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A genealogy of open access: negotiations between openness and access to research / Une généalogie de l'open access : négociations entre l'ouverture et l'accès à la recherche

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Résumé

Open access (OA) is a contested term with a complicated history and a variety of understandings. This rich history is routinely ignored by institutional, funder and governmental policies that instead enclose the concept and promote narrow approaches to OA. This article presents a genealogy of the term open access, focusing on the separate histories that emphasise openness and reusability on the one hand, as borrowed from the open-source software and free culture movements, and accessibility on the other hand, as represented by proponents of institutional and subject repositories. This genealogy is further complicated by the publishing cultures that have evolved within individual communities of practice: publishing means different things to different communities and individual approaches to OA are representative of this fact. From analysing its historical underpinnings and subsequent development, I argue that OA is best conceived as a boundary object, a term coined by Star and Griesemer (1989) to describe concepts with a shared, flexible definition between communities of practice but a more community-specific definition within them. Boundary objects permit working relationships between communities while allowing local use and development of the concept. This means that OA is less suitable as a policy object, because boundary objects lose their use-value when 'enclosed' at a general level, but should instead be treated as a community-led, grassroots endeavour.

Plan

Introduction and Methodology

1   The concept of open access (OA) resonates differently between communities of practice. Broadly speaking, it refers to the removal of price and permission restrictions to scholarly research. Open access research is free to read and use by anyone with access to a stable internet connection. This definition is generally consistent across communities, although some insist on a specific, permission-free approach to OA licensing, while others specifically discourage the use of liberal licensing with strict limits to reuse. However, it is the motivations for and routes to OA that differ substantially between communities, as I will explore in this article.

2   The development of OA reveals a number of different lineages, from the formalising of pre-existing preprint cultures via subject repositories and the emergence of institutional repositories, to the free culture and open-source software movements. These separate lineages do not make for a consistent set of values associated with OA, especially against the backdrop of unique disciplinary publishing cultures. Throughout the article I argue that these numerous motivations and values mean that OA should not be approached as a unified whole. One should not think of OA as a thing-in-itself; rather, it should be seen as a process of understanding, engaging and experimenting with the ways in which research is presented and disseminated. OA should therefore be considered and fostered as a community-led initiative; and funders, institutions and governments should be mindful of this in their approach to policymaking.

3   The article takes a genealogical approach to the history of open access through an investigation into the separate and often conflicting discourses that have shaped ideas around *openness* and *access to scholarship*. The genealogical approach is associated with the work of Foucault (inspired by Nietzsche's method in *Genealogy of Morals*) and involves cultivating the 'the details and accidents' involved in the origin and development of a concept (Foucault 1984, 80)—in Foucault's case the concept of 'discipline', for example. By analysing the tactics used in employing the concept, a genealogy will reveal the power that

shapes and governs a particular discourse. It is, in Foucault's words, a way of revealing the 'history of the present' (Foucault 1995, 31). For this reason, my aim in this article is not to provide a conclusive or exhaustive account of the history of open access, rather to illustrate how some of the different histories of OA have resulted in the landscape that exists now.

4   The genealogy follows a route through two distinct lineages of OA that have in various ways converged in contemporary understandings of the term. Analysing both discursive and non-discursive articulations of open access, I illustrate how there are some formulations that derive from attempts to provide cost-free access to research works, such as those associated with institutional repositories, subject repositories or early OA journals on the web. On the other hand, there are approaches that derive more from open-source software, such as those associated with new journals in the biological sciences or those advocating *libre* Creative Commons licences. These approaches emphasise the *open* nature of research: it should be reusable and re-mixable, all for commercial purposes, in a similar way that open-source software is. Further still, I illustrate the unique motivations for OA, and routes to it, that can be found within these two distinct lineages, such as the desire to reduce subscription prices or those associated with a particular political position, be it market-based or progressive.

5   I employ a genealogical approach to understand the many ways in which open access came into being, in order to illustrate the term as multiple, processual and responsive to a range of motivations. This conception naturally lends itself to what Star and Griesemer term a 'boundary object'—a concept that has a specific understanding in a local community of practice but is rigid enough to maintain its definition across communities too (Susan L. Star and Griesemer 1989). As such, boundary objects can be approached and understood at a general level, between communities, but they also permit experimentation and community ownership of the object at hand. OA, as I show, has been successful precisely because it resonates across communities, but the history of OA will also illustrate that it has specific meanings in individual circumstances.

