

Akademische Integrität

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Salami slicing and other kinds of scientific misconduct: A faux pas for the author, a disaster for science

An interview by Tamara Köstenbach with Ivan Oransky in October 2022 for the research project “Summa cum fraude – Wissenschaftliches Fehlverhalten und der Versuch einer Gegenoffensive”

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Abstract: As part of the research project “Summa cum fraude – Wissenschaftliches Fehlverhalten und der Versuch einer Gegenoffensive” at Saarland University (funded by the Deutsche Forschungsgemeinschaft DFG) an interview with Ivan Oransky in October 2022 was conducted. He became well-known for co-founding the Retraction Watch Database and the Retraction Watch blog, which covers topics such as retracting published articles or exposing misconduct in science.

Descriptors: Scientific misconduct, Retractions, Promotion of Good Scientific Practice, Publication Ethics, Scientific Integrity, Quality Assurance

Salamitaktik und andere Arten wissenschaftlichen Fehlverhaltens: Ein Fehltritt für den Autor, ein Desaster für die Wissenschaft

Zusammenfassung: Im Rahmen des von der Deutschen Forschungsgemeinschaft (DFG) geförderten Forschungsprojekts „Summa cum fraude – Wissenschaftliches Fehlverhalten und der Versuch einer Gegenoffensive“¹ an der Universität des Saarlandes wurde im Herbst 2022 ein Interview mit Ivan Oransky geführt. Er wurde in Fachkreisen bekannt als Mitbegründer der Datenbank Retraction Watch und des

Retraction Watch Blogs, in dem unter anderem Themen wie das Zurückziehen von veröffentlichten Beiträgen oder das Aufdecken von Fehlverhalten in der Wissenschaft behandelt werden.

Deskriptoren: Wissenschaftliches Fehlverhalten, Retractions, Förderung guter wissenschaftlicher Praxis, Veröffentlichungsethik, Wissenschaftliche Integrität, Qualitätssicherung

Le découpage en tranches de salami et autres formes d'inconduite scientifique: Un faux pas pour l'auteur, un désastre pour la science

Résumé: Dans le cadre du projet de recherche « Summa cum fraude – Wissenschaftliches Fehlverhalten und der Versuch einer Gegenoffensive » à l'université de la Sarre (financé par la Deutsche Forschungsgemeinschaft DFG), une interview d'Ivan Oransky a été réalisée en octobre 2022. Il est devenu célèbre pour avoir cofondé la base de données Retraction Watch et le blog Retraction Watch, qui traitent de sujets tels que la rétractation d'articles publiés ou la dénonciation de fautes scientifiques.

Descripteurs: Inconduite scientifique, Rétractations, Promotion des Bonnes Pratiques Scientifiques, Éthique de la Publication, Intégrité Scientifique, Assurance qualité

1 <https://gepris.dfg.de/gepris/projekt/430681129>, Projektnummer 430681129.

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Ivan Oransky is a science journalist, founder of Retraction Watch² and has reported on retractions and data manipulations of all kinds in his professional practice for many years. In this interview, he talks openly about the commitment of volunteers who specifically campaign against scientific misconduct, but for various reasons do not have enough listeners. The interview was conducted on 14. October 2022, and

2 Retraction Watch – Tracking retractions as a window into the scientific process: <https://retractionwatch.com/> [7.11.2023].

therefore does not reflect some of the developments that have taken place since then, in particular the acquisition of the Retraction Watch Database by Crossref, which made the database publicly available³. It was also edited for publication in the journal *Information. Wissenschaft & Praxis (IWP)* in consultation with Ivan Oransky.

Ivan Oransky, in Retraction Watch you collect publications that have been proven to violate scientific ethics and rules of good scientific practice. Could you therefore briefly explain what you understand by scientific misconduct and what exactly counts as such?

Ivan Oransky: There are some definitions of scientific misconduct that are commonly used by officials. Here in the United States, it has changed a little bit over time, but in general, the official definition by law or regulation is falsification, fabrication, and plagiarism.

