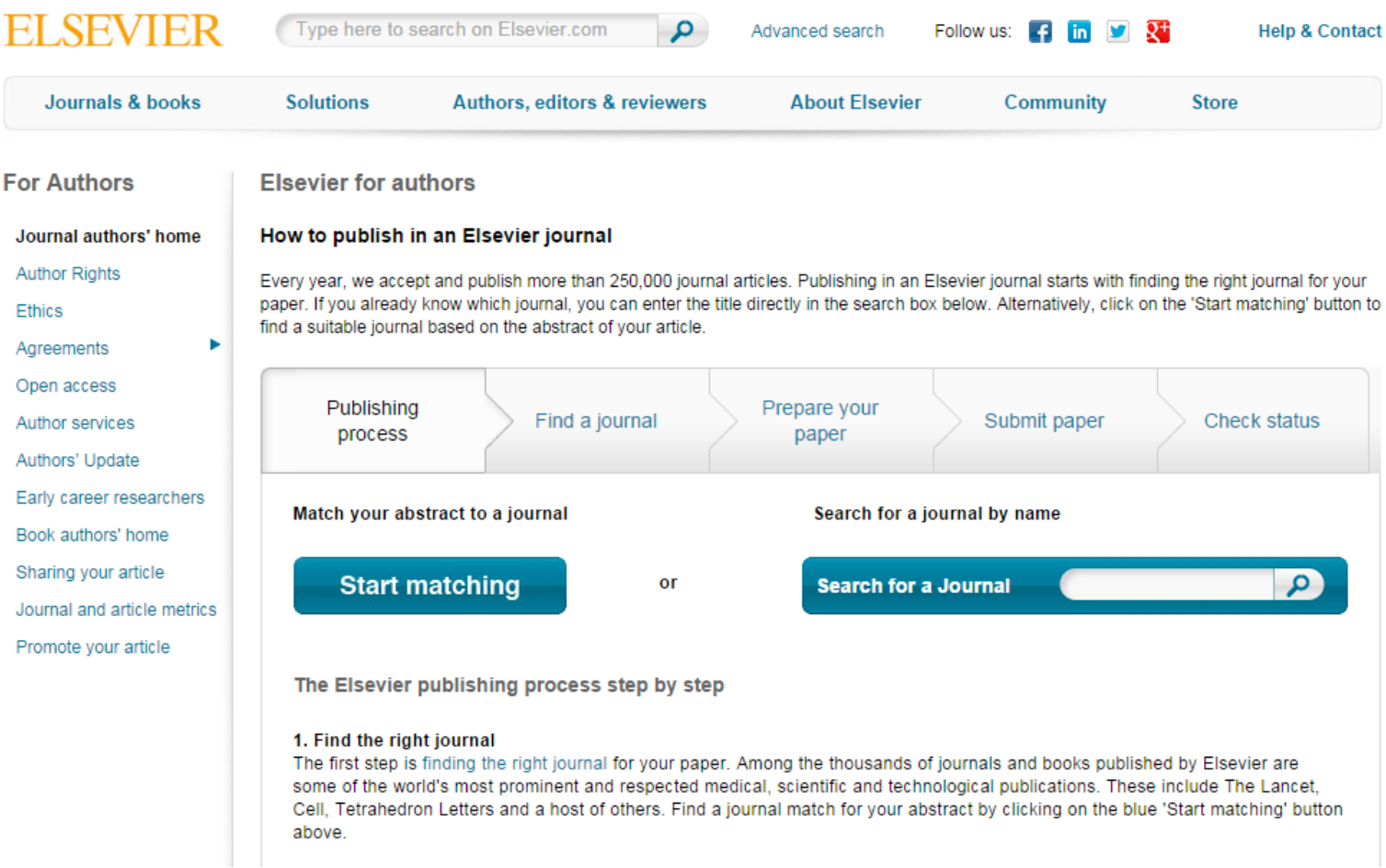
- Published datasets: available for sharing and reuse
  (Example journal: Data in Brief)

- Articles that acknowledge the impact of software on research
  (Example journal: SoftwareX)

How do I choose the right journal?

- Aim to reach the intended audience for your work
- Choose only one journal, as simultaneous submissions are prohibited
- Supervisor and colleagues can provide good suggestions
- Shortlist a handful of candidate journals, and investigate them:
  - ? Aims & Scope
  - ? Accepted types of articles
  - ? Readership
  - ? Peer review process (single blind, double blind, open)
  - ? Speed of publication
  - ? Subscription versus Open Access

Are there any tools available to help me find the right journal?

