An Information Science Question in DH Feminism

Tanya Clement <tclement_at_ischool_dot_utexas_dot_edu>, School of Information, University of Texas at Austin

Abstract

In 1986, Susan Harding published *The Science Question in Feminism* in which she suggests that feminism had moved past questioning "'What is to be done about the situation of women in science?'" – or first-wave feminist initiatives — to include more women in the work of science. Aspects of the "science question" that consider the politics underlying epistemologies of "purportedly value-neutral claims and practices" [Harding 1986, 23] resonate for the work (the research, theory, and practices) being done to build information infrastructure in the humanities today — the work that I am defining here as digital humanities work. Reconsidering this work by using the lens of feminist inquiry to understand the concerns common to information science and digital humanities is the perspective I describe here. Specifically, as my title suggests, I am proposing that feminist inquiry can help us articulate and better understand the epistemologies in digital humanities and information science that are shaping the infrastructures we are building and using in the humanities.

In 1986, Susan Harding published *The Science Question in Feminism* in which she suggests that feminism had moved past questioning "'What is to be done about the situation of women in science?'" — or first-wave feminist initiatives — to include more women in the work of science. Inquiry had moved on in second-wave feminism to wonder about the "science question" in feminism or "'Is it possible to use for emancipatory ends sciences that are apparently so intimately involved in Western, bourgeois, and masculine projects?'" [Harding 1986, 9]. Certainly, there is still more discussion needed about including more women in technology fields, but aspects of the "science question" that consider the politics underlying epistemologies of "purportedly value-neutral claims and practices" [Harding 1986, 23] resonate for the work (the research, theory, and practices) being done to build information infrastructure in the humanities today — the work that I am defining here as digital humanities work.

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This work in the digital humanities includes the development of scholarly information infrastructure and reflects a tie between information studies and the humanities. These ties include, among other things, "the technology, services, practices, and policy" that support "publication practices, data, research methods, collaboration, incentives, and learning" [Borgman 2009]. Christine Borgman and others [Drucker 2009] agree that creating technological infrastructure in the humanities must be collaborative, based on common understandings that pertain to the work both information studies and digital humanities are doing to build and theorize this infrastructure. Reconsidering this work by using the lens of feminist inquiry to understand the concerns common to information science and digital humanities is the perspective I describe here. Specifically, as my title suggests, I am proposing that feminist inquiry can help us articulate and better understand the epistemologies in digital humanities and information science that are shaping the infrastructures we are building and using in the humanities.

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In terms of practice, the ties between digital humanities and information science seem obvious. Digital humanities comprises ways of practice that are afforded by algorithms and accessed through interfaces and visualizations; practices that are articulated and organized by metadata and databases and social networks that are designed within institutions and fields of study that have been informed by the sciences, the social sciences, by human computer interaction (HCI), and computer science; practices that are very often transacted within the context of digital resources from archives and libraries. Finally, these are practices accomplished by workers visible and invisible from scores of

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fields of inquiry in the humanities and fields associated with information science.[1]

Ultimately, feminist critique concerns a responsibility to ask questions about these practices, to better understand the epistemologies embedded within these histories of knowledge production, to reframe the practices of digital humanities as information work and vice versa – a reframing that ultimately broadens and deepens the conversation. Feminist inquiry is particularly useful because its modes of inquiry are steeped in the sciences, the social sciences, and the humanities. Donna Haraway has written that the science community considers knowledge production as "histories of the technologies" [Haraway 1988, 587]. Yet, from a feminist perspective, we are ultimately responsible not only to be self-conscious or self-aware of technologies as "ways of life, social orders, practices of visualization" but "*to become answerable* to what we learn how to see" [Haraway 1988, 583]. As such, in this discussion, I consider how thinking about the tie between digital humanities (DH) and information science through feminist inquiry can help us become answerable to the manner in which DH work — its ways of practice — are shaped by (and shape) ways of life and social orders.

