

## As Luck Would Have It

*Serendipity and Solace in Digital Research Infrastructure*

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**ABSTRACT** This essay explores the ways in which new developments in digital research infrastructure change our expectations of archival research and offer opportunities for a newly energized feminist approach to the archive. A specific platform, the Humanities Networked Infrastructure, is explored as an example of how digital technologies enable the coproduction of the archive and at the same time extend the possibilities for serendipitous discovery. **KEYWORDS** digital humanities, film archives, ontologies, search, serendipity

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You say it very well, better than I will say it: we are condemned to live together.

ALBERT CAMUS, *ALGERIAN CHRONICLES* (1958 [2013]), 114

Our understanding (of the meaning of Being) is an understanding that we share understanding between us and, at the same time, because we share understanding between us: between us all, simultaneously—all the dead and the living, and all beings.

JEAN-LUC NANCY, *BEING SINGULAR PLURAL* (2000), 99

We didn't build our bridges simply to avoid walking on water. Nothing so obvious.

JEANETTE WINTERSON, *THE PASSION* (1987 [2001]), 57

In the Aarne-Thompson taxonomy of fairy tales, type 1191 is reserved for stories of “Devil’s Bridges.” These stories, devised mostly in the Middle Ages, describe a contemporary infrastructure predicament: the construction of physically daunting bridges. Typically, the bridge builders face an insurmountable difficulty caused by undue urgency, a unique environmental challenge, or sheer technical ambition, which is solved after a serendipitous encounter with the Devil, who agrees to complete the bridge in exchange for the first soul to cross it. The stories always conclude with the Devil being cheated by a shrewd human who sends a hapless animal (usually a dog, goat, or rooster) across the span instead.

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FIGURE 1. Teufelsbrücke (Devil's Bridge) at the Gotthard Pass, Switzerland. (Roland Zumbuehl, <https://en.wikipedia.org/wiki/Alps>. Created July 10, 2004; accessed October 16, 2015.)

Many of the bridges that inspired these stories still stand and can be found in picturesque settings across Italy, Spain, France, the United Kingdom, and other parts of Europe (figures 1 and 2). The bridges are characteristically masonry arch structures and are breathtakingly beautiful and technically impressive. Some of their specific physical features, such as misaligned or discolored stonework, are explained by the devilish details of their apocryphal creation.<sup>1</sup>

Devil's Bridge mythologies are based in part on the conviction that human hands alone could not possibly have undertaken such state-of-the-art technical structures and that their very accomplishment must have exceeded human capacity at a number of levels. And in the incredible uplift of their vaulted overarching spans, they also seem somehow to shed their own materiality. Devil's Bridges serve to remind us that in the face of new and mystifying technologies—in this instance, an architecture explicitly designed to overhang an otherwise intractable distance—it is sometimes equally difficult to suspend our disbelief; that the construction of physical, connective infrastructure might just as well be conceived as a leap of faith.

For someone like myself, who spends a great deal of time thinking about and building digital technical infrastructure, Devil's Bridges propose a series of



FIGURE 2. Ponte della Maddalena (Devil's Bridge), Tuscany. (Jo Christian Oterhals, <http://www.flickr.com/photos/oter/7656211938>. Created July 26, 2012; accessed October 16, 2015.)

resonant questions about how digital environments reconfigure the sense of, and possibility for, acts of connection and the felt experience of connectedness:

- How exactly are connections/links/relations materialized in digital environments?
- How is “bridging” or “mediating” or “making connections” the result of complex processes involving both human and nonhuman objects and agents?
- How do we move past the idea that the immaterial is simply that which cannot be directly grasped? What are the epistemological dimensions of both the material and immaterial in digital infrastructure?
- How does explicit attention to these acts and technologies of “connection” move us beyond thinking of connectivity as binary or thinking of infrastructure as a form of mediation?
- How can we better capture the analytic, aesthetic, political, ethical, and algorithmic qualifications that accompany digital acts of connection such as those chronicled in the soul-destroying losses and the ampliative aspirations of the Devil’s Bridge stories? How might we

bridge time and space with a richer engineering than the stream, the download, the relay, or the recommendation?

In what feels to me to be an era of arbitrary, widening, and devastating division, these questions seem especially important. They point to larger inquiries into how our digital archives and research environments might lay new foundations for (human) community. They raise the question of which prospects are offered in digital environments for “speaking nearby” (Trinh)<sup>2</sup> or for “being-with” (Nancy)<sup>3</sup> in dignity and with mutual respect and generosity. And, just as important, is the question of whether it is possible, within our understanding and experience of “being-with,” to also recognize “being-without.” What ontological, ethical, and political options are afforded by our digital platforms for thinking the “without” as located within this “with” rather than resorting to a thinking that alternately avoids or opposes the “with” or the “without” altogether?<sup>4</sup> Every bridge is also a reckoning of distance and disparation, the measurement of a gap that never itself closes.