Of course, you can ask what is meant by the terms in an individual case and conclude: If data are manipulated or invented, and consequently do not correspond to the truth, then falsification is present. In other words, the data are made to look better than they really are.

Thus, elements of accepted scientific practice can come very close to what some might consider scientific misconduct. An example of this is salami slicing. This means that you try to publish an unspecified number of papers with the same dataset in a way that is not really intellectually honest. Apart from that, manipulations of the peer review process are also becoming more and more common.

Plagiarism is plagiarism. You hear that all the time and sometimes it is already considered part of the official definition of misconduct. It doesn't need much explanation here either because the definition is clear: you take credit for someone else's work, whether it's text, images, data, or ideas, and pass it off as your own intellectual contribution.

How can honest mistakes be distinguished from fraudulent misconduct in science?

Ivan Oransky: This question is actually not easy to answer. The difficulty lies in recognizing honest mistakes. People don't usually send emails to each other saying that they have falsified data. For the most part, that doesn't happen. Still, it makes a difference whether an act is due to an honest mistake or committed with intent.

And even if we don't know exactly what happened because we weren't there, we've been talking for many years at Retraction Watch, which I co-founded in 2010, about the importance of clear retraction notices. They can help people better understand whether it's an honest mistake or misconduct.

Nevertheless, if the same images are manipulated repeatedly, even after someone has pointed it out, that would not seem to be an honest error. For this reason, I believe that journals, but also universities and other researchers, can help tell the whole story as much as possible when it comes to misconduct or honest mistakes.

It is crucial that the reasons for a retraction be included. Interestingly, economists studying retractions and citations of authors after retraction have found⁴ that if it is simply an honest mistake or some other innocuous error, and if it says so in the announcement, authors do not see a drop in their citations. This indicates that researchers, at least unconsciously, appreciate honesty. The situation is different in the case of retraction due to fraud or misconduct. Authors and even the entire subfield experience a decline in citations of their work.

“The act of correcting builds trust”

How can scientific integrity and social engagement increase researchers' confidence in publications?

Ivan Oransky: I am a journalist and of course, I think about corrections. When I read newspapers or websites that are never corrected, I don't trust them because I know they make mistakes. Everybody makes mistakes. For that reason, I don't think that mistakes, corrections, or retractions are bad because there is something in the literature that is not perfect. On the contrary, the act of making corrections builds confidence and can cause people who think that errors are rare in scientific publications – which is not so – to change their minds.

In my opinion, it would have been necessary to talk much earlier about how good it is that science makes corrections. Instead, erroneous publications were retracted and treated like a terrible disease. Yet, as humans, we tend to trust sources of information or claims more when we hear and know that they are corrected.

³ The Retraction Watch Database becomes completely open – and RW becomes far more sustainable – Retraction Watch: <https://retractionwatch.com/2023/09/12/the-retraction-watch-database-becomes-completely-open-and-rw-becomes-far-more-sustainable/> [7.11.2023].

⁴ Doing the right thing: Scientists reward authors who report their own errors, says study – Retraction Watch: <https://retractionwatch.com/2013/11/07/doing-the-right-thing-scientists-reward-authors-who-report-their-own-errors-says-study/> [7.11.2023].

What sanction options do you see when journal editors decide against retracting publishing falsified data and data sets in very clear cases?

Ivan Oransky: From my point of view, there are a lot of possible sanctions. Many people already see retraction as a sanction. Often that is also the only sanction universities can take. Even though I believe in sanctions, I don't think they have the greatest impact in the long run. Sanctions are important, but they don't prevent the misconduct.

Instead of looking at the misconduct retrospectively, I think it would be much more important to look at the incentives and incentive structure. Usually, sanctions are aimed at incentives. This is also implied by a popular idiom: Closing the barn door when the horse is already out of the barn. So perhaps we must feed the horse better and clean the stalls so that the horse will not want to run out of the barn anymore. In other words: We need to find out why the researchers feel pressured. And it may be because publication in major journals is all that matters. University rankings and all these things that are associated with funding and careers.

