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RE: Draft Tri-Agency Open Access Policy

To Tri-Agency Presidents,

There are many reasons to support open access publishing, not least the increased potential for the public, industry, and research to benefit from and build upon the results of publicly-funded research in a timely manner. As such, it was pleasing to read that the Tri-Agencies propose to follow *inter alia* the U.S. National Institutes of Health, the U.S. National Science Foundation, the European Research Council (ERC), and Research Councils UK (RCUK) by adopting a progressive policy in support of knowledge sharing and open access to the outputs of the research funded by the Agencies.

The proposed policy is in line with those of other major global research funding bodies and offers two routes to achieving the widest possible dissemination and exchange of research outputs via i) a Gold Open Access option, allowing for immediate, free, and open access to research articles, and ii) a self-archiving option, so-called Green Open Access, which emphasizes the important role that institutional and domain-specific repositories, and pre-print servers, such as arXiv¹, bioRxiv², and PeerJ Preprints³, play in disseminating, archiving and preserving knowledge.

Whilst the first, immediate and free open access, is my preferred approach to widening access to research papers, I acknowledge that there are barriers, perceived or real, that might negatively impact upon Canadian researchers and effect their ability to publish if this were the only choice available. There is a presumption that Gold Open Access has a cost implication, when in fact the majority of open access journals in the Directory of Open Access Journals (DOAJ⁴) do not levy article processing charges (APCs) and other leading open access journals, such as PLOS One⁵, offer no-quibble waivers of APCs should authors be unable to pay⁶. In contrast, the APCs that are charged by the major STEM publishers (e.g. Elsevier, Wiley, Springer) on their traditional journals, known as Hybrid Open Access

1 <http://arxiv.org/>

2 <http://biorxiv.org/>

3 <https://peerj.com/preprints/>

4 <http://www.doaj.org/>

5 <http://www.plosone.org/>

6 <http://www.plosone.org/static/editorial#fees>

journals, are at a significant premium relative to those of open access publishers⁷. However, whilst academe is in transition to full open access publishing, conflict may arise because researchers wish to continue publishing in legacy venues such as the expensive hybrid journals. The self-archiving option, therefore, presents a zero-cost alternative to Gold Open Access, and might usefully be seen as a means by which Canadian researchers funded by the Agencies transition to a world where immediate access to the version of record is the norm.

I do, however, have a number of criticisms of the current draft policy, which I outline below.

Firstly, and most importantly, the policy does not specify what is meant by the term “open access,” nor does it specify a particular licence (or features of such) that holders of Agency research grants should use when publishing their manuscripts. Whilst I can appreciate that the Agencies may not wish to be too prescriptive in this regard, it is important that their policy outline what the Agencies consider to be “open”. Other organizations, such as RCUK, have proactively stipulated the most open licensing terms as encapsulated in the Creative Commons By Attribution (CC-BY) licence⁸. This licence is true to the ideals and the definition of “open access” set out in the 2002 Budapest⁹ and the 2003 Berlin¹⁰ Declarations on Open Access.

Not all “open” licences are the same and some of the major STEM publishers, including Elsevier, have acted perniciously to obfuscate what is meant by “open access,” producing numerous “alternative” licences that act to limit the degree to which works can be reused, for example by restricting commercial usage or including no-derivatives clauses, whilst claiming to be “open”. These initiatives only act to confuse researchers into accepting licenses that are far from “open”.

A strong statement from the Agencies is required to send a clear message on what the acceptable licensing terms are. I would urge the Agencies to adopt the CC-BY licence for research papers, as this is already the licence of choice for many Open Access journals and allows for the most permissive re-use and re-distribution rights.

Secondly, the Agencies should look again at the merits of the stated 12-month embargo period allowed under the self-archiving option. 12 months is a long time in many scientific fields and restricting access to research papers for a whole year could be viewed as contrary to the stated aims of the Agencies' policy. There is little independent evidence that adopting a 6-month embargo would adversely effect subscriptions to scholarly journals. The EU-funded PEER project¹¹, for example, found that, within STEM subjects, traffic to publisher's websites increased significantly when manuscripts were self-archived in repositories.

There is, however, much evidence to indicate that embargoes act to reduce access to, and therefore the impact of, research papers. For example, the University of Liège, Belgium, observed a more than 20-fold difference in the number of times Open Access papers were download from their institutional repository compared with those papers under restrictive access or embargoes (Rentier, 2013)¹². I

7 Compare the standard US\$3,000 APC for papers in hybrid journals offer by the major publishers with the US\$1,350 APC in PLOS One or Nature Publishing Group's Scientific Reports, or up to US\$1,000 charged by F1000 Research. Alternative models also exist, such as the one-off subscription charge (\$99 - \$299, depending on number of papers allowed per year) for all authors on papers submitted to the PeerJ.

8 <http://creativecommons.org/licenses/by/3.0/>

9 <http://www.budapestopenaccessinitiative.org/read>

10 <http://openaccess.mpg.de/286432/Berlin-Declaration>

11 <http://www.peerproject.eu>

Final report: http://www.peerproject.eu/fileadmin/media/reports/20120618_PEER_Final_public_report_D9-13.pdf

12 Rentier, B. (2013) *Where are we today? The ORBi experience*. Presentation at Berlin Open Access Conference: 10th anniversary of

would suggest, therefore, that the Agencies adopt a maximum period of 6 months for any publisher-imposed embargo and that they actively investigate the impact that moving to a policy of no embargo would have on the disciplines represented by the Agencies. SSHRC may wish to retain the allowed 12-month embargo until the impact of self-archiving on journals in the social science or humanities fields is better understood.