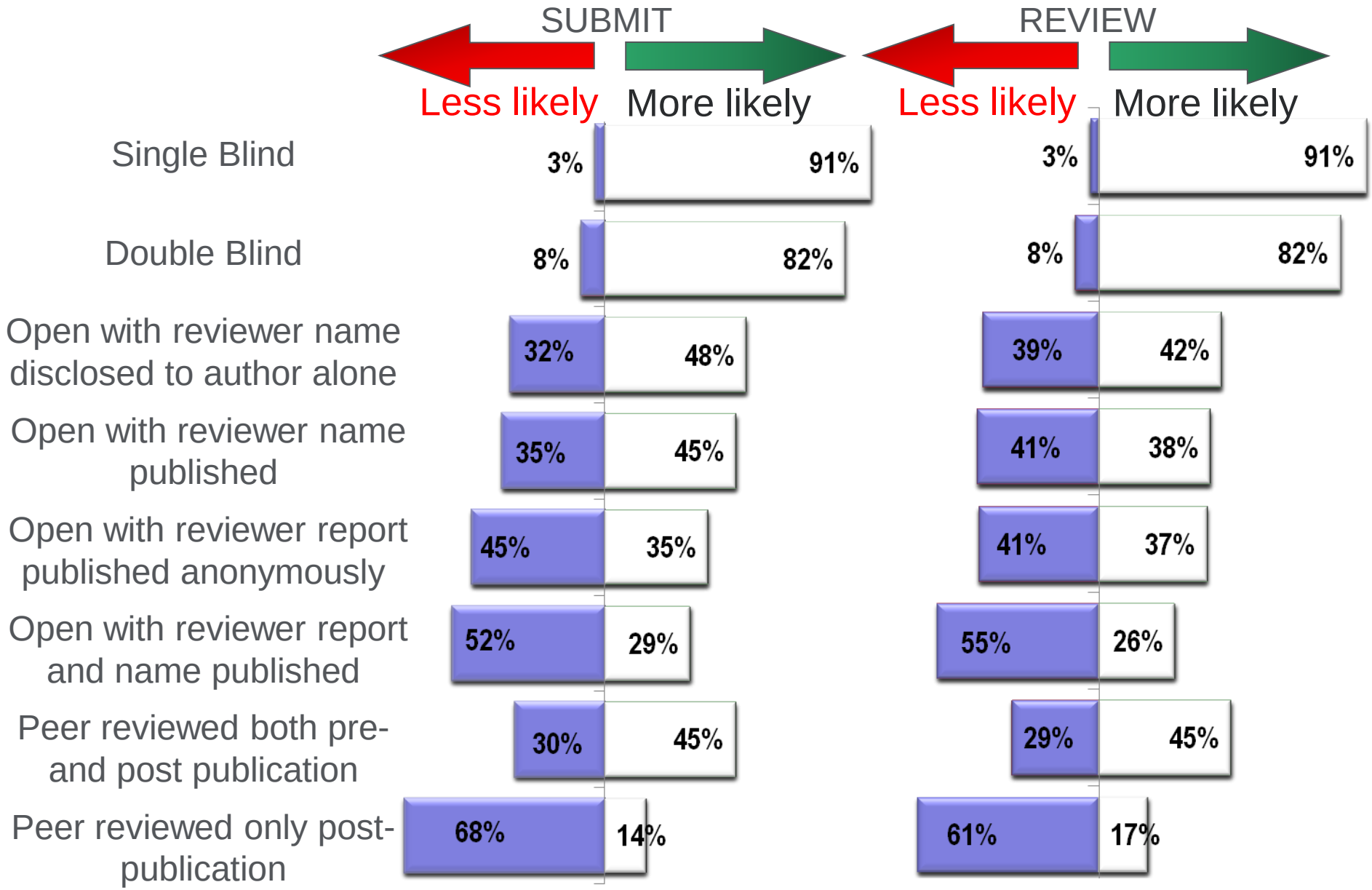


How important is the Impact Factor (IF)?

- It indicates how many times the more recent papers in a journal are cited on average in a given year
- It is influenced by editorial policies of journals
- It varies by field and the turnover of research in that field
- It varies by the types of papers published

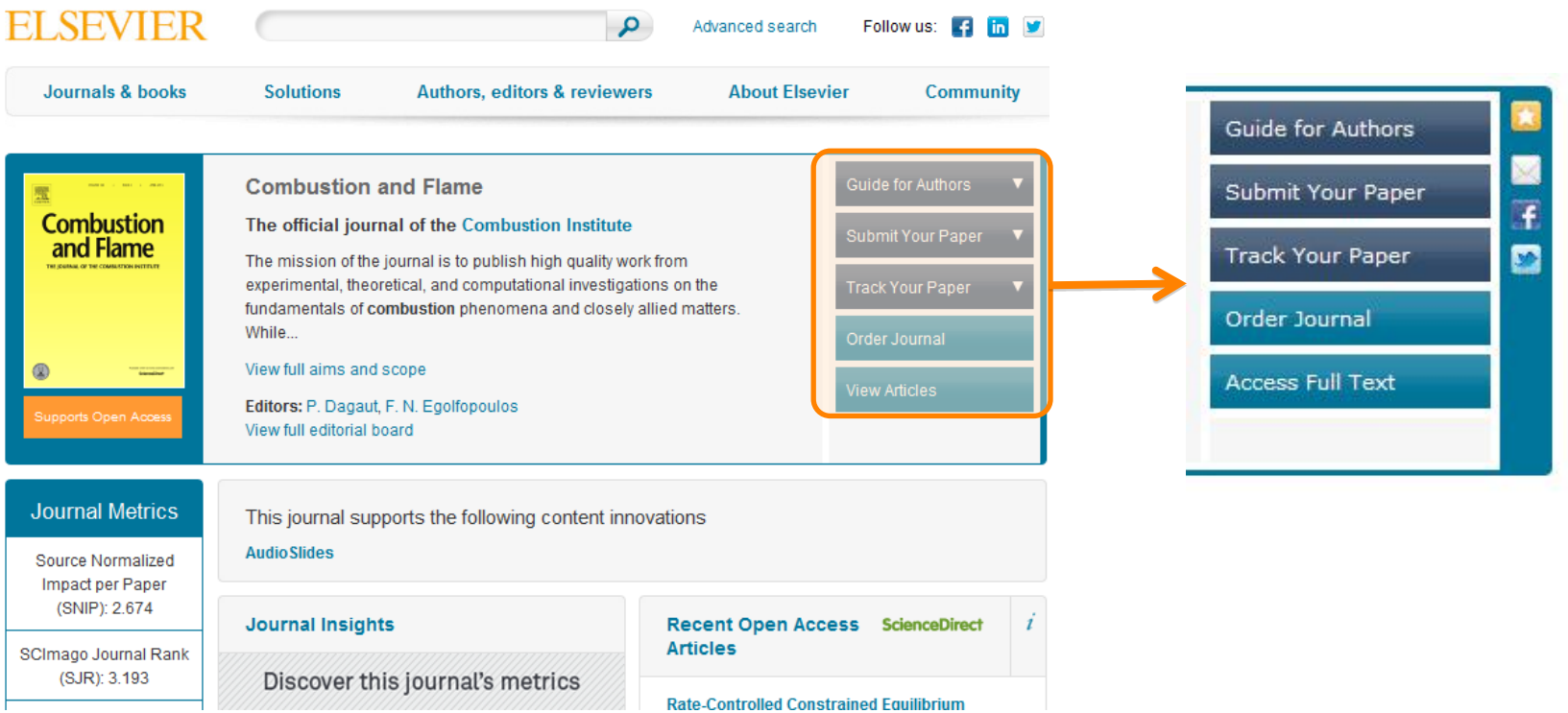
$$\text{IF year x} = \frac{\text{cites in year x to source items published in years x-1 and x-2}}{\text{number of source items published in years x-1 and x-2}}$$

What are the different kinds of review that exist?



