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Critical Systems Librarianship

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Introduction

Library systems underpin the operation of a modern library and enable the services without which a library is not a library. This includes but is not limited to: circulation of items, acquisitions of serials, security and access control, analytics and reporting, electronic resources management, reading lists management, institutional repositories, research data management repositories, digital asset management systems, and loanable mobile devices. Contemporary librarianship, as practitioners have constructed it, could not exist without library systems.

Mortimer defines a systems librarian as, "a librarian responsible for a library's computer systems,"[1] suggesting a fairly basic definition of a library worker with operational responsibility for information technology. This definition treats systems librarianship as a focused branch of IT support, but in practice a systems librarian or systems team can be expected to fulfill a whole range of duties which differ drastically from organization to organization depending on factors like the library's specialism, research focus, budget for library systems, and the relationship with the organization's IT department.

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[1] Mary Mortimer, *LibrarySpeak: A Glossary of Terms in Librarianship and Information Management* (Friendswood, TX: TotalRecall, 2007), 209.

Systems workers[2] tend to not only be responsible for operational management of specialist library systems[3] and IT support in the library but also for long-term strategic management of the library's digital infrastructure and technological architecture as well as its overall approach to digital content and online presence. Systems librarianship therefore combines aspects of strategic management and integration of new technologies as well as operational maintenance and support and so represents a nexus of power in contemporary library services.

The underpinning role of systems librarianship in the daily functioning of libraries and the everyday demands of keeping a service up and running has led to an excessive focus on the practical in systems librarianship. With technological developments to be aware of, operational support to deliver, and new developments to implement, systems workers have little time or energy to digest and discuss theory relevant to their practice and less still to critically reflect on how to apply theory to practice. This preoccupation with the day-to-day works to preclude systems workers from developing an integrative and reflective 'praxis' meaning, in Budd's terms, "action that carries social and ethical implications and is not reducible to technical performance of tasks."[4]

Critical systems librarianship centrally involves critical reflection which allows systems workers to question the underlying values, assumptions, and power relations ingrained in their daily practices and the institutions within which they work: this is essential to both theoretical questioning and developing strategies to contest these power imbalances.[5] Our approach of critical systems librarianship actively uses critical theory and an awareness that we are positioned within white supremacist capitalist patriarchy to inform how we practice systems work. Critical systems librarianship is the practice of library systems work aligned with critical librarianship, a "movement of library workers dedicated to bringing social justice principles into our work in libraries."[6] This is particularly relevant given the skewed relations of

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2 Throughout this chapter we use "systems worker" to stand in for terms like "systems librarian" or "library systems worker." We use this as an inclusive definition covering any individual whose roles contain responsibilities for administering library systems regardless of job title or qualification.

3 "Specialist library systems" refers to software and hardware that perform tasks unique to a library such as circulation of print books, acquisitions of serials, electronic resource management, reading list management, and so on. Software may include library management systems and library services platforms, search and discovery interfaces, institutional repositories, research data management repositories, and digital asset management. Hardware may include access control and security systems, loanable mobile devices, circulation self-service machines, printers and photocopiers, or microform readers.

4 John M. Budd, "The Library, Praxis, and Symbolic Power," *The Library Quarterly: Information, Communication, Policy* 73, no 1 (2003): 20, https://doi.org/10.1086/603373.

5 Gillie Bolton, *Reflective Practice*, 4th ed., (London: Sage, 2014), 7–10, doi:10.1086/603373.

6 Critlib, "About / Join the Discussion," *Critlib.org*, accessed December 8, 2017, http://critlib.org/about/.

power of systems work and our current dependence on software suppliers. Centering the importance of this power relation, we reflect critically to "[ask] what questions, issues, or ways of thinking have been privileged, by whom and for what reasons?"[7]

Systems librarianship in the minority world is a relatively under-theorized and ahistorical area of librarianship.[8] Though we see conferences devoted to themes such as "the power of digital,"[9] or how libraries are "responding to challenge through innovation,"[10] we see little mainstream discussion about how systems librarianship can respond to its position within minority world capitalism, about social justice issues, about equality, diversity, and lack of representation among systems workers, about ethical questions around information security, privacy, closed-source technologies and the information commons, and the neoliberal monopolizing of the library systems marketplace. The popularity of Critlib Twitter discussions and the existence of peer-reviewed edited collections such as this one do not yet reflect mainstreaming of critical approaches to systems work. We do not agree with Farkas's assessment that "critical librarianship has become a force that pervades every area of our work,"[11] as this does not reflect our experience of the very limited spaces within mainstream library systems discourse which is afforded to critical approaches, and the discomfort with which critical approaches are met by practitioners.

This is not to say there is no discussion of critical practice in systems librarianship and library technology. Among others there is Galvan's discussions of power relations in relationships between libraries and systems suppliers,[12] Riedsma's exploration of algorithmic bias in library discovery,[13] the radical pedagogical praxis of Macrina's Library Freedom Project, which

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7 Elizabeth Smith, "Teaching Critical Reflection," *Teaching in Higher Education* 16, no. 2 (2011): 217, doi:10.1080/13562517.2010.515022.

8 Gloria J. Leckie and John E. Buschman, "The Necessity for Theoretically Informed Critique in Library and Information Science (LIS)," in *Critical Theory for Library and Information Science*, eds. Gloria J. Leckie, Lisa M. Given, and John E. Buschman (Santa Barbara, CA: Libraries Unlimited, 2010), xi. Additionally, we follow David James Hudson in using Shahidul Alam's term "majority world" rather than referring to, for example, the "Third World" or "less-developed countries." Alam coined this term to address the negative stereotypical associations and connotations of such terms; for the authors it serves also as a reminder that we write from a "minority world" perspective of a small fraction of humankind.

9 Jisc, *Jisc Digital Festival 2016*, https://www.jisc.ac.uk/events/jisc-digital-festival-02-mar-2016.

10 Information Today, Inc., *Internet Librarian International 2016,* http://www.internet-librarian.com/2016/.

11 Meredith Farkas, "Never Neutral: Critical Librarianship and Technology," *American Libraries*, January 3, 2017, https://americanlibrariesmagazine.org/2017/01/03/never-neutral-critlib-technology/.

12 Angela Galvan, "Architecture of Authority," *Angela Fixes Things* (blog), December 5, 2016, https://asgalvan.com/2016/12/05/architecture-of-authority/.

13 Matthew Riedsma, "Algorithmic Bias in Library Discovery Systems," *Matthew Reidsma* (blog), March 11, 2016, https://matthew.reidsrow.com/articles/173.

"teach[es] librarians about surveillance threats, privacy rights and responsibilities, and digital tools to stop surveillance,"[14] and the social justice focuses developed and fostered by the Mashcat[15] and Code4lib[16] communities.