6   Clearly, this genealogy will be incomplete and somewhat oversimplified, but it will highlight the community-specific nature of open access and the need to not enclose it according to a rigid, sweeping understanding of the term. It will also highlight the hegemonic struggles involved in the development of OA and the need to ensure that the development of OA is not solely driven in accordance with the interests of more dominant groups. I will begin by detailing what I argue are the two separate approaches to OA that eventually converged in the mid-2000s, specifically those that emphasise 'openness' versus those prioritising access to research.

Openness

7   The opening section of this article focuses on the *openness* side of the history of open access, as opposed to the history that derives more from access to scholarly research. Here it will become clear that a significant part of the move towards open access evolved from the understanding of publications as *open*, i.e., as connected to the histories of free culture and open-source software. While there is overlap between the two lineages, the focus of *openness* over *access* often determines a particular approach to open access, and has resulted in conflicting policies from funders, institutions and governments worldwide.

8   In a general sense, openness refers to the degree to which a thing or action is freely accessible. It implies freedom: the extent to which a particular action, resource or concept is free to perform, access or use. It also implies transparency, where, for example, governments share their accounts under the label of open government data or simply where one speaks frankly and does not self-censor. Similarly, with respect to the topic at hand, there is a long-running association between science, or academic research more generally, and openness. As Christine Borgman shows, science benefits from the 'open exchange of ideas' and depends on 'wide and rapid dissemination of new knowledge so that findings can be discarded if they are unreliable or built on if they are confirmed' (Borgman 2007). This to say that the tradition of sharing work with one's peers through publication, and the openness this entails, is embedded in the scientific process itself and considered one of Merton's norms of science (Long 2001, 6).

9   However, the level of openness associated with a publication is often controlled by the author who is incentivised to strategically reveal results and data for maximum career benefit. Keeping raw data secret while publishing only a description of the results, publishing rapidly to avoid being scooped, etc., are all ways to establish *priority* over a research result (see, e.g., Biagioli 2012). Consequently, science and scholarly research more broadly are not necessarily disinterested and altruistic exercises but are instead inherently connected with the careers of authors. Secrecy has therefore played an important role in how research is disseminated and in negotiating the risks involved in making research public.

10 But openness appears to be a term with multiple understandings and no fixed definition. It is cited by governments, startups and organisations as integral to their 'philosophy', often without further explanation of the term. As Nathanial Tkacz argues:

> 'Somewhat ironically, once something is labelled open, it seems that no more description is needed…[O]penness is the answer to everything and what we all agree upon.' (Tkacz 2014, 37)

11 A good route of entry into an exploration of openness is via Tkacz's recent monograph *Wikipedia and the Politics of Openness* (2014). Here, the author explores the political foundations of the term looking particularly at openness in practice within the Wikipedia community.

12 Tkacz traces a line from Karl Popper's conservative discourse *The Open Society and Its Enemies* to the open-source movement of the 1980s and beyond, focusing in particular on how this continues to influence contemporary understandings of openness. He describes Popper's notion of the open society as one that is free of 'unchallengeable truths' or 'so-called universal laws of history or destiny' (Tkacz 2014, 18), and is best promoted through the freedom offered by participation in the free market. Following Hayek, Popper argues that any form of centralised planning is detrimental because it presupposes that the state knows what is best for its citizens, which can only be the case for a small number of citizens, rather than society as a whole, as individuals are the best determinants of what is best for themselves. As such, the open society is one that ensures and preserves individual freedom of choice within society. Tkacz summarises Popper's approach:

> Openness is necessary because nobody can know for certain what the best course for society might be from the outset, and at the same time it is assumed that openness provides the best possible conditions for producing knowledge and, therefore, making better decisions (Tkacz 2014, 18).

13 Political openness, for Popper, is a prerequisite for maximising one's decision-making capabilities in a society where no one person or institution knows the best course of action for all. It is a concept in alignment with individual freedom and sovereignty.

14 Without going into detail about the merits of his assessment of Popper, Tkacz makes it clear that Popper's Open Society 'resonates strongly' with the neoliberal agenda—the 'organisational philosophy of "competition"' as Tkacz terms it—that was to manifest in the 1980s throughout the UK and USA and is now the dominant ideology in many contemporary Western democracies (Tkacz 2014, 19). In terms of openness, Tkacz argues that the development of open-source software is an instantiation of openness in Popper's sense and is therefore a neoliberal project. From this, the author argues, it is clear to see a neoliberal streak running through contemporary 'open' movements—from open-access publishing to open educational resources to open government data.

