The missing profession: toward an institution of critical technical practice

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Abstract

Background. *Despite rapid advances in the technical aspects of our networked computational infrastructure, there is growing sentiment that society is ill-served by what we have built.*
Aim. *I take the position that the failure of our networked computational infrastructure to serve the common good is due to the lack of an authoritative institution that might govern it. I outline a rationale for such an institution, modelled upon Vesa Suominen's rationale for the institution of librarianship.*
Method. *I put Suominen's ideas in dialogue with the work of Luc Boltanski, who supplies insights into the functioning of institutions and the interdependency of institutions and critique.*
Results. *I identify three aspects of Suominen's rationale for librarianship of particular importance to rationalising an institution of critical technical practice: his critique of userism, his vision of a reflexive institution, and his conception of the relation between research and practice.*
Conclusions. *I conclude that information schools, despite having distanced themselves from institutional conceptions of their mission, are well-positioned to develop a new institution of critical technical practice.*

Introduction

These are trying times for many of us who design, build, maintain, or study networked computational infrastructure. Our frustration was well expressed by Tim Berners-Lee (2018): '… for all the good we've achieved, the web has evolved into an engine of inequity and division; swayed by powerful forces who use it for their own agendas'. These powerful forces operated with impunity because of the failure to develop institutions with the authority to rein them in. By *institutions* I mean the formal and informal definitions, rules, and constraints that structure human interactions (North, 1991). Institutions should not be confused with administrations, which enforce formal laws, or organisations, which coordinate action (Boltanski, 2009/2011, p. 79). When the definitions, rules, and constraints that structure interactions in some particular domain are particularly well-established, then typically there will also be professional bodies charged with training people to understand, explicate, and maintain them, and in such cases *institutions* may also refer to these bodies—as in the cases of medicine, education, or librarianship. But human interactions with or via networked computational infrastructure are not yet structured by such well-established institutions.

Organisations such as the Internet Society, the Internet Corporation for Assigned Names and Numbers, and the World Wide Web Consortium that might have, under different historical circumstances, developed into such institutions instead narrowly defined their roles as caretakers of technical standards. The governing principle of these organisations is that they should do the minimum amount of decision-making necessary to ensure a neutral platform upon which others can pursue whatever ends they may envision. Anything beyond that minimum should be strictly avoided, as it might interfere with the free pursuit of utility maximisation that—it is assumed—will ensure the best possible development and use of our networked computational infrastructure. Yet despite strict adherence to this principle, it is increasingly difficult to believe that the networked computational infrastructure we have is the best one possible.

And so there is growing interest in new networked computational infrastructure, such as blockchains and decentralised webs: opportunities to start over, untainted by the mistakes of the old infrastructural designers and engineers. But there is far less interest in the unsexy work of building institutions that might directly address network-induced inequity and division, including the new forms of inequity and division, as yet unforeseen by their designers, that will inevitably accompany this new infrastructure. Institutions are inherently conservative; they seek to make change manageable by slowing it down. This runs counter to the way that professionals responsible for designing and building networked computational infrastructure understand themselves: as innovators, harnessing novel technologies to solve

problems, even ‘moving fast and breaking things’. The new institutions we need require a new conception of professional technical practice, a critical technical practice that is less focused on technological revolution and more focused on understanding our present technological situation and the history that led to it (Agre, 1997). These critical technical practitioners would understand themselves as curators, conservators, and educators, working to maintain what is of value in our networked computational infrastructure and to make it comprehensible and accessible to all.

