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**Copyright, Scientific Research,
and the Public Access to Science Act**

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In the hopes of reducing some of the confusion and misunderstanding that has arisen in regard to the Public Access to Science Act (PASA), and of clarifying the public debate over whether PASA is, or is not, a good law, I offer the following summary of the bill and the arguments pro and con.

What PASA would do

Currently, under the US Copyright Act (Section 105), works that are created by employees or officers of the United States government as part of their official duties receive no copyright protection whatsoever; they are, the moment they are created, placed into the public domain. The theory is pretty simple: works created by people working directly for the US government have been paid for by the public, and should belong to the public.

PASA would amend the Copyright Act to make this exclusion broader; the operative language in the proposed amendment is:

“Copyright protection . . . is not available for any work produced pursuant to scientific research substantially funded by the Federal Government . . .”

In other words, under PASA, even if you are not, technically speaking, a Federal Government employee – if you are, say, the employee of a university, or a hospital, or a private firm, or even if you are self-employed – if your work falls within the category of “scientific research” that has been “substantially funded by the Federal Government,” it will be treated (for copyright purposes) as if you were an officer or employee of the Federal Government – i.e., the work will not be protected by copyright and will be placed into the public domain.¹

The arguments for PASA

¹ Actually, it's a bit more complicated than that. The bill itself is only a few pages long, and easy to read in its entirety (and attached at the end of this article). The full text of the sentence quoted above is:

“Copyright protection under this title is not available for any work produced pursuant to scientific research substantially funded by the Federal Government to the extent provided in the funding agreement entered into by the relevant Federal agency pursuant to paragraph (2).” Paragraph 2, in turn, directs all federal departments and agencies to include language in their funding agreements to the effect that copyright protection is not available for works “substantially funded” by the Federal Government.

To understand the main arguments set forth by the proponents of PASA, it's worth looking at a hypothetical, simplified version of the bill. Let's assume, just for the sake of argument, that PASA covered only works funded entirely by the Federal Government (instead of works funded "substantially" by the Federal Government). There are lots of important questions we might want to raise about what "substantial funding" means in PASA, and I don't mean to ignore them; I would, though, like to postpone them for a while, because it's easier to understand the rationale behind the bill without them.

There are two main arguments. One is simply a straightforward extension of the rationale behind the current Section 105 of the Act: We (the public) have already paid for these works, and therefore they should be in the public domain, where we (the public) can do with them whatever we want, free of restrictions on copying, distributing, etc. The distinction, in other words, between a work created by someone who is a salaried employee of the federal government – a researcher, say, at a Veteran's Hospital, or a scientist employed by the National Institutes of Health, or the Department of the Interior – and a work created by someone who is similarly getting paid to produce the work from the US Treasury but who happens to be employed elsewhere, is not a distinction worth making as far as copyright is concerned; if we're denying copyright protection to the one, we should deny it to the other.

The second argument, which is not so much an alternative to the first but which is, rather, a complement to it and which gives it additional weight, is a bit more complicated. This argument goes as follows: Fundamentally, we grant copyrights to creators because we believe that works of creative authorship won't be created without those copyrights – or at least, not enough of those works. Creation takes time and effort, whether we're talking about scientific papers, or novels, or songs, or poems, or sculptures, or what have you. If the end results of that investment of time and effort can be easily appropriated by others – if the works can be copied, and distributed, and disseminated by third parties without restriction of any kind – then the creators, knowing that in advance, won't undertake the effort required to produce them in the first place.

Copyright, in other words, is a kind of bargain we make with ourselves. We impose restrictions on our own ability to copy and distribute creative works, because we believe that doing so increases the supply of those works by giving authors and creators an incentive to produce works that we value. In effect, we say to authors and potential authors in advance: You will be able to control copying and distribution and dissemination of the works you produce, which will increase your chances of obtaining compensation for those works. Knowing that in advance, authors will invest the time and energy and resources required to produce the works in the first place.