Do I need to bother with the Guide for Authors?

- Find it on the journal homepage of the publisher, *e.g.* **Elsevier.com**
- Keep to the Guide for Authors in your manuscript
- It will save your time



Recap – before writing your paper:

- **Determine** if you are ready to publish your work
- **Decide** on the best type of manuscript
- **Choose** the target journal
- **Check** the Guide for Authors

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Structuring and writing your paper

What general structure should a research article have?

- Title
- Abstract
- Keywords

- Introduction
- Methods
- Results and Discussion

- Conclusion
- Acknowledgements
- References
- Supporting materials

What tips do you have for: the title?

- Should attract reader's attention
- Should be concise
- Should be specific and informative
- Should identify the main issue
- Should use formal language
- Should NOT use technical jargon or rarely-used abbreviations

Editors and reviewers do not like titles that make no sense or fail to represent the subject matter adequately. Additionally, if the title is not accurate, the appropriate audience may not read your paper.

Combustion and Flame

Available online 9 March 2015

In Press, Corrected Proof — Note to users

The effect of oxidation pressure on the equilibrium nanostructure of soot particles

What tips do you have for: the keywords?

- Are the labels of the manuscript
- Are used by indexing and abstracting services

Article title	Keywords
“An experimental study on evacuated tube solar collector using supercritical CO2”	Solar collector; supercritical CO2; solar energy; solar thermal utilization

- Should be specific
- Should use only established abbreviations (e.g. DNA)

Check the Guide for Authors for specifics on which keywords should be used.

What tips do you have for: the abstract?

- Keep it as brief as possible
- Summarize the problem, methods, results, and conclusions
- Make sure it is clearly written and easy to understand
- Make sure it is accurate and specific while also being catchy

Take the time to write the abstract very carefully. Many authors write the abstract last so that it accurately reflects the content of the paper.

What tips do you have for: the introduction?

- Provide a brief and concise context
- Explain the problem
- Mention existing solutions and limitations
- Identify what the work is trying to achieve
- Provide a perspective consistent with the nature of the journal

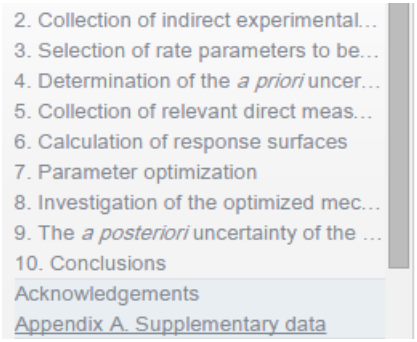
Write a unique introduction for every article. DO NOT reuse introductions.

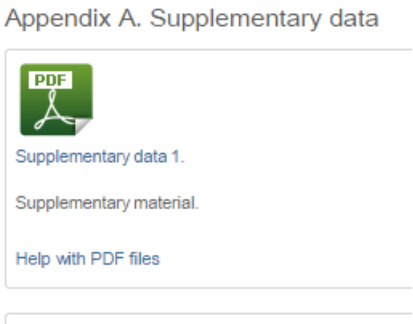
What tips do you have for: the methods?

- Describe how the problem was studied
- Include detailed information
- Do not describe previously published procedures
- Identify the equipment and materials used

What tips do you have for: the results?

- Include only data of primary importance (use supplementary data for the rest)
- Use sub-headings to keep results of the same type together
- Be clear and easy to understand
- Highlight the main findings
- Feature unexpected findings
- Provide statistical analyses
- Provide visualisations

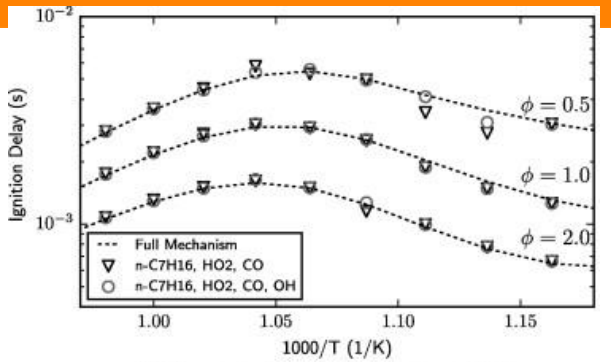




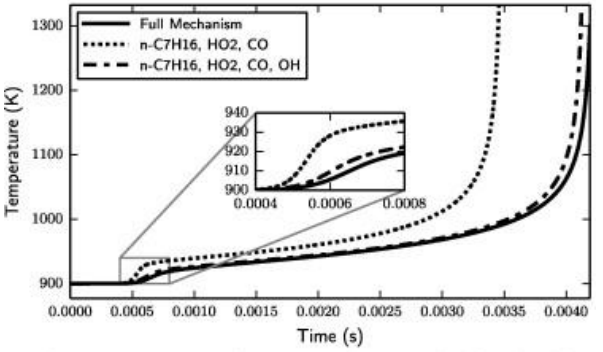
http://www.elsevier.com/connect/a-5-step-guide-to-data-visualization

What tips do you have for: figures?