As originary fables, Devil’s Bridge stories articulate anxieties around a generative event; they throw into question *what* constitutes an act of making, as well as questioning precisely *how* the made is to be constituted and *who* or *what* gets to be maker. The stories gesture at abstractions and absolutions as they are revealed in the pragmatics of a logistical employment problem. And yet in the magical thinking of these stories, the clamorous labor of bridge construction is noticeably passed over, quelled by the dampening force of a *diabolus ex machina*. Devil’s Bridges are infrastructure proposed as a manifest perdition; the uncertain outcome of a Faustian pact, a high-stakes wager in which we must be fully prepared to gamble with oblivion. The narrative rift that their veiled assembly covers is only as wide and deep as our own readiness to fall.

This idea that infrastructure itself is diabolical persists in many contemporary imaginings. For some, the measure of “best practice” infrastructure is that it be as boring or invisible as possible.<sup>5</sup> The objective is to produce an infrastructure that performs a type of secret and silent (Devil’s) work. Then, as if by association, this devious dimension is willfully applied to the clandestine construction of the infrastructure itself. Academics working in infrastructure development are particularly familiar with this outlook. In Australia, for example, the funding and development of research infrastructure are not considered research per se but rather are consigned to the role of research “support” and therefore are not “accountable” as a specific research outcome. To materialize research

infrastructure is to act without weight and therefore gravity. It is a process that is clearly distinguished from the reality produced: a covert operation, not a result. And yet the devising and development of new systems might equally be seen as the devising and development of their standards, measures, and meanings and the principles of their provenance in which the restless, transformative, and connective work of infrastructure can be understood as a form of inventiveness and interpretive resourcefulness, too.

## INFRASTRUCTURE

By training, I am a cinema scholar. In recent years, my cinema research has taken a specific interest in nontextual studies. This interest coincides with my previous employment in various roles in the Australian film exhibition and distribution industries. So, rather than proposing that meaning in the cinema derives from films alone, I have focused my attentions on the industrial contexts and social relationships that define cinema culture. The exhibition and distribution industries I research also happen to form an aspect of the contemporary film sector that has experienced considerable transformation through the impact of digital technologies.

The recent digitization of the media industries has been accompanied by an epistemological shift: from understanding films as narrative or aesthetic texts to characterizing them instead as a form of “content” to be “carried” by infrastructure such as networks. Although an extensive literature describes the role of networks in social, political, and cultural production, there has been very little exploration of cultural infrastructure as a creative process and a catalyst of social amenity. Networks in theory and practice transfer emphasis from fixed, unitary localities (whether these are topographical, organizational, or symbolic) to fluid, interactional processes. They are defined by the volume, velocity, and scale of their interconnections and seemingly function as chains of transmission without borders, loyalties, or purpose. Because of their expansive logic, they challenge traditional patterns of knowledge, community, and geography. But in their suggestion of an infinite expansion, they propose an untenably boundless economy independent of environment, quality, or social influence.

My research on diasporic cinema businesses suggests a revised understanding of cultural infrastructure that imagines how the cinema operates to produce “creative networks” that relocate the meaning, function, and relationality of individuals, institutions, and locations.<sup>6</sup> Extrapolating from this case study, it is

possible to see that power is not just a property of hierarchies but functions in networks, too—networks that don't exempt the work of researchers from their configuration of social, political, and ethical relationships.

Researching the cinema as a form of infrastructure has required new forms of evidence (not film texts, for instance) and new methods for organizing and working with this evidence. This impetus led me to build digital infrastructure as a way to try to think through the aspects of film culture that are not typically included in the formal records of institutions such as the National Film and Sound Archive of Australia (NFSA). I am not as interested in the film texts or physical objects as in the events, locations, avenues, and itineraries that equally shape the cultural record. So typical archive catalogues (such as the library collection lists or asset management systems favored by cultural institutions) have not been especially useful for answering the research questions in which I am invested. Instead, the databases I have developed, such as the Cinema and Audiences Research Project database (CAARP), the Ultimate Gig Guide (TUGG), and the Kinomatics showtime dataset have grappled with the idea that cultural venues can be imagined as an event where places happen (rather than a place where events happen).<sup>7</sup>

Rather than settle for the widely held belief that infrastructure is just a means to an end, I am interested in how we address the social or relational aspects of infrastructure—not just in the film industry, but also as an underlying consideration of the digital archives and platforms I have created to study them. How do we appreciate the direction and texture, the “voltage” of relationality, in information infrastructure? How do we design digital archives that are energetic, performative, and generative in what Nigel Thrift might call an “expressive infrastructure”?<sup>8</sup> How might this creative infrastructure better account for the uneven ebbs of intensity and differential qualities of interconnection in economies of circulation, bringing new knowledge to light while accepting that not everything will be known, and making connections as well as producing gaps by undoing certainties? My speculation here, for which there is no guarantee or measurable return, is that working with digital infrastructure can go farther than producing or undoing another type of representation. Somewhere in the interstitial spaces of digital infrastructure, we might find another way of living.