There is no question that, overall, this bargain has functioned, and continues to function, reasonably, perhaps even extraordinarily, well.

But one of the implications of the theory is that copyright is unnecessary in circumstances where authors already have sufficient incentive to invest in the creation of

copyrightable works of authorship. Where, in other words, other, non-copyright incentives – cash subsidies, reputational rewards – exist and are already doing the job of giving authors a sufficient incentive to produce creative works, the copyright incentive is unnecessary.

More than unnecessary – positively harmful. If copyright is unnecessary for incentive purposes, it is not just harmless legal baggage. Copyright imposes real costs on society as a whole, in the form of reduced access to and distribution of works that have already been created. If the restrictions on public distribution and public access and public dissemination that copyright enables – intentionally – are not offset by any corresponding benefits to the public (in the form of more works created), then the cost-benefit calculus at the foundation of copyright law becomes all cost and no benefit;

This, the proponents of PASA say, describes (at least roughly) the situation with respect to scientific works produced under contract with the Federal Government. The contract itself – the money that the grantee receives for doing the work specified in the contract – is already providing the incentive to create the works in question. The scientist, receiving his or her \$X thousand from the National Science Foundation, is already being paid to produce published articles (on top of the powerful non-pecuniary incentives to do so in any event – the recognition from his or her peers on which one’s reputation in the community depends). Giving the recipient of that money a copyright in the resulting work is a kind of double subsidy; nice work if you can get it, but the public’s not getting the benefit of the bargain.²

In short: at least for this category of works, the taxpayer has already paid once for the creation of the work, and it will (or will not) be created whether or not copyright attaches to it. The creators already have their subsidy; all that the public gets for extending copyright to these works are restrictions on what we can do with the works that we have, in effect, already paid for.

The Arguments Against PASA

Most of PASA’s opponents concede that the bill’s overall objective – increasing the public dissemination of the results of publicly-funded research – is a laudable one. They argue, however, that the means PASA has chosen will not help us achieve that objective – that PASA will, in fact, so seriously disrupt the system under which scientific research is made public that it may well actually reduce the availability of those works to the public.

² In fact, it’s actually worse than this. Many scientific articles are created under a triple, or quadruple, subsidy scheme. The author gets paid through a Federal Government grant; the author gets copyright in the output (subsidy 2); the grant includes money for “page charges” that will be paid over to the journal in which the results of the research will be published (subsidy 3); and the grant includes money for the purchase of the subscription to the journal itself (subsidy 4).

Their argument has two main prongs: that PASA will reduce authors' control over their works, and that it will detrimentally eliminate the incentive that copyright currently provides for the distributors (book and journal publishers) of these works.

(a) The argument about control.

The first argument (made most forcefully by Professor Jerome Reichman of Duke University Law School) is that PASA, by eliminating an author's ability to control (via copyright) the uses to which his or her works can be put, will have a number of negative consequences. To better understand the impact PASA will have on an author's control over his or her work, we need to spend a moment talking about the kind of control that the Copyright Act currently gives to authors.

Consider the following hypotheticals, each of which presents a circumstance in which an author might reasonably want to exercise a degree of "control" over his or her work.

#1 You publish an article in Journal XYZ. One year later, you read an article written by Professor A_____ dealing with many of the same issues that you dealt with in your paper. Though it is abundantly clear that the authors of the second article have read your paper, they do not refer to it or cite to it (or to you) expressly.

We can dispense with this scenario quickly; current copyright law gives you no control over the way others cite to or acknowledge your paper (and therefore PASA takes nothing away from you). There is, in other words, no "right to be cited" or "right to be acknowledged as the source of ideas" under current copyright law; copyright law – quite properly, in my view – is silent about what A_____ has done, and it leaves this dispute to be resolved in accordance with the norms and customs and the informal sanctions of the professional community.

#2 You publish an article in Journal XYZ, and one year later you see that the article has been reprinted verbatim in a compilation volume ("Current Research in ..."). You had never been contacted by the editors or publisher of the compilation volume, and had not given them permission to reprint your work.