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The *technologies* that I discuss here, however, are not always digital. Martha Nell Smith has very usefully defined humanist technologies as "the means by which we accomplish various ends — the tools and devices on which our critical suppositions rely" [Smith 2005, 306]. Smith has argued that the relationship between humanities disciplines and feminist scholarship in DH is reflected in four areas in which she sees fundamental ties revealed: *technologies of access*, *multimedia study objects*, *collaboration*, and *self-consciousness*. In this same vein, in the three sections of this discussion, I reposition what I am calling the DH technologies of *interdisciplinarity*, *mastery*, and *self-consciousness* with feminist notions of *situatedness*, *plausibility*, and *responsibility*. These three sections demonstrate how feminist modes of inquiry that allow us to see commonalities between information science and digital humanities may help us articulate a concern with situated, not transcendent knowledges; with embodied objectivity and plausibility rather than truth; and with a responsibility to not only learn how systems work, technically, socially, and psychically but to act on that knowledge and build information infrastructures that reflect humanistic concerns.

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I. The Technology of Interdisciplinarity and Situated Perspectives

The Technology of Interdisciplinarity

Interdisciplinarity connotes a productive, multi-perspectival position that seems to fit comfortably in the humanities. Cathy N. Davidson and David Theo Goldberg maintain that it is essential that the humanities remain at the forefront of academic inquiry because "the interdisciplinary modes of the humanities . . . concern basic constitutive features of the social sciences, sciences, technology and the professions" [Davidson and Goldberg 2004, 57]. Similarly, Bruno Latour posits that the humanist's job should be to assemble these interdisciplinary modes instead of debunking them and to offer "the participants arenas in which to gather" [Latour 2004, 246]. Indeed, *interdisciplinarity* (and its accompanying metaphors of collaborative assembly and gathering) have been touted as potential keys to resolving crisis in the humanities, which constellate among a variety of practical concerns such as decreased enrollment in humanist studies, decreased jobs for recent PhDs, limited opportunities for publishing and therefore a weakened tenure process; and philosophical issues that concern the role of the humanities in the university. Most importantly for this discussion, there is also a pervasive notion that *interdisciplinarity* is a basic and *natural* tenet of accomplished digital work [Abel 2004, 339]; [McGann 2005, 71]; [Smith 2005, 312]; [Perloff 2004, 14].

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Certainly, interdisciplinary work is anything but easy, regardless of its digital aspects. It belies a political and networked infrastructure that allows for and precludes certain kinds of interactions to happen. I have written about the very real and situated institutional parameters that must be in place in order to support what Smith calls the "technology of collaboration" in DH [Clement 2013] [Clement 2012], as well as the fact that institutional bodies can facilitate or preclude interdisciplinary practices for certain fields over others, including collaborations between engineering and computer science over collaborations with those same fields and the humanities [Clement 2011]. Further, Patrik Svensson highlights real concerns for the humanities about infrastructure that is developed within existing infrastructural models (such as the library, museum, or archival system) and scientific models that are based on heavy data use since these models could reflect an uncritical bias towards the epistemic commitments of those communities and a disregard for the

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more unmarked humanistic technologies and infrastructures discussed in part by Smith above [Svensson 2011].