For researchers in the humanities and creative arts, coming years will be crucial for the implementation of what might be called rich connectivity, the transformation of recently available and interoperable data into meaningful new relationships enabled by digitization (see figure 3). Conventional workflows will be challenged and extended. Researcher relationships will also be reconfigured

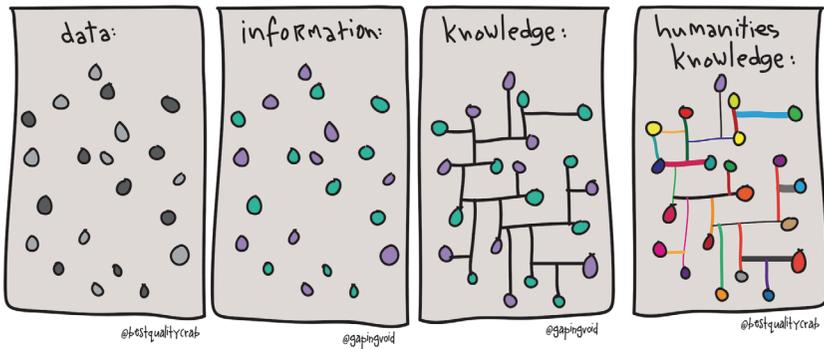


FIGURE 3. “Rich connectivity” in the humanities. (Deb Verhoeven, <http://dx.doi.org/10.6084/m9.figshare.1397453>. Created April 29, 2015; accessed October 28, 2015.)

within digital research environments in a complex realignment of the experience of archival aloneness and collaboration.<sup>9</sup> These new configurations are suggestive of new ways of archival thinking and feeling. As Carolyn Steedman notes more generally, archives are as much places of dreams as they are places of documentation (and dust).<sup>10</sup> In what ways, then, do we build our thoughts around our databases and algorithms as we experience our most complicating, profound hopes and despondencies? How do we acknowledge that so much of what we do comes from a sense of personal deficit, and in recognition that what we don’t have can still be given by us?

In this sense, and from a practitioner’s perspective, I have committed myself to exploring how digital research platforms and archives might provide a means for world-making—not as the production of a future world to replace this one or as the revision of a foregone past, but as the radical transformation of the world in which we already (co)exist. Digital archives do not just enable us to imagine what might have been; they offer a conceivable perspective on what might just be. In this way, digital infrastructure can open up new visions of the world in which we live and invite contemplation of the different ways we might live in it.

### SERENDIPITY

In preparing this essay, I am in part exercised by a recent event that has spurred my thinking on the issues summarized above. At the “Women and the Silent Screen VII” conference (2013), I was asked to chair a plenary session on gender and the archives. Onstage were representatives of the national film archives of Australia and New Zealand. Throughout the discussion, I unsuccessfully tried

to raise the question of researcher access to their respective archives' catalogue data and schema. Provision of these items is not especially resource-demanding and yet has enormous potential for enriching digital historical research. Miriam Posner, for example, has recently identified the need for "dismantling and rebuilding much of the organizing logic, like the data models or databases, that underlies most our work."<sup>11</sup> Access to film archive data models is an essential step in understanding how knowledge formation has been hindered and enhanced in film studies.

The reaction from those onstage with me was one of incredulity. Why would researchers even care for these sorts of things? Of what use could they possibly be to anyone outside the archives themselves? Apparently the discussion, as noteworthy as it was to me, was not entirely to the liking of the audience, who had expected something quite different. What they had wanted, explained a senior figure in feminist media studies to me afterward, was the happy stories of accidental discoveries in which women filmmakers otherwise obscured by archival sediment are exhumed by enterprising scholars or archivists and rightfully brought into the bright, flickering fluorescence of historical attention. It was stories of small-scale research encounters in specific locations, not systemic thinking or structural analysis, they were after.

In this yearning for heroic tales of serendipitous (re)discovery, the women at the heart of our inquiries are figured as implicitly present but concealed, overlooked, or forgotten. Researchers are characterized individually as hardworking and resourceful but ultimately just plain lucky enough to blunder across the buried bodies. These are righteous stories of the mercurial return of the repressed in which the past is searched in order to confirm the present. And as such, they emphasize the idea that women filmmakers, for example, have been historically marginalized for reasons of delay only, waiting quietly in the shadow archive for the right moment to be taken up into the canon as emblems of inclusion. Alice Guy Blaché, Ida Lupino, Dorothy Arzner, and Australians such as the McDonagh sisters, Lottie Lyell and Louise Lovely, all spring to mind as exemplars of virtuous ascension.

