



Tools of the Plague

During the past few years, I have become, in addition to being editor, a disease control officer dealing with a plague of plagiarism and related ethical ailments. When I started as editor, I saw one or two cases each year. But now, there's about one every month. My disease control work now requires more of my editorial efforts than assigning papers and writing these editorials. But when authors try to pass off the work of others as their own or republish their own work as evidence of their research efforts, we cannot look the other way. We must look for techniques to detect such misbehavior.

Historically, our first line of defense against unethical publication is the reviewer. Through their intimate knowledge of a field and a sense of fairness to their colleagues, they often spot the problems we must handle. This past year, a reviewer pointed out that major portions of the introduction and theory sections in a manuscript were taken from an *Optics Express* paper. But now we have additional tools to determine if people are playing outside the lines.

In this instance, I downloaded the paper and opened it and the submitted manuscript in Adobe Acrobat Professional. Using the "Compare Documents" feature, I found that sections in the manuscript were verbatim copies of text from the published paper. As it turned out, the balance of the manuscript described original work, but the reviewers determined that it was not worth publishing. In the letter declining to publish the paper, the associate editor and I added:

It was also pointed out to us that major portions of the Introduction and Theory sections of your paper were copied from [Paper citation]. This is a violation of professional ethics and is unacceptable. A note regarding this transgression will be added to your file at *Optical Engineering*. Any further violations could result in an automatic rejection of all future manuscripts.

Adding a note to an author's file is a standard procedure to reprimand the authors and to alert the editors and staff of past violations.

In another case, the transgressions were more flagrant. After a reviewer alerted us with citations to a particular article, Acrobat Pro was used to determine that 30% of the paper was plagiarized...including four figures. We requested an explanation and when none was forthcoming a note was added to the author's file and, of course, the paper was immediately rejected.

Sometimes Acrobat Pro provides evidence that the manuscript is original. It was used to determine that a paper that appeared to be a double publication was instead the latest paper in a series of investigations. Although its introduction was very similar to an earlier paper, an examination of the Acrobat side-by-side comparison showed that the texts diverged as the papers progressed. One part of most papers where we expect similar expressions is in the sections containing mathematical expressions and derivations. In these instances, however, a citation of the earlier work should be given.

Another tool that has proved valuable is Google. Sometimes the note in the file of an author with a previous violation triggers an investigation. Copying a phrase from a manuscript, usually the abstract, and pasting it into Google produces a large number of results. A quick scan of the results will show if there are possible problems with double publication or plagiarism. In one case, the first result was the home page of the author. The page had a link to his publication list, which contained the names of those who had recently collaborated with the author. As it turned out, the author suggested some of these collaborators as potential reviewers. Also, the bibliography contained papers on the same topic as the manuscript, but these papers were not included in the references. This led to an investigation that showed that the paper was one in a series of "thinly sliced salami" papers, papers that described incremental research results and were intended to increase the number of the author's papers without providing significant new results.

Another line of defense against publication mischief is our staff at *Optical Engineering*. Their awareness of the range of publication issues and their ability to detect that something about the paper departs from the norm can trigger a closer examination of the manuscript. When we received a manuscript in which all of the authors had notes

in their files, an SPIE staff member became wary. As she noted: "I grew curious about the manuscript at hand so I copied the first sentence from the abstract, plugged it into a Google Search and came up with a very similar abstract published by IEEE in 2004." The paper was referred to me. I looked into it and decided that based on a comparison between the new manuscript and the IEEE paper, the new submission was not an attempt at double publication.

Eventually all papers will be accessible and searchable on the Web. Then, any attempt to cheat will be immediately identified. But until that time, our reviewers, the

SPIE staff, and the members of the Board of Editors will use any tools that we can find to discover manuscript mischief. We will reject these manuscripts and add a note to the file to alert us to any new outbreaks of this plague. I hope that the outbreaks will diminish over time, so that we can all focus on publishing honest, original science.

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Editor