

## Tim Gowers' blog

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<http://gowers.wordpress.com/2013/01/14/why-ive-joined-the-bad-guys/#more-4540>

### Why I've joined the bad guys

A few months ago I was alerted by a pingback to the existence of a blog post by Orr Shalit entitled [Worse than Elsevier](#) which included the assertion that Terence Tao and I had “joined the bad guys”. That is an allusion to the fact that we are editors for [Forum of Mathematics](#), CUP's new open-access journal. This post serves a dual purpose: to draw attention to the fact that Forum of Mathematics is now accepting submissions, and to counter some of the many objections that have been raised to it. In particular, I want to separate out the objections that are based on misconceptions from the objections that have real substance. Both kinds exist, and unfortunately they tend to get mixed up. If you are not already familiar with this debate, the aspect of Forum of Mathematics that many people dislike is that it will be funded by means of article processing charges (which I shall abbreviate to APCs) rather than subscriptions. For the next three years, these charges will be waived, but after that there will be a charge of £500 per article. Let me now consider a number of objections that people have to APCs.

**It is just plain wrong to ask authors to pay to get their articles published.**

There are many variants of this argument. For instance, an analogy is often drawn with vanity publishing: do we want vanity publishing for mathematical articles?

Let me begin with the “it is just plain wrong” part. A number of people have said that they find APCs morally repugnant. However, that on its own is not an

argument. It reminds me of some objections to stem cell research. Many people feel that that is wrong, regardless of any benefits that it might bring. Usually their objections are on religious grounds, though I imagine that even some non-religious people just feel instinctively that stem-cell research is wrong. In the case of APCs, I very much doubt that there is a *religious* objection, so I think everybody can agree that merely saying, “I find the idea horrible,” is not an argument until one has given a *reason* for its being horrible. It is scarcely necessary to say this, but some people have advanced the “it is obviously immoral” argument, so I am briefly mentioning it.

To be fair to the people who have said that it is immoral, they *have* gone on to give further arguments, so all I’m saying is that instead of *starting* from the position that it is immoral (as some people have), we should start by discussing the benefits and harms and conclude that it is immoral only if we find that the harmful consequences are unacceptable.

Actually, I myself very strongly agree with the assertion that it is wrong for authors to pay to have their articles published. Why? The main one is that it gives an advantage to rich authors. When we judge the research output of other mathematicians, we pay some attention to the quality of the journals that they have published in. If it turned out that rich mathematicians could publish in better journals than poor mathematicians, we would be introducing a completely irrelevant criterion, wealth, when all that should matter is the quality of the mathematics. The fact that it would be giving an advantage to people who are already advantaged makes things even worse.

So what am I doing on the editorial board of a journal that will in due course have article processing charges? There is no inconsistency here, because *authors will not pay to publish in Forum of Mathematics*.

There is a misconception here, which I have unfortunately helped to perpetuate. In [my previous post about Forum of Mathematics](#) I made a bad mistake, which was to suggest that APC stood for “author publication charge” rather than “article processing charge”. Other people often refer to this method

of financing a journal as the author-pays model. But it isn't. An article processing charge is what it says — a charge for the processing of an article. So to call it an author-pays model is incorrect unless the APC is met by the author.

Forum of Mathematics will not under any circumstances expect authors to meet APCs out of their own pockets, and I would refuse to be an editor if it did. (I imagine the same holds for all the other editors.) Of course, it is one thing to say that authors are not expected to pay, and another to make sure that that never happens. Let me describe the safeguards that will be put in place.

First of all, when you submit an article, there will be no mention of APCs. The article will be processed in the normal way — sent out to referees, discussed by editors, etc. — and a decision will be made whether to accept or reject it. Since APCs have not been mentioned, the decision will be completely independent of financial considerations. (Of course, it will often be easy to guess whether an author can pay. But the editors will have absolutely no incentive to take this information into account. And if there were ever any pressure from CUP to be a bit more lenient to authors who were likely to be able to pay, I imagine that the entire editorial board would immediately resign.)