Funding sanctions are one type of sanction that I think would have the most impact. Government agencies, private funders, or universities could cut off funding to those affected for a period. Some of them have actually imposed a ban on publication, although that is a rare case. Depending on how serious the misconduct is, those affected could also lose their jobs.

How can we counteract the passive behavior of journal editors in dealing with fabricated research data?

Ivan Oransky: In other words: How can we get them to act faster? Well, that's a good question. I think that, again, it's about the incentives for the journals. For them, it's all about their reputation and the impact factor. That's clear. The only thing I'm unsure about is the extent to which public shaming could be used to encourage editors to react more and faster. It can work, and in some cases it does: we write something about them, and the journals magically retract the article that has been in the literature for many years. But shaming is really not the best solution, and it tends to be implemented in less than equitable ways.

It makes sense that researchers prioritize retracting fatally flawed studies that put people's lives at risk. If this does not happen and they are included in systematic reviews or meta-analyses, this can have a direct impact on patient care and clinical trials. Apart from that, working time is wasted when junior researchers are asked by team leaders to repeat experiments that cannot be replicated.

The other problem is the influence of lawyers on journals. Even if they don't actually sue, many journals act as though they fear being sued when they retract questionable publications. This is a deterrent and, to be honest, I don't know if there is an effective mechanism against this business model of journals.

However, I would like to add one positive thing: some journals have become better and faster at withdrawing publications. These are the ones that have hired specialists: They check all the claims and sometimes they even look through the papers before publication. Here I'm thinking of the PLOS journals, for example. They have for several years had a scientific integrity team and tend to retract more and faster.

“I believe that librarians and libraries can play a big role in curating information”

Do you see a role for libraries in assuring the quality of data and research?

Ivan Oransky: Sure. Yes, I think libraries can help determine the quality of a journal and the quality of the information. Librarians are experts at that, and they know not only about journals but especially about information. And that's the point. The focus here is not on the impact factor but on the question: What is the track record? How often do you use this journal, this preprint server, or even just this institutional repository? How likely are they to use good practices with Open Science and other mechanisms?

For this reason, I think librarians and libraries can play a big role in curating information. Librarians are highly skilled and trained, but they lack tools for certain tasks for technological or resource reasons. That's why we jumped at the chance to work with Anna Abalkina, who has done tremendous work in the area of hijacked journals. Without her and her work, it would not have been possible to make authors aware that they were submitting to journals that were in fact hijacked. Or to put it another way: Someone literally hijacked the domain name and made it look like it was the journal with the same name. But in reality, it is a forgery that is indexed anyway.

Some commentators speak of a conflagration when it comes to the increasing number of retracted articles in the last 25 years. Do you also see the situation as dramatic?

Ivan Oransky: You mean, have we seen an increase? Yes, the numbers are pretty clear. If you compare the numbers from 2000, about 40 retractions, with the numbers from last year (2021), we recorded more than 3800 retractions in our database. This is not exactly 100 times, but there is definitely an increase, which is also since more papers are being published.

In this context, we also looked at the retraction rate and found that it is currently 0.08 %. That is, eight out of 10 000 papers are withdrawn. Four or five years ago, this figure was four out of 10 000.

So, the trend is still upward. Although I don't like to make any predictions, it is obvious that this phenomenon will continue. There are even publishers who talk about having hundreds of retractions at a time. 500 retractions at a time. And the next week, another publisher has another 500.

I think we saw the increase; we reported on it⁵. However, there are many more retractions than we initially thought. As we speak, there are currently 36 000 retractions in the Retraction Watch Database⁶. In PubMed, on the other hand, there are 12 000, and in Crossref there are only about 9000.

Another problem is that many people don't know about these retractions. That's why we created the database. We wanted people to be aware of the problem and deal with it. Meanwhile, the Retraction Watch database and blog are being used by many people, which I think is a good thing.