It is disappointing that the proposals do not address harmonization of the Tri-Agency's policies on access to other research outputs, notably data and computing codes or software. There are two main issues with regards to publication-related outputs. The first is securing and archiving in perpetuity the outputs of Tri-Agency-funded research such that it remains available as needed for future generations. The NSF and RCUK, for example, now require grantees to include a data management plan as part of their proposed research. Several on-line tools are available to assist researchers in creating an appropriate plan (e.g. DMP Tool¹³). Data repositories used by researchers should have adequate backup and longevity procedures in place, for example via the CLOCKSS initiative¹⁴.

The Agencies should require a data management plan and mandate that research outputs be deposited in approved repositories to ensure the security of this valuable resource. Note that requiring such actions does not mean that these outputs are necessarily made “open” via permissive licences, only that they be securely archived electronically. Meeting these requirements will, no doubt, require principal investigators to (re)educate themselves on best practice in data management for their labs or research groups. There is a role to be played here by research libraries at academic institutions to help advise researchers and facilitate the archiving of research outputs, not least via existing institutional repositories.

The second issue regarding publication-related outputs pertains to openness and reproducibility. Reproducibility is the key feature of the scientific method, yet without access to research data, software codes, and data analysis scripts, confirming the results reported in papers is prohibitively time consuming and costly, and may lead to duplication of effort. In efforts to improve the reproducibility of published research, many journals now require open depositing of data and software as a condition of publication. Major research funding bodies also have similar policies; the RCUK's policy¹⁵ on data access, for example, states that in general publication-related outputs “*should be made openly available with as few restrictions as possible in a timely and responsible manner that does not harm intellectual property.*” In addition, text in 11 December 2013 version of the *General Grant Agreement* for the ERC's Horizon 2020 program includes clear guidance¹⁶ on how ERC expects research outputs be made available openly to other scientists and end users for projects participating in their *Open Research Data Pilot*.

The Agencies should follow these trends and expect holders of research grants to make available any and all software and scripts required to reproduce the published results. Furthermore, publication-related data should be made available to other researchers in a timely fashion under open, permissive licences.

Without sufficient sanction or oversight, the Agencies risk high rates of non-compliance with the

the Berlin Declaration. <http://hdl.handle.net/2268/158972>

13 <https://dmp.cdlib.org/>

14 <http://www.clockss.org/clockss/Home>

15 <http://www.rcuk.ac.uk/research/Pages/DataPolicy.aspx>

16 pp. 59-60 in http://ec.europa.eu/research/participants/data/ref/h2020/mga/gga/h2020-mga-gga-mono_en.pdf

proposed policy. Although the Wellcome Trust has since 2006 required authors in receipt of funding to deposit their research papers in UK PubMed Central within six months of publication, only 55%¹⁷ of applicable papers complied with these requirements. As a direct result the Wellcome Trust has strengthened its policy to include specific sanctions for non-compliance requiring researchers' host institutions to provide assurances that the policy is being complied with, and counting non-compliance against researchers in subsequent funding decisions. Similar requirements and sanctions are in place for those in receipt of US NIH grants, including the withholding of awards if researchers are non-compliant. RCUK, recognizing that, following implementation of their new policy on open access, there would be a period of transition during which compliance rates may be lower than expected have instigated a series of reviews to occur biennially from 2014 to assess the implementation of their policy and compliance rates¹⁸.

The Agencies should take advantage of the experiences of funding bodies that enacted earlier open access policies and include monitoring of compliance with the proposed policy. Strong sanctions for non-compliance such as withholding of award payments or ineligibility to receive future awards should be made explicit. Host institutions should also be responsible for monitoring compliance within the policy. By including such provisions in the policy at the outset, the Agencies avoid having to revise their policy to address the low rates of compliance anticipated given the experiences of other funding bodies. Furthermore, without these or similar provisions, the beneficial impacts of the policy will take longer to be realized.

The draft Tri-Agency policy on open access is an important and timely addition to the growing, global movement towards immediate and open access to publicly-funded research and would bring Canada in to line with the policies of other major research funding bodies. However, the policy lacks clear guidance on acceptable open access terms for research papers and it is suggested that the CC-BY licence be mandatory as part of the final policy. The allowed embargo period unduly favours publishers' interests over those of the public, industry, and other researchers, and should be reduced to not longer than six-months for STEM subjects. NSERC and SSHRC should harmonize with CIHR their policies on open access to publication-related research data, and scientific software and scripts, and mandate a strong principle of secure, long-term data management and archival. Finally, monitoring adherence with the new policy should be strengthened from the outset, with clear sanctions for those that fail to comply with the requirements.

Yours sincerely

Dr Gavin Simpson

Ps. A draft version of this letter was posted to my website¹⁹ in early December. I am grateful to Jason Venkiteswaran (University of Waterloo) and Jim Till (University of Toronto) for their thoughtful comments on the earlier version, which I have incorporated in the text above.

17 <http://www.wellcome.ac.uk/News/Media-office/Press-releases/2012/WTVM055745.htm#>

18 <http://www.rcuk.ac.uk/documents/documents/RCUKOpenAccessPolicy.pdf>

19 <http://www.fromthebottomoftheheap.net/2013/12/10/tri-council-oa-policy-consultation-response/>