In this chapter we aim to perform a meta-analysis and synthesize this existing work into a cohesive approach to critical systems librarianship. Our approach is informed by diverse perspectives and ethical lenses including gender studies,[17] feminist technology studies[18] and care ethics,[19] critical race theory,[20] critical pedagogy,[21] critical management studies,[22] and the class analyses of critical theory.[23] We seek to enable and facilitate a critically-informed, reflective, and reflexive approach to systems work with specific focus on how information technologies are applied in library work. In discussing "praxis" or "critical practice," we follow Schroeder and Hollister's definition of critical practice as "the application of a critical theory to one's professional life or to one's societal environment."[24] In this chapter, we will apply theory to several areas of practice in systems librarianship.

Theoretical Foundations

Non-Neutrality of Library Technologies

We start this chapter by outlining principles, assumptions, and problems fundamental to our approach before moving on to discuss how power relations inform our practice of systems librarianship and then diving into how power impacts social justice in several practical areas of systems librarianship.

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14 Library Freedom Project, "What is the Library Freedom Project?" *Library Freedom Project*, June 2, 2016, https://libraryfreedomproject.org/whoweare/.

15 Mashcat, "Mashcat: Mashed Catalogue Data / Cataloguers and Developers," *mashcat*, accessed December 9, 2017, http://www.mashcat.info/.

16 Code4lib, *code4lib.org*, accessed December 9, 2017, https://code4lib.org/.

17 Judith Butler, *Gender Trouble* (Reprint, Abingdon, UK: Routledge, 1999).

18 Francesca Bray, "Gender and Technology," *Annual Review of Anthropology* 36 (2007): 37–53, doi:10.1146/annurev.anthro.36.081406.094328.

19 Joan C. Tronto, "An Ethic of Care," in *Feminist Theory: A Philosophical Anthology*, eds. Ann E. Cudd and Robin O. Andreasen (Oxford: Blackwell, 2005), 251–63; Bethany Nowviskie, "On Capacity and Care," *Nowviskie.org* (blog), October 4, 2015, http://nowviskie.org/2015/on-capacity-and-care/.

20 bell hooks, *Teaching to Transgress* (Oxford: Routledge, 1994).

21 hooks, "Teaching to Transgress"; Paulo Freire, *Pedagogy of the Oppressed,* trans. Myra Bergman Ramos, 2nd ed. (London: Penguin, 1993); Paulo Freire, *Pedagogy of Hope*, trans. Robert R. Barr (London: Bloomsbury, 1994).

22 Mats Alvesson, Todd Bridgman, and Hugh Willmott, eds., *The Oxford Handbook of Critical Management Studies* (Oxford: Oxford University Press, 2009).

23 Andrew Feenberg, *The Philosophy of Praxis* (London: Verso, 2014).

24 Robert Schroeder and Christopher V. Hollister, "Librarians' Views on Critical Theories and Critical Practices," *Behavioral and Social Sciences Librarian* 33, no. 2 (2014): 91–119, doi:10.1080/01639269.2014.912104.

Accepting libraries and technology as non-neutral is central to critical practice, as is an acknowledgement that adopting a position of neutrality reflects a deliberate choice to side with the status quo. Within librarianship, criticism of library neutrality is a relatively widespread and accepted concept. Jaeger and Sarin summarize criticism in this area, including a case study of teaching digital literacy to demonstrate how library education is inherently political: no aspect whatsoever, from information itself, to user's biases, to the librarian's pedagogical mission, is neutral.[25] In the library technology space, Sadler and Bourg remind us we are part of this milieu, and in seeing things up close, "it might not be so easy to recognize current examples of supposedly neutral practice in libraries that are actually perpetuating … power imbalances. Those of us creating library software and building digital libraries must also address this issue."[26] Radical replies to this issue exist, for example, Bourg's argument that "we can and should leverage both [libraries and technologies] in the service of social justice,"[27] and Tillman's call to reject this status quo in multiple aspects of our practice.[28]

However even with awareness of the power relations at play that bias our understanding of, and interactions with, technology, operationalizing critical practices can be challenging or impossible with current technology platforms. The library systems market is dominated by an established base of closed software systems and technologies for library management and discovery. As Breeding explains, the ongoing trend is towards cloud-hosted, closed software under supplier control,[29] with recent market growth and mergers and acquisitions cementing the position of a relatively few software suppliers.[30] Unpacking this issue, Feenberg states, "technological systems impose technical management on human beings;"[31] so technologists are

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25 Paul T. Jaeger and Lindsay C. Sarin, "All Librarianship is Political: Educate Accordingly," *The Political Librarian* 2, no. 1 (2016), http://openscholarship.wustl.edu/pollib/vol2/iss1/8.

26 Bess Sadler and Chris Bourg, "Feminism and the Future of Library Discovery," *Code4lib Journal* 28, (2015), http://journal.code4lib.org/articles/10425.

27 Chris Bourg, "Libraries, Technology, and Social Justice," *Feral Librarian* (blog), October 7, 2016, https://chrisbourg.wordpress.com/2016/10/07/libraries-technology-and-social-justice/.

28 Ruth Kitchin Tillman, "Editorial: Introspection as Activism, or, Getting Our Houses in Order," *Code4lib Journal* 35 (2017), http://journal.code4lib.org/articles/12232.

29 Marshall Breeding, "Library Systems Report 2016: Power Plays," *American Libraries*, May 2, 2016, https://americanlibrariesmagazine.org/2016/05/02/library-systems-report-2016/.

30 Marshall Breeding, "Mergers and Acquisitions," *Library Technology Guides*, accessed December 9, 2017, https://librarytechnology.org/mergers/.

31 Andrew Feenberg, "A Critical Theory of Technology," in *Information Technology in Librarianship: New Critical Approaches*, eds. Gloria. J. Leckie and John E. Buschman (Westport, CT: Libraries Unlimited, 2008), 31–46.

limited to tinkering around the edges of practice in ways that can be uneasily tolerated by our institutions and software suppliers.

Power in Systems Librarianship

Acknowledging the myriad power relations involved in systems librarianship is fundamental to critical theorizing and practice. Our approach to critical systems librarianship embraces a Foucauldian approach to power in library systems practice in which "power" can refer to control exercised through subtle methods of coercion that one party operates over another rather than only focusing on direct methods of control.[32] Central to critical systems librarianship is understanding how power operates in systems librarianship and using this knowledge to adjust practice to foreground social justice issues in our work.