These "serendipity stories" propose that the archive of women's achievement is repressed and that at the same time the repression itself is also archived. In focusing so intently on resurrecting the dead, these stories overlook the dirty, murky logistical labor entailed in the mass burial. Missing from these accounts is a systemic critique of "meritocracy," of the canon itself, of social and political power and their bearing on both the film industry *and* the processes of the archive. Judith Allen has noted that at the very least, the writing of women's

historical experience can never really be just a matter of putting women back, “as if they [had] somehow slipped out.”<sup>12</sup> Their omission from the historical record should be a signal to address the entire basis and procedures of the discipline and, I would add, therefore the archive and more lately the platform.

In particular, Allen warns against uncritical reproduction of positivist and empiricist methods and modes of interpretation in feminist approaches to the archive.<sup>13</sup> Despite the noninstrumentalist nature of serendipitous discovery, it is frequently yoked to a form of accounting in the broadest sense: of rebalancing the equation, of canonical expansion, of narrative supplementation. In these versions, serendipitous discovery proposes an a priori reality in which the answers we seek from the archive precede us but in a sense are made possible only by a past expectation of research inquiries yet to be. As Craig Robertson notes, “Archives, including those we construct ourselves, are created through the anticipation of a future need to know.”<sup>14</sup> Running in parallel to this layered depiction of the asynchronicity of archival research, with its “lost” and later “found” female filmmakers, are statistical considerations of contemporary women’s absence from film industries. For Tim Sherratt, the critical point here is that “remembering the forgotten is not just a matter of recall or rediscovery, but a battle over the boundaries of what matters.”<sup>15</sup>

But what my disappointed media studies colleague was implicitly saying to me was that for her, serendipity itself also *matters*. My insistence on moving the panel conversation into the world of data models and information schema had the effect of denying the profound gratification she and many others associate with serendipitous discovery. What she felt I was missing in my focus on the mechanics of information systems was the nagging, persistent questions about human searching that underlie our work as academics. What fuels the myriad passions of archival pursuit? What propels researchers to keep going despite the disappointments, the drudgery, the distractions? How much do we draw on and develop a deep and largely untheorized longing for serendipity itself when we work? How do our own memories of past research experiences drive us: the miles-high vertigo of discovery, the passing punctuations of clarity that bob and then sink quickly under the enormity of the quest, the brief false dawns and the lighthouse moments of insight, the thrill of the chase, and the envy, dread, or relief at recognizing lives we have not (but might have) led, the palpable sense of feeling connected to these other lives and the accompanying shadow of awareness that we are capable of sympathies deeper than we thought possible? In all of this, the prospect of serendipity offers us the solace that the slightest accident might reveal new worlds. And that we might just be lucky enough to stumble.

## SEARCH

The advent of digital archives and research platforms—with their emphasis on comprehension and abundance, with their black boxes of algorithms and technical (nonhuman) wizardry—has produced a widespread nostalgia for what is perceived to be the loss of serendipity as an essential part of the researcher's armory. For historian Graeme Davison, for example, digital search engines are “a bit like driving a high-powered car down a freeway, compared with walking or cycling. It gets us there more quickly but we skirt the towns and miss a lot of interesting scenery on the way.”<sup>16</sup> In the bright pursuit of efficiency, we have dimmed the illuminations of the incidental.

It is easy to see Davison's nostalgic, predigital research practices as more natural, human, authentic, and relational. Digital archives, on the other hand, with their goal-oriented emphasis on “search” (and its close cousins, findability and accessibility), seem at odds with the nonpurposive, meandering pleasures of serendipitous finding. There is for Davison either the (information super) highway or the leeway. But this is an unhelpful opposition. Davison's rear-view mirror analogy proposes an apparently undifferentiated predigital paradise in which discovery detours the highly ordered conventions of classification and cataloguing that do in practice underlie physical libraries and archives and which enable some forms of finding, but also preclude others.

Still, there have been many attempts to mimic serendipitous discovery in the context of digital library services as well as in search engines more broadly. For some technical developers, the prospect of building a serendipity engine has acquired the dimensions of a latter-day quest for the Holy Grail, and their efforts to design for serendipity are frequently posed as an unsolvable technical paradox: can you explicitly plan and engineer for something that is by definition unexpected and incidental? And while it is true that most online resources and databases are not well suited to serendipitous discovery, that is not usually because of a paradoxical impasse but because these digital information systems fundamentally fail to understand the social nature of information. Recommendation systems, filter bubbles, and firewalls are all technical approaches to locking down our digital relations.<sup>17</sup> With its single search box and rankings filters, Google, for example, excels at finding what you already know based on where you've already been; the inputs directly determine the outputs. Social media platforms rely on personalization tools to create filter bubbles to protect users against chance encounters. The result is that a great deal of online research is stuck in an infinitely repeating hall of mirrors.

On the other hand, these same digital search engines and techniques have unquestionably improved opportunities to locate women in the historical archive. With digitization, new approaches to access and new forms of archival availability have opened up. For example, the full-text, searchable digitization of newspapers, such as Australia's Trove archive, has facilitated the tracking of women who did not leave diaries or personal papers but who were present for one reason or another in public reportage.<sup>18</sup> In a sense, these already recounted women are now as evident to a later researcher as they might have been to their contemporaries. Additionally, as Sherratt has noted, "Digital tools enable us to see things differently — to demystify the secret, to expose patterns and trends locked up in tables, statistics, or cultural collections."<sup>19</sup> By adopting a systems-based approach to historical research, we can see history more systemically.