15 Tkacz's argument is based on the premise that open-source software prevailed as the dominant method of development over Richard Stallman's more explicitly political 'Free Software' method. Open-source software is associated with what Eric Raymond (co-founder of the Open Source Initiative organisation) termed the 'bazaar' approach to development whereby groups of coders collaborated on individual projects in accordance with the need to 'release early and often, delegate everything you can, be open to the point of promiscuity'. Stallman's 'cathedral' approach, as Raymond describes, was highly individualised, undertaken by 'individual wizards or small bands of mages' with software not released until it was completely finalised (Raymond 2015).

16 Tkacz likens the differences in the two approaches to the difference between the free market and central planning. Open source software represented the 'new liberal utopia: radically open to competing "agendas and ideas"' (Tkacz 2014, 24). Stallman's free software philosophy requires a political and ethical commitment. He describes it as a 'social movement' aimed primarily at protecting the freedom of users to use and reuse code, in opposition to the proprietary software created by big businesses. This is distinguished from open-source software more generally, which Stallman calls a 'development methodology' rather than an ideology (Stallman 2007). Open-source software is not explicitly political, embracing competing approaches and encouraging connections with business.

17 The open-source 'bazaar' development philosophy prevailed over Stallman's 'Free Software. Today, the Linux operating system (often hailed as the crowning achievement of open-source software) is used by multinational corporations everywhere, including Google and Amazon, and is the basis for the Android mobile operating system. With so many for-profit companies utilising Linux, it is easy to understand why Tkacz associates open-source with the free-market approach. Open-source projects are participatory, decentralised and benefit from the 'marketplace' of competing ideas, thus avoiding the presumed tyranny of the centralised approach that assumes the sole creator(s) know the best course of action. It is easy to understand Tkacz's argument that openness is neoliberal.

18 If we are to accept Tkacz's account of open source as neoliberal and look closely at 'open' projects that bear its name, we would surely find that open access itself bears the same hallmarks. Certainly, many aspects of OA were influenced by open-source software, particularly the use of open access licences in place of traditional copyright. For Tkacz, open projects display varying degrees of 'transparency, collaboration, competition and participation', all of which are fostered through the use of Creative Commons CC BY licences that permit readers to freely read, share and reuse published research (for commercial purposes) without requiring permission from the copyright holder.

19 For many advocates, such as the signatories of the Budapest Open Access Initiative (BOAI) declaration (BOAI 2002), open access can only be achieved by CC BY, anything less introduces a barrier to the open progress of science. Research dissemination requires as little friction as possible, it is argued, and this can only occur with minimal restrictions on the ability to reuse research. Such is the line adopted by many born-digital scientific publishers such as PLOS, BioMedCentral and F1000, all of whose articles are published under CC BY. These publishers also developed and utilise the article-processing charge as the main generator of revenue, which requires payment from the author's funder at the time of publication. This business model has been copied by numerous other traditional commercial publishers such as Nature and Elsevier.

20 Article-processing charges are now a dominant model for open access and many millions are spent by funders and universities on them each year (see

e.g., Lawson 2015). Clearly open access has been opened up to competition within the free market, despite one of the primary motivators for OA being an objection to the profiteering practices of commercial publishers (as I will explore further in this article). Further still, in favouring CC BY over other more restrictive licenses, published articles are open to be reused by commercial entities. Therefore, one can see an association between certain articulations of OA and the free market (and neoliberalism more generally) in the way Tkacz describes.

21　When understood through the history of open source software, then, it is clear that *some* understandings of openness promote a neoliberal vision along the lines described above. In many respects, openness is pragmatic, business-friendly, competitive and non-centralised; it has been easily embraced and subsumed by capitalism in the same way as many instances of open-source software have. However, just because openness (and OA specifically) can be 'neoliberalised', it would be an overgeneralisation to assert that *all* instances of open projects derive from the intellectual project of neoliberalism. How, then, should we theorise openness?

