

# Citations cartels: an emerging problem in scientific publishing

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*Groups of authors citing each other is becoming an issue in scientific publishing. With a new approach, researchers discuss how to identify the problem*

– by *Claudio Bogazzi, PhD*

In academia, the number of citations that an article receives is considered one of the most important measures of scientific impact and quality. The academic competitiveness for grants and research positions places high value in such impact measures, in addition to the number of publications by any given researcher, resulting in the emerging phenomenon of citations cartels.

In a recent article published in *Frontiers in Physics*, researchers presented their views on this arising problem in scientific publishing: [the identification and discovery of citation cartels in citation networks](http://journal.frontiersin.org/article/10.3389/fphy.2016.00049/full) (<http://journal.frontiersin.org/article/10.3389/fphy.2016.00049/full>).

Citation cartels are defined as groups of authors that cite each other disproportionately more than they do other groups of authors that work on the same subject, as explained by authors [Matjaž Perc](http://loop.frontiersin.org/people/73038/overview) (<http://loop.frontiersin.org/people/73038/overview>), Iztok Fister and Iztok Fister Jr., researchers at the University of Maribor, Slovenia.

“Our perspective article is a step in the right direction, aimed at better understanding citation patterns in scientific literature, and at the detection of citation cartels in particular,” says Perc.

The authors deepen their analysis to consider the competitive context of modern scientific publishing: “With so many people in science, many new ways for increasing their publicity have been introduced. Especially, lowly ranked researchers are trying to obtain citations synthetically.”

The simple solution that some have found to beat the competition is thus to form citation cartels. “There are collaborators, sometimes friends, colleagues and even third parties, who are increasingly often citing each other inside citation networks to increase the impact of their papers,” the authors write.

In their paper, they identify citation cartels using graph theory, a way to study the pairwise relationships between nodes. In their mathematical model, nodes represent scientific papers and edges between two nodes denote a co-citation relationship. The authors then apply modern semantic web tools to mathematically identify where co-citations often occurs, thus defining citation cartels.

“Nevertheless, several challenges remain, because one needs to be very certain before pointing a finger at a supposed cartel. This is one of the main reasons we were cautious and decided not to show any specific results at this stage of research,” cautions Perc.

“The modern tools for estimating the quality of research have put excessive and often undue pressure on scientists, who have to work hard in order to hold their working positions,” he says.

“Our purpose is not to prevent this phenomenon or to discredit authors that could be caught in the citation cartel incidentally, but to show that the citation cartels do really exist, and that all responsible for publishing papers, including Editors and Reviewers, become aware of this,” concludes Perc.

### **What can publishers do about the problem?**

The Frontiers pre-publication process includes several quality checks on submitted manuscripts. “The Ethics & Integrity Team conducts quality checks on all submitted manuscripts in order to ensure a high-standard and compliance with various mandates and best practise guidelines,” explains [Gearóid Ó Faoleán](http://loop.frontiersin.org/people/136854/overview) (<http://loop.frontiersin.org/people/136854/overview>), Ethics & Integrity Manager at Frontiers.

“As with all reputable publishers, citation circles (or cartels) are a major concern for Frontiers. It has been noted elsewhere that Thomson Reuters has previously suspended journals from the Journal Citation Reports and Impact Factor analysis, if they engage in self-citation, a similar practise. In cases of suspected citation abuse, Frontiers will act swiftly to investigate and, where necessary, tackle the issue.”

Citation cartels are an emerging problem in scientific publishing. The work by Perc and colleagues ensures a starting point for a collaborative discussion between authors, editors and publishers on how to deal with it.

[Read the full article \(http://journal.frontiersin.org/article/10.3389/fphy.2016.00049/full\)](http://journal.frontiersin.org/article/10.3389/fphy.2016.00049/full): Iztok Fister Jr, Iztok Fister, Matjaž Perc (2016) Toward the Discovery of Citation Cartels in Citation Networks *Front. Phys.* 4:49 doi.org/10.3389/fphy.2016.00049.

<http://journal.frontiersin.org/article/10.3389/fphy.2016.00049/full>  
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