Like the physical archive, information infrastructure is not innocent. It organizes attention, recommends how we enter a relation with knowledge, and structures and provokes the repertoire of our thinking. An act of searching can't be divorced from the tools we use and the intellectual environment that informs our investigation. And it is also borne out of diverse associations—imaginative acts that are no less real or important than the computational techniques or search aids we employ.

We search and collect for the most irrational reasons: to address a particular want, to replay a past encounter, or just for the way it makes us feel. Some searches become associated with an event (such as an act of collecting), and we treasure them for that rather than for their intended outcome or even their form. Often the items in a collection do not matter in themselves but only as a configuration, and the space between, the connections, makes them meaningful. Is the increased findability of women in these new digital archives any less comforting to the researcher than the prospect and experience of happenstance? The specific solace extended to researchers by serendipity is that the answers offered by the archive are to be found outside our selves (outside time, outside logic, outside the human). Serendipitous discovery softly reassures us that our searching is not finite but is always iterative and already intertwined.

What digital archiving does change is the extent of our ability to embrace the coproduction of the archive. Digital archives provide an unprecedented opportunity to reimagine how coexistence is representable both historically *and* historiographically. Rather than limit our practices to "discovering" or "finding" or "collecting" an a priori reality, producing knowledge infrastructures such as digital archives gives us a glimpse of a break in the clouds, a place where we can

dream differently the contexts, controversies, complexities, and conversations that go into our sense-making.

As this opportunity unfolds, a contemporary renaissance of database management systems design has the potential to further contribute to and amend our thinking about the sociality of archival information and to imagine alternative possibilities for inscribing the world. Whereas predominant relational (SQL) databases, for example, contain, clean, and curate information, new NoSQL (not-only SQL) database formats, including emergent graph database systems, focus effort and attention on navigating relationships *between* the data.

It is still early days for the emergence and articulation of digital research sensibilities. What does digital search feel like? How do we reconcile the drab, anonymized “interfaces” of so many online archives with the grip of human searching? How might we better understand and perhaps intervene in the nuanced exchange between traditional archival practices and emerging data-driven practices as they overlap and coexist in degrees of alignment that may or may not always be comfortable? How do we better acknowledge their plural, elastic, and constantly changing parameters and the ways they mutually redefine their relationship to one another, to the extent that they can even be disentangled? In this context, how might we reimagine serendipitous discovery?

## SOLACE

Serendipity lures and enchants all those within earshot with the promise that somewhere beneath the discontinuities of categorization run underground streams of possibility. In this sense, serendipity is not so much an idea or a belief as it is a force, a resistance to order and cohesion. Stories of accidental discovery console the researcher, and us, with the idea that no system, whatever its claims to discipline, comprehensiveness, and structure, is exempt from randomness, flux, overflow, and therefore potential collapse.

I want to pause to consider what the radical potential of serendipity might be for digital research environments and archives. It is in this context that I want to see what can be salvaged from serendipity for a feminist approach to digital research, to answer Jacqueline Wernimont’s call for “greater experimentation with a more radical and creative model of the feminist archive” or Miriam Posner’s call for the unrealized potential of digital humanities.<sup>20</sup> I want to put aside the elusive technical search for a serendipity engine, with its paradox of happenstance and intention, and entertain a different contradiction. I want to speculate about whether we can have a theory of power in serendipity, a concept of serendipity without solace. Can we return serendipity from the infernal to the

social? How might serendipity help us understand the asymmetries of human knowledge and our own relational capacities? What are the ethics of serendipitous discovery according to conceptions of our broader existence?

In their exceptional account of classification systems, Geoffrey C. Bowker and Susan Leigh Starr demonstrate how the power of information and data (and the institutions that administer them) rests on the invisibility of their structuring and categorization.<sup>21</sup> Bringing these otherwise unquestioned definitions of data up to the surface offers the possibility for change. A great example of this dynamic is the story of how a contemporary digital research tool was challenged in order to improve its handling of demographic data. Melissa Terras has documented how she succeeded in introducing a smidgeon of complexity into one of the standards widely applied in TEI-based research that encouraged the use of ISO 5218 to assign sexuality of persons in a document (the available attributes were 1 for male, 2 for female, 9 for nonapplicable, and 0 for unknown). For Terras, this was “an outmoded and problematic representation of sexuality, which in particular formally assigns women to be secondary to men, and so, in one of the core guidelines in Digital Humanities, we allow and indeed encourage sexist structures to be encoded.”<sup>22</sup> As a direct result of Terras’s intervention, the TEI Council formally agreed to change the datatype of person/@sex, personGrp/@sex, and sex/@value from ISO 5218 to data.word, so that locally defined values or alternative published standards could be used in these attributes.