We should be happy that more people are paying attention, and that someone is doing something about it. There are dozens of people, let's call them sleuths, who sacrifice their free time to find questionable publications in the literature. Kind of like me. I'm also a volunteer and am convinced that there are many more people who give up their time to do this. I know that sounds strange, but I think it is worth the time and effort because many more papers should be retracted than currently are.

“There are many reasons why publications are withdrawn. Looking at our database, there are dozens of different reasons.”

Why do you think publications should be withdrawn?

⁵ Nearing 5000 retractions: A review of 2022 – Retraction Watch: <https://retractionwatch.com/2022/12/27/nearing-5000-retractions-a-review-of-2022/> [7.11.2023].

⁶ <http://retractiondatabase.org> [7.11.2023].

Ivan Oransky: Well, there are many reasons why publications are withdrawn. If you look at our database, there are dozens of reasons. For example, paper mills, fake peer reviews, legal issues, or authorship issues.

This is where guidelines can help. The Committee on Publication Ethics (COPE) has written very clear guidelines and criteria for retracting publications. They have created an industry standard to apply to everyone. For that reason, they need to be updated every so often.

To go back to your question: I think we should retract papers to make people aware of the problems in the literature. We don't want them to base their decisions on incorrect information. Also, retracting papers sends a signal that data or results are not reliable.

Let me illustrate: When I walk into a building and take an elevator to the top floor, I want the evidence to be correct about the strength of the materials supporting the building as well as the structural analysis. In any case, I don't want to learn that this evidence is based on fraudulent or falsified data. This is terrible and also a problem that science must deal with in a figurative sense.

Nevertheless, the most important thing for me is and remains transparency. Only when it is clear from the communications what has happened and why the decision was made to withdraw a paper can something change in the long term.

In your opinion, what is good scientific practice in the context of scientific publications? How can it be implemented concretely in dealing with questionable results?

Ivan Oransky: I still consider transparency and an honest and open approach to boundaries to be good signs when it comes to implementing good scientific practice. One of the developments that I consider particularly promising in this context is registered reports.

What is meant by this? People announce what they're doing and show the steps they've taken: Here's the protocol, here's the methods. And they then submit that to a journal. The journal, in turn, has it peer reviewed. Once that's done, the journal commits to publishing the findings. It doesn't matter what the results are unless they show fraud or some other form of scientific misconduct.

One benefit of this may be that positive results or findings are not overemphasized. It will be more likely that journals will publish studies that are negative or do not produce results. As a result, there would also be null results, which are an example of how good scientific practice and integrity can be promoted.

How can already established guidelines (e. g., the COPE guidelines) help to reduce the number of withdrawn articles, which has been steadily increasing over the last 25 years?

Ivan Oransky: This is a matter that will occupy us for many years to come. Due to the high number of publications that are currently withdrawn and have been withdrawn in the past, I believe that we absolutely must continue our work as more articles are withdrawn.

This raises the question of how we can reduce the number of scientific papers that should be retracted. Indeed, that is not the goal. The COPE guidelines don't consider this issue because they have a different focus. COPE is about the retraction of already published papers in general. Undoubtedly, that needs to happen much more often as well.

Let's look again at the incentive structure. For the promotion of good scholarly behavior to succeed, care must be taken to make the publications that enter the body of literature much more robust and with greater integrity. We should also encourage preprints. Preprints are not peer-reviewed, of course, but they can provide some level of transparency.

Peer reviews are similar. There are already some journals that publish them, and I think more should do the same. A good example is the BioMed Central journals. They already routinely publish peer reviews and now some other journals are joining them. Disclosing the peer review process can not only improve the process but also transparently show how carefully a paper has been reviewed.

“In light of this, I believe the question should not be what is the best process for reporting a questionable publication, but how do we best handle such allegations?”

How do you think one should proceed when reporting a questionable publication, focusing on the process and the number of people involved and their role functions? What could be an appropriate strategy?