Here, on the other hand, PASA would change the status quo, dramatically. Copyright does give you control over the reproduction and distribution of your article; so if your article is protected by copyright, you have an action for copyright infringement here against the editors and publisher of the compilation volume. If, on the other hand, your work is covered by PASA, you do not.

PASA's proponents, of course, would respond: That's precisely the point! This is not a bug, it's a feature; the whole point of PASA is to encourage people to do exactly what the editors and publishers of this compilation volume have done – to reprint, republish, and recirculate existing works without having to track down the authors, without having to get their permission, or pay them a royalty.

This, then, is not the kind of “loss of control” that Prof. Reichman concerned about; the loss of control over this kind of use doesn’t detract from PASA’s objective, it is PASA’s objective. Elimination of authorial control over this kind of re-use is not some unfortunate or unanticipated consequence of PASA; it is at the very core of the bill’s purpose, which is to place these works into the public domain and thereby to sweep away all restrictions on their dissemination – at least, all of the restrictions stemming from the copyright protection that these works currently enjoy.

#3 Same as #2, except the article appears in the compilation volume under someone else’s name.

#4 Same as #2, except the reprinted version has garbled the original text; a number of paragraphs are out of order, and anyone who reads this version would think that the entire paper is nonsense.

These hypotheticals represent the heart of the “control argument” against PASA. In both circumstances, if your article is protected by copyright, you have a copyright infringement action against the editors/publisher of the compilation volume, an infringement action that PASA would eliminate (for those works falling within its ambit).

Hypothetical #3 is, under copyright law, precisely the same as Hypothetical #2; that is, in both hypotheticals the editors/publisher of the compilation are infringing your copyright in the same way: by reproducing and distributing your article without your permission. The omission of your name as the author of the work (and the substitution of someone else’s) has no significance in regard to your copyright, because copyright law does not protect your right to have your article attributed to you. It could do so (and in many other countries it does), but US law does not recognize an enforceable “right of attribution” under copyright.

This is a much-misunderstood feature of copyright law; the omission of your name and the substitution of another’s is not, as we lawyers like to say, “independently actionable” under copyright law. It may be a bad thing – indeed, I suspect we’d all agree that it is a bad thing; and it may furnish grounds for legal action under other doctrines (misrepresentation or fraud being the most likely sources of a remedy for this activity); but it does not, standing alone, constitute copyright infringement.

That said, however, it remains the case that if your article is protected by copyright, you will have a copyright infringement claim against the editor/publisher in Hypothetical #3 (just as you do in #2) that you will not have under PASA. And it is furthermore clear that this is not something that PASA is designed to encourage.

This really is, then, a bug in the statutory scheme, a negative consequence that does not further the statute’s purpose or goal and which eliminates a legal right to control behavior that we would all agree is generally speaking reprehensible and fraudulent. Score 1 for the opponents (but see below).

The same can be said, more or less, for Hypothetical #4. Copyright law gives the copyright holder the exclusive right to reproduce and distribute not only the original work itself, but also anything that is “substantially similar to,” and copied from, the original work; in addition, it also gives the copyright holder the exclusive right to prepare “derivative works” from the original work. Reproducing and distributing a garbled version of your article would almost certainly infringe all of those rights; unless the garbled version were so transformed as to be almost unrecognizably derived from your original, it is likely to be deemed both substantially similar to, and a derivative work based upon, your original, and therefore an infringement of your copyright.

Here, too, I think it is safe to say that this is not by design – that PASA is not meant to encourage this activity; eliminating a right of action against the editor/publisher in this scenario does not advance any worthwhile objective. Another bug; score 2 for the opponents.

(b) The argument about distribution incentives.