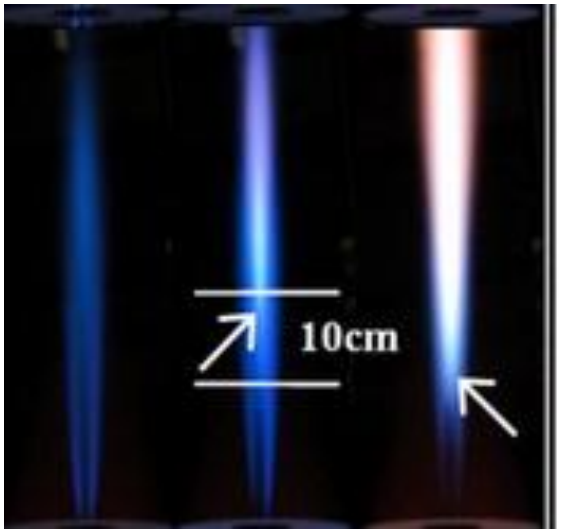
- The legend should enable the figure to stand alone.
- Use colour ONLY when necessary
- Graphs: un-crowded plots; restrict data sets (symbols to distinguish); well-selected scales; axis labels; label size.
- Photos: scale marker; do not manipulate the image to enhance the results.



(a) Constant volume ignition delays at 20 atm



(b) Temperature trace of constant-volume autoignition simulation at 900 K, 20 atm, $\phi = 0.5$



What tips do you have for: tables?

Needs a table

During the encoding task, significant activation clusters were detected in the left middle frontal gyrus (MFG) extending into the inferior frontal gyrus (IFG) (BA 9/45/47; Talaraich coordinates: −40, 14, 28), left MFG (BA 8; −40, 22, 50), left superior frontal gyrus (BA 6; −24, −8, 64), right IFG (BA 47; 28, 28, −2), left LTL (BA 22; −62, −22, 2), right cerebellum (30, −70, −16) together with right fusiform/lingual gyrus (BA 18; 18, −88, −14), left cerebellum/vermis (−6, −60, −16) (Fig. 1, top row) as well as the left (−30, −12, −18) and right hippocampus (34, −12, −16) (Fig. 2, left panel). During the retrieval task, when performance was not considered, significant activation clusters were detected in the left IFG (BA 47; −28, 24, −4), left MFG/IFG extending into the anterior cingulate cortex (BA 9/44/24; −36, 12, 28), right IFG (BA 44; 56, 16, 24 and BA 47; 36, 20, −10), left supramarginal gyrus (BA 40; −34, −46, 42), right putamen and caudate (16, 10, 2), right cerebellum (36, −74, −18) together with right fusiform/lingual gyrus (BA 18; 28, −90, −6) and vermis (−2, −62, −40) (Fig. 1, middle row) as well as the right hippocampus (26, −4, 22) (Fig. 2, right panel). During retrieval, brain activation related to accurate memory performance was observed in the left LTL (Fig. 1, bottom row), with peak activation in the middle temporal gyrus (BA 21 and 22; −50, −38, −4) extending into the superior and inferior temporal gyri. No activation clusters were detected in the prefrontal cortex, hippocampus, or other MTL structures. No brain regions showed negative correlations with behavioral performance.

Does not need a table

Table 1. Effect of aeration on growth of *Streptomyces coelicolor*

Temp (°C)	No. of expt	Aeration of growth medium	Growth[a]
24	5	+[b]	78
24	5	−	0

[a] As determined by optical density (Klett units).
[b] Symbols: +, 500-ml Erlenmeyer flasks were aerated by having a graduate student blow into the bottles for 15 min out of each hour; −, identical test conditions, except that the aeration was provided by an elderly professor.

Growth medium aeration was essential for the growth of S. coelicolor. At room temperature (24 ° C) in stationary cultures, bacterial growth was not measurable, whereas in aerated cultures, substantial growth was evident (78 Klett units).

What tips do you have for: the discussion?

- Interpretation of results
- Most important section
- Make the discussion correspond to the results and complement them
- Compare published results with your own

What tips do you have for: the conclusion?

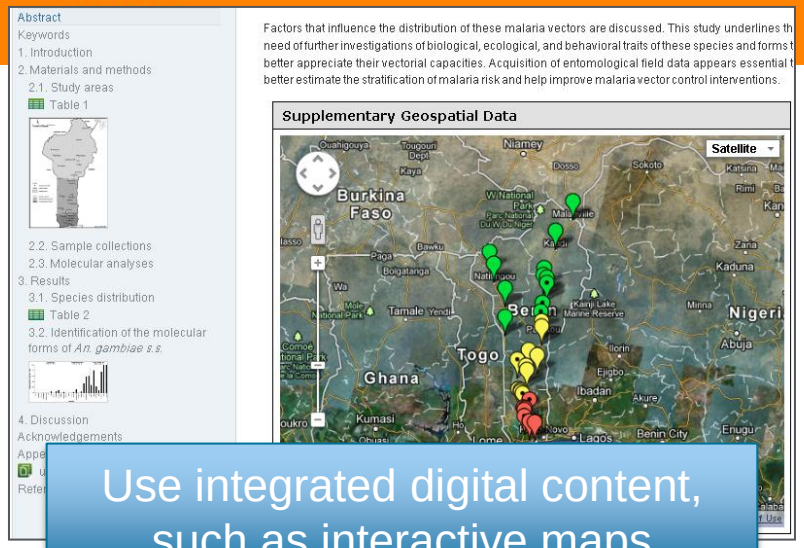
- Explain how your work advances the present state of knowledge
- Suggest future experiments
- Do not repeat results or the abstract

Who should I acknowledge?

- Advisors
- Financial supporters and funders
- Proof readers and typists
- Suppliers who may have donated materials

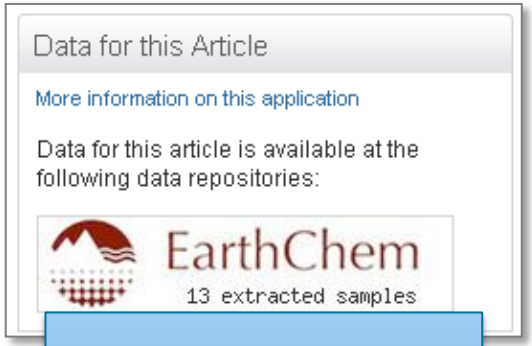
What tips do you have for: the references?

