

The Combinatorial Theory Flip

Anne Schilling *

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On June 13, 2020, Vic Reiner e-mailed a select group of editors of the Elsevier Journal of Combinatorial Theory, Series A (JCTA) opening with

“I don’t know if you heard already about MIT’s decision to end its negotiations with Elsevier.”

He continued with a proposal to found a new Diamond Open Access journal, which would take over the role of JCTA in the combinatorics community, a suggestion that he had made to the Editors-in-Chief in the past. This struck a sensitive nerve since the University of California had also just canceled its subscription contract with Elsevier. Exactly six and a half hours later I replied that I was on board.

Editorial work

Most journal editors volunteer their time and expertise. They evaluate submitted articles, solicit quick opinions and full referee reports, communicate with authors about revisions to their work, and make final decisions about the suitability of submitted articles that underwent the refereeing process. Sometimes editors are remunerated, but most editorial work is unpaid. In addition, much typesetting work is already done by authors themselves who use software such as LaTeX.

Personally, I was extremely frustrated both as an editor and author by the failed negotiations between the University of California and Elsevier. I no longer

had access to recent articles published in Elsevier journals. Enormous effort and countless hours go into writing a paper as an author and handling articles as an editor. While preprints of most mathematical papers are accessible through the arXiv¹, often final versions of articles are not, and many funding agencies and university promotion committees only acknowledge published papers. Suddenly, due to the failed negotiations, I had to pay a fee to access even my own papers or articles I had helped through the refereeing process as an editor.

Decision to flip JCTA

The decision to create a new mathematician-owned journal did not happen overnight. It was first considered in 2004 by Hélène Barcelo, who was Editor-in-Chief. At the time, this was not feasible due to the high workload and generous support by Elsevier. In 2016, Timothy Gowers contacted the editors of JCTA proposing to create a Diamond Open Access journal without immediate success. Over the past 20 years, the Editors-in-Chief of JCTA started to involve the community more in the editorial process by distributing the workload. In 2020 the community was finally ready to embrace the change. It took the hard work and dedication of many individuals to make this happen.

During the summer of 2020, I reached out to Michael Ladisch, Scholarly Communications Officer at the library at the University of California, Davis. He put a working party of JCTA editors in contact with the eScholarship team at the California Digital Library University of California, Office of the Pres-

*The author is a full professor at the Department of Mathematics at the University of California, Davis. Her email address is anne@math.ucdavis.edu.

¹<https://arxiv.org/>

ident, consisting of Rachel Lee (Publications Manager), Catherine Mitchell (Director of Publishing) and Justin Gonder (Senior Product Manager, Publishing). After considering various publishing options and ironing out some legal issues, the Editors-in-Chief of JCTA at the time Ilse Fischer, Jacques Verstraete and Josephine Yu as well as the vast majority of the editorial board decided to indeed take the step to “flip the journal”. In practice, this meant that the editors of JCTA at the time would simultaneously resign from the Elsevier-run journal to establish a new Diamond Open Access journal. It was decided to accept the offer by the University of California’s eScholarship platform², managed by the California Digital Library (CDL), to host and publish the journal and to use EditFlow³ for its submission and peer review workflows.

Brief history of JCTA

The Journal of Combinatorial Theory was founded in 1966 by Frank Harary and Gian-Carlo Rota as a journal in combinatorics and related areas. Since the field had grown rapidly, in 1971 the journal was split into two parts, Journal of Combinatorial Theory, Series A and Series B. Series A was primarily concerned with structures, designs, and applications of combinatorics, whereas Series B publishes work on graph and matroid theory. In 2020, the two series, widely known as JCTA and JCTB and published by the commercial publisher Elsevier, were considered leading combinatorics journals.

Birth of Combinatorial Theory



On September 13, 2020, it was announced that a vast majority of the editorial board of JCTA had resigned to form a new mathematician-owned and fully open access journal called Combinatorial Theory (CT)⁴. Many organizational details had to be worked out:

²<https://escholarship.org/>

³<https://msp.org/editflow/>

⁴<https://escholarship.org/uc/combinatorial.theory>

- The journal had to be set up with eScholarship as the publishing platform with EditFlow for its submission and peer review workflow.
- A restructuring took place moving away from few Editors-in-Chief with a very high workload to a larger board of handling editors, who oversee the review process of the papers. In addition, managing and production editors were instituted who are in charge of assigning papers to handling editors and processing accepted papers to get ready for publication, respectively.
- A constitution was written that governs all aspects of the journal. It was approved on September 24, 2022 and can be viewed on the journal website⁵. In particular, it reads “Combinatorial Theory (henceforth the Journal) is a journal run for and by mathematicians. It is committed to an inclusive view of the vibrant worldwide community in Combinatorics.” and furthermore “The Journal is owned by mathematicians who believe in the importance of unfettered access to research.”.
- A funding model was developed to ensure the longevity of the journal.

The first volume of CT was published in December 2021 containing 18 research articles and 1 expository article. In 2022 and 2023, the second and third volume of CT appeared each featuring three issues containing similar numbers of articles. The number of submissions is at a very healthy rate.

Diamond Open Access publishing

CT is a Diamond Open Access journal.

Diamond Open Access publishing refers to a scholarly publication model in which the journal does not charge fees to either the authors or readers. This is to be distinguished from open access models used by commercial publishers, where either the authors or their institutions pay a fee to publish an accepted article, but the published work is freely available to readers.

⁵<https://escholarship.org/uc/combinatorial.theory/about>

In addition, papers in CT are published under the CC BY license. It allows others to freely distribute the work while giving credit to the original author.