Why did such a professional identity not emerge out of librarianship? After all, librarians also curate, conserve, and educate on behalf of a shared cultural infrastructure. But despite talk of a generalised information profession succeeding librarianship, no such profession has emerged. To understand why, I look at the history of the concept of a generalised information profession and the recent history of schools of library and information science—now mostly known as *information schools*—and how they distanced themselves from institutional conceptions of their mission. I then consider recent appeals to librarianship as a potential home for the kind of critical technical practice that I advocate above. I conclude that critical technical practice needs a professional identity distinct from that of librarianship, but that the task of developing a rationale for the former might benefit from a critical examination of the rationale for the latter. The scholar of librarianship Vesa Suominen (1997; 2016) has conducted just such an examination over the course of two books, developing a rationale for librarianship grounded in an obligation to *what has been written*. Though it exceeds the scope of Suominen’s project, I argue that our networked computational infrastructure can be seen as part of, or at least akin to, *what has been written*, and thus that his work might serve as a starting point for developing a rationale for a new institution. To further develop this rationale, I put Suominen’s ideas in dialogue with the work of Luc Boltanski, whose program of pragmatic sociology both supplies insights into the structuring function of institutions and highlights the ‘permanent dialectic between institutions and critique’ to which an institution of critical technical practice would need to orient itself (Boltanski, Honneth, and Celikates, 2014).

Opting not to define an information profession

> *I no longer can recognize a profession at all. I can recognize a set of interesting topics and interesting problems … But I got no sense whatsoever of what a person could claim as their professional expertise which they would offer to use on behalf of other people. So it’s a real mystery to me what has actually happened … it may be that the idea is, we're not going to define a profession.* (McCreery and Wilson, 2000, p. 209)

Information-related professions were of particular interest to the influential sociologist of professions Andrew Abbott. Abbott (1988, p. 216) did not identify a single information profession but rather a ‘general information area’ which various professions have divided into jurisdictions. According to Abbott’s theory, professions compete to expand their jurisdictions, occasionally splitting or merging in response to disruptions. Looking at the history of this competition in the United States during the 20th century, Abbott discerned within the general information area ‘qualitative’ and ‘quantitative’ subregions, the former involving information work primarily dealing with texts and the latter primarily dealing with numbers. Prior to World War II, the jurisdiction of librarianship dominated the qualitative information area, while the quantitative information area was struggled over by various professions including accounting, statistics, and management engineering. World War II, however, catalysed two disruptive changes: the development, under the influence of cybernetics, of ‘a conception of information science as a coherent whole, embracing qualitative and quantitative information’, and the emergence of ‘computers—machines with which this conception could be made something like a reality’ (Abbott 1988, 239). By the 1960s the conception of information science had led to aspirational discussion of a generalised information profession that might claim this combined jurisdiction. But as, Abbott (1988, p. 245–246) recognised,

> *No coherent set of people has in fact emerged to take jurisdiction in this area. It continues to be extremely permeable, with ... careers following wildly diverging patterns. There are certain small*

> *and relatively elite groups in the area— the membership of ASIS for example ... [but] they have yet to institutionalize coherent training programs and to create secure links of jurisdiction.*

One reason for the failure to claim the combined jurisdiction was the fact that information science lacked a mass professional base. Information science research in the 1970s had focused largely on the development and evaluation of information retrieval technologies. Purchasing these technologies and the abstract professional labor embodied within them obviated the hiring of professionals with specialised knowledge. Abbott recognised this and predicted that 'the professions in the information area … will end up as small, elite professions with intellectual jurisdictions over large areas. In these areas they will oversee commodified professional knowledge executed by paraprofessionals …' (Abbot, 1988, 246). Complicating this trajectory, however, was the fact that these intellectual elite were primarily located in former library schools, which starting in the 1970s had transformed into library and information science schools. One measure of the success of the conception of information science is that library schools that did not make this transformation were often shut down: fourteen of them between 1978 and 1991, including some the most highly regarded ones (Paris, 1991). For those that survived, the transformation was smoothed by the above-mentioned aspiration toward a generalised information profession incorporating and expanding upon librarianship. But professional organisations of librarians saw, correctly, that a combined jurisdiction was likely to result not from a merger of the jurisdiction of librarianship with other jurisdictions, but rather from a displacement of librarians from their jurisdiction, and subsequent demotion to paraprofessional status (Bowles, 1999).