If your article is accepted, and if your institution is set up to meet APCs (as an increasing number of institutions already are) or they are covered by a grant that you are on, then you will arrange for your APC to be paid. Otherwise, CUP will ask for a letter from your institution stating that they are unwilling to pay the charge. No justification for this is required — just confirmation that it is the case. If you are not affiliated with an institution, then the charge will be automatically waived.

In short, you yourself won't pay anything, and you won't be expected to go to huge trouble applying for money to cover the APC. Either there will be a system in place for covering the charge, or you will need to organize for a simple letter to be sent. The worst that can be said for the effect this will have on you is that it will involve a bit more bureaucracy. But I don't see that it will

be any more time-consuming than correcting galley proofs, say. And even the bureaucracy should gradually become less necessary, since after a while CUP should be able to deal directly with the institutions that meet APCs and will know which ones don't.

So if you regard APCs as immoral because you are imagining authors having to pay out of their own pockets, or authors from rich institutions having an advantage over authors from poor institutions, or authors having to go round with a begging bowl when they get an article accepted, or authors managing to get worthless articles published by paying money to unscrupulous publishers, then what you are objecting to does not apply to Forum of Mathematics.

Maybe it will apply to other journals, and maybe that will be a problem: that is a question I'll come back to.

### **What??!! How can it cost £500 to process an article?**

There are two questions here. One is whether £500 will be a fair reflection of the costs that CUP will incur when processing Forum articles. The other is whether what they provide for those costs is worth paying for. The first question has a simple answer: it will. The answer to the second question is much less obvious, for which reason I want to postpone discussing it until the part of this post that will deal with the more serious objections to Forum of Mathematics.

So how can the costs reach anything like £500? I'll talk in general terms here, and not specifically about Forum of Mathematics. There are many things that an academic journal does to a paper once it has gone through the refereeing process and been accepted. It does copy-editing, typesetting, addition of metadata, and making sure the article appears on various bibliographic databases. (I repeat that in this section I am not discussing whether we want all these things.) A typical cost for all this is around \$20 per page. That's just a fact: if you go round and ask people who work for conventional maths journals what it costs them per page to process an article, that is the kind of figure you will get.

At this point, you can do some calculations yourself. If an average article is 25 pages, that's already \$500, which is approximately the same order of magnitude as £500. Then you have to take into account a number of other factors, such as that it costs money to handle papers that are then rejected (not all that much, but even arXiv needs \$7 per paper), and there will probably be several of those per accepted paper, that fees will be waived for some articles, that there will be staff costs and overheads (such as part of the cost of heating the building used by the staff — things like that), and so on.

For that kind of reason, it is a straightforward empirical fact that £500 is the right order of magnitude for the costs per article incurred by a journal that operates in roughly the same way as a current conventional print journal.

**Forum of Mathematics is even worse than Elsevier.**

Let's think about what you are committing yourself to if you agree with this. First, the cost to the academic community of an article published in Forum of Mathematics is £500. What is the cost of an article published by Elsevier. This is harder to judge, for various reasons, but it seems to be at least an order of magnitude higher. Let me quote Mike Taylor [writing in the Guardian a few months ago](#).

For Elsevier, the biggest of the barrier-based publishers, we can calculate the total cost per article as £1,605m subscription revenue divided by 240,000 articles per year = £6,689 per article. By contrast, the cost of publishing an article with a flagship open access journal such as PLoS ONE is \$1,350 (£850), about one eighth as much. No one expects open access to eliminate costs. But we can expect it to dramatically reduce them, as well as making research universally and freely available.

I actually think that the “real” cost of the arrangement (which I won't attempt to define here) is higher still, because Elsevier's bundling arrangements mean that libraries are paying for a lot of articles that they don't really want. Or perhaps what I should say is that while the average cost may be £6,689 per article, we should think of it as quite a lot more than that for the articles we

want, and quite a lot less than that for the articles that we don't want.

But even if we accept the figure of £6,689 as it stands, that's a lot more than £500. So to show that Forum of Mathematics is worse than Elsevier, you need to establish that it is worth paying £6,189 per article to avoid the harm associated with submitting an article to Forum of Mathematics.

