# Peer Review

COMP 90044 SM1 2019, Dana McKay

# Overview

- The process
- Motivation and participants
- Assessment of papers
- Response content and style

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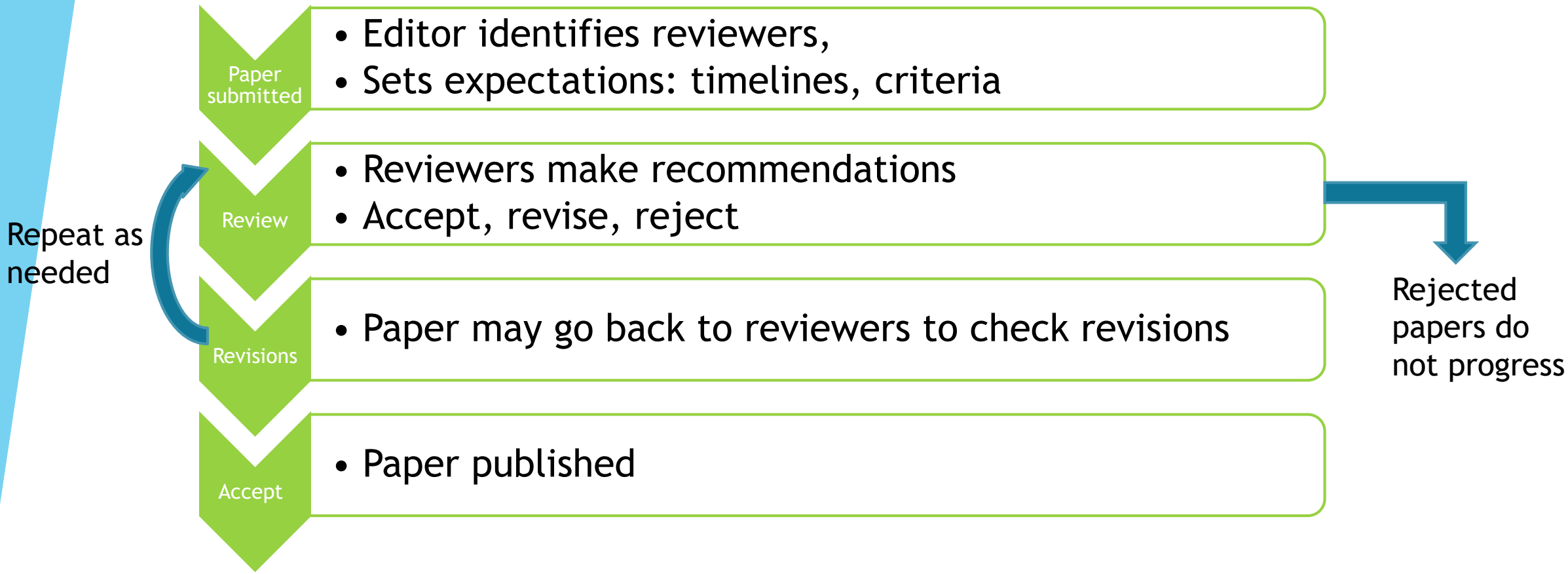
# The process

- Scientists undertake research, they assess the work of others
- Peer review should be a level playing field where everyone's work is scrutinized by experts in their fields to the same standards
  - Skeptically
  - Independently
  - Anonymously
- Used for papers, theses, grant applications…

# Journal papers




Correctness, style, readability requirements high relative to conference papers

# Conference paper

**Paper submitted**

- PC bid on papers
- Automatic assignment process
- Papers assigned

**Reviewing**

- Reviewers have fixed timeline
- May review 3 or more papers
- May have limited expertise

**Decision**

- Reviewers see each others review, may discuss to reach consensus
- May be a ‘rebuttal’ phase where authors respond to reviews
- Decisions made by senior PC

**Revise and resubmit**

- Some papers will be shepherded
- Rejected papers will not progress

# Aims of the process

- Ensure scientific validity
- Ensure that papers will have an impact on other researchers
- Catch errors
- Keep misleading material from the literature
- Fill journals or conferences
- Provide feedback to reviewers