Many information scientists agreed. Saracevic (1982; 1992), for example, argued that librarianship and information science were properly seen as two separate disciplines and called for a 'divorce' of library schools and information science degree programs. Miksa (1992) and Wersig (1992, p. 202) both rejected any conception of information science that centred the library as an institution, the latter claiming that 'There is little proof that specific kinds of organisations provide a sound basis for a scientific or academic discipline'. Cronin (1995, p. 56) concurred, outlining a strategic agenda for purging information science programs of the 'collective values, professional attitudes, philosophical ideals, and … public service ethos' of librarianship. He called for 'aggressive, but selective, faculty and concept recruitment from cognate fields', to be arrayed around information science as a unifying concept, and the creation of a 'two-tier educational system' in which library education would be ejected from research universities and placed in vocational schools, while information scientists would abandon professional training to focus on the production of commodified scientific knowledge (Cronin, 1995, p. 60). This agenda would be partially realised, though perhaps not as Cronin imagined.

Schools of library and information science, in the process of transforming once again into information schools, did aggressively recruit faculty and concepts from cognate fields—but what brought them together was not a unifying science of information. Instead, it was the emergence and rapid growth of the World Wide Web and the subsequent recognition of the commercial potential of the Internet that brought researchers—and research funding—to information schools. Economists, anthropologists, sociologists, cognitive scientists, social psychologists, as well as scholars and practitioners of law, management, media, communication, and design, came to information schools not because they shared an understanding of, or even interest in, *information* per se, but because they were seeking places where they could apply the methods in which they had been trained to study users of the new networked computational infrastructure. Consider, for example, 'Reflections on the future of iSchools from inspired junior faculty', in which three newly-minted PhDs in computer science, having recently been hired by an information school, argued that information schools are not places where information is studied but places 'where people and technology meet' (Wobbrock, Ko, and Kientz, 2009, p. 69). Thus what is sometimes described as information science's turn to the social sciences (Buckland, 2012) was actually a turn away from a science with *information* as a unifying concept, toward the interdisciplinary study of users of networked computers, in which information science was just one of these disciplines.

Yet these 'places where people and technology meet' remained professional schools. Why? Given the failure to create a combined jurisdiction for an information profession, what, aside from librarianship, was

the profession for which these schools prepared students? This is what puzzled Patrick Wilson, former dean of the School of Library and Information Studies at the University of California, Berkeley, when he examined the curriculum for the newly formed School of Information Management and Systems (as related in the quote beginning this section). Wilson was partly correct when he surmised that 'we're not going to define a profession'. But the interdisciplinary study of users of networked computers needed *some* conception of professionals as consumers of the knowledge produced through that study, in order to put it into practice and thus give it a purpose. But these professionals would be defined in a open-ended way that avoided tying them to any particular organisation or institution: anyone charged with understanding and serving the needs of users of networked computing would be included as an information professional. This strategy was reflected in the changing curricula of information schools. In the late 1990s, the Kellogg-ALISE Information Professions and Education Reform project found that mission statements, course titles, course descriptions and syllabi were filled with references to user needs and user behaviour, leaving 'little doubt that "user-centeredness" has infused or pervaded most of our research and teaching', to the point where it was identified as a new 'core' of the field (Pettigrew, 2000).

This new core of the curricula in information schools was what Suominen (2007; 2016) has characterised as *userism*. For userists, the role of the information professional is to aid individuals in efficiently finding information as a means toward their desired ends: as Mason (1990, p. 125) put it,

> *Information professionals apply their knowledge about information and technology with one basic purpose in mind: to get the right* information *from the right* source *to the right* client *at the right* time *in the* form *most suitable for the use to which it is to be put and at a* cost *that is justified by its use.*

Because information professionals are concerned with means and not ends, they must be neutral: it is not for them to say what those ends should be. (This is what gives the conception of the information professional the open-endedness that information schools have found so useful.) And since, for userists, information only has value to the extent that it will be used toward some end, what really matters is not familiarity with the history or content of some particular subject area, but understanding users and their ends. The perfect information professional—or information retrieval system—would have complete knowledge of the client or user and their desires (Zimmer, 2008).