Power relations in systems librarianship can be seen in implicit hierarchies within this area of work: the library's (and the system worker's) relationships to other entities within white supremacist capitalist patriarchy, particularly focusing on the library's (and the systems worker's) relationships to library users, the library's (and the systems worker's) relationships to systems suppliers, and the system worker's relationship to the library itself. Critical systems librarianship seeks to scrutinize these power relations to redress imbalances in favor of social justice: "a willingness to challenge common sense assumptions and to question the status quo. In other words, to open up the 'black box' of information technology and scrutinize the power relations inscribed within it which may repress or constrain."[33]

Power and Library Systems Suppliers

The relationship between libraries and library systems suppliers is one of the most impactful examples of skewed power relations in systems librarianship since it centers on the *sine qua non* of systems librarianship, the library systems themselves. This power relation is heavily skewed in favor of software suppliers. As Galvan writes, "vendors now have so much power in libraries their products show up in our job descriptions."[34] Examples of this, quoted here anonymously, from the authors' experience of job requirements for product-specific skills and knowledge include: "Exploit the Library Management and Discovery Systems (Alma and

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32 Michel Foucault, *Discipline and Punish*, trans. Alan Sheridan (London: Penguin, 1991), 222.

33 Bill Doolin, "Information Technology as Disciplinary Technology: Being Critical in Interpretive Research on Information Systems," *Journal of Information Technology* 13, no. 4 (1998): 307, doi:10.1057/jit.1998.8.

34 Angela Galvan, "Architecture of Authority."

Primo) for access and discoverability of online content, both on and offsite"; "Experience of developing around the Unicorn, SFX and/or MetaLib library software"; and "Experience of working closely with the Innovative Library Management System." Galvan outlines several examples of how software suppliers exercise power over libraries and, in so doing, further their own commercial interests at the expense of the ethical interests of the library. Her examples give two major ways that suppliers exercise power: through systems design and through library staff labor and attitudes.

Using the example of Alma, the library services platform developed by Ex Libris, Galvan demonstrates how system design constrains the practice of librarianship. Alma—and specifically Alma Analytics, the system's reporting module—was consciously designed to present data and analytics based on what Ex Libris developers thought would be valuable for the library staff user rather than what the library staff user actually does find valuable. Similarly, Galvan argues that library discovery systems are designed to look like Google but to act like Amazon. These commercial discovery layers "[prioritize] the results from certain content over others. It's in Ex Libris's best interest to prioritize ProQuest databases [because ProQuest owns both Ex Libris and the databases], just like EDS [EBSCO Discovery Service] prioritizes EBSCO products."[35]

Reidsma has also written about the bias in commercial library discovery layers.[36] In his study of algorithmic bias in ProQuest's Summon, Reidsma discovers Summon presents inappropriate 'Topic Explorer' results to the user, which Galvan explains is because it was deliberately designed to add Wikipedia to the Summon index rather than query Wikipedia's API.[37] Through attempting to centralize control of their product, ProQuest compromised the quality of search results presented to the user. Reidsma's study also suggests that the bias in the algorithm reflects the biases of wider society against marginalized communities: there are specific biases against women, the LGBT community, Islam, and mental illness. These systems are therefore complicit in the perpetuation of societal inequalities which reinscribe the privilege of those who control and exercise power. Simply put, the imbalanced power relations in systems librarianship reflect those of society.

We also see suppliers exercising their power in the design of modern systems infrastructure and software-as-a-service. Software-as-a-service or cloud-hosting is a software infrastructure in which, rather than providing

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35 Galvan, "Architecture of Authority."

36 Matthew Riedsma, "Algorithmic Bias in Library Discovery Systems."

37 Angela Galvan, "Architecture of Authority." "API" refers to an Application Programming Interface that provides a way for a machine to programatically interact with a system, for example, to query or edit data.

software to install on a server under your control, a supplier runs the software for you on a remote server which you access over the internet. This is the model of much contemporary software offered at zero monetary cost, such as Google's suite of products. Cloud computing comes with a "Faustian bargain,"[38] relieving systems librarians of the need to maintain servers, install updates, and deal with technical issues themselves but also shifting control over those systems to the supplier.

In library systems, cloud-hosting often uses a multi-tenant architecture in which several instances of the same piece of software all run on the same server infrastructure used by multiple customers. This saves the supplier from running a server per customer and simplifies software development, testing, and change control. A multi-tenant server has the same structure as Bentham's Panopticon: a prison in which the guards can see every prisoner but the prisoner cannot see the guards, cannot know when they are being monitored, and cannot see the other prisoners around them. On a multi-tenant server, the supplier can monitor everything that the customer does but the customer cannot see what the supplier does, what the supplier is monitoring, and which other customers share that server. The prisoner in the Panopticon must assume they are being monitored at all times and behave accordingly. In Doolin's terms:

> The development of information systems to monitor and scrutinize particular organizational activities facilitates control by making individuals within an organization both calculable and calculating with respect to their own actions. This invokes the notion of an electronic panopticon, in which organizational participants are enlisted in their own control through their belief that they are subject to constant surveillance.[39]

Software upgrades can also be restricted. Suppliers often sell their products giving the impression that systems can be customized and that customers can opt out of updates if they wish. In reality, key features are often restricted to specific upgrade paths. Ex Libris, for example, allows current Primo customers to keep their locally-hosted installations of Primo. However, Alma is engineered to work effectively only with the software-as-a-service version of Primo so a customer who wants to upgrade from a legacy library system to Alma is not free to use a locally-hosted installation of Primo. In marketing terms this is framed as giving users choice, when actually there is no choice.

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38 Phillip Rogaway, "The Moral Character of Cryptographic Work," (presentation, Asiacrypt 2015, Auckland, New Zealand, December 2015), http://web.cs.ucdavis.edu/~rogaway/papers/moral-fn.pdf.

39 Bill Doolin, "Information Technology as Disciplinary Technology," 306.

In addition to systems design, library systems suppliers exercise power through influencing the labor and attitudes of library staff. Galvan discusses how library systems suppliers develop online spaces where systems librarians can discuss the supplier's products and outline changes or enhancements they would like to see in the software. These community areas act as proprietary mirrors of the online social areas that Coleman researches around community-developed software, particularly the Unix-like operating system, Debian.[40] But whereas community developers are actively contributing to open-source projects, systems librarians contributing to supplier-hosted community areas are providing free labor to improve a system for which they have already paid: "We're one of the only industries that pays for the privilege of improving products, just to get them to work the way we needed them to in the first place."[41] In terms of library staff attitudes, Galvan argues that:

> One of the most powerful ways vendors have influenced the academic library environment is through the systematic relocation of core values from libraries to vendors via our software. Libraries articulate those values — often at the expense of our salaries or better benefits — but the execution of our values manifest in library systems developed by third parties with competing interests.[42]

Scrutinizing the core values of librarians and library systems suppliers highlights the fundamental conflict between these values: systems librarians want the best possible software to run our libraries and meet the needs of our users; software companies want to produce the minimum viable product to maximize their profits. The supplier's goal is reasonable under capitalism but is in conflict with the goal of systems librarians; in Kriss's terms, "it is increasingly clear that our interests, as software-using humans, are diverging from the interests of software companies."[43]

Software suppliers' preferences and values lead and influence libraries and their users, based on the reproduction of suppliers' approaches and values. Underwood, for example, highlights the wide-ranging effect of full-text

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40 Gabriella Coleman, "Code is Speech: Legal Tinkering, Expertise, and Protest among Free and Open Source Software Developers," *Cultural Anthropology* 24, no. 3 (2009): 420–54, doi:10.1111/j.1548-1360.2009.01036.x; Gabriella Coleman, *Coding Freedom* (Oxford: Princeton University Press), 124–58.