It is true, PASA’s opponents acknowledge, that the works covered by PASA may not need any copyright incentive to be authored, that they are (by definition) already receiving a subsidy in the form of direct federal taxpayer support, and that therefore the copyright functions, as to those authors, as a kind of double subsidy. But, they say, there’s more to the story than this. The authors may not need this copyright subsidy, but the publishers do. Producing the books and journals through which scientific research is disseminated to the public involves expenditures of time, energy, and money; the peer review process, the editorial task of selecting articles for publication, the copy-editing function, the printing and binding and mailing of the completed books and journals, the order-fulfillment and accounting services required – all of these take time and effort and expertise, and none of them comes without a price. Publishers will undertake these efforts only if they can be compensated for them; if the material they are publishing is unprotected by copyright, then the moment it hits the street third parties can copy and republish the material, thereby appropriating for themselves all of the work that went into producing the book or journal.

Only, in other words, because these works are currently protected by copyright – and because the publishers, typically, insist upon a transfer of the authors’ copyright to them as part of the publication agreement – do the publishers have the incentive to do what they need to do to bring the works to the public.

Evaluating the Arguments

That, I think, is more-or-less the lay of the land. There are good arguments on both sides, and reasonable people may disagree about them. PASA, like all legislation, involves a trade-off; it will do some good, and it will do some harm. The question is what it always is: do the benefits likely to flow from its enactment outweigh, to the extent we can assess them, the likely harm(s)?

Here are a few additional thoughts on that.

1. To my eye, the argument from control has little to recommend it. It is true that enactment of PASA will, as I discussed above, eliminate authors' copyright remedies in the case of outright plagiarism (Hypothetical #3) and mis-transmission (Hypothetical #4); I suspect, however, that copyright remedies currently play a trivial role in actually controlling these activities, and that therefore, weighed against the significant public benefits likely to flow from unfettered public access to this immense body of information, elimination of these remedies strikes me as insignificant.

(a) Plagiarism. My guess – and I fully acknowledge that this is only a guess – is that removing the copyright arrow from the author's quiver will make little or no difference in how widespread this practice is. I am not aware, for example, of a single copyright infringement lawsuit that has ever been brought in circumstances like the one presented in Hypothetical #3. It might be that people are deterred from plagiarizing others' articles out of concern about liability for copyright infringement – but I doubt it. Most plagiarists – at least, of the kinds of works covered by PASA – are motivated, I suspect, by a desire to claim credit for work they did not do, as a means to advance their careers in some way. It is, presumably, fear of detection and exposure that deters this kind of behavior – in addition to considerations of personal ethics and the norms of the professional community – not fear of an infringement lawsuit.³

Moreover, to the extent legal remedies play any role at all in controlling this behavior, there are other non-copyright legal sanctions that can be brought to bear against the plagiarist (sanctions which are unaffected by PASA); the tort of misrepresentation, for instance – a variant of fraud – will often be available to provide a legal remedy against anyone who claims, falsely, to have done something he or she did not do – such as write the paper that you wrote.

(b) Mis-Transmission. Here, too, while I am open to persuasion, it strikes me as unlikely that copyright law functions to constrain or deter the behavior in question, or that it is an important factor in reducing the frequency with which this occurs. The absolute frequency of this kind of problem may well increase under PASA – but that is simply a function of the errors that will inevitably creep into multiple transmissions of the same documents over time; the more people you have playing the game of “telephone,” the more likely it is that the initial message will become garbled by the time it reaches the end of the chain. There's noise in any transmission system, and multiple transmissions of the same document will increase (absolutely) the amount of noise. We should certainly seek ways to reduce or eliminate it to the extent practicable; copyright, though, is an awfully blunt instrument for the task. The creation of authoritative archival databases of all scientific publications – something that is far more likely to be achieved with PASA

³ Indeed, one might argue that the proliferation of publicly-available and publicly-accessible copies of your original article that would be the result of PASA would make plagiarism easier, rather than harder, to control, by making it easier to detect plagiarism in the first place.

than without it – would probably do more to preserve the integrity of these works than the threat of copyright lawsuits.