The limits of user-centredness

In seeking to distance themselves from institutions, information schools were in sync with broader trends. For over forty years, starting in the 1970s, widespread pessimism about institutions has been harnessed and amplified into a libertarian program that seeks the dissolution of all institutions (Boltanski and Chiapello, 1999/2018). Evangelists for Silicon Valley have played an important role in this effort, and librarianship—derided as obsolete in both its methods and its goals—has often been an explicit target of their propaganda (for example Weinberger, 2007; Shirky, 2008), as has been any suggestion that technological innovation ought to be subject to regulation or even strong criticism. But after the global economic collapse of 2008—in which both weakened institutions and unquestioned technological innovation played major roles—this began to change. Concerns arose about what we were potentially losing in the race to replace sclerotic institutions with dynamic networks. Critique of the tech industry, which only recently had been dismissed as Ludditism, slowly moved into the mainstream.

A decade later, there is widespread concern that the capital-driven race to dismantle established institutions and replace them with for-profit networked computational platforms has led to disaster. This is the 'engine of inequity and division' that Berners-Lee lamented his role in creating. The characteristic pattern is that networked computational infrastructure is deployed in ways that disrupt and undermine traditional institutions, in pursuit of the vast monopoly profits that can be seized by the first venture to successfully to reach *Internet scale* in its niche. But 'things get really weird' at Internet scale, because established methods for exerting control over bad actors no longer work, and neither the monopolists nor the weakened institutions they sought to replace have been successful at 'de-weirding' them (Rosenthal,

2019). As a result, our ability to confirm the basic contours of a shared reality—what Boltanski (Boltanski, 2009/2011, p. 56) calls 'the whatness of what is'—has withered, whether the whatness concerns public health, scholarly communication, the environment, the economy, or the electoral process. Focusing solely on pleasing individual users, as a means of growing market share and eventually pleasing investors, does not, it turns out, necessarily lead to results that will be universally regarded as optimal.

Given the magnitude of the disaster and the recent history leading up to it, it is unsurprising that some critics are calling for new institutions of critical technical practice that might rein in the era of unregulated platform capitalism. Interestingly, librarianship often plays a role in these critiques, usually rhetorically, but sometimes more substantively. Software developer Maciej Cegłowski, in response to a question about what kind of organisation his efforts to organise tech workers around an ethical agenda might lead to, answered

> *I would like for our industry to be more like librarians. Librarians have a sense of who they are as a profession. They have a central ethical code around patron privacy … When you go to library school, you absorb this. If you violate it, you're shunned by your profession.*
> (Tarnoff, 2017)

Shannon Mattern (2014) , an anthropologist who studies archives, libraries, and other media infrastructures, suggests that libraries could be a site for developing 'new critical capacities to understand the distributed physical, technical and social architectures that scaffold our institutions of knowledge and program our values'. And in fact librarians have taken on this role to some extent, as documented by Mattern and as exemplified by library-based projects to educate patrons about online surveillance (Macrina, 2015), calls for critical systems librarianship (Barron and Preater, 2018), and proposals to turn libraries into civic data hubs (Ruttan et al., 2019).

These efforts are worthy examples of critical technical practice, but there are reasons to be wary of attempts to assign to librarians responsibility for critical technical practice in the public interest. As Mattern notes, libraries are repeatedly called upon to fill in the gaps left by the dismantling of other public institutions, but are not given any additional resources to do so. Even if they were given such resources, however, librarians should not be expected to do everything. Such expectations feed into and are in turn fed by the 'vocational awe' of librarianship, 'the set of ideas, values, and assumptions librarians have about themselves and the profession that result in beliefs that libraries as institutions are inherently good and sacred, and therefore beyond critique' (Ettarh, 2018). This is dangerous, as no institution should be beyond critique, and no lucid assessment of the history of libraries can conclude that they are inherently good for all. But if we acknowledge that librarianship should be subject to constant critique, both internal and external, then perhaps we can take it as a model for a new institution of critical technical practice.

Librarianship as a model of a reflexive technical institution

Toward that end, I now turn to Suominen. Suominen's work constructs a rationale for librarianship that does not commodify "information" as a product to be served to individual users, but instead takes seriously the notion of a "common good," while at the same time emphasising a reflexivity that might avoid the dangers of vocational awe. Below I attempt to summarise the main points of Suominen's rationale for librarianship and to show how they might translate into a rationale for critical technical practice.