41 Angela Galvan, "Architecture of Authority."

42 Galvan, "Architecture of Authority."

43 Jesse Kriss, "Anti-Capitalist Human Scale Software (and Why it Matters)," *Medium* (blog), February 10, 2016, https://medium.com/@jkriss/anti-capitalist-human-scale-software-and-why-it-matters-5936a372b9d#.f6ml8gkuv.

search and relevance ranking on scholarly practices in the humanities after these methods became "invisibly naturalized" from the 1990s onwards.[44] This is most problematic because software suppliers' ranking algorithms are almost always proprietary and closed, whereas "researchers can never afford to treat algorithms as black boxes that generate mysterious authority. If we're going to use algorithms in our research, we have to crack them open and find out how they work."[45] Ex Libris, for example, has a tool for internal diagnostic use that explains why a particular item is ranked the way it is by the Primo Central Index search algorithm, but this is not made available to its customers. This highlights the tensions of systems librarianship, and arguably librarianship in general, under capitalism. This understanding of power relations in systems librarianship will undergird and inform our ensuing discussion of other aspects of critical systems librarianship.

Application to Practice

Privacy

Outside the realm of library systems there are a number of other areas of concern to critical systems librarianship, one of which is data security. Following the 2013 Snowden revelations exposing vast programs for state and corporate mass surveillance across the minority world, there has been more discussion in library discourse about digital privacy and information security. Individually identifiable personal data being accessible to the state, corporations, and adversarial hackers should be of particular concern to librarians and information professionals. Clark says, "As a profession that has developed many of the 'norms of intellectual freedom and privacy' … librarianship should be concerned about a programme of mass surveillance that threatens intellectual freedom and privacy."[46]

This is a particular focus for systems librarianship as systems workers often have direct responsibility for library systems and the data contained therein. In terms of power relations, systems workers focused on practice rarely scrutinize the power and social justice implications of managing systems that store so much personal data about library users. Library management systems usually have a database record for each user that uniquely

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44 Ted Underwood, "Theorizing Research Practices We Forgot to Theorize Twenty Years Ago," *Representations* 127, Summer (2014): 64–72, doi:10.1525/rep.2014.127.5.64.

45 Underwood, "Theorizing Research Practices."

46 Ian Clark, "The Digital Divide in the Post-Snowden Era," *Journal of Radical Librarianship* 2 (2016): 1, https://journal.radicallibrarianship.org/index.php/journal/article/view/12.

identifies them and lists details such as names, address, title, gender, and so forth. Library management systems often store this data unencrypted such that anyone with the appropriate permissions can see it.

Access control systems are common in higher education and these also log data that can be used to identify an individual person's movements. Access control systems are used to log a user entering and exiting the library via physical access gates: these systems can be used intrusively to build a profile of an individual's comings and goings, mirroring in our physical spaces the monitoring of access to online resources and access to library systems in our virtual spaces. In addition, many universities and colleges are starting to use proximity tracking devices like iBeacons for attendance management, space management, and statistics gathering. iBeacons register when a student's mobile device enters its range and is therefore able to count the number of students in a space at various times. These can be used in libraries to enable walk-in access to electronic resources or to gather space utilization statistics.

As well as directly storing personal data of library users in user records for circulation and physical library access, modern library management systems contain analytics and reporting modules so library staff can use this data to gain knowledge of their users. In Foucauldian terms, "there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations."[47] The use of this knowledge gives systems workers power over their users and this power often goes unscrutinized and unproblematized in day-to-day practice. Even if not actively abused, these systems serve to inure users to the idea of being constantly surveilled and contribute to the normalization of surveillance and intrusion in wider society.

Crucially for surveillance, user records tend to be tied to loan records so staff can see what items a user currently has checked out and, in some systems, that user's complete loan history. In 1972, Zoia Horn became the first librarian in the USA to be imprisoned for refusing to pass the personal data of one of her library users to the FBI as part of an investigation into domestic terrorism.[48] State organizations today still request library loan records[49] in order to investigate the reading habits of a suspect and in both authors' experience as systems workers, institutions we have worked for have

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47 Foucault, *Discipline and Punish*, 27.

48 John N. Berry III, "Library Freedom Fighter Zoia Horn Remembered," *Library Journal*, August 19, 2014, http://lj.libraryjournal.com/2014/08/people/library-freedom-fighter-zoia-horn-remembered.

49 Eric Lichtblau, "F.B.I., Using Patriot Act, Demands Library's Records," *New York Times*, August 26, 2005, http://www.nytimes.com/2005/08/26/politics/fbi-using-patriot-act-demands-librarys-records.html.

been asked to provide specific users' details, loan histories, and logs of online resource use to the police as part of criminal investigations.

Revealing a user's loan records to a state as part of a surveillance program is a fundamental breach of that user's privacy. In critical theory, privacy is necessary for intellectual freedom. Theorists as early as Arendt have said that privacy is required for full intellectual human flourishing:

> A life spent entirely in public, in the presence of others, becomes, as we would say shallow. While it retains its visibility, it loses the quality of rising into sight from some darker ground which must remain hidden if it is not to lose its depth in a very real, non-subjective sense.[50]

Givens focuses this on librarianship and protecting the intellectual curiosity of the user: "by protecting information privacy, information professionals are also guarding the freedom of individuals to cultivate interests, learn about themselves, and develop their own likes and dislikes, and beliefs freely. Protecting information privacy allows individuals to feel free to sample the marketplace of ideas without fear of interference or scrutiny, which could inhibit curiosity."[51]

In social justice terms, state surveillance is also a concern because of the disproportionate targeting of already marginalized people and communities such as black communities, Muslim communities, and working-class communities.[52] Librarians and systems workers working in libraries in these communities have a duty to protect users' data from the surveillance programs of states within white supremacist capitalist patriarchy. Clark argues that librarians have a key role in tackling the digital inequality perpetuated by disproportionate surveillance.[53] He provides practical examples of how systems workers can use technology to protect users' data. These key elements of practice for critical systems librarianship include learning about and using encrypted communications technologies like PGP email and encrypted instant messaging; resisting corporate schemes to teach digital skills such as the Barclays Digital Eagles scheme; and educating library users about the surveillance and privacy implications of using the internet.[54]

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50 Hannah Arendt, *The Human Condition*, 2nd ed. (London: University of Chicago Press, 1998), 71.