Reclaiming the Open

22　The problem with generalising out from the politics of some projects that operate under the banner of 'open' to all of them is that it treats the political in general as a category that has already been decided upon, rather than a decision made, as Chantal Mouffe illustrates, in an 'undecidable terrain' (Mouffe 2013, 17). 'Neoliberal' is not therefore a political category that can be indiscriminately applied to all forms of openness but something operating in a specific context and under certain conditions (or 'enclosures'). Tkacz himself recognises this, stating:

　　Rather than using the open to look forward, there is a pressing need to look more closely at the specific projects that operate under its name—at their details, emergent relations, consistencies, modes of organising and stabilizing, points of difference, and forms of exclusion and inclusion [...] (Tkacz 2014, 38).

23　It is these 'details, emergent relations, modes of organising and stabilizing, points of difference, and forms of exclusion and inclusion' that contribute to a project's politics. These enclosures need to be made and constantly reassessed, rather than decided upon in advance as a homogenous category or structure.

24　Gary Hall makes this point about open access specifically: 'to argue that open access is political in this explicit, a priori way, would be to give the impression that it is so simply because it conforms to some already established and easily recognized criteria of what it is to be political' (Hall 2008, 35–36). Certainly, examples of openness (and open access) do conform to the rhetoric of the market and competitive, individualised approaches scholarship. But other examples of openness are more progressive, seeking instead to organise in a way that tackles a specific problem in a given context. The status of openness

as 'political' in any form (be it progressive or reactionary) is not something that can be decided upon in advance.

25 It is difficult, then, to speak of openness as a thing-in-itself without modifying or enclosing it in some way. Openness of course broadly refers to the gifting of the outputs of one's creative or intellectual endeavours in accordance with certain conditions. It is the choices made around how this is done, what enclosures are made and how projects are organised that make up their politics. For example, Dymitri Kleiner's *peer-production licence* is a form of open licence that aims to foster the creation of a commons so that 'independent communities of peers can be materially sustained and can resist the encroachments of capitalism' (Kleiner 2010, 12). To achieve this, Kleiner modified the Creative Commons Sharealike (CC BY-SA) licence to prohibit the reuse of works by for-profit corporations. For-profits are able to reuse licensed works but only after paying a fee to their creators. This encourages a different kind of commons, based on sharing via a copyleft clause (that the author terms 'copyfarleft'), but one which confronts what Kleiner sees as an 'unfree society that requires consumer goods to capture profits' (Kleiner 2010, 28).

- 1 See the Open Knowledge Foundations 'Open Definition' for more: opendefinition.org/od/2.1/en/

26 Kleiner's peer-production licence represents an attempt to use free culture to promote a specific kind of politics. This involves a kind of antagonism or enclosure, i.e., an active choice as to the way things should be in a particular context. Antagonisms are the foundation of the political sphere; they represent disagreements or conflicts over the best course of action in a given terrain. The peer-production licence entails a specific kind of closure, one that aims to prioritise worker-owned approaches over shareholder-based capitalism. In fact, all forms of openness imply enclosures: from copyleft clauses in open-source licences that force re-users to licence their works under the same conditions, to the legal requirement to attribute the creator of a CC BY-licensed work, to social norms around the use of public domain materials[1]. These are all forms of antagonism.

27 But antagonism implies a hegemonic struggle composed of conflicting power relations between groups with different points of view. Hegemony itself presupposes what Laclau and Mouffe describe as 'the incomplete and open character of the social' (Laclau and Mouffe 2001, 134). Democracy is framed as a process of constant reinvention, but with a pluralistic, open character. Whereas the neoliberal response to openness is to enshrine it within the instruments of market-based measurement and logic, Mouffe and Laclau on the contrary argue that conflict and plurality actually constitute the very possibility of democracy—'If there is politics in society it is because there is conflict' (Carpentier, Cammaerts, and Mouffe 2006). Democracy therefore requires institutions that promote plurality and difference.

28 For Adema and Hall, the development of democracy as a process parallels the development of open access. They argue it is helpful to think of open access 'less as a project and model to be implemented, and more as a process of continuous struggle and critical resistance[.]' (Adema and Hall 2013). Openness (and open access specifically) therefore implies a plurality of approaches and values; it is temporary, constantly changing and cannot be decided in advance.

29 Much like the political presupposes an 'incomplete and open nature' so too does openness itself. It requires one to embrace what Cameron Neylon calls the 'humility of not knowing', or the feeling that others are free to make their own choices about openness and how research is reused (Neylon 2013). This is less about what openness *is* (the licenses used, green vs. gold, etc.) and more about openness as an approach or process. As Neylon argues:

But the license isn't what matters, what matters is embracing the idea that someone, somewhere can use your work, that someone, somewhere can contribute back, and adopting the practices and tools that make it as easy as possible for that to happen (Neylon 2013).