Underlying an intervention such as this one is the need to recognize that concepts like gender are the product of relationships (between a range of agents including the researcher). But too many of the digital tools we have at hand rely on processes of simplification, not complication, despite an evident propensity for complexity in the humanities and creative arts (which so often is the cause of our undoing). As Miriam Posner captures in a pithy and pointed summary: “Most of the data and data models we’ve inherited deal with structures of power, like gender and race, with a crudeness that would never pass muster in a peer-reviewed humanities publication.”<sup>23</sup> I am mindful, on an almost daily basis, that my iPhone contains a range of emojis with greater racial and gendered diversity than many of the specialized digital research tools at my disposal.

So how might feminists investigate structures of power in the digital archive in new, more energetic ways? In the words of xenofeminism, can we propose the digital feminist archive in a way that constitutes a “freedom-to rather than simply freedom-from—and urge feminists to equip themselves with the skills to redeploy existing technologies and invent novel cognitive and material tools in

the service of common ends”:<sup>24</sup> At the very broadest and the most specific levels, how might we show that digital search, and searching, is always political because every data relation is “social” in some sense?

The current de facto technical tool for storing, representing, managing, and searching digital information, the relational database management system (RDMS), is based on the principle that data relationships of arbitrary complexity can be represented using a reasonably simple set of concepts and organizational principles. Relational databases are populated with *entities* that are characterized by the selection and organization of a defining and stable set of descriptive details. Their maps (and they are known as maps) are drawn from processes of inclusion and exclusion and conventions of description in which particular implementations of data are specified (whether the data should be represented in terms of “numeric” or “string” data types, for instance). Their *data models* and *schema* set the cardinal points, plot the contours, and give depth to the channels that enable our efficient, reliable navigation through oceans of data. When the requirements of the database user change, so, too, does the schema.<sup>25</sup> Data *ontologies*, on the other hand, are not application-specific but are reusable, consensual, shared representations of knowledge. Data ontologies describe the semantic relationships among all the variables: the instances, entities, concepts, and attributes contained in an information system according to a preordained, standardized, and therefore interoperable conceptual framework.

One of feminism’s most important achievements in relation to the archive has been to demonstrate that schema and ontologies are political, boundary-drawing practices. This task has included addressing the underlying information systems and data ontologies that support discovery in digital archives. In my imaginings, then, a feminist digital archive would also deal with data as it has been experienced rather than as it has been proposed (by institutions or their ontologies, for example). What would the world look like, and how would it feel, if we gave the tools to describe it to the very people (including ourselves, the researchers) who are so often excluded from producing the archive itself? What would happen if the means for producing the archive were opened to its stakeholders? Adopting a generative role as coproducers, not just users, of archives would require a rethinking of the rationales that underpin our work and the technical systems we work with.

A feminist digital archive would replace a technical ontology built on balanced, binary narratives with a set of principles that allow for the discernment of conflicting, asymmetrical, and incomplete vantage points. It would

enable us to think beyond our own searching, to imagine what a genuinely “researchable archive” might look like.<sup>26</sup> It would establish the means for not only a “history from below,” but also a “historiography from below.” And, by enabling the creation of tangential views and moves, it might also produce opportunities for serendipitous discovery.

### **THE HUMANITIES NETWORKED INFRASTRUCTURE (HUNI)**

Transgressive digital research platforms such as the Humanities Networked Infrastructure (HuNI) aim to bring new worlds into being based on the coproduction of a richer, more complex relational specificity.<sup>27</sup> Underpinning HuNI is a series of assertions about the possibilities offered by digital platforms for revising conventional approaches to knowledge systems. For example, HuNI’s approach to information organization explicitly recognizes that connections, trails, and links are central to humanities research. HuNI is designed to give substance to the very parts of the information network that are often ignored and explicitly suggests that there is as much meaning and substance in the “in-between” as there is in the archived “object” or “entity” itself.

HuNI enables all researchers (rather than just archivists and information architects) to take a position and to structure and connect diverse parts of different realities. Researchers (in effect, anyone) can creatively reconfigure the meaning, function, and relationality of individuals, organizations, concepts, events, works, and locations. In practice, HuNI doesn’t treat its underlying datasets as an accumulation of information—instead, HuNI offers a revisionist approach to acquiring, thinking about, and ordering knowledge. For example, HuNI enables researchers to work with assertions of absence rather than just presence (the “without” as well as, or contained within, the “with”). In HuNI, meaningful connections do not need to be reductive. Its generative data infrastructure accommodates difference, history, and complexity. And it recognizes that it is all a tenuous enterprise requiring care and determination.

The HuNI application lifts to the surface the underlying relationships that data ontologies do not typically reveal. To date, the traditional tools of the archive have been largely synthetic and unable to illuminate with any nuance the extent of envisaged and diverse dimensions in the research environment. HuNI instead provides access to humanities data in ways that enable researchers of all stripes to express, share, and discuss their differing interpretations of the data. The different perspectives among (and within) disciplines and individual researchers are preserved and foregrounded rather than being hidden behind a normalized, “authoritative” framework.