Suominen's rationale for librarianship

Attempts to establish broad definitions of *information* typically lead to eye-of-the-beholder conclusions that *anything* can can be information if it is regarded as such (Buckland, 2017, p. 23–24). Such definitions are inherently user-centred and thus immediately put one on the wrong path to find another rationality for librarianship. Recognising this, Suominen intentionally narrows his focus from information as an abstract

phenomenon to the ongoing human activity that he calls *literature*. Literature is far narrower than all possible semiosis, but still quite broad, including not only the production of 'popular or scientific literature, sociological or philosophical literature, and fiction or poetry' but also 'cinema, opera, sculpture or rock' n roll' (Suominen, 2016, p. 23). Suominen's point of departure from the user-centred paradigm is to insist that the value of what literature has produced thus far—what he calls *scriptum est* (what has been written)—is not limited to its instrumental value as a possible means toward some end. What Suominen emphasises instead is how, as enculturated beings, we are unavoidably shaped by *scriptum est*, whether or not we consciously seek to use it in some way. Like language, *scriptum est* is a tradition that we inherit, 'part of the constitution of our concrete historical condition in a literary culture' (Suominen, 2016, p. 350). This is true even for someone who never learns to read: individual use is irrelevant to Suominen's conception of the value of *scriptum est*.

Scriptum est 'functions in a necessary manner and in this sense, in "silent" manner, which we neither wished [for] nor could resist' (Suominen, 2016, p. 122). But that is not to say that we should be content with allowing it to function silently (though many will be). If we wish to better understand ourselves and how we came to be, we should try to listen to what *scriptum est* has to say. This, then, is the rationale of librarianship according to Suominen: to make such listening possible. Librarians are responsible for maintaining *scriptum est* not only by preserving the mass of material that composes its physical existence, but also by knowing about it and having the competence to communicate about it with others. Furthermore, librarians have a responsibility to not simply develop this knowledge and competence, but to actively use it to advocate on behalf of *scriptum est*, 'reminding us that *scriptum est* is a noteworthy part of our cultural and social environment and even might have a say that we perhaps should heed' (Suominen, 2016, p. 45). It is these responsibilities to the common good, Suominen argues, that make librarianship an autonomous profession, rather than simply the administrative and technical control of resources on behalf of individual clients.

To flesh out his vision of a librarianship devoted to communicating about and advocating on behalf of *scriptum est*, Suominen draws on two related intellectual traditions: structuralism and hermeneutics. Suominen connects structuralism with characteristic activities of librarianship such as compiling bibliographic descriptions in catalogs or explicating structures of content through indexing and classification, but also with activities that we might associate more with the digital humanities, such as the statistical analysis of literature, the automatic extraction and mapping of names or terminology, or the development of formal languages for the detailed modelling of semantic relations (Suominen, 1997, 111–113; 2016, 62–63). This analytic, objectifying explication of structure is carried out not as an end in itself, but in service of a greater goal: the shared orientation toward and communication about *scriptum est*. This is where the hermeneutic tradition enters, emphasising the shared horizons of some interpretive community interested in some portion of *scriptum est*. Suominen views the practice of librarianship as alternating between the structuralist and hermeneutic attitudes, such that intuitive understandings are mapped and outlined with the goal of clarifying and contesting those intuitions, in order to strengthen the means by which others may appropriate *scriptum est*.

Extending Suominen's rationale beyond scriptum est

Structuralist explication of a semiotic artefact is a kind of technical analysis of its capacities for producing certain effects (Suominen, 2016, p. 347). Such an analysis may involve consideration of the material conditions of its production and dissemination, as well as its material relations to other artefacts within larger technological systems, what Suominen (2016, p. 355) calls the 'techno-material environments and substances within and around the practice' of librarianship. So a communicative practice about *scriptum est* is already a kind of communicative practice about technology. How far should this practice extend? Suominen (1997, p. 194) raises the question of whether telephone directories should be part of what librarians are responsible for. In his definition of *scriptum est*—while noting that its boundaries are not sharp—he clearly excludes telephone directories:

> *... a reasonable landmark could be that the library takes responsibility of such less formal materials especially or only as far as such materials have a connection to literature and* scriptum est *proper. Attempts to take responsibility of whatever spheres of messages and materials of semiotic nature that there are would be megalomaniac.* (Suominen, 2016, p. 69, note 80)

But while telephone directories or—to update the example—the Domain Name System may fall outside the responsibilities of librarianship, Suominen's rationale for librarianship might still serve as a model for a rationale for a professional practice of communicating about and on behalf of networked computational infrastructure.