- Do not use too many references
- Always ensure you have fully absorbed the material you are referencing
- Avoid excessive self citations or citations to publications from the same region or institute
- Conform to any requirements outlined in the Guide for Authors
- Consider using a reference manager such as Mendeley



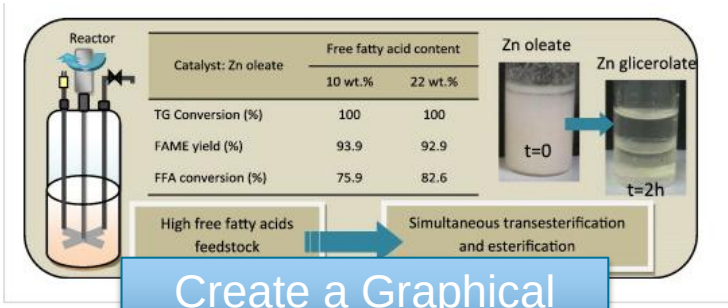
Use integrated digital content, such as interactive maps

Embed video



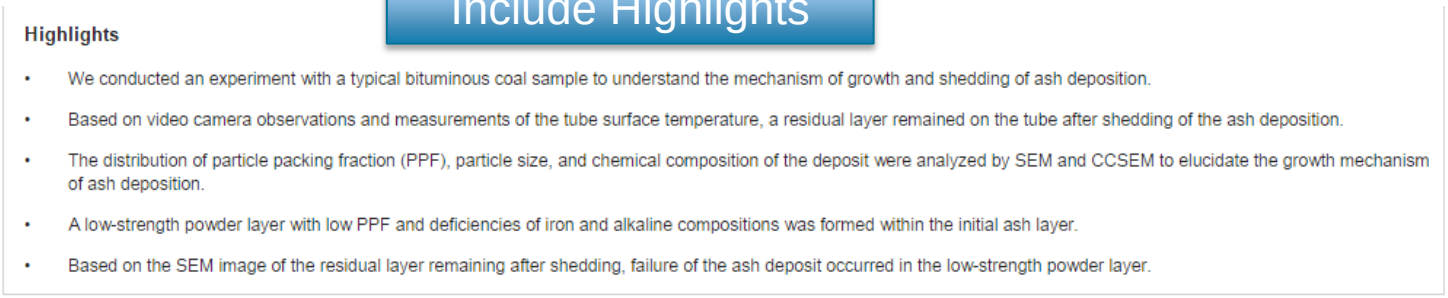
Link to your data at a data repository

Think about how you could enhance your article



Create a Graphical Abstract

Include Highlights



Building your paper brick by brick

Title, Abstract, and Keywords

Conclusion | Introduction

Methods | Results | Discussion

Figures/Tables (your data)

Recap – when writing your paper:

- Start with your **data**
- Move onto the main part of your article – **methods, results and discussion**
- Show how your work advances the field via the **conclusion**
  Set your work in a broader context via the **introduction**
- Pay special attention to the **title, abstract and keywords**
- Credit those who have helped you via **acknowledgements** and the resources you have consulted via **references**
- **Enhance your article** via available content innovation features

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English language

"It is quite depressive to think that we are spending millions in grants for people to perform experiments, produce new knowledge, hide this knowledge in a often badly written text and then spend some more millions trying to second guess what the authors really did and found."

Amos Bairoch,
Nature Proceedings, 2009

Why is language important?

- Without clear and accurate language the meaning of the paper may be misunderstood
- Poor language quality can delay publication or lead to rejection

Do publishers correct language?

No!
It is the author's responsibility...

*...but **resources** are available*

Manuscript language

- Clear
- Objective
- Accurate
- Concise

Common errors

- Incorrect sentence construction
- Incorrect tenses
- Incorrect grammar
- Inconsistent use of English throughout the paper
- Sentences too long

Recap – manuscript language:

- Good language is vital to ensure readers **understand** your message
- Good language is key to getting your paper **accepted** for publication by busy editors and reviewers
- **Publishers do not edit** your language for you but they do provide resources and services to help
- The **author is responsible** for how their research is conveyed
- Write **clearly and concisely**

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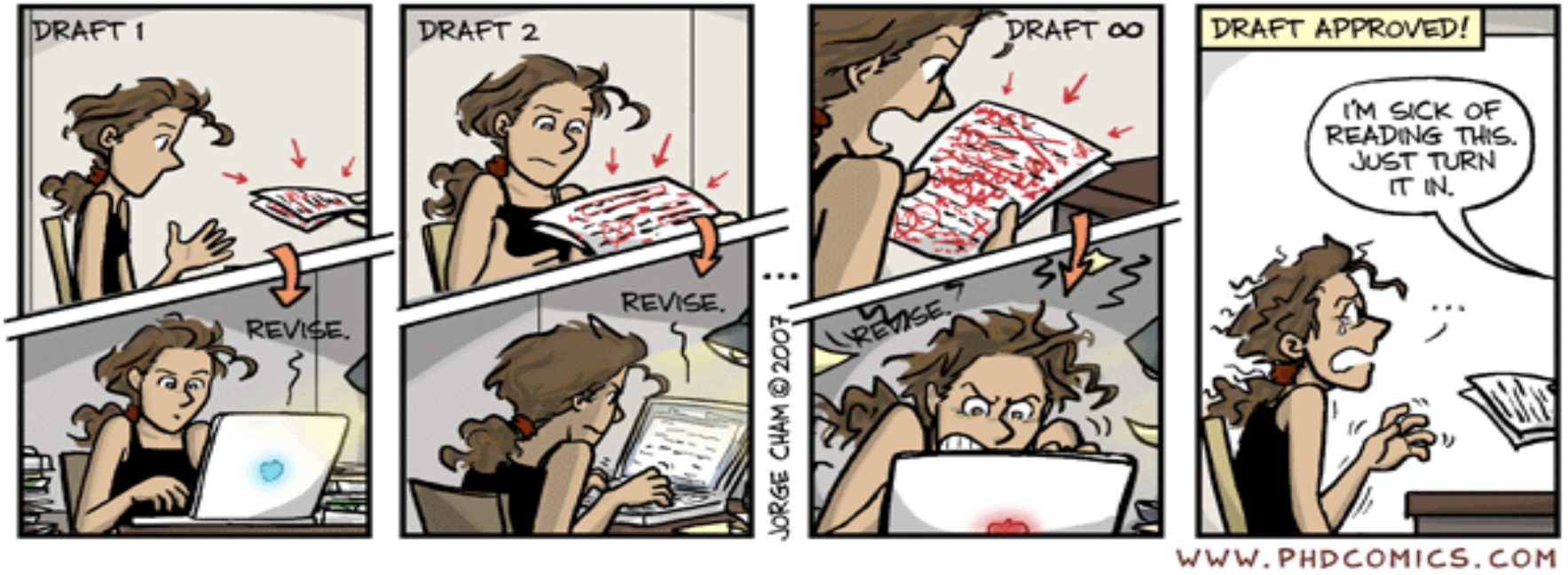
Submitting your paper