51 Cherie L. Givens, *Information Privacy Fundamentals for Librarians and Information Professionals* (Lanham, MD: Rowman & Littlefield, 2015), 20.

52 Virginia Eubanks, "Want to Predict the Future of Surveillance? Ask Poor Communities," *The American Prospect*, January 15, 2014, http://prospect.org/article/want-predict-future-surveillance-ask-poor-communities.

53 Clark, "The Digital Divide in the Post-Snowden Era."

54 Clark, "The Digital Divide in the Post-Snowden Era."

The Library Freedom Project is one project focused on education as a means of activism. It works to educate librarians about surveillance and how to use technology and advocacy to protect their user communities. Their focus has been on network protection from state surveillance using the Tor network for relay and encryption of user web traffic.[55] Tor relays traffic amongst several nodes "pass[ing] traffic between each other to make the three layers of anonymizing encryption possible"[56] In the USA, libraries are in a good position to host exit relays for the Tor network and the Library Freedom Project provides resources to help make this case to library stakeholders. The project also teaches libraries how to protect users by installing privacy-enhancing software on library computers and encouraging basic information security behaviors.

Library management systems themselves are also generally insecure. Library management systems, or library services platforms, are core to library systems infrastructure acting as central databases, as points for integration, and as platforms for essential library functions. Hellman has published a series of blog posts on the security failings of library management systems which include sending unencrypted search strings to Amazon and exposing data through social media widgets and cover art image providers.[57] But on top of such flaws, these systems are compromised by design in order to enforce the existing power hierarchies between libraries and corporate library systems suppliers with cloud-hosting architectures built to enable corporate surveillance. This impacts their power relations with libraries, but also compromises the information security of library users. The power exercised by systems suppliers over libraries therefore translates into power over users—users who often have no idea of the existence of systems suppliers who have access to their data.

Rundle outlines a model for an encrypted library management system that is able to track day-to-day circulation and perform advanced reporting on borrowing statistics but makes it impossible for a human to identify which item is loaned to which user.[58] His prototype, built using the Meteor JavaScript platform and the Mylar package for software operation with encrypted data, is an example of innovative ethical practice in systems librarianship. For systems librarians the key factor, he says,

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55 Library Freedom Project, "What is the Library Freedom Project?"

56 Alison Macrina, "Accidental Technologist: The Tor Browser and Intellectual Freedom in the Digital Age," *Reference and User Services Quarterly* 54, no. 4 (2015): 17–20, doi:10.5860/rusq.54n4.17.

57 Eric Hellman, *Go to Hellman* (blog), https://go-to-hellman.blogspot.co.uk/.

58 Hugh Rundle, "Building a Richly-Featured Integrated Library Management System that Puts Patron Privacy First, Using Meteor and Mylar," (presentation, VALA2016 in Melbourne, Australia, February 2016), http://www.vala.org.au/vala2016-proceedings/966-vala2016-session-8-rundleRundle.

> is to make library systems truly patron-centric, constantly questioning the need for staff to have access to information 'just in case' and instead build systems around a 'just in time' knowledge paradigm … The software currently used by libraries is almost entirely based on the premise that libraries need more information about their patrons and loans, and that all library and vendor staff can be trusted with this information.[59]

Rundle also outlines nine general principles for usable encrypted library management systems including putting users in control, maintaining control over library data and library assets, and encrypting all data by default.[60] These represent good practice for systems workers and systems suppliers seeking to design systems that ensure the privacy of their users' data. They explicitly reference the underlying power dynamics behind the storage and usage of library users' data by advocating shifting control over user data from the supplier to the user and shifting control over bibliographic data from the supplier to the library. Systems workers must be aware of these uneven power relations and mitigate them as much as possible by taking power from corporate systems suppliers, and by relinquishing power from themselves in ways that serve library users.

Openness

Alongside a concern for privacy as an ethical value, there is also a concern for openness in critical systems librarianship. This is tied to the concept of information as a public good: an ethical principle of librarianship enshrined in the American Library Association's Core Values as "libraries are an essential public good and are fundamental institutions in democratic societies."[61]

Providing information as a public good rather than a product is fundamental to librarianship as a profession predicated on information provision. Lawson, Sanders, and Smith similarly argue that scholarly information is inherently a commons, a publicly shared resource held in common rather than a commodity.[62] Distinct from other marketable items, information can be shared without damaging the original, can be transferred without the need for economic exchange, and can be said to "belong" to no one and therefore to belong to everyone. The commodification of information is the

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59 Rundle, "Building a Richly Featured Integrated Library Management System."

60 Rundle, "Building a Richly Featured Integrated Library Management System."

61 American Library Association, "Core Values of Librarianship," *American Library Association*, adopted June 29, 2004, http://www.ala.org/advocacy/intfreedom/statementspols/corevalues.

62 Stuart Lawson, Kevin Sanders, and Lauren Smith, "Commodification of the Information Profession: A Critique of Higher Education Under Neoliberalism," *Journal of Librarianship and Scholarly Communication* 3, no. 1 (2016): eP1182, doi:10.7710/2162–3309.1182.

neoliberal practice of turning information into a capitalist commodity: part of a system of political economy that conceives of information and knowledge as a product that can be transferred or exchanged in market transactions. This is not simply an economic practice: for the totalizing ideology of neoliberalism it is a strategic move that contributes to information being closed off, paywalled, and restricted in order to consolidate power for those who claim to own it. Treating information as a public good rather than a commodity emphasizes that information is "social, being between people, and of value to the public … a process rather than a finished product."[63]

In systems librarianship, one way to practice openness is the adoption and use of open-source software. Open-source software is software licensed under an open license: this kind of license allows the user to see the code, to learn how it works to produce a program, and edit the code to make changes.[64] Most library systems software in the minority world market is closed including all of the most widely-used library management systems and discovery systems.[65] One impetus for open-source software in librarianship is the link to provision of information as a public good. In the same way that scholarly research is made free and available under the open access philosophy, information in the form of software's source code is made free and available in open-source. Fundamentally, open-source's drive towards the commons and against commodification of information overlaps with the ethical core of providing information as a public good.