A strength of Suominen's (2016, p. 24) definition of literature as a cultural activity 'where works and documentation combine' is that it encourages the combined treatment of analytical categories—*works* as intellectual content and *documentation* as material expression—more typically treated as separate. As the linguist Louis Hjelmslev (1943/1953, p. 38) wrote of *expression* and *content*, 'They are defined only by their mutual solidarity, and neither of them can be identified otherwise. They are each defined only oppositively and relatively, as mutually opposed functives of one and the same function.' Treating content and expression as reciprocally defined dimensions of an overall process of semiosis avoids ontological errors such as imagining that *information* is the result of adding intention or purpose to data, or that it is a substance carried by signals (Day, 2010). Networked computing is best understood using the same approach: not, as computer science does, reducing it to 'stuff manipulation' independent of interpretation (Smith, 2002) nor treating it as a mere material substrate for information flows, but understanding it as a thoroughly semiotic process in which reciprocal relations between material stuff and meaningful interpretation can be analysed at multiple levels of abstraction.

A communicative practice *about* networked computing as a semiotic process would be, like Suominen's librarianship, a 'structuralist activity' of constructing models that make networked computing comprehensible (Barthes, 1963/1972; Suominen, 1997, p. 151; Suominen, 2016, p. 196). As an example of 'a directed, *interested* simulacrum' (Barthes, 1963/1972, p. 251) of networked computing infrastructure, consider Kate Crawford and Vladan Joler's (2018) 'anatomical' study of the Amazon Echo and the network of universal and communal labor that makes it possible. Their diagram does not objectively explain how the Echo works—one cannot use it build a functionally similar system—but instead 'open[s] a perspective towards continuing and perhaps enhancing communication in some particular respect' about the Echo and similar systems (Suominen, 2016, p. 195, note 327). That opening of perspective can and should be complemented by an awareness of the historicity of networked computing and indeed all technology—the 'world-within-the-world' that we created and that in turn created us (Fry, 2012). Cultivating this awareness would be the goal of a professional practice of communicating *on behalf of* networked computing, as a material inheritance and ongoing practice that influences all of us, whether we realise it or not.

The permanent dialectic between institutions and critique

An emphasis on awareness of technological historicity is crucial especially because so much of the rhetoric of technological design and engineering is about innovation and disruption. Philip Agre (1997, p. 154) wrote of his early work in artificial intelligence, 'I believed in revolutions. It seemed to me that I could clear the ground completely and start over, working out a whole alternative intellectual system that would replace everything that was there before'. Later, however, he came to 'believe in something more like hermeneutics … A critical technical practice [with] one foot planted in the craft work of design and other foot planted in the reflexive work of critique' and requiring historical understanding of the tradition one is working in (Agre, 1997, p, 154–155). Agre, like Suominen, emphasised the complementarity of technical explication through creating and critical examination of assumptions. Focusing only on the former while ignoring the latter is what has brought us to our current impasse. But, as Agre recognised, focusing purely on critique can be alienating and destructive, without a good faith effort to join in the technical work of modelling and building. The goal, as Bruno Latour (2012/2013, p. 59) put it, should be

> *speaking in the right tonality, choosing the right interpretative key, understanding properly what we are going to say, all this is to prepare ourselves to speak well about something to those concerned by that thing … it is not enough to be right, to believe we are right.*

Criticism guided by an effort to understand tradition is what Suominen calls *effective* criticism. An awareness of historical context makes critique more effective because, rather than focusing on disagreements between individuals, it focuses on 'action and thinking that have become common and collective' and therefore taken for granted (Suominen, 2016, p. 123). Identifying this taken-for-granted background is a prerequisite for effective critique. As Boltanski (2009/2011, p. 51) writes, 'The *critical form* stands out against a *background* which, far from being critical, can on the contrary be characterized by a sort of tacit adherence to reality as it presents itself in the course of ordinary activities'. Maintaining that background, he argues, is the role of institutions:

> *It is because reality holds and institutional systems make it hold; because spokespersons certify its necessity and maintain that there is nothing other than the world as it is, such that it cannot be otherwise, that critique can assign itself objects, fix objectives and unite (invariably temporarily) around these salient points …* (Boltanski, 2009/2011, p. 97).