Revise before submission



Covering Letter

Professor H. D. Schmidt
School of Science and Engineering
Northeast State University
College Park, MI 10000
USA

January 1, 2008

Dear Professor Schmidt,

Enclosed with this letter you will find en electronic submission of a manu
entitled "Mechano-sorptive creep under compressive loading – a microme
model" by John Smith and myself. This is an original paper which
previously nor simultaneously in whole or in part been submitted
Both authors have read and approved the final version submitted.

Mechano-sorptive is sometimes denoted as accelerated creep. It has been experimentally observed that the creep of paper accelerates if it is subjected to a cyclic moisture content. This is of large practical importance for the paper industry. The present manuscript describes a micromechanical model on the fibre net level that is able to capture the experimentally observed behaviour. In particular, difference between mechano-sorptive creep in tension and compression is analy John Smith is a PhD-student who within a year will present his doctoral thesis. present paper will be a part of that thesis.

Three potential independent reviewers who have excellent expertise in th
this paper are:

Dr. Fernandez, Tennessee Tech, email1@university.com
Dr. Chen, University of Maine, email2@university.com
Dr. Singh, Colorado School of Mines, email3@university.com

I would very much appreciate if you would consider the manuscript for publication in the *International Journal of Science*.

ly yours,

A. Professor

Final approval from all the authors

Explanation of the importance of the research

Suggested reviewers

Recap – submitting your paper:

- **Check**
- **Check**
- **Check** (again)
- Include a **covering letter**

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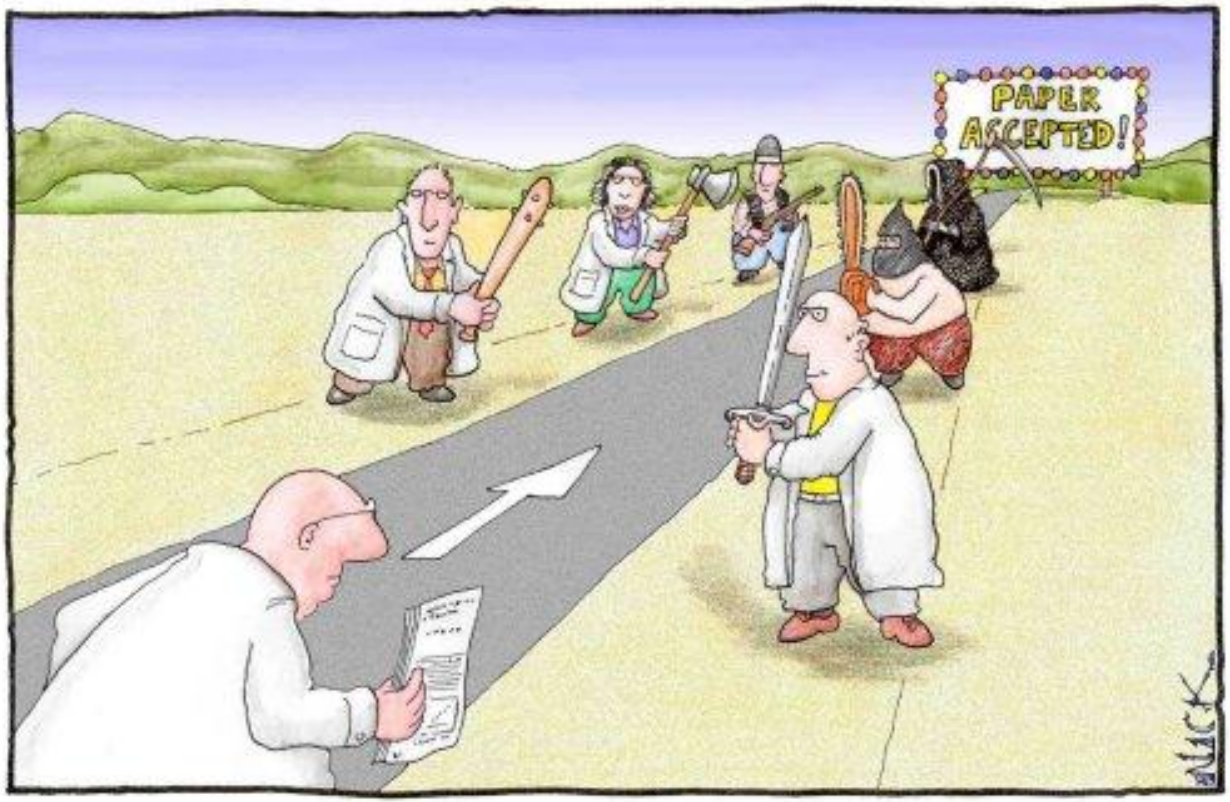
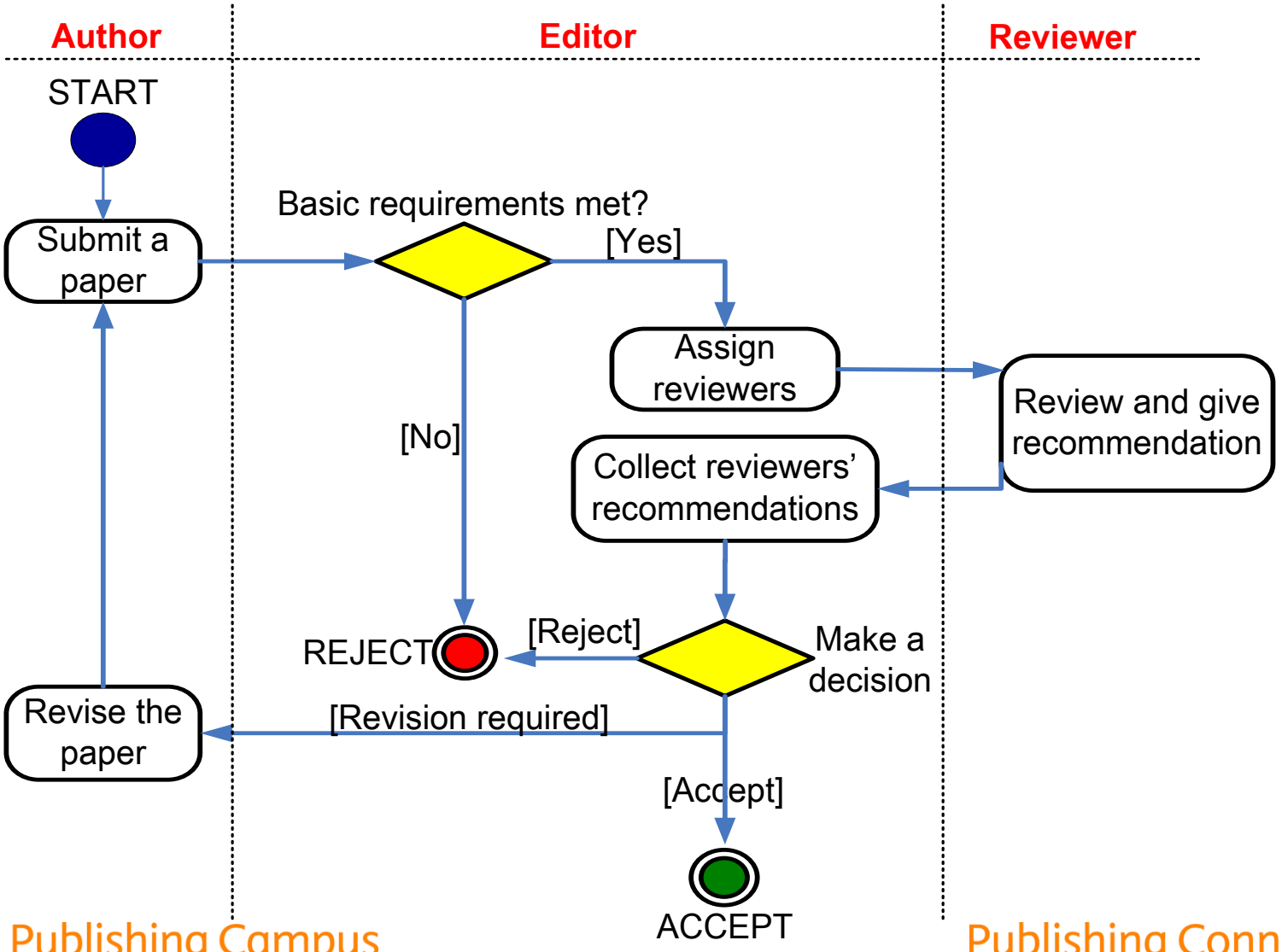
Review

Not how it works



Most scientists regarded the new streamlined peer-review process as 'quite an improvement.'