Another reason to advocate open-source software in libraries is to redress imbalanced power relations between libraries and library systems suppliers. One of the authors has pointed out how proprietary library systems suppliers already use open-source software in amongst their own software—Ex Libris Primo uses Apache Solr and Lucene, several systems use the Apache HTTP Server, Ex Libris use Kibana and Elasticsearch for internal server monitoring purposes—but do not license the resulting software with an open license.[66] Suppliers are willing to use community-developed open-source licensed software but not to pass the benefits of openness on to their customers. By using open-source software ourselves in libraries, we could retain the benefits of open-source software without paying library

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63 Lawson, Sanders, and Smith, "Commodification of the Information Profession," 6.

64 Throughout this chapter we use "open-source" for brevity rather than "free / libre open-source software" or "free and open source software." We acknowledge that these terms are contested.

65 Marshall Breeding, "Market Share Reports," *Library Technology Guides* (blog), https://librarytechnology.org/products/marketshare.pl.

66 Andrew Preater, "Free and Open Source Software and Distributed Innovation," *Ginformation Systems* (blog), December 1, 2012, https://www.preater.com/2012/12/01/free-and-open-source-software-and-distributed-innovation/.

systems suppliers for the use of it and share our software work and designs more widely with open licensing.

There are several ways that critical systems workers can support the use of open-source software. First, they can use open-source software to display their espoused ethics in visible everyday practice. Some examples of open-source alternatives to popular closed software[67] include Mozilla Firefox instead of Google Chrome; Mozilla Thunderbird instead of Microsoft Outlook; LibreOffice instead of Microsoft Office; Sandstorm instead of Google Docs.

Second, systems workers can contribute to open-source projects. Contributing code to community-developed software is a way for systems workers to develop new skills in a supportive environment and to practice "crunchy tech skills"[68] like coding and version control. Macrina argues that collaboration between libraries and the open-source community is long overdue since, as discussed, they share the same fundamental ideals.[69]

Third, systems workers can support the use of open-source software in libraries as alternatives to the proprietary commercial products that dominate the marketplace in the minority world. As experts and ethical practitioners, systems workers are in positions to advocate for alternatives and to push decision makers to consider open-source alternatives. This can be done by adopting existing stable open-source products like Koha or Evergreen or lending support and resources to developing open-source projects like Folio from EBSCO. Large-scale open-source implementation is challenging and requires significant investment of resources: one of the authors has laid out the technical, cultural, and institutional challenges involved in implementing one open-source library services platform, OLE, at SOAS Library in the UK.[70]

Though a theoretical commitment to openness as a core value persists in systems librarianship, and has potential application in practice with open-source software, openness has generally not been applied to systems practice in a thoroughgoing way. This again highlights the tension between

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67 Simon Barron, "11 Open-source Alternatives," *Undaimonia* (blog), January 7, 2016, https://undaimonia.wordpress.com/2016/01/07/open-source-listicle/.

68 Jenica Rogers, "Considering the Librarian Tech Skills Gap," *Attempting Elegance* (blog), March 25, 2013, http://www.attemptingelegance.com/?p=1958.

69 Alison Macrina (@flexlibris), "One reason for the long overdue partnership of libraries and free software is that we both fight the privatization of the public commons," Twitter post, September 9, 2015, https://twitter.com/flexlibris/status/641801786655932416.

70 Simon Barron, "Implementing Kuali OLE at SOAS Library," *Ariadne*, June 2015, http://www.ariadne.ac.uk/issue74/barron.

theory and practice in systems librarianship and is an example of lack of practical application acting as a barrier to developing a critical practice.

We attribute this partly to the theoretical tensions between privacy and openness as core values. We occupy a seemingly contradictory position of wanting to protect some forms of data such as users' data, loan data, and access data while wanting to widely share other forms of data such as bibliographic records, analytics, source code, scholarly research, and research data (and even within this brief list we see overlap and complexity emerging). The distinction between these types of data is in the power relations surrounding the people and institutions involved as social actors, in who owns and controls data and whose values are privileged, reinscribed, and concretized by different relative positions of privacy or openness. Systems workers should view these data differently because of the implications of power transfer inherent in them: keeping some data private transfers power to the individual whereas making other data open transfers power away from hegemonic actors such as institutions, corporate systems suppliers, and publishers.

In our critique we apply a Foucauldian conception of power relations, and ask critical questions, based on Foucault's concerns in analyzing power relations, which are directed toward how power is differentiated, the objectives of those employing power, the mode of how power is exercised, the institutionalization of power, and to what degree the exercise of power is rationalized.[71] For example, considering the logging of a person's use of online resources by a university library, we might ask:

- What are the relative positions of privilege, technical knowledge, and position of the actors involved? For example, can an individual circumvent systems logging data about them with sufficient technological knowledge?

- What are the objectives of the owner of this data? For example, a profit motive (a potential publisher's use of data) compared with analysis to understand overall use of resources (a potential academic library's use of data).

- How is power exercised? For example, the implication of disciplinary action in institutional acceptable use policies, or the chilling effect associated with foreknowledge of state surveillance of those researching subjects such as terrorism.

- What institutions are at play that determine the site of power? For example, legal structures may mandate collection of data, while the educational

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71 Michel Foucault, "The Subject and Power," trans. Robert Hurley and others, in *Power: The Essential Works of Michel Foucault 1954–1984. Volume Three*, ed. James D. Faubion (New York, NY: New Press, 1981), 326–48.

practice of academic freedom implies unfettered access to facilitate intellectual enquiry.

- What technologies are brought to bear in collecting and processing this data? Is the user aware of the scope of data collection, storage, and the associated possibilities of surveillance? Are these technologies highly finessed and rationalized, for example by being combined with an overall program of surveillance that can infer a complete picture from many disparate sources of data?

A further problem preventing openness in practice is the extent to which "openness" as a term has become devalued in systems librarianship in particular. Almeida problematizes openness in higher education by acknowledging the multiple meanings of "open" and the abuse of the term in the neoliberal academy. While theoretically, as Almeida discusses, openness aligns to a social justice agenda, "intimately tied up with … the assumption that the internet and higher education are in the business of fixing social disparities,"[72] the authors observe that openness in systems librarianship has largely been appropriated by software companies, and with regards to the open-source community, tainted by issues related to social justice.

Almeida cites Watters identifying how industry forces appropriate the terms "open" and "openness" in order to market their products by appealing to consumers' ethical principles of openness.[73] Library software suppliers advertise their systems as "open," "breaking down silos," or "empowering libraries" for example. In Watters's parlance, these claims are openwashing:[74] claiming openness while actually distributing closed software. Innovative Interfaces Inc., for example, call their vision for libraries the "Open Library Experience (OLX)"[75] and say that "With Sierra [their library services platform], the library is OPEN."[76] Sierra is not an open-source licensed product and Innovative's documentation on its products is not open-access so the

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72 Nora Almeida, "Open Educational Resources and Rhetorical Paradox in the Neoliberal Univers(ity)," *Journal of Critical Library and Information Studies* no. 1 (2017): 2, http://libraryjuicepress.com/journals/index.php/jclis/article/view/16.