Effective critique is therefore made possible by institutions, even as these institutions endeavour to shore up reality against possible critique.

Drawing on Boltanski's understanding of institutions, we can restate Suominen's rationale for the institution of librarianship in terms that may further illuminate its relevance for a critical technical practice. 'To institutions falls the task of saying and confirming what matters', Boltanski (2009/2011, p. 75) writes. Librarianship says and confirms what, of all the things that have been written, *matter*: *scriptum est* is the result of this saying and confirming. For something to *matter* in this sense is, Boltanski (2009/2011, p. 70) argues, to be deemed worthy of *respect*, a 'second look' in which it is identified as an instance of a more general type and therefore accorded some significance and (positive or negative) value. Boltanski thus recognises the function of an institution as primarily *semantic*, in that it establishes a vocabulary of types and makes judgments regarding the relation of these types to objects, facts, or situations. This is quite close to how Suominen characterises the task of librarianship, i.e. the descriptive and normative task of explicating the content of *scriptum est* through the establishment and use of documentary languages. The library as institution is thus a guarantor of 'semantic security', by providing fixed references that enable stability over time and space, but also inevitably a perpetrator of 'symbolic violence', by drawing arbitrary and highly consequential distinctions that efface local continuities (Boltanski, 2009/2011, p. 78).

Toward a rationale for critical technical practice

There are three aspects of Suominen's rationale for librarianship that are especially important to the project of effectuating a critical technical practice: his critique of userism, his vision of a reflexive institution, and his conception of the relation between research and practice. As argued above, after the failure to develop a systems science of information, the turn to the user and the development of an ideology of user-centredness gave information science, and later information schools, a reason to exist. But user-centredness provides very little purchase for critical projects or considerations of a broader common good. By characterising themselves as *user-focused* or *customer-obsessed*, decision-makers can position the technological systems they control as 'a blank screen upon which particular communities can project their own practices and projects' (Agre, 1995, p. 226). This is a recapitulation in the technological sphere of the argument, mostly clearly articulated by Friedrich Hayek, against the pursuit of a common good in the political sphere. Human desires are so diverse, and human knowledge so limited, Hayek argues, who can decide what matters? The best we can do is to establish a neutral order that operates in the interest of no particular individual or group—or so the argument goes (Burczak, 2006, p. 45–50).

It is in response to a Hayekian pessimism about whether librarianship can be anything more than information retrieval in response to expressed desires that Suominen develops his rationale. He makes a cogent case for recognising a specific dignity of *scriptum est,* one that is degraded by treating it as a commodified resource or service (Boltanski and Chiapello, 1999/2018, p. 471–472). Treating *scriptum est* with the respect it deserves requires an institution that can take on the task of stabilising reference to it over time, what Suominen (2016, p. 163–204) calls *content-historical bibliography* and what Boltanski identifies more generally as the semantic function of institutions. However, Suominen (2016, p. 343) also recognises that institutions have an inherently dominating character and warns against 'an arrogant and overly self-confident' librarianship. As a bulwark against such arrogance, Suominen advocates for the development of a hermeneutic appreciation for the horizons of human understanding and a professional agnosticism with respect to ultimate reason and truth. Those are indeed necessary, but unlikely to be sufficient, for preventing institutions from exercising domination, and here is where Boltanski provides a robust supplement to Suominen. Ultimately, Boltanski (2009/2011, p. 157) argues, what is needed are 'unmasked' institutions, revealed as 'nothing but arrangements, always more or less lousy, between impermanent beings to slow the pace of change and try to give it a form', and which recognise 'that their fate is bound up with that of critique'. Such institutions would acknowledge the always provisional and fragile nature of their work and, rather than constantly trying to reduce uncertainty and standardise disparate views, would try to find value in them as potential sources of critique, without which they are destined to collapse.