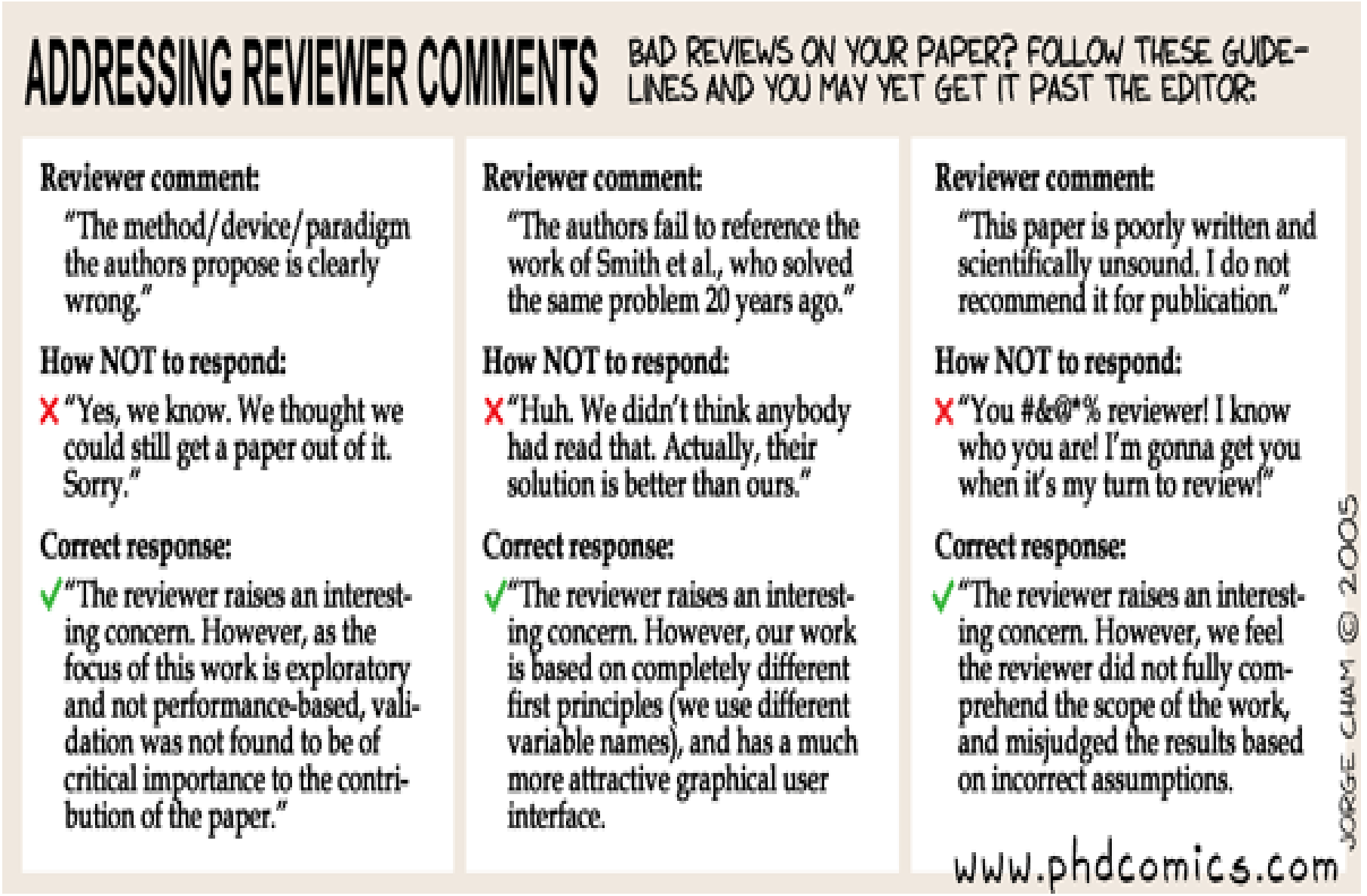
What actually happens



What are reviewers looking for?

- Importance of the hypothesis
- Originality
- Clear progression through the paper
- Well presented

Addressing reviewer and editor feedback



Recap – the review process:

- The review process is managed by the handling editor
- Editors can and do desk reject papers
- Papers that pass the basic journal requirements are sent out for review where expert peers provide assessments
- Papers may be accepted, rejected or sent back to the author for revision
- Reviewers and editors are looking for novel research of high technical quality
- The revision process should be seen as constructive

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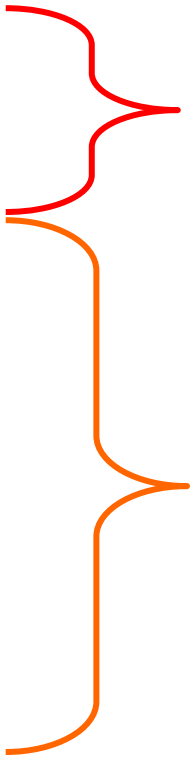
Publishing ethics

What is unethical behaviour?

- **Fabrication of data or cases**
- **Wilful falsification of data**
- **Plagiarism**
- No ethics approval
- Not admitting missing data
- Ignoring outliers
- No data on side effects
- Gift authorship
- Redundant publication
- Inadequate literature search



Serious ethical violations

Questionable research practices

What is plagiarism?

"Plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit, including those obtained through confidential review of others' research proposals and manuscripts."

Federal Office of Science and Technology Policy, 1999

Copying any of these would be plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Graphic representations
- Computer programs
- Diagrams Graphs
- Illustrations
- Information
- Lectures
- Printed material
- Electronic material

Did you know? Plagiarism also includes:

- **Paraphrasing** - restating someone else's ideas while not copying their actual words verbatim.

- Copying one's own work (called **"text re-cycling" or "self-plagiarism"**) is a grey area.

What is duplicate submission / publication?

- Submitting to / publishing one's paper in multiple journals
- Such papers are easily detected
- Don't send your paper to a second journal unless it is rejected or you withdraw it

How do publishers detect plagiarism and duplicate publication?

Who should be listed as an author?

- ✓ First author - Conducts and/or supervises the data analysis and the proper presentation and interpretation of the results; puts paper together
- ✓ Corresponding author - Submits the paper to journal
- ✓ Co-author - Makes intellectual contributions to the data analysis and interpretation; reviews each paper draft; must be able to present the results, defend the implications and discuss study limitations
- ✗ Ghost authorship - Leaving out authors who should be included
- ✗ Gift authorship - Including authors when they did not contribute significantly

What is a conflict of interest?

- Direct financial
  e.g. employment, stock ownership, grants, patents
- Indirect financial
  e.g. honoraria, consultancies, mutual fund ownership, expert testimony
- Career & intellectual
  e.g. promotion, rivalry
- Institutional
- Personal belief

Severe consequences for publishing misconduct

Potential consequences can vary according to the severity of the misconduct and the standards set by the journal editors, institutions and funding bodies.

Possible actions include:

- Written letters of concern and reprimand
- Article retractions
- Some form of disciplinary action on the part of the researcher's institute or funding body

Recap – publishing ethics:

- Never be tempted
- Only submit to one article at a time
- Acknowledge all authors that should be credited and none that shouldn't
- Disclose any conflicts of interest
- The potential consequences are severe

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Promoting your work

How can I make sure my research gets the attention it deserves?

1. Preparing your article

2. Promoting your published article

3. Monitoring your article

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Thank you

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www.publishingcampus.com

Information about publishing in journals
www.elsevier.com/authors

Contact Katie Eve
k.eve@elsevier.com

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