73 Almeida, "Open Educational Resources," 2.

74 According to Watters, "openwashing" refers to "having an appearance of open-source and open-licensing for marketing purposes, while continuing proprietary practices." This definition, and a reference to the original Twitter post from March 26, 2012, is provided on Watters's blog but the tweet itself is no longer available. See Audrey Watters, "Education Technology and the Promise of Free and Open," *Hack Education, The History of the Future of Education Technology* (blog), December 7, 2016, http://hackeducation.com/2016/12/07/top-ed-tech-trends-free-open.

75 Innovative Interfaces Inc., "The Open Library Experience," *iii.com*, https://www.iii.com/solutions/open-library-experience.

76 Innovative Interfaces Inc., "Sierra," *iii.com*, https://www.iii.com/products/sierra.

terminology is misleading. In the current systems market, selling products as 'open' tends to refer to the software's interoperability or having programmatic APIs that ostensibly open data out to access and reuse. However, interoperability and APIs can be deliberately constructed to ensure that only the amount of data that the company wants to be released gets released. Claiming openness is therefore no guarantee of adhering to the principles of information as a public good and the software commons that we have identified are crucial to the conception of openness in critical systems librarianship.

The practical implementation of openness we have suggested — using open-source software in library systems — is also potentially problematic. In recent years, open-source development communities have been subject to criticism for their cultures of toxic masculinity and deference to white cisgender male leaders at the expense of gender and race equality. Jacob Appelbaum, a developer for the Tor Project, mentioned earlier in connection with the Library Freedom Project, resigned following accusations of widespread sexual misconduct.[77] Richard Stallman, the founder of the free software movement and several foundational pieces of open-source software, has been accused of misogyny and sympathy for child abusers.[78] In its deference towards the authority of white men, the open-source community reproduces and perpetuates the social inequalities of white supremacist capitalist patriarchy: the long timeline of other incidents recorded by Geek Feminism Wiki attests to this.[79]

There are also concerns about the distribution of labor in open-source development. In their study of commits to code repositories for Apache projects, Chełkowski et al. found inequalities in the distribution of labor with a very small minority of developers producing the majority of commits with a similar power law distribution to other online communities.[80] They argue the claimed benefits of collaboration in open-source development are thus overemphasized. Similarly, in relation to open educational resources, Neary and Winn argue that uncritically praising openness and the information commons can erode recognition of the labor involved in the production of open resources (or open-source software): "the reification of 'the commons'

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77 Violet Blue, "But He Does Good Work," *Medium* (blog), June 16, 2016, https://medium.com/@violetblue/but-he-does-good-work-6710df9d9029.

78 Geek Feminism Wiki, "Richard Stallman," *Geek Feminism Wiki*, accessed December 9, 2017, http://geekfeminism.wikia.com/wiki/Richard_Stallman.

79 Geek Feminism Wiki, "Timeline of Incidents," *Geek Feminism Wiki*, accessed December 9, 2017, http://geekfeminism.wikia.com/wiki/Timeline_of_incidents.

80 Tadeusz Chełkowski, Peter Gloor, and Dariusz Jemielniak, "Inequalities in Open Source Software Development: Analysis of Contributor's Commits in Apache Software Foundation Projects," *PLoS ONE* 11, no. 4 (2016): e0152976, doi:10.1371/journal.pone.0152976.

as a site of non-scarce, replicable and accessible educational resources is to mistake the freedom of things for the freedom of labor."[81] The valuing of unpaid labor in open-source development also contributes to the inequality issues discussed above: people in marginalized communities tend to have less free time and social capital to expend on unpaid contributions to projects.[82] This contributes to a lack of diversity in open-source development.

While critical systems librarianship is critical of the prevailing trend in library systems towards proprietary closed-source systems and advocates openness in the sense of providing information as a public good and supporting scholarly research and software code as a commons, we do not accept openness uncritically.

Localism and Autonomy

Almeida ties one sense of openness to a sense of localism (meaning a groundedness in and sensitivity to local context) with open educational resources.[83] In terms of library systems, a similar link can be seen between openness and localism: open-source can be used as a means of emphasizing the local needs of institutions and user groups.

As mentioned above, library systems suppliers' goal is to create a minimum viable product, which appeals to, and is marketable to, a wide range of potential customers. There is no economic drive towards offering highly customized products tailored to their customers' institutions: the labor for producing customized interfaces for discovery layers, for example, is passed to systems workers who, within the parameters for customization designated by the suppliers, are able to do minimal software customizations for look-and-feel, wording, and design. By contrast, open-source discovery layers offer the possibility of writing new features directly into the code, completely changing how the search engine indexes content, and allows expansive integrations with other interfaces or APIs. Since open-source systems generally have more potential for customization to local needs than proprietary systems, systems workers are able to design software with language customizations for their users' range of languages, classmark browse features tailored to unique classification systems, emphasis on shelf locations tailored to their library's physical space, or relevance ranking

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81 Mike Neary and Josh Winn, "Open Education: Common(s), Commonism and the new Common Wealth," *Ephemera* 12, no. 4 (2012): 409, http://www.ephemerajournal.org/contribution/open-education-commons-commonism-and-new-common-wealth.

82 Ashe Dryden, "The Ethics of Unpaid Labor and the OSS Community," *Ashe Dryden* (blog), November 13, 2013, https://www.ashedryden.com/blog/the-ethics-of-unpaid-labor-and-the-oss-community.

83 Almeida, "Open Educational Resources and Rhetorical Paradox in the Neoliberal Univers(ity)," 11–12.

adjusted to meet their users' understanding of relevance. In other words, open-source provides the potential for systems workers to create localized systems that reflect their unique collections, unique user base, unique needs, and unique mission. For high-quality software customized to a defined user base with good core user experience, there are benefits to smaller software over which libraries have more control.[84]

Localism in library systems can be further extended as a principle to address other aspects of power and social justice in systems librarianship. We have discussed how the trend in library systems infrastructure has been to move away from locally hosted systems towards cloud-hosted software-as-a-service architectures provided by software suppliers. As well as shifting power from libraries to suppliers, this has the impact of reducing the amount of generic IT work in systems librarianship. Less time is spent on setting up and maintaining local servers, scripting to resolve server issues, planning local infrastructure, and dealing with software and hardware issues. The impetus behind this trend is the economic value of exchanging capital in order to free up workers' time to focus on strategy rather than operations: on work towards improving the overall user experience of library systems and improving the institution's reputational standing in the community rather than expending effort simply maintaining a base level of service.