Ivan Oransky: This is a great question, although, at the same time, it is very difficult to answer. You must know, we

also issued some recommendations on this topic in 2013. A little later we withdrew them⁷ because we thought they were wrong.

In other words: I think you're on a good path if you raise allegations in a journal like PLOS ONE or some other journals. The journals have teams and people who are professionally involved in these issues and are very knowledgeable. From that perspective, things are going well, and the allegations are also being taken seriously.

And that's the point. We get several emails every week from people who say they've discovered misconduct. They document everything. Most importantly, they are very confident in what they are doing and are very good at recognizing when data doesn't make sense or when there is plagiarism. Some of them also say that they have already contacted the relevant journal, university, or funder, but they have been ignored. Reporting of questionable publications was ignored and instead, journals claimed that no misconduct could be proven. This was not true, but there was nothing they could do about it.

There is no shortage of people reporting scientific misconduct. Nor is the problem that these individuals have done something wrong or are not good communicators. It is entirely because no one is listening to them. We hear repeatedly about allegations being reported but fizzling out after a certain amount of time.

Given that, I think the question should not be what the best procedure is for reporting a questionable publication, but how do we best deal with such allegations. To this end, we have collected suggestions and considered how to get journals to better receive and process the information. This is where the problem lies because that is exactly what is not happening.

PubPeer came out of that, and it's also a project that is extremely effective in uncovering problems. I was not involved in creating PubPeer, but I'm on the board of the Peer Foundation, just to be transparent. People use PubPeer as a mouthpiece and communicate their problems through it. That open communication often leads to retractions or corrections being made.

⁷ A Retraction Watch retraction: Our 2013 advice on reporting misconduct turns out to have been wrong – Retraction Watch: <https://retractionwatch.com/2015/11/30/a-retraction-watch-retraction-our-2013-advice-on-reporting-misconduct-turns-out-to-have-been-wrong/> [7.11.2023].

In addition, journals can register for alerts. This is a kind of monitoring service. At PubPeer, they can register and support the work. They are then notified of issues as they arise.

Another problem is that papers are not withdrawn. It is not a priority for the journals, so it is our job to make it their priority. If that doesn't happen, all the efforts people make won't have much effect.

What procedural guidelines, information infrastructures, or other services could be used to track reports of questionable publications to editors and systematically log their responses?

Ivan Oransky: I would like to do it systematically, but that also requires much more transparency and much more resources for organizations like ours, resources that we don't have. Also, publishers and journals must be willing to share this information. The publishers say they are doing that with the so-called STM Integrity Hub, but to be honest, I have no idea what is happening there. They just talk about how wonderful it is, but they don't answer questions about it or say what they do. More transparency would be desirable here. Starting with the publishers logging when they received accusations.

But at least with PubPeer, we now know when some accusations were made. We know because they were made publicly. Requests were made that were public, and we were able to see when a university notified a journal about an issue because of that.

Then we looked to see how long it took and put the results in writing. It is not uncommon for many years to pass from the time the university officially notifies the journal until the journal responds. Sometimes it is only days, but in most cases, it is years.

With which other services could such a service be linked or synchronized?

Ivan Oransky: First, let's look at our own database. It supports bibliographic software such as Zotero, EndNote and Papers, which in turn inform users when scientific works have been withdrawn from their library. This is done automatically and is a service to users.

That's at least a start, but it would be nice to have a set of tools like that. The next thing I can think of is the PubPeer browser extension. If you download the extension, install

it, and you're on an abstract page or a page with a DOI, you get this notification: "There's a comment about this on PubPeer". If you click on that, you can see what happened and what it's about.

So, I think there is a lot of metadata that could be linked to research and publishing platforms. Similarly, there is software to detect plagiarism, which is already somewhat effective, with some caveats. There are other ways to provide more efficiency, but publishers have not shown much interest in that either. They fear that building in more checks and balances will slow down the publishing process. That would be undeniable, but there would also be fewer retractions and fewer problems.



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