# At submission

- The author might feel
  - Proud
  - Hopeful
  - Exhausted
  - Sensitive and vulnerable
- The reviewers and editors may feel
  - Burdened
  - Unexcited—much work is poor, and rejected papers get recycled
  - Disbelieving—strong results are often overstated
  - Sensitive to typical faults, to criticisms of their own work

# Audiences for reviews

- Editors and chairs
  - Rely on reviews for decision making
  - Are frustrated by fence-sitting
  - Know that some reviewers are lazy or careless
- Other referees
  - May struggle to see they are in error
  - May not be objective
- Authors
  - Often do not want to admit they are wrong
  - May not have had high-quality mentorship
  - Appreciate positive guidance
  - Need to be convinced of referees' views
  - Will try to do the bare minimum for publication

# Becoming a reviewer

- Why review?
  - Good refereeing more influential (per hour) than most research activities
  - Opportunity to see and learn from other work
  - Because it's needed: should review 2/3 papers for each submission
- Choosing to review
  - Accept or decline to review quickly
  - Ensure you meet deadlines—allocate time for the task

# Doing a review

- Read the paper, asking yourself
  - What are the researchers trying to find out?
  - Is it an interesting question?
  - How original is the work?
  - What things were proposed and measured?
  - What do the authors conclude, and do they have evidence for their conclusions?
  - What other work does this relate to?
  - Are the results ‘best in field’?
- Make notes

# Things to consider

- Is the paper interesting/relevant to its audience?
- What is missing/unnecessary?
- Does the evidence justify the claims
- Has the previous literature been used appropriately?
- Do you understand the paper? If not
  - Is it outside your area of expertise
  - Is it poorly written?
  - Can you assess overall elements?
- Completeness, correctness, readability, honesty

# Scientific validity

- How are claims evaluated or validated?
- What are the baselines?
- Are there any questions over method?
- Are the proposals and results critically analysed?
- Are the authors' claims in proportion to the results?
- Are the technical details accurate and sensible
- Is there anything truly weird or implausible

# Making a decision

- **Obviously unacceptable:** Not new, plagiarised, claims that are wrong, methods incorrectly applied, grossly inadequate literature review, so poorly written as to be unreadable
- **Acceptable with revisions:** Meets the scientific standard, but some problems, such as minor niggles with method, inadequately addressed limitations, minor gaps in literature review, significant proofreading needed
- **Acceptable:** Minor issues only, may make suggestions for improvement but paper generally fine as is

# Writing a review

- Be prepared for the writing process to change your mind
- Argue for each point clearly and concisely
- Be constructive
- It is your job to recommend, the editor's to decide

- Remember, this work was precious to someone, be friendly and write as though you may not remain anonymous

# Structure of a review

- Summarize the work
- Admit your limitations
- Provide an honest and fair critique
- Recognise positive elements of the paper
- Structure criticisms methodically, usually following structure of the paper
- Highlight what is worth pursuing

- The confidential box should not be used for material the authors could rebut, but could be used for addressing your own limitations

# Rejection

- Fair rejection
  - If the work is hopeless, be kind but direct
  - Address the content not the author
  - Do note sloppy practices
- Unfair rejection
  - Don’t reject for minor issues
  - Many ideas are obvious in retrospect, obviousness is not grounds for rejection
  - The fact that you would have done it differently is not grounds for rejection
  - Avoid whataboutery:
    - this work could be taken further
    - what about <related problem X>
    - this has been looked at in other fields
    - this work will be out of date if Y becomes obsolete

# Being an ethical referee

- Respect double blind peer review
- Treat the process as confidential
- Address ethical issues with the work as serious
- Recongise and act on conflicts of interest
- Maintain objectivity and be aware of sources of bias

# Problems with peer review

- Women, those with English as a second language less accepted
- Reviewers can be unethical
  - Steal work
  - Use review process to increase their own citations
  - Squash competitor work
- Reviewers can be biased
  - Only believe in their own sub-field or method
  - Contest accepted methods or sample sizes
- Reviewers can be inexpert
  - May miss problems
  - May miss ethical issues
- Ethical problems, especially plagiarism, are hard to address

# Summary

- Be professional
- Be honest (about the work, about your own limitations)
- Approach with scientific scepticism, not disbelief
- Be kind and courteous