However there is a sense that this devalues systems librarianship, as outsourcing the applications support and development functions away from systems workers and towards software suppliers leaves systems librarianship working on strategy and management functions which, it could be argued, can be performed by senior managers and directors. This leads to institutional devaluing of systems workers' skillsets and the reduction of library systems teams or the subsuming of library systems functions into IT departments. "The fate of systems people in many libraries is performing management functions without management remuneration, authority or recognition … In many libraries, careers stop at a mid-career point for tech workers unless they move into full-time people management."[85] Without valued and effective technical expertise informing systems decisions in the library, the power of software suppliers is further consolidated as libraries lean more heavily on their products and professional services teams.

As well as localism allowing for more tailored library systems, local hosting of systems allows power to be retained by systems workers rather

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84 Jesse Kriss, "Anti-Capitalist Human Scale Software (and Why it Matters)."

85 Alan Harnum (@waharnum), Twitter post, April 5, 2017, 7:30 a.m., https://twitter.com/waharnum/status/849632708351451136; Alan Harnum (@waharnum), Twitter post, April 5, 2017, 7:49 a.m., https://twitter.com/waharnum/status/849635224573153281.

than passed uncritically to library systems suppliers. Kriss refers to scale as "a trap" and argues that large-scale enterprise-level software is more likely to be restrictive and less likely to suit our purposes.[86] Effective, small-scale library systems can be built by working with a community or an institution to host library systems on local servers with root (administrator) access to those machines as well as developing and maintaining open-source library software. This also means moving away from monolithic proprietary library services platforms. We argue a local approach leads in practice to upskilling of systems workers and gives them control over their technical area of expertise. This also impacts the privacy and openness aspects of critical systems librarianship since local systems allow more control over user data to be protected and over bibliographic data to be shared with other libraries, without mediation by corporate interests.

A localist approach can lead to greater autonomy for libraries by allowing systems workers greater control over library systems and by retaining labor functions within the institution. Autonomy refers to the particular type of freedom associated with self-mastery and a high level of control over one's own sphere of influence. In Berlin's parlance this is positive liberty rather than negative liberty: "freedom to" perform such action rather than "freedom from" an external constraint.[87] One of the authors argues that autonomy in systems can be tied to the existentialist philosophy of Sartre and Kierkegaard and that localism and open-source software can be used as a means of valuing and preserving this freedom in an existentialist sense.[88]

The concept of "autonomy" is not unproblematic. A certain sense of positive liberty is key to the kind of neoliberal ideology that critical systems librarianship critiques from a social justice perspective. Neoliberalism and right-libertarianism argue that freedom and autonomy is served by the free market and self-mastery of the individual over their personal economics. Collier discusses how one cannot be in favor of "freedom" or "equality" in general because of the varying and nuanced instances of what we refer to as "freedom."[89] The instance of "freedom" and "autonomy" in neoliberalism refers to freedom in the economic sphere; by contrast, we use "freedom" and "autonomy" to refer to freedom in the political sphere: the sense of freedom invoked by left-libertarianism and anarchism.

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86 Jesse Kriss, "Anti-Capitalist Human Scale Software (and Why it Matters)."

87 Isaiah Berlin, "Two Concepts of Liberty," in *Four Essays on Liberty* (Oxford: Oxford University Press, 1969).

88 Simon Barron, "Existentialism and Free and Open-source Software: An Attempted Synthesis," *Undaimonia* (blog), June 14, 2016, https://undaimonia.wordpress.com/2016/06/14/existentialism-and-foss/.

89 Andrew Collier, "Power$_{1.5}$ and the Weakness of Liberalism," *Journal of Critical Realism* 6, no. 1 (2007): 111, doi:10.1558/jocr.2007.v6i1.111.

The crucial difference between the economic freedom of neoliberal ideology and the political freedom of critical systems librarianship is the power relations that inform these different senses of freedom. Collier interrogates the meaning of "power" to define power$_{1.5}$ which refers to a power (in the sense of ability to perform such action) "such that acquisition of it by *A* when *B* lacks it makes *B* less powerful in absolute terms than before."[90] Our approach, like that of Collier, is critical of those freedoms for individuals or institutions that involve or require the loss of power of another individual or institution. "While each liberty or equality has to be defended or rejected on its own merits, as a general rule those liberties should be defended which derive from equality in power$_{1.5}$, while liberties which involve inequalities in power$_{1.5}$ are suspect as privileges."[91] The economic freedom central to neoliberal ideology involves inequalities in power whereas the political freedom advocated by critical systems librarianship involves taking power from software suppliers and redistributing it towards libraries and, ultimately, library users with the aim of creating more evenly distributed overall power relations in this ecosystem.

Conclusion

In this chapter, we have attempted to apply critical theory and social justice approaches to several areas of systems librarianship. In so doing, we have defined critical systems librarianship as an approach to the theory and practice of library systems work which applies an understanding of power structures to the ecosystem around specialist library systems and uses this understanding to address social justice issues and inequalities through practice. As reflective practitioners, we have drawn on various currents of critical theory from within library and information science and broader technology research to develop a meta-analysis of work in this emerging area.

Systems librarianship has been an undertheorized area of librarianship because of the area's distinct tensions between theory and practice. The day-to-day demands of maintaining library systems and keeping abreast of the converging fast-changing sectors of librarianship and technology means that systems workers often focus on the practical demands of their work rather than theorizing and problematizing practice. Despite the potential for application of theory from a range of different schools and movements — critical theory, library and information science research, technology research, information security, social justice related to technology, feminist theory, analytic and

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90 Collier, 112.

91 Collier, 116.

continental philosophy, anti-capitalist technology activism, and queer theory among others—systems librarianship remains an area steadfastly focused on practice.

Our discussion of critical systems librarianship should not be considered definitive. We have aimed to summarize current ongoing conversations on critical theory in systems librarianship and synthesize them into an approach. We hope that this approach will lead to more application of critical theory to practice in systems work and, crucially, will lead to discussion of more unproblematized issues in systems librarianship. We see particular areas for discussion around: the lack of diversity and representation of marginalized communities within systems librarianship; the adoption of working practices and project management methodologies popularized by venture capitalist-driven technology firms; digital civil disobedience and obfuscation techniques within the library sphere;[92] the institutional defining of library workflows based on the demands of systems rather than vice versa; the uncritical acceptance of dated standards and protocols; the lack of join-up or communication with the wider technology sector. There are of course many more potentially fertile areas of discussion for praxis in systems librarianship. We hope that this chapter and the critical systems librarianship approach can continue the discussion of theory in systems librarianship and, more importantly, the application of theory to practice.

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92 Finn Brunton and Helen Nissenbaum, *Obfuscation: A User's Guide for Privacy and Protest* (London: MIT Press, 2015).

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