30 This statement implies an openness to the various antagonisms, enclosures and decisions made about how research is shared and reused. It treats diversity and plurality as something to be encouraged.

31 This is why, then, one sees a diverse range of projects operating under the 'open' banner, not just those adopting a political approach one way of the other. It is also why one sees a number of projects operating in direct opposition to neoliberal approaches within publishing, libraries and the academy more generally, such as Punctum Books, Open Humanities Press and the Radical Librarians Collective. With so many diverse approaches espousing the open philosophy, perhaps this means that 'the open' has a more complicated relationship with the political than meets the eye.

32 In this section I have tried to illustrate that openness does have a real basis outside of neoliberalism and that it is an approach or process that requires careful articulation in an undecidable terrain. Although there are many 'open' projects that do conform neatly to the neoliberal values of measurement by the market, there are many that do not and many that oppose it. The numerous motivations for various open access projects will become clearer in the second section of the article.

33 Suffice to say that this section does illustrate a lineage between open source and open access, particularly as many open access projects that evolve from open-source culture focus on the potential of reuse, collaboration and remixing. However, not all understandings of 'open access' derive from this lineage and instead reflect more of a preoccupation with the provision of public access to the research literature. What the genealogy does reveal is that openness requires one to consider the enclosures made in releasing something to a particular community, and this involves accepting the incomplete and contingent nature of things.

Boundary Objects

34 It is worth at this stage introducing an additional theoretical layer to this genealogy of OA. Having shown that openness is itself an approach or process with no fixed meaning or definition, I will now argue that it is helpful to theorise open access as a boundary object, a term first defined by Star and Griesemer in 1989. Boundary objects are understood differently within individual communities but maintain enough structure so as to be understood between communities. As the authors write:

   Boundary objects are objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual site use. These objects may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make the recognizable, a means of translation (Susan L. Star and Griesemer 1989).

35 It is the plasticity of the boundary object that is key. Boundary objects maintain a recognisable structure across communities despite being understood differently in different situations and contexts. Their structure is always open to change.

36 In terms of open access, if we accept that openness is a concept describing multiple approaches, and we also accept that open access itself has a number of individual motivations and understandings (as I show further in the next section), then it is best conceptualised as a boundary object. This means that open access resonates differently within individual communities of practice, not just within disciplinary communities but cross-disciplinary interest groups or those sharing a common methodology (or any community of practice, for that matter). It also allows OA advocates to share a common language despite not having a common vision or explicit shared understanding of what they are advocating.

37 However, as is well known, arguments over the correct definition of OA and strategies for how it should be pursued are rife within open access. Boundary objects, as Isto Huvila explains, do not escape the kinds of hegemonic struggles between perspectives as described above. Boundary objects are not purely consensual and still rely on the need to make decisions or enclosures as to what the object represents. As Huvila argues: 'the creation or reshaping of boundary objects is always an attempt to make an hegemonic intervention' (Huvila 2011). These kinds of hegemonic interventions are common throughout open access, especially around routes to open access, how it should be funded, what licenses are required and whether top-down policies are needed.

38 The next section aims to highlight the lineage of open access that stems primarily from the promotion of *free access to research*, as opposed to being primarily concerned with openness and reuse. Here it will be clear that the

different approaches and motivations for OA reveal its individual, community-specific nature, leading to the conceptualisation of OA as a boundary object. This will ultimately illustrate that it is not possible to talk about OA as one thing, or even a thing-in-itself at all, but a series of experiments of critical engagement with publishing processes, free culture and scholarly communications in general. Such analysis should reveal the genealogy of open access as a community-driven concept, something that is highly specific to the motivations or working practices of the given community. The concluding section will then offer thoughts on what we can learn from a genealogy of open access and how this might inform its future development.

Access to research

39 Conceiving OA as a boundary object means it resonates differently in different settings. Aside from OA's lineage from open-source culture, and 'openness' more broadly, this section focuses on the parallel development of open access as derived from the desire to provide access to research to those without it. This does not necessarily require any separate approach to copyright or relaxed reuse permissions, the kinds of which are embedded in understandings of OA that derive more from open-source software and free culture. The kinds of OA that prioritise access are often more conservative in their approach to research articles/books as fixed objects with traditional notions of authorship, rather than open notions of adaptation and remixing. The emphasis here is on simply removing price restrictions to a research work.

