Maple Transactions—The Early Years

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Abstract. A vision statement for Maple Transactions giving our goals and plans for the first few years.

Additional Key Words and Phrases: academic publishing, live documents, organic mathematics, publication for the community, academic integrity, value for the public dollar

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1 Background: Academic Publishing in 2021

Academic publishing is currently in ferment. There are negative aspects: indeed, the words “predatory publisher” are now common in academic discourse (where once one might have heard instead “junk journal”). The truth is that quite a lot of academic publishing evolved out of *vanity press*, because pure science—unintended to make a profit for anyone—didn’t pay for itself immediately (and indeed might profit someone else more). Under the vanity press model, if you wanted to share your results, you had to pay the costs, somehow. But because science has been so immensely profitable *in the long run* (with the word “profit” here meaning not just in money) we have evolved mechanisms to pay for its publication. One common mechanism in North America and Europe is to use one’s grant money, which ultimately comes out of the public purse, to pay the publication costs. It’s not surprising that parasitical publishers evolved to take advantage of that, and Article Page Charges (APC) of thousands of dollars per article are, in fact, routine at some journals. Such publishers can make a substantial amount of money this way, especially because most of the work is done by “volunteers” (in the sense that the authors, editors, and reviewers are usually not paid for each publication). What one is paying for is an *imprimatur*: a mark of quality. I would add that some society journals, such as [SIAM Review](#), also have the option to charge significant fees for Open Access, but since they also permit publication on [the arXiv](#) those optional APCs can be considered a donation to the Society. Indeed, my co-author Mair Zamir paid the APCs for the article linked above for that precise reason.

There are extraordinarily positive aspects in this ferment, as well. The [Electronic Journal of Combinatorics](#) was founded in 1994 by Herb Wilf and Neil Calkin, and broke the ground for free online journals. [JSTOR](#) allows free registration with open online access to 100 articles per month per user. There are open access journals that publish videos, not just papers: see the discussion in [this article at enago.com](#). The [Journal of Open Source Software](#) and [F1000Research](#) are *completely* open journals. There is significant discussion about what it means to be “open” [6]. The software system Open Journal Systems (OJS), developed by the [Public Knowledge Project](#) (PKP) at Simon Fraser University, is by now very widely used; for instance, by [The Electronic Journal of Linear Algebra](#), sponsored by the International Linear Algebra Society, and (literally) hundreds more, many of them listed in the [Directory of Open Access Journals](#).

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2 How Maple Transactions started

My friend and colleague Samantha Brennan helped to found the journal [Feminist Philosophy Quarterly](#) here at Western, using OJS, and I was quite interested to hear her stories about the process as it happened. So, when Laurent Bernardin (CEO of Maplesoft) and Jürgen Gerhard (Senior Director of Research at Maplesoft) approached me to ask if I was interested in being Editor-in-Chief of a new Maple journal¹, I said yes. This was partly because we could now do it free from many of the constraints that, in my view, have held academic publishing back.

The costs for hosting the journal on a computer are now low enough that they can be borne by a single university; here Maple Transactions is hosted at Western University (as is [Feminist Philosophy Quarterly](#), and my colleague Xingfu Zou's journal [Mathematics in Applied Science and Engineering](#)). Training in the software is given by the Western librarians; their salaries are paid by Western. In the interest of full disclosure, my own salary is not: I have retired from Western, and so Maplesoft has stepped in, and I am paid for one day a week to work on Maple Transactions. Maplesoft also pays several of its staff members to help with the journal: some work on the Senior Editorial Board, some are Associate Editors, some help with the marketing. There is no detailed accounting as to how much of this “in-kind” contribution compares to the “in-kind” contribution of Western faculty and staff, but my feeling is that things are about equal. I certainly work on this more than one day a week—it suits some of my academic goals, as well; so I volunteer (I'm hoping that it will eventually turn out to be about another day a week; right now, as we are getting started, it's more).

We have tried to encourage new thoughts about publication and what that means in this new world. Of course, we want to get high-quality publications, of interest to the Maple community, into everyone's hands at the lowest price possible. But we want to break new publishing ground as well, to take advantage of the wonderful new affordances.

As pointed out by my friend Tomás Recio, no matter *what* we do, there will still be a price to be paid, by members of the community: namely, they will have to do some work as well. They will have to (*you* will have to) write for this journal, review for this journal, and (most importantly from my point of view) read or view expositions in this journal. To give academic credit to the authors of articles published in this journal, you will have to cite them if you use their work in your further work. All this takes time, however, and in this modern world, we are all pressed for time more than anything else. We at Maple Transactions want that the time spent by authors and readers to be as worthwhile as possible. We want readers of this journal to take away something valuable *to them*, whether it's knowledge of a new way to do something (new to them, at least), or a new way to apply their knowledge, or a new way to teach something.

If we do this right, the journal will naturally earn a good reputation; that reputation will in turn give the desired “*imprimatur*” to future works.