2. Distribution Incentives. This is the stronger argument against PASA, and I know too little about the mechanics and the economics of scientific publishing to evaluate it fully – to determine, that is, whether the copyright subsidy is in fact necessary to give the publishers the incentive to do what we, the public, need them to do to insure maximum dissemination of publicly-subsidized research. There are, however, enough questions about the specifics of the publishers' argument here to conclude that, at the least, they have not sustained what we lawyers like to call their "burden of persuasion" on the matter.

To begin with, it is difficult to argue that, in an Internet-enabled world, a public subsidy to enable the publishers to recoup their printing and binding and mailing and packaging etc costs is a wise bargain for the public. A portion of the subscription fee for, say, the Journal of Cell Biology (\$2,370 per year for libraries, \$310 for individuals) presumably, is for the purpose of allowing the publisher to recoup its costs of printing and binding and mailing, etc. Fair enough; they're certainly entitled to include those costs in their fee, I'm just not sure the public needs to subsidize them when the available technology makes it possible to disseminate the information quite adequately at much, much lower cost.

The editorial and peer-review functions that the publishers currently perform, though, are a different matter entirely. These functions constitute the bulk of the value of this and all journals; subscribers are not paying \$2,370 annually for the beautiful bindings, or the magnificent graphics, but for the intellectual content, content which ultimately depends on the hard work of editors and reviewers. Journals can't exist without these functions (or at least they can't perform the role that they currently play within the network of scientific information), and the technology alone cannot substitute for the intelligence and expertise that goes into this work. If a copyright subsidy of some kind is required to get these functions performed, then the bargain may indeed be a reasonable one.

I remain convince-able, but unconvinced. My understanding is, first of all, that these functions are generally performed by members of the scientific community without compensation, that members of the scientific community spend significant amounts of time on these tasks not because the publishers are paying them but for other reasons – because they view it as one facet of their professional obligations, or as a means of career enhancement, or to keep up with the latest trends in their fields. I'm unconvinced, in other words, that the copyright subsidy has anything to do with whether or not these tasks will be performed.

More importantly, perhaps: these critical editorial and peer-review functions are themselves protected by copyright, and that protection would be unaffected by enactment of PASA. This is a fairly arcane point of copyright law, but it is quite important in this context. Each issue of the Journal of Cell Biology has a number of different copyrights

attached to it. First, each individual article has its own independent copyright – which may be retained by the authors or transferred to the publisher (or to some other party). Those copyrights are the ones that PASA would eliminate (for works “substantially funded by the federal government”).

But copyright law recognizes (and rewards) the separate act of creativity involved in deciding which articles will be included in any issue of the Journal of Cell Biology. This is what’s known in the law as the “compilation copyright.” The compilation copyright belongs not to the authors of the individual articles but to the editor(s) or publisher(s) – to whoever it is who is in fact making these critical editorial decisions. This copyright is entirely independent of the copyright protection for the individual articles; it is not meant to protect the text of the articles themselves, but the selection of the particular collection of articles contained in the journal from among the universe of possible articles.

PASA will not affect this compilation copyright in any way.⁴ Under current copyright law, anyone who reproduces the entire Journal of Cell Biology is infringing the editors’ copyright in the compilation. The same will be true after enactment of PASA; anyone who reproduced the entire Journal of Cell Biology would be infringing the editors’ copyright in the compilation. That would be true even if all of the articles in the journal had themselves been “substantially funded” by the federal government (and therefore unprotected themselves by copyright).

So while I agree (strongly) with PASA’s opponents that scientific journals play a profoundly significant role in the dissemination of scientific information, and that diminution in the ability of journal editors and publishers to perform their critical editorial tasks would be a serious matter, I’m not convinced that PASA would be accompanied by any such diminution, inasmuch as it would seem to have little or no effect on either the non-legal incentives for the performance of these tasks, or even the legal protection currently accorded those functions.

⁴ That’s not strictly true; if the journal itself is a work “substantially funded by the Federal Government,” then copyright protection for the compilation of articles would presumably be unavailable under the terms of PASA.