Most significantly, the perspective that interdisciplinarity is somehow *native* to digital practices and scholarship masks both the great amount of work and resources needed to enact interdisciplinarity and the predominance of interdisciplinarity in fields with more traditional humanistic methods. Such notions of inherent interdisciplinarity can be critically unproductive because the interdisciplinary mark can often occlude an unsituated standpoint. For example, Willard McCarty imagines the digital humanist as a "metadisciplinary" practitioner within a "Methodological Commons of humanities computing" that comprises twenty-two "disciplinary kinships" that cover the wide range of disciplines from which computing application and research draw, such as cognitive science, law, performance studies, linguistics, musicology, and so on [McCarty 2005, 131]. He positions the DH practitioner, as both technologically savvy and consequently worldly in her multiple, disciplinary knowledges that are situated outside the commons: she is not "the scholar" who engages in discussions that are "strongly delimited by the scholar's particular specialism" [McCarty 2005, 134]; rather, she is a "migratory" or "itinerant" project participant with the "performative ability to move in and out of disciplines" [McCarty 2005, 136]. In contrast to the scholar, the DH practitioner can "step outside that space, so as to connect the problem in question with a method, vocabulary or way of thinking uncommon to that scholar's discipline" [McCarty 2005, 134]. As a result, the DH practitioner has the perspective of "an outsider's objectivity" [McCarty 2005, 136], and she is consequently best positioned to effect the kind of "sea change" within fields of knowledge production in general that crisis resolution demands [McCarty 2005, 116]. In McCarty's paradigm, it is the situated scholar who has limited vision while the interdisciplinary DH practitioner is all-seeing.

Situated Perspectives

A note about the metaphor of seeing is useful here. I use word *perspectives* consciously and critically to frame this section on *situated perspectives* in the same sense that Haraway uses vision as a critical metaphor for describing situatedness. Noting the privileged knowledges that a vision metaphor has traditionally occupied in concepts of *objectivity* and *empiricism*, Haraway calls the all-seeing viewpoint a singular, uncritical perspective; she calls it "this eye that fucks the world to make techno-monsters" [Haraway 1988, 581]. Instead, Haraway proposes a feminist doctrine of objectivity that is *situated* as "specific embodiment" rather than a "false vision promising transcendence of all limits and responsibility" [Haraway 1988, 582–583]. It is this notion of vision that necessarily implies an embodied perspective that helps us reposition the technology of *interdisciplinarity* in DH as a perspective from *some*where rather than a "conquering gaze from nowhere" [Haraway 1988, 581].

Understanding *interdisciplinarity* as necessarily situated means learning to position the work of DH *within* the commons, *within* the fields that shape its practices. Feminist epistemologies including standpoint theory and postmodern situated perspectives emerged during the 1970s and 1980s as critical theories about relations between the production of knowledge and practices of power in science. Considering matters of "[o]bjectivity vs. subjectivity, the scientist as knowing subject vs. the objects of his inquiry, reason vs. emotions, mind vs. body," [Harding 1986, 23], both standpoint theory and postmodern theory hold that all knowledge is historically and geographically created by embodied participants. As such, they offer this *insistent embodiment* as "a rich tradition of critiquing hegemony without disempowering positivisms and relativisms and a way to get nuanced theories of mediation" [Haraway 1988, 578]. Ultimately, standpoint theory suggests that understanding the influence of multiple, embodied perspectives rather than attempting a "metadisciplinary" roving eye is necessary to enhancing knowledge.

The situated epistemologies that shape the information infrastructures we are building in DH is of particular concern to this discussion; consequently, I consider throughout how situating a discussion about the work of DH within information science can help us better articulate the epistemological underpinnings in DH that we have come to take for granted. To demonstrate a basic area of intersection, I discuss in the next section how the notion of the *document* in information science can help us think through how epistemologies in literary studies concerning the *text* are and can be engaged through the development of information systems.

Text as Document

Geoffrey Harpham argues that "the humanities have the text as their object, humanity as their subject, and self-understanding as their purpose"; for Harpham, a *text* may mean "any material artifact — a cityscape, a carved bone, an earthwork" [Harpham 2005, 23]. Within McCarty's "Methodological Commons," the "text" of study also includes digital images, sound, and video files as well as numbers, analytical tools, and data structures. For literary scholars, in particular, a literary (or *poetic*[2]) text is indicated by its material (such as its paper or binding) as well as its linguistic and bibliographic codes.[3] Further, from Roland Barthes' theories concerning *text* vs. *work* [Barthes 1977] to the social text theories of David Greetham [Greetham 1994] and Jerry McGann [McGann 1983] to John Bryant's notion of fluid text theory in the digital environment [Bryant 2002], *text* can be an object or a phenomenon we perceive before us in a specific time and space or a process or a "flow of energy" within a social and cultural context that spans multiple times and spaces [Bryant 2002]. There is little room in the scope of this piece to rehearse the history of textual studies, but it is important to note that theories concerning textual objects of study have had wide-reaching impact on how DH scholars have developed digital information infrastructures such as computational algorithms, databases, interfaces, scholarly editions, and visualizations.