40 Forms of OA that prioritise access are often, though not exclusively, associated with repositories. An early example of this kind was the arXiv, which formalised the pre-existing culture in physics of sharing working papers (preprints) as soon as they were ready, prior to peer review and publication in a journal. High-energy physics always had a culture of sharing working papers—this was originally conducted via post and then by email to an exclusive list of 'a-list' researchers (Ginsparg 2011, 3). The arXiv ensured that anyone with access to the internet could read cutting-edge physics research.

41 However, as arXiv founder Paul Ginsparg notes, the internet was 'something of a private playground for academics, subject to few intrusions from the outside world' and so editorial and access controls were not necessary. This presupposes that if the 'outside world' were more present on the early Web then the arXiv might not have been freely accessible to all. It seems likely then, despite its importance and success as a repository of publicly accessible physics and mathematics research, that its facilitation of access to knowledge was a by-product of the arXiv's original intentions. Rather, the arXiv increased the speed of dissemination of high-energy physics research to those whose access was delayed because they were not on the 'a-list'.

42 The arXiv is an example of an approach to open access that made pre-existing research dissemination practices more efficient. It worked within the

constraints and affordances of what Karen Knorr Cetina terms high-energy physics' *epistemic culture*—'those amalgams of arrangements and mechanisms—bonded through affinity, necessity and historical coincidences—which, in a given field, make up *how we know what we know*'(Knorr-Cetina 1999, 1 emphasis original). It is unlikely that the 'open access' status of the arXiv was relevant or even noticeable to early users of the repository, if only because there were initially so few users on the Web. Its success was largely down to how it improved the existing research practices of high-energy physics researchers.

43 The arXiv highlights the contingency of open access in high-energy physics. It was not adopted out of a political commitment, a need to reach a broader public or a desire to reduce subscriptions. In fact, physicists still continue to publish in traditional journals for 'prestige and reward allocation' (Kling and McKim 2000). The arXiv highlights different working practices rather than a desire to break from the traditional way of doing things.

44 Alongside the development of the arXiv, similar arguments were made by advocates of using digital technologies to distribute scholarly material. Only this was aimed at using the web to push back on price barriers to research access. Stevan Harnad's 'Subversive Proposal' is a notable example:

> For centuries, it was only out of reluctant necessity that authors of esoteric publications made the Faustian bargain to allow a price-tag to be erected as a barrier between their work and its (tiny) intended readership because that was the only way to make their work public in the era when paper publication (and its substantial real expenses) were the only way to do so. But today there is another way, and that is PUBLIC FTP. (Harnad 1995, 11)

45 Harnad's understanding of scholarship as 'esoteric' is noteworthy here, which he describes as 'non-trade, no-market'. Because academic authors do not sell their work for money, and because academic work has a 'tiny' intended audience, it was considered more efficient to distribute pre-prints via FTP (in addition to the fledgling Web and its commercial rival Gopher). Harnad was particularly instrumental in the institutional repository movement, which provides access to research papers via university-hosted repositories.

46 Implicit in both the arXiv and institutional repositories is the idea that research objects can be shared more effectively via digital technologies. This is the kind of access emphasised by John Willinsky's 'access principle': A commitment to the value and quality of research carries with it a responsibility to extend the circulation of such work as far as possible and ideally to all who are interested in it and all who might profit by it (Willinsky 2006, xii). The access principle describes a researcher's 'responsibility' to disseminate their research to all who wish to read it. This is a foundational argument for open access: digital technologies enable a more effective way of sharing research such that everyone with a stable internet connection should be able to access it. It is an argument based on technology as an enabler of new or more efficient practices.

47 Arguments of this kind are often framed as a response to prohibitively high journal subscriptions, especially the 'serials crisis' that affects academic libraries, referring to the increase in the price of journals above inflation such that increasingly few libraries can afford all the resources they need (See e.g., University of Illinois Library at Urbana-Champaign 2009). In this instance, OA is a response to publisher pricing strategies and the perpetuation of a business model based on print rather than digital economics. OA should therefore ease library budgets and have a positive effect both inside and outside the university.