Let's remind ourselves what that harm was: it was a little piece of extra bureaucracy that has to be gone through when you submit a paper. It isn't any of those things that people like to imagine such as hard-up graduate students being shut out from the journal, faculty being unable to publish because their universities won't cover the fee, authors paying substantial sums out of their own pockets, people using money to buy prestige, etc. Those would all be very bad things, worth fighting against. But you aren't fighting against them by fighting against FoM.

If you say that FoM is worse than Elsevier, then you are saying that an hour of your time (to give a generous estimate for how long you would need to write and follow up on an email requesting either payment or a letter refusing payment) is worth £6,189 to the academic community at large.

**Authors are doing a service to the world, so making them pay is ridiculous.**

First, let me repeat that *authors will not pay to publish in FoM*. But let's think about what the service is that authors do to the world. In some cases, they prove results that fascinate other mathematicians and stimulate a great deal of further research. That is undoubtedly doing a service. But that service is already done the moment they put their paper on the arXiv or their home page (assuming they do). So why do they bother to publish?

As I think everybody agrees, now that we have the internet, the main function left for journals is providing a stamp of quality. There is a big question about whether we actually need journals for that, but that question is independent of the question of who benefits from the service provided by journals. It is not the reader, since readers can quite happily look at preprints. The main person who

benefits from the stamp of quality is the author, who boosts his or her CV and has a better chance when applying for jobs and so on. There is also some benefit to hiring committees, who can look at a publication list and get a quick sense of whether an author is publishing in good journals.

If you feel that APCs are wrong because if anything you as an author should be paid for the wonderful research you have done, I would counter that (i) it is not *journals* who should be paying you — they are helping you to promote yourself, and (ii) if your research is good, then you *will* be rewarded for it, by having a better career than you would have had without it.

Let me now turn to some arguments that I think have more merit to them.

**Maybe a typical article costs around £500 to process under the current system, but do we need what we get for that money?**

This is a much more serious question. While I'm discussing it, let me also highlight another misconception, which is that the editors of FoM regard it as a blueprint for the future of all of mathematical publishing. Maybe some of them do, but I don't. There are two more modest ways in which it could be part of the picture: it might exist in its current form only as a temporary measure until newer and cheaper methods of assessment are developed and become accepted, or it might be that it and a few other journals would persist with traditional methods of processing articles but the bulk of mathematical publishing would be done much more cheaply, with minimal typesetting, copy-editing etc.

If traditional methods of processing articles do cost something like £500, whereas merely having an editorial and refereeing process should cost much much less (but not quite nothing, since there will be administrative costs), what is the argument for spending that much on the copy-editing and typesetting of articles that people find perfectly readable in their preprint form?

To my mind, the main argument is that moving from the current system to a radically new system is difficult unless there is a smooth path from one to the other. Imagine, for example, that somebody sets up an editorial board that does nothing except ask referees to report on papers on the arXiv, "accept" the

papers it regards as good enough, and list those papers, with links, on a website. It seems to many people, including me, that such a board is doing pretty well all that we need of a mathematics journal. But suppose that a board of that kind were to be established, with the stated aim of competing directly with Journal of Functional Analysis, and that you were a postdoc trying to improve your publication list with a view to getting a good job somewhere. Wouldn't you feel that it was safer to submit your paper to Journal of Functional Analysis than to the new "journal" that people reading your CV might not have heard of or might not trust?

I very much hope that ventures such as that will be set up, will be successful, will be trusted, and will look good on people's CVs. But I think that that will take time. Meanwhile, FoM provides an option that is enough like a conventional journal that an article published there will look every bit as good as an article published in the journals it is competing with, and that is also open access and much cheaper to the academic community than a subscription journal.

In my ideal world, would every maths journal be run like FoM? Not at all. But to get to the ideal world, I think that it is going to be easier to persist with journals that are pretty conventional (but much cheaper) at least for now.

There is another argument in favour of what publishers currently do, which is that they help your paper appear on citation indexes, they give you journals with impact factors, and so on. I hate all that stuff: the measures are incredibly crude and far less useful than a well-written reference. I think most mathematicians share my distaste. But a lot of other scientists don't seem to, and there is a danger that if mathematicians are perceived as "not really publishing" any more, then they will not be understood or taken seriously in situations where they are competing with people from other subjects.