As textual studies is, in part, concerned with the publishing and social systems (the scholarly infrastructure) that help us define *text*, document theory in information science considers the *document* within particular contexts or systems of organization and distribution concerning documentation. A brief history of *document* theory within information science shows some of the same theoretical roots in textual and bibliographic studies that Matthew Kirschenbaum has identified as a significant aspect of DH's beginnings [Kirschenbaum 2010]. For example, the acceleration of publication in the late 19th century came with an increase in creating, disseminating, and utilizing recorded knowledge and an enhanced desire for new techniques such as documentation for managing the information deluge. Michael Buckland notes that the early term to denote the set of management techniques including collecting, standardizing, filing, classifying, copying, disseminating, and preserving documents was traditionally "bibliography" but became "documentation" in the early 20th century [Buckland 1997, 805]. As a result, *documentation* replaced *bibliography* as the term of practice to refer to "scholarly information services, records management, and archival work," and eventually, evolved into the more current terms "information science," "information storage and retrieval," and "information management" [Buckland 1997, 805].

Paul Otlet — whom Wikipedia calls the "father of information science" and Michael Buckland names "the most central figure in the development of Documentation"[4] — was of the first to argue for an expanded definition or identity for the document, one that expanded the notion of a document to include its situated context. For Otlet, who published his seminal text *Traité de documentation* in Brussels in 1934, documentation work comprised the act of observing and then recording facts in publications in order to make these facts an "integral part of knowledge" [Otlet 1990, 12]. In Otlet's definition of the document, however, he was also concerned with "social facts" which were groupings of documents, "the appraisal of which is valuable only in proportion to the number of elements which it takes into account" [Otlet 1990, 13]. In order to take these groupings into account, Otlet imagined "a system of cards that would allow one to make networks and to add to them: the creation of a kind of artificial brain by means of cards containing actual information or simply notes of references" [Otlet 1990, 17]. Imagining a singularly subjective process for managing the cards that rivaled processes as intricate and forward-looking as Vannevar Bush's Memex machine, Otlet realized that "judgments here [were] as complex as the matters judged" [Otlet 1990, 13]. A document could either be the publication or the multiple instantiations that make up the networked "social fact" or the relationship between documents. Much like the Barthesian *text*, which is defined as "a methodological field" in contrast to the *work* (described as "concrete, occupying a portion of book-space") [Barthes 1977, 157], Otlet's "social facts" are the field in which evidentiary *facts* (i.e., each unique publication) participate. Like genetic textual scholars, Otlet sought to document this social system in which documents circulated by using separate cards for both publications and the events and relationships that tied them, "thus allowing for all the manipulations of classification and continuous interfiling" [Otlet 1990, 18].

Later, in *Qu'est-ce que la documentation?*, Suzanne Briet [Briet 2006] defines the document as perceived and situated by those who participate in the system of its documentation. First, like Otlet, she seeks to expand the definition of *document* from fact or publication to anything that is identified as or perceived as evidentiary. Arguing that the document is always the result of the methods of documentation, Briet asks, "Is a star a document? Is a pebble rolled by a torrent a document? Is a living animal a document? No. But the photographs and the catalogues of stars, the stones in a

museum of mineralogy, and the animals cataloged and shown in a zoo, are documents" [Briet 2006, 1951]. Because the work of documentation is "a powerful means for the collectivization of knowledge and