Discussions on starting this journal began about a year ago. I signed on formally on 1 February 2021 and, knowing that this was necessarily going to be a team effort, started recruiting the Senior Editorial Board (Paulina Chin, Annie Cuyt, Jürgen Gerhard, Veselin Jungić, Ilias Kotsireas, and Judy-anne Osborn); except for Jürgen and Paulina, they are volunteers in the usual academic sense: one hopes that they will get appropriate credit at their institutions. And then we recruited the Associate Editors, about 50 in all so far. We have tried very diligently to be inclusive, and to recruit a diverse selection of editors; not only geographically diverse, and diverse in the sense that we deliberately recruited from historically excluded groups (see [Creating a Warmer Environment for Women in the Mathematical Sciences and in Philosophy](#) [3] (published in an OJS journal!)), but

¹There once was a print journal, MapleTech, in existence in the nineties, which had served some academic purposes and some company purposes. Maple Transactions is already very different, with its live content online.

also diverse in research area. Mathematics Education is a topic we take very seriously, for instance. We also want to publish *software*, although evaluation of such is difficult [5]. We plan to expand the list further in the next year or so. The Associate Editors will be crucial to the eventual success of Maple Transactions: their jobs include soliciting articles and videos, pointing out the gaps we're missing, and providing the impetus to continue.

Maple Transactions published its first issue in July (we did allow ourselves the leeway of *retroactively* publishing things in the first issue, and indeed the final item just went in today, as I write this in November). This present essay, which is intended for the “Front Matter” section, will appear in our second issue, which is otherwise now complete. That is ten months from initiation to the publication of the second issue, and perhaps that is another victory for Maple Transactions: academic publication is so notoriously slow that my own normal practice is to “ping” the editors three months after submission, and again after another three months; it's quite usual to wait a year (or two!) for referee reports. We don't want that ever to happen for this journal.

We have $\text{\LaTeX}$ -formatted papers with math and computer programs in them, and the $\text{\LaTeX}$ template is [available on Overleaf](#); we have MS Word papers (as appropriate for education, and some applications); all this is to be expected. We also publish videos (there are two video abstracts now, but we hope to see full videos in the future). We also, and this is one area that we hope to grow, publish *live mathematical documents*. This was a dream, in the days when Jon & Peter Borwein, Loki Jrgenson, Veselin Jungi and I worked on the Organic Mathematics Project in 1995. But now the technology has caught up—almost—with the dream [2]. Right now, we have published, via the Maple Cloud, two Maple documents (or, rather, one document and one “workbook”). We expect more, and we also expect to publish live documents in other formats. Yes, even in formats that compete with Maple documents. This is an academic publication, and it is not a prerequisite to use Maple to publish in this journal.

As far as quality of the publications so far goes, we have done our best to attract very high-quality papers, and are very happy with the current level being indicated: we wanted to begin as we meant to go on. Of course, it is the readers/viewers in the community who will be the ultimate judges of the quality of this journal.

3 On refereeing

Our guidelines to referees say that the most important question is: Is this exposition of potential interest to the Maple community? The next most important question is: Is it well-written (in the case of a video, well-executed)? We are less concerned with originality. Provided the standards of good academic integrity are upheld [4], a bit of “academic recycling” is perfectly ok.

We also have a non-refereed section. That doesn't mean we accept just anything: the Editors will give all articles “editorial review” at the least, and in some cases will share papers in an open review style even for the “non-refereed” section. The Senior Editors can publish fully refereed articles, as can the Associate Editors; the software has enough safeguards that we can do this with proper blinding. It's not so easy to do that for me, though, and in the interests of impartiality all my papers in Maple Transactions will be considered as “not refereed”.

We *could* have gone with more radical notions of refereeing, such as exhibited by [F1000Research](#) and [The Journal of Open Source Software](#), where all refereeing is open and happens after publication (and they allow revision). But we chose a more conservative model, with blinded review. Indeed, in order to reduce bias in reviews, we have tried to move to a full *double-blind* model, where the authors are anonymous and the referees are anonymous. It has been a bit difficult to get this started, mostly because of the existence of preprint servers like the arXiv, but we will persist in this; we feel that it is a very worthwhile effort.

Fig. 1. The numerical solution to one of my favourite ODEs

4 Where we want to go

These first two issues should give you the flavour of Maple Transactions; except that we have not yet had any “application” papers (this is something that we intend to correct). The stated purpose of Maple Transactions is *dissemination of excellent expositions on topics of interest to the Maple community*. This includes computer-assisted research in mathematics, applications, software, and (especially) education. We like experimental mathematics (Jon Borwein preferred the term “computational discovery” in 2016), computational epistemology, visualization, technology in education, historical work, and more. If it’s well-executed and it’s useful and it’s fun, we want it.

Just for fun, I include one graph here. In Figure 1 we find the solution to $\dot{x}(t) = \cos(\pi t x(t))$ for various initial conditions, computed in Maple with `dsolve/numeric` [7]. The differential equation is studied in [1], where the authors look at the asymptotics; I’ve used it to teach *sensitivity to initial conditions*. There are lots of ways that this differential equation could be discussed in Maple Transactions. But it’s here really just so I can have a nice picture.

We want more *interactive* content—sadly, we cannot moderate comments because we don’t have the staff—but we would love to publish letters to the Editor taking up points from previous publications. If you have a question or a comment, send me an email. Or a follow-up paper!

5 It's up to you

This is intended to be a community project. We will publish the Proceedings of the 2021 Maple Conference as a Special Issue; we have another Special Issue planned for 2022 (announcement soon); we will do our three regular issues next year. We're ahead of schedule, in fact. I told Laurent Bernardin that it would take us three years to get to a regular schedule. But the response so far has been wonderful, and the community is very large and active. So we have very high hopes for the future of Maple Transactions. I personally look very much forward to reading future issues.

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