Citation manipulation: endemic or exceptional?

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Declaration of interests:
• Catriona works for Elsevier STM Journals & is responsible for publishing ethics policies & best practices
• Jeroen works for Elsevier Research Products, which include Scopus (CiteScore) & Scival

Paper under review for the Proceedings of the 17th ISSI conference
• Never let a good crisis go to waste
• Data model & indicators
• Outliers & detailed analysis
• Case study
‘Never let a good crisis go to waste’ (aka the Dutch way)
Some terminology

• Citation manipulation/coercion: Reviewer or editor influencing authors to add unnecessary and/or inappropriate citations during the peer review process in order to increase citations to: their own work/ their associates’ work/ their own journal/ a related journal with which they cooperate

• Citation pushing (editors/reviewers)
• Citation stacking (journals)
• Citation cartel
Rethinking impact factors: better ways to judge a journal

We need a broader, more-transparent suite of metrics to improve science publishing, say Paul Wouters, colleagues and co-signatories.

'S-index' aims to tackle abuse of self-citations in science

Metric on self-referencing could provide 'truer' citation data, say researchers

The h-index, or the academic equivalent of the stag's antlers

Philip Ball
Can soil science research dig itself out from a citation stacking scandal?

Last year, the soil science community was rocked by reports that an editor, Artemi Cerdà, was accused of citation stacking — asking authors to cite particular papers — boosting his profile, and that of journals where he worked. (Cerdà has denied the allegations.) The case had some major fallout: Cerdà resigned from two journals and the editorial board of Geoderma, additional editors resigned from their posts, and a university launched an investigation. In the midst of the mess, a group
Citation manipulation: what journals can do

✓ Make clear to all parties that this is unacceptable, e.g. in reviewer instruction messages & guidelines
✓ Educate editors: outreach, add to legal agreements
✓ Remove reviewer & editor privileges, add warnings
✓ Inform institutes & funding bodies
? Editorial systems detect (self) citations in reviews/revision letters
? Retract citations
? Black-list worst offenders
? Share information with other journals

COPE guidelines for reviewers: https://publicationethics.org/resources/guidelines-new/cope-ethical-guidelines-peer-reviewers
Elsevier ethical guidelines: http://www.elsevier.com/publishingethics
Spoilers: here’s what we found

- From >54,000 reviewers, >1000 reviewers whose citation patterns were outliers & citations analysed for addition during peer review
- 98.5% “innocent” (added < 10%)
- 1.4% “medium suspicious” (added 10-90%)
- 0.1% “highly suspicious” (added > 90%)

if you’re thinking these cut-off points are arbitrary, you’re right, let’s discuss!
Limitations & data model
Limitations

• Data limited to reviews within Elsevier journals
• Unpublished submissions are mostly unstructured & untagged
• Structured citations not always available for submissions
• Reviewer reports are unstructured & untagged; may be inaccessible; copyright remains with the reviewer
• Honest reviewers may have many profiles across Elsevier journals…dishonest reviewers will have even more!
Data model: summary

Author profiles -> Many to many -> Reviewer records
Outliers
Narrowing the field

- 506,614 reviewers
  - 0 reviewer-citations: 272,072 (54%)
- 69,096 filtered:
  - >=5 reviewed
  - >=5 published
  - 0 reviewer-citations: 14,275 (20%)
- 54,821 further filtered
  - >=1 reviewer-citations
The lower whisker extends to the last observation inside the lower inner fence.

The upper whisker extends to the last observation inside the upper inner fence.

sample median

hinge spread

Source: http://ms.mcmaster.ca/peter/s2ma3/Images/norm_quart.gif
Reviewer-citations / Citation count to the reviewer (log)

- Q1: -5.43372200355 (0.43 %)
- Q2 (median): -4.52720864452 (1.08 %)
- Q3: -3.64283551561 (2.62 %)
- IQ: 1.79088648794
- upper inner fence: Q3 + 1.5*IQ = -0.9565057837 (38.4 %)
- upper outer fence: Q3 + 3*IQ = 1.72982394821 (432712.8 %)
Phase 2: was the reviewer-citation adding during peer review?
Proportion added - 10% bands

Proportion reviewer citations added in process
Proportion added 5% bands
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Elsevier ethical guidelines: http://www.elsevier.com/publishingethics
Case Study: Dr X

- H index =90; 20,000 citations in Scopus
- Entirely unrepentant
- Institute unresponsive
- No funding body
- Practices as an author even more than as reviewer

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<th>count reviewed documents in scopus</th>
<th>sum of references in reviewed documents</th>
<th>sum of references to reviewer</th>
<th>count reviewed documents in scopus citing reviewer</th>
<th>% of reviewed documents that cite reviewer</th>
<th>% of references to reviewer (relative to all reviewed refs)</th>
<th>% of citations from reviewed (relative to Elsevier and period origin)</th>
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Thank you for listening

Questions or Comments

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