Through affording all information stakeholders a material agency, HuNI brings into play the constructedness of ontologies. As Helen Verran and colleagues have rightly observed, “If we assume . . . that knowledge is produced at the point of performance of situated understandings we come to the conclusion that the producers of knowledge are to be inextricably involved in its production and reproduction.”<sup>28</sup> HuNI explicitly draws together previously unrelated knowledges, practices, stakeholders, and technologies into a dynamic and sometimes discordant network of relations. In doing so, HuNI disenfranchises the idea that stasis and coherence are the starting or even end points of research.

By working in HuNI, researchers are able to recognize that archival records or entities have no value or meaning in isolation but exist within (and without) overlapping networks of people, practices, technologies, institutions, projects, and objects. In HuNI, researchers create an adaptive network not just by joining things up (as in the use of hyperlinks in Wikipedia) or by contributing to existing content records (as in many Archive 2.0 initiatives), but also by instilling rich, complex data into the spaces between existing entities.

It is also a significant feature of HuNI that the links created by users to describe the relationships between data records operate as both semantic and navigational elements (figure 4). Researchers can trace routes along these interconnected networks as an alternative discovery process. This capacity for HuNI users to assert in their own terms and then follow trails between the data is a central feature of HuNI’s approach to serendipitous discovery by way of “vernacular ontologies.”<sup>29</sup> In HuNI, serendipity becomes a property of social information networks within which researchers share knowledge to provide opportunities for unexpected encounters at the level of the data itself (figure 5, video).

In this way, HuNI aims at a type of systemic rethinking based on what Donna Haraway calls “partial, locatable, critical knowledge.”<sup>30</sup> Vernacular ontologies champion the potential of open, participatory, and collaborative linked data practices to produce new possibilities for both knowledge and the archive itself. The socially produced linked data that form the basis of HuNI’s organization of information open the researcher to different and intersecting ways of imagining and experiencing connectedness. It asks, for instance, whether it is possible to configure information along dynamic or expressive lines. HuNI invites contemplation of the ways in which we can redress both previous errors of judgment as well as failures of feeling.

HuNI’s relatively lean data model enables users to be data designers themselves, to rethink the way claims about both information and social organization

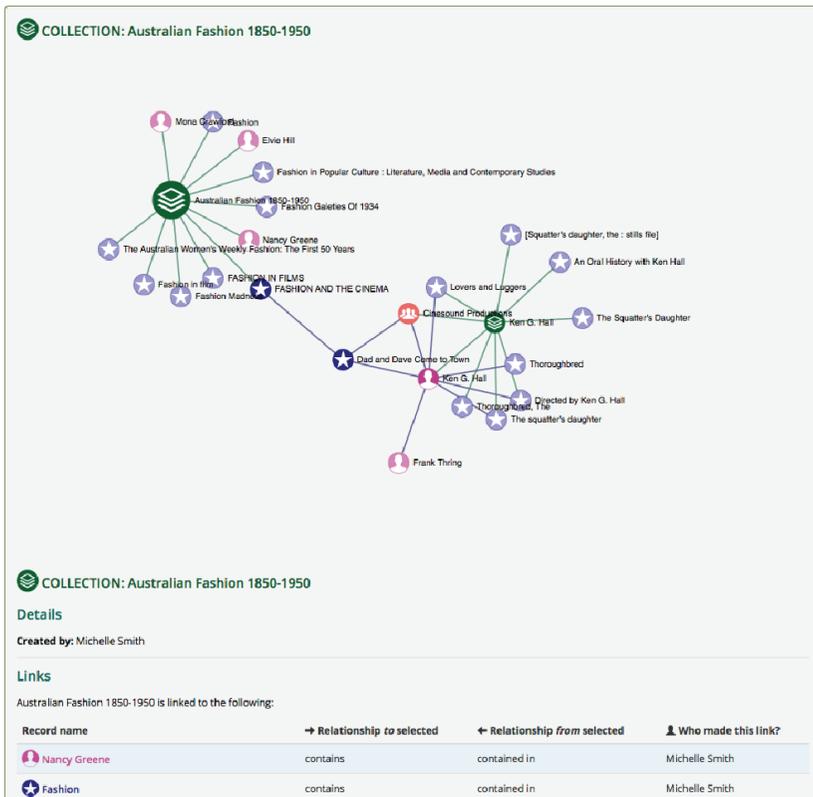


FIGURE 4. A screenshot of the HuNI Knowledge Graph showing user-generated links between two collections as both semantic and navigable elements. (Deb Verhoeven et al., <http://dx.doi.org/10.6084/m9.figshare.2008905>. Accessed October 28, 2015).

are structured and validated and circulated. HuNI moves beyond thinking of serendipity as only a technical problem and instead treats it as a matter of social, philosophical, and political significance. The application of this manifold (rather than binary) approach to the relationality of the archive accepts the specificity of knowledge systems while recognizing that within all cosmologies are many possibilities for drawing further distinctions, for the existence of “being-without,” for instance. HuNI gives communities and individuals typically excluded from archival production the ability to describe their existences (past and present) as a rich network of connections and also to propose, qualify, and reimagine them—to dream as well as to document.