48 One of the more notable campaigns for open access is predicated upon the notion that journal prices are exorbitantly expensive, without explicitly mentioning CC BY, reuse or even the term 'open access'. The 'Cost of Knowledge' website maintains a list of signatories of researchers who are boycotting Elsevier, the publisher frequently cited as one of the worst proponents of profiteering from journal subscriptions. The website specifically objects to 'exorbitantly high prices for subscriptions' and Elsevier's support of policies that 'aim to restrict the free exchange of information.'('Cost of Knowledge' 2011) The boycott currently list 16,000 signatories by people refusing to submit, referee or edit for an Elsevier journal.

49 Though the motivations here are numerous, arguments of this kind do not rely on the need for research to be *libre*. Repositories do not generally carry the requirement for articles to be uploaded under particular Creative Commons licenses. They are therefore associated more with *gratis* access simply because this is sufficient to solve the original problem framed as a lack of access to research outputs. But there is a tension here between gratis access to research and what many hold up as the canonical definition of open access: the Budapest Open Access Initiative definition, a minimum criteria of which is that open access should necessarily entail the ability to reuse a research paper. The only restriction should be to 'give authors control over the integrity of their work and the right to be properly acknowledged and cited' (BOAI 2002). Repositories in general do not provide the kind of OA that conforms to this definition.

50 Richard Poynder makes a similar point on the tension between gratis and libre access:

> [T]here is a contradiction at the heart of the OA movement—namely that while BOAI proposed self-archiving as one of the ways of achieving its objectives, green OA cannot actually meet BOAI's own definition of open access, not least because most self-archived papers will have been published in a subscription journal, and publishers will never allow papers from which they expect to earn subscriptions to be made freely available on the Web (or at least not before a lengthy embargo), and certainly not in the way BOAI called for—i.e. with reuse permitted. (Poynder 2017).

51 This is indeed a contradiction. Such contradictions are reflective of hegemonies in one group attempting to impose order over another. However, the pushback against the BOAI definition of OA also involves a powerful group (publishers) with a financial interest in protecting their subscription business model. There is clearly unequal power between those with a stake or interest in OA but a lot of this comes down to *who gets to decide*. A better way of approaching such contradictions would be to focus on the governance of the infrastructures for such efforts rather than differences in particularly worldviews.

52 This section has only scratched the surface of the various ways in which OA resonates differently within different communities. There are innumerable understandings of and motivations for providing access to research, from early web-based journals to contemporary book-based publishing houses, but their chief motivation is for getting more eyes on research. In this regard, open access for many means free-to-access research as opposed to any commitment to 'openness' or reuse. This has important implications for the genealogy of OA and helps explain a number of features with the current ecosystem. The final section now ties these strands together and assesses what we can hope to learn from such a genealogy.

Open/Access

53 Returning to the idea of the genealogical method as a 'philosophico-historical inquiry into the conditions that make possible problems such as modern sexuality and modern punishment' (or open access in this case) (Koopman 2013), we can theorise the two discrete lineages of openness and access to research, each with its own range of motivations, understandings and resonances. The genealogy of open access reveals its meaning is multiple, it is highly community-specific and not necessarily politically progressive or reactionary but dependent on the choices made in a particular situation.

54 It is clear that the conditions for OA's existence arises out of the two lineages between open source/free culture and access to research. Martin Eve makes a similar point, arguing that OA emerges at the 'convergence point of these two narratives—problems of supply-/demand-side economics and the birth of the free culture movement'. This is certainly a good way of framing the *conditions for the possibility* of open access, although one would not want to emphasise too much of a consensus between the two lineages. John Willinsky, for example, goes as far as to say that there is a 'common cause' that unites open source, open access and open science, that the convergence of circumstances is in fact a convergence of intentions (Willinsky 2005). Whereas my analysis illustrates that this is not always the case.

55 To speak of a 'common cause' is to assume a fixed solution to a specific problem, but we have already seen that OA is neither of these things. Theorising it as a boundary object allows us to conceptualise OA as a community-led process without fixed meaning and continually open to

interpretation. This will allow a number of individual experiments in openness to blossom, thus working against enclosure by any particular group. The important thing is that the diversity of approaches makes open access useful, rather than enclosure at a general policy level.

56 Indeed, the open access policy framework in the UK is indicative of this kind of enclosure. The UK currently has two governmental policies for OA: HEFCE and RCUK. One is achieved via repositories and embargos (HEFCE) while the other (RCUK) is achieved largely by allocating public funds for article-processing charges in hybrid and open-access journals (HEFCE 2014; RCUK 2012). Not only is this indicative of the bifurcated lineage of OA, it encloses the idea of open access as either one thing or the other. This is especially detrimental when funding is not evenly split between institutions and disciplines (the sciences of course having greater access to grant funding), resulting in poorer funded disciplines such as the humanities being forced down 'second-class' routes.