I wish that argument would go away, and I hope that one day it will, but that's an even bigger battle than the battle for reasonably priced journals.

**I don't want traditional-style journals with APCs. I want much more**

## **radical change.**

I basically agree with this, but as I argued in the previous section, I think that there is a case for having APCs at least as a transitional arrangement. There is another, and to my mind stronger, argument for this, which is that APC-based journals are much more vulnerable if a better model comes along. The faults of the current subscription model have been obvious for years, but it has been very hard to do anything about it because of bundling, which means that you can't easily cancel subscriptions. (For a great description of the problem, try [this blog post](#) of John Baez.) Suppose now that we lived in a world where all maths journals were open access and funded by article processing charges. And suppose that a lot of mathematicians decided that they were perfectly happy to publish in different ways — free electronic journals, arxiv overlay boards, or whatever. Then they could simply publish in those different ways. If you publish in a different way at the moment, your poor old library is still locked into all those expensive subscriptions, but if you publish in a different way in a world full of APC-based open access journals, then whoever would have had to pay the APC no longer has to.

I had a horrible fantasy the other day, when it occurred to me that publishers could try to reintroduce the bundling concept in connection with APCs. Suppose that Elsevier made an offer to a university that for a flat fee all academics at that university could publish free in Elsevier journals for the next five years. If the flat fee was set in such a way that the university expected to save money, then it would be a tempting offer. But what would happen then? The university would say to its academics, “If you have the choice between an Elsevier journal and a comparable journal published by someone else, please go for the Elsevier journal.” And once Elsevier (and other big publishers with similar arrangements) had driven the smaller journals out of business, it could start upping the fees, and it would be very difficult for new journals to compete. In other words, the major problem with subscription journals could be reborn in a new guise.

However, forewarned is forearmed. Now that we know that bundling arrangements, however tempting in the short term, are ruinous in the long term, we can tell our universities to have nothing to do with them. Any sign that a publisher is trying to introduce them can be met with widespread negative publicity. And I think that if this nightmare did eventually come to pass, mathematicians could have moved on to better publication systems before they were affected by it.

**Maybe FoM's waiver policy is OK, but by associating yourself with FoM, you are indirectly conferring legitimacy on many journals with much worse policies.**

This is a danger, I'll admit. However, I think that the right way to counter this danger is not to campaign against the principle of article processing charges itself, but to campaign for certain safeguards to apply to any journal that has such charges. Here is a possibly incomplete list of safeguards.

1. Editorial decisions should be completely independent of financial considerations. If the editors decide that a paper is good enough to be accepted, then it will be published. Ideally, editors should not know, when they handle a paper, whether the author has access to funds for article processing charges. [I say "ideally" simply because there will be situations where an author's institution's policy is known to an editor. For example, it seems that in the UK, as a result of government mandates, all universities will be obliged to have a pot of money for paying APCs, and an editor may well know that an author is British.]
2. Under no circumstances should there ever be any advantage to an author who is happy to pay an article processing charge out of his/her own pocket.
3. An author at an institution that is willing to pay article processing charges should not be at any advantage over an author at an institution that is not willing to pay article processing charges.
4. The article processing charges should be set at the level needed to cover reasonable costs of the publisher (including overheads and possibly a modest

profit for the purposes of reinvestment).

As I have argued above, Forum of Mathematics has these four safeguards in place. The fourth one is perhaps less obviously essential than the others, for two reasons. One is that some institutions, such as learned societies, might want to make larger profits in order to support their activities (and perhaps replace lost subscription revenue). Another is that one might hope that market forces would operate more efficiently. If a subscription journal is outrageously expensive, bundling makes it hard to do anything about it, but if a journal charges outrageous APCs, it is easy (in many cases) to avoid publishing in that journal.

What I would like to see is (cautious) support for journals with safeguards like 1-4 in place, and strong criticism of journals that manifestly don't — which in my case would probably include adding them to the list of journals that I am boycotting.

As always, there is much more that I could say, but I think I'll end it there.

Before I finish, I would like to mention that this post will be followed soon by a companion post entitled "Why I've also joined the good guys." If the idea of APCs still sticks in your craw, then you will find that post more to your taste.