HuNI is, at this point, a tentative opening question about where and how we might proceed in rethinking our relation to archival practices and

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FIGURE 5. *HuNI: Helping Humanities Researchers Get Lucky*. (Deb Verhoeven and Viveka da Costa.)

knowledges. We would like to further explore the ways that HuNI's dataset providers and archives could themselves make use of the vernacular ontologies that HuNI generates, and yet we want to emphasize that HuNI's network of productive, contested relationships has the potential to subvert the very idea of authoritative information "sources" altogether. Rather than produce another system, albeit one based on multiplicity and serendipity and "relationships as entities," we are open to exploring how a platform such as HuNI might infiltrate or supplant existing information systems and/or constitute itself as part of a series of interconnected systems (such as Europeana or other linked data initiatives) and thereby coexist in a larger multiplicity. Can HuNI provide a workable model that simultaneously lends itself to specificity and plurality at the level of the platform, to the coexistence of different archival systems for different audiences and stakeholders?

To “make a connection” (in both senses: proposing a link and arriving at understanding) articulates a faith in observation and description, but it also acknowledges our capacity for (self-)extension and therefore recognizes our own defining partiality and fallibility. In the feminist archive, searching is always prompted by aspiration. But what happens when our aspirations are allowed to admit their breadth—that what we seek is really a different world, a world of differences? The key act of “linking” that lies at the heart of HuNI is the connection it makes between the redistribution of power and the possibilities of world making (and remaking) in the archive.

## CONCLUSION

Typically in humanities research, no one cares as much about the network—or, in the case of Devil’s Bridges, the stonework—as they do about the question of how the infrastructure enables us to understand, make, and (we hope) improve the quality of our connections. The archives in which we immerse ourselves are both a social and technical infrastructure for which the experience of coexistence remains the key ontological question. A different approach to ontology, a “social” and “vernacular” ontology, goes some way toward recognizing the often banal, sometimes poetic, and always nuanced nature of human (and more-than-human) coexistence.

We do require an accessible approach from established archives so we can understand and account for their “logics” and know their limitations and the ways in which they work on us as well as with us. We need archivists to move beyond their practical (and also useful) preoccupation with improving access, addressing the challenges of abundance (both analogue and digital), format obsolescence and preservation, and the demand for more efficient search capabilities. Above all else, they must themselves start searching for new methodologies of interpretation and connection.

Researchers are not exempt from this need for greater methodological self-reflection, either—certainly in terms of our relationships to our subjects and our technologies, but also in terms of our relationships, as researchers, to one another. How might a focus on the revised connections enabled by digital archives mitigate both the disaggregations of digital technologies *and* the prospect of being personally and professionally discomposed by present-day life? How might a more equitable future depend on the ways we understand our own personal and collective “unbecoming” in this sense? And, finally, how do we address these questions without returning on a pendulum swing to romantic notions of authentic, essential selves and coherent but coercive communities?

Just as reciprocity and equality do not have to mean comprehension and appropriation; surprise, separateness, secrecy, and difference compose important parts of coexistence. We need to recognize the value of sharing ourselves with others, of allowing ourselves to be deeply seen and at the same time respecting the right to conceal and withhold. Opening up the archive, as both an extensible and a vulnerable space (simultaneously “without” and “with”), provides the groundwork for a revised approach to serendipitous discovery—and maybe also to solace.

In co-creating a new or imaginatively revised ordering of the world rather than resigning our powers of decision to others; in sharing our perceptions of meaning, however fleeting or partial; in gifting our data for reuse, perhaps we are also reconfiguring what it means to be solaced. In a time of disciplinary defensiveness in the academy and ideological certitude in politics, how reassuring is the opportunity to contribute any nuance whatsoever. Sharing, leaving our comfort zones, can also be a source of comfort, and this may, in fact, be the real paradox underlying serendipity. As we strive to understand the innermost workings of information-seeking itself, we might need to ask ourselves not “What are the questions that won’t leave us alone?” but rather “What are the questions that won’t leave us, alone?” ■

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## NOTES

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to Be Boring: Lessons for Data Infrastructure,” *Open Data Institute* (blog), August 26, 2015, <http://theodi.org/blog/aim-to-be-boring-lessons-for-data-infrastructure> (accessed October 17, 2015). The broader notion of “blackboxing” is developed by sociologist Bruno Latour in *Pandora’s Hope: Essays on the Reality of Science Studies* (Cambridge, MA: Harvard University Press, 1999).

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