hoi ik ben een titel

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Universal free online access of scientific journal articles is within reach if universities and funders mandate their authors to self-archive their refereed manuscripts in an institutional archive (IR), upon acceptance in the (subscription) journals of their choice. This form of open access (OA), known as *Green*, can be implemented unilaterally by the universities and funders at little cost. It should not be confused with *Gold* OA, meaning OA through *publishing* directly in an OA journal.

I claim that the Dutch government and the association of universities (VSNU), by focussing on Gold prematurely, have made deals that will needlessly slow down the provision of access and maintain or even increase the publishers' profit margins. Sustainable Gold access (including copyright reform) will follow once universal Green has been reached and publishers only provide the organisation of peer-review and luxury services like enhanced PDFs or paper versions.

Grassroots publishing initiatives, such as SciPost, politicize the community by offering a glimpse of a possible future. But if they are serious about subverting the publishing industry, they should, in addition to their innovative activities, put their full weight behind the optimal Green mandate.

I. Introduction

The current accessibility of research journal articles is decidedly suboptimal. Journal prices have been rising at 2.5 times the rate of inflation the last couple of decades [1, 2], but even if all 28000 existing journals could be subscribed to at production cost, universities would not be able to afford them all [3]. This means that all researchers, even at the richest institutions, do not have full access to the output of their colleagues, and all researchers are denied the full impact of their research, since they cannot reach the entirety of their intended audience.

It is unbearable that this *access/impact problem* still persists, because with the advent of the Web, articles can be reproduced and spread at virtually no cost. Doubly unbearable, since the whole enterprise is funded with tax-payer money for the benefit of society.

The solution to the problem is, according to Stevan Harnad, closer to raincoat science than rocket science. In a haiku [4]:

> It's the online age
> You're losing research impact…
> Make it free online

In other words, authors can continue publishing in subscription journals, but should as an extra adminstrative step *publicly self-archive* their refereed manuscripts. This practice, which Harnad has been advocating since 1994 [5], was laid out by the Budapest Open Access Initiative (BOAI) as the first strategy to be implemented [6]. It later came to be known as the *Green* strategy [7]. If it is universally adopted, the access/impact problem would be solved.

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Figure 1: Raincoat science by Judith Economos

Apart from public self-archiving (the "Green" road), the BOAI described a complimentary *Gold* strategy, namely to start a new generation of journals that provide open access to the material they publish. It is this second strategy that often has been misunderstood to be the *only* viable strategy of providing open access, by scientists, media and politicians alike.

This is very unfortunate, since the Green solution is by far the most cost-effective way of providing access [8] (10%-20% of what it presently costs to pay for Gold), can be decided on by universities and funders unilaterally, without having to convince publishers to alter their business model, and does not limit authors' choices of journals in which they wish to publish.

Furthermore, it is plausible that once universal Green open access has been achieved, existing subscription journals will face significant cancellation pressure, because all their content is already available as self-archived manuscripts. Those journals would be forced to cut costs and change their business model, since the services they provide have been reduced to organizing peer-review and providing enhanced PDFs and paper versions of the articles. Thus, Green OA may leverage the transition to universal Gold [9].

In the rest of this article, I will first outline what is currently understood to be the optimal Green open access policy. Then, I will show that official policy in The Netherlands seriously deviates from this consensus, needlessly slowing down the provision of access and maintaining or even increasing the publishers' profit margins. Finally, I describe that, since change is most likely to come from below, it is of vital importance to the community that grassroots initiatives embrace the Green mandate.

II. The optimal Green mandate

Apart from being beneficial to the community, self-archiving is also advantageous for researchers personally due to increased uptake and citation impact of their work [10]. Yet, not all scientists self-archive voluntarily. 62% of journals endorse self-archiving immediately and an additional 17% endorse self-archiving after an embargo period of six months or a year [11]. But estimates for the actual percentage of articles that is accessible in this way (be it from an institutional archive, a preprint server or the author's homepage) are far lower. The authors of [12] find that in 2009 20% of all journal articles were openly accessible, of which 12% through self-archiving. In a subsequent study, the same authors find an unchanged 12% Green in 2014 [11]. The authors of [13] find 24% total OA in 2013. The study in [14] is an outlier, finding 48% total OA already in 2008.

These numbers include unrefereed preprint versions (about 15% in [11]), since the archived and published versions are mostly matched by automated title/author/abstract matching. Furthermore, archived manuscripts are scattered throughout the Web [15], and archived versions that became available after a (possibly long) embargo period are counted.

- OA What were when how why: the ideal Green OA mandate [16]

- estimating OA mandate effectiveness: MELIBEA score [17]
- Overcoming Zeno's paralysis (common misconceptions that cause scientists to not deposit) [18]
- self-selected or mandated: oa increases impact [10]
- anatomy of Green OA: 79% within a year, 62% immediately, but only 12% green coverage. [11]
- situation 2009: 12% green, 8% gold. [12]
- fair use button [19]
- Arxiv study: for some disciplines in physics, about 2/3 of published papers are on arXiv. But: not checked if it is indeed a *refereed* version. Just checked title/author/abstract similarity. [20]
- [21] HEP community reads almost no journals, just preprints? Near 100% for some journals, but not all versions are the peer-reviewed manuscript. Interesting case study. Why haven't they cancelled journals?
- [13] 24% open access.
- [14] Almost 50% OA, but did not check for peer-reviewed, just being able to find some version on google scholar. Also no timeline, like other studies.
- [22] virtually all physics journals endorse Green

III. Current institution and funder mandates

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IV. Grassroots initiatives

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