57 This also means that as more researchers become aware of OA, in part due to the policies, newcomers will be discouraged from exploring open practices because they might be seen as exclusionary, bureaucratic or simply not for them. Leigh Star describes how boundary objects lose their plasticity when enclosed by policymakers:

> Over time, people (often administrators or regulatory agencies) try to control the tacking back-and forth [between local and general understandings of the object], and especially, to standardize and make equivalent the ill-structured and well-structured aspects of the particular boundary object. (S. Leigh Star 2010, 613–14).

58 Once a concept is enclosed according to a policymaker's understanding it ceases to be useful as a boundary object. In the case of open access, this means that mandates (and policies more generally) lose the processual, experimental features that make OA so amenable to 'critical struggle and resistance' (using Adema and Hall's term above).

59 Open access should remain complicated and embrace the 'undecidability' that Mouffe and Laclau reference. This would entail an ecosystem of experimental, community-governed projects based on articulated and unique approaches to openness, free culture and the gifting of one's research. OA should therefore, in Janneke Adema's words, remain 'messy':

> One of the benefits of this vision would be that it would open up more space for radically different, messy, dissensual, critical and conflicting positions and perceptions on open access, where these different positions are often played down in the interests of strategy. (Adema 2014).

60 Such messiness, if promoted as valuable in itself, would provide a space for diversity and the more marginalised voices and elements of academic research to be heard. It would also allow open access to not be so easily captured by

dominant and/or neoliberal approaches based on high APCs paid to commercial publishers for the sake of ill-conceived government and funder mandates.

The genealogy: what have we learned?

61 This article has shown that open access has a complex genealogy that cannot be portrayed as a coherent or homogenous 'movement'. Not only are there two separate lineages of OA originating from 'openness' on the one hand and access to research on the other, even within these lineages there are numerous motivations and understandings of the term. From Nathanial Tkacz's analysis of openness we have seen that forms of open access may be indeed reflect a neoliberal philosophy in the same way that forms of open-source software may do. Yet, I have also shown that open access is not necessarily a neoliberal project either and encompasses a variety of political, social and disciplinary motivations that cannot be reduced to one particular understanding.

62 It is worth stating I do not intend to make a strong value judgement about different routes to and motivations for OA, only to say that the genealogy of OA shows it to be conceptually multiple—best conceived as a boundary object. This is part of its value: that it represents a multitude of positions and strategies but is generally recognisable across cooperative communities of practice. The main value I would like to assert is that this level of diversity should be instantiated in any ecosystem of open access, paralleling similar arguments by Adema and Hall above that open access should reflect a 'critical struggle and resistance' through experimentation and dissention.

63 What this means is that open access cannot be painted with a broad brush as a single movement or project that a group of advocates are trying to implement. Some voices shout louder than others, and others are better at influencing policy, but this should not be confused with a homogenous community of zealous advocates all pulling in the same direction, as many argue (e.g., Golumbia 2016; Beall 2013). Similarly, OA is not best conceived, as Daniel Allington characterises the advocate position, as a 'single purported solution' to one or many problems (2013). OA represents a number of approaches and motivations, some thought through better than others, and it is easy for critics to portray a particular approach to OA as representative of all approaches to it.

64 For it to be politically progressive, the conditions for OA's adoption should reflect and be answerable to the various communities of practice that conduct and publish research. There should be a space for experimentation and dissent. The important thing here is for funders, institutions and governments to back away from implementing restrictive mandates and instead facilitate experimentation governed by communities themselves. A lot can be learned from ideas around collective governance of the commons and further experimentation and research is required in this area. We might look to any

number of scholar-led initiatives to understand the choices made around such initiatives and how projects can be mutually supported and co-reliant. Of course, this would entail the need for greater power for communities over publishing infrastructures for books and journals, working with university presses and libraries to improve researcher governance of publishing. It would also require researchers to wrest back control of technical infrastructures such as repositories and academic social networks from commercial providers. This is no doubt not easy, but it is certainly worth striving for.

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Notes

1 See the Open Knowledge Foundations 'Open Definition' for more: opendefinition.org/od/2.1/en/
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