Finally, Suominen opens the door to a reconceptualisation of the relation between institutionally-based practice and scholarly research. The turn to the user in information science and the subsequent development of a user science in information schools acknowledged that information is a phenomenon that emerges from people interacting with artefacts and with each other, rather than something objectively existing in the world. Yet, outside of the 'tiny hermeneutical tracks' dismissed by Vakkari (1994, p.44), few information researchers have made the same acknowledgement with respect to their own work: the researcher is still primarily conceived of as a scientific subject separated from the information behaviour that is the object of study and, on the basis of that separation, producing objective knowledge about that behaviour. Suominen advocates for the partial erasure of this distinction between research practice and the object of that research. It is only partial because he recognises that moments of analytical, objectifying thought are unavoidable, and actually desirable to the extent that they help with the task of structuralist explication and effective communication with others. Again, there is a parallel here with Boltanski's program of pragmatic sociology, which also emphasises the symmetrical treatment of researchers with that which they research, while retaining 'an objectivist character' and 'a structuralist orientation' (Boltanski, 2009/2011, p. 25; Boltanski and Thévenot, 1991/2006, p. 8–12). A similarly pragmatic program of critical technical research would be punctuated by moments of objectivity, but these would be subordinated to the particularities of actual technical practice and a hermeneutic rationality that recognises the researcher's own living within and participating in a shared historical situation (Suominen, 2016, p. 255–276).

Concluding thoughts

Schools of library and information science, and subsequently information schools, abandoned an institutionally-focused conception of their field and chose to define professional practice in the weakest possible terms. This was perhaps unavoidable, given the broader historical context: the denigration of institutions and institutionally-based expertise was hardly limited to these schools. But the pendulum may now be swinging the other way, and it is not too late to return to the task of building institutions. Suominen (2016, p. 31) makes a strong case that what is at stake in the maintenance of *scriptum est* by the institution of librarianship is not simply 'memory' or 'heritage' but the very 'logic of our being as humans'. Surely the same can be said of the maintenance of the networked computing infrastructure that currently pervades our existence. Boltanski's work highlights the important role of institutions in assigning value to texts and technological artefacts, while showing that this assignation of value is also unavoidably a form of domination. Taking responsibility for that domination, rather than retreating into

fantasies of neutrality, is crucial. By situating Suominen's rationale in the broader program of pragmatic sociology, we can better understand the compromises and conflicts we will need to engage in in order to build the missing institution.

While I have been rather critical of information schools, I believe that they are actually ideal sites for developing a new institution of critical technical practice: places where people could simultaneously be trained in the objectivist, analytic arts necessary to get their jobs done, but also trained to reflexively critique their own work and to appreciate the value of critique as a way for institutions to stay connected to the world. Increasing numbers of graduate students in information schools—many of them disillusioned escapees from the tech industry—are bringing critique into their research and classrooms (Day, 2010). They are joined by faculty educated outside of information schools, still drawn to work in 'places where people meet technology', but now increasingly coming from disciplines with robust traditions of critique. Most importantly, information schools remain sites of professional education, and thus are well positioned to cultivate a sense of professional identity and purpose beyond simply serving users. Many information schools are expanding into undergraduate education as well, presenting an opportunity to finally incorporate critical thinking about technology into the undergraduate liberal arts curriculum (Buckland, 1996)—if the temptation to cash in on pre-professional vocational training can be avoided. Finally, I want to emphasise that the great majority of research and education that takes place in information schools—even that which is the most userist in character—is highly relevant to the task of building an institution of critical technical practice. As both Suominen and Boltanski stress, institutions need analytic, objectifying thought too—there is no need to purge researchers who don't identify as *critical*. All that is needed is for us to look around at the world we've helped create, the world that takes up the knowledge produced by our research, the world that we prepare our students to live and work in, and ask ourselves: is this really the best we can do?

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