Funding model

How is a Diamond Open Access journal funded given that neither authors nor readers pay for the publishing service? This is a good question since the operating costs for running journals such as CT are nonzero: for example, EditFlow requires a subscription and the managing and production editors of CT currently receive a small stipend as they have taken over duties such as copyediting that usually the commercial publisher fulfills. It should be pointed out, however, that the operating cost is a fraction of the subscription and article processing cost to libraries for commercially run journals.

We were fortunate to work with Rachael Samberg (Scholarly Communication Officer, UC Berkeley; steering committee member, TSPOA) and Sharla Lair (LYRASIS), who helped to include CT in the Open Access Community Investment Program⁶. This started the journal off on a strong financial footing. The Open Access Community Investment Program, piloted by LYRASIS and Transitioning Society Publications to Open Access (TSPOA), helped to seek funding from sponsors such as libraries, consortia, foundations, departments and other prospective scholarly publishing funders. CT is happy to have received funding from many sources such as MathOA⁷, TIBHannover, and various universities and libraries listed on the sponsor page⁸.

Donations to support and help the long term financial stability of CT and other Diamond Open Access journals can be made to The Combinatorics Consortium (TCC)⁹, which is a non-profit 501c3 organization. The budget for CT is less than \$25k in US Dollars per year. A library donation is usually around \$1,500 per year for 5 years. This is a fraction compared to the current charge of often more than \$3k to

publish just a single paper open access with a commercial publisher.

A new beginning

Establishing the new journal Combinatorial Theory had other benefits. We, the editors, reassessed how our journal operated:

- As mentioned above, we moved away from the model of few Editors-in-Chief with a high workload to a diverse team of handling editors who share the workload and the decision responsibility. Each paper is assigned to one of the handling editors by a managing editor. The handling editor solicits quick opinions and/or referee reports and communicates with the authors. The final decision on each paper is, however, taken collectively by all handling editors through a voting system.
- We moved to a doubly-anonymous refereeing process to mitigate implicit biases during peer review. It is too early to evaluate the impact of this new practice. Anecdotally, finding a referee for a given paper is now more evenly challenging for famous and less known authors.
- In addition to research articles, we encourage submissions of well-written expository articles.

One among many

While the creation of Combinatorial Theory happened relatively recently, there exist many Diamond Open Access mathematics journals. In the field of combinatorics alone Diamond Open Access journals include the Electronic Journal of Combinatorics¹⁰, Algebraic Combinatorics¹¹, Séminaire Lotharingien de Combinatoire¹², American Journal of Combinatorics¹³, Advances in Combinatorics¹⁴, Annals

¹⁰<https://www.combinatorics.org/>

¹¹<https://alco.centre-mersenne.org/>

¹²<https://www.mat.univie.ac.at/slc/>

¹³<https://ajcombinatorics.org/>

¹⁴<https://www.advancesincombinatorics.com/>

⁶<https://www.lyrasis.org/content/Pages/oacip.aspx>

⁷<https://www.mathoa.org/>

⁸<https://escholarship.org/uc/combinatorial-theory/sponsors>

⁹tccpublishing.org

of Representation Theory¹⁵, Enumerative Combinatorics and Applications¹⁶, and Innovations in Graph Theory¹⁷ among others. Not all of these journals were flipped from an existing commercially owned journal. Another example of a flipped combinatorics journal is Algebraic Combinatorics¹⁸, which was founded after the four Editors-in-Chief and the whole editorial board of the Springer-run Journal of Algebraic Combinatorics resigned in July 2017¹⁹. Algebraic Combinatorics is published by TCC as opposed to eScholarship.

Community support

Creating a journal not only requires dedication and effort from the editorial team and a funding plan, but also the support from the mathematical community. In our case, the journal JCTA still exists; after the resignation of the editors in 2020, Elsevier instated a new editorial board. One of the challenges is that the community needs to view the flipped journal as its new flagship publication venue. Granting agencies and universities judge journals by metrics and impact factors, which do not readily exist for new journals. Organizations such as DOAJ²⁰ help to remove these barriers: “DOAJ’s mission is to increase the visibility, accessibility, reputation, usage and impact of quality, peer-reviewed, open access scholarly research journals globally, regardless of discipline, geography or language.” CT’s steering committee and eScholarship have succeeded in getting CT indexed by Scopus and are currently working the indexing through Web of Science; this can be a slow process.

As pointed out earlier, there is a trend in running Diamond Open Access journals. I would like to encourage libraries and the mathematics community to support these journals. Ultimately, Diamond Open Access is a better and cheaper way to run scientific publishing:

- Libraries can give small amounts of money to

help maintain the journals.

- Mathematicians can submit their articles to Diamond Open Access journals and referee articles when requested.
- Well established researchers can create new Diamond Open Access journals. Running a journal is usually beyond the scope of the career of an academic, but it takes mathematicians who are willing to make this happen.

Right now, many millions of dollars from library budgets end up in the pockets of shareholders of large commercial publishing companies. This money would go a lot further by supporting Diamond Open Access journals run and owned by mathematicians themselves.

We are fortunate that the vibrant combinatorics community has embraced CT which is evidenced by the high quality submissions. Keep those exciting papers coming!

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¹⁵<https://art.centre-mersenne.org/>

¹⁶<https://ecajournal.haifa.ac.il/>

¹⁷<https://igt.centre-mersenne.org/>

¹⁸<https://alco.centre-mersenne.org/>

¹⁹<https://ems.press/content/serial-article-files/10431>

²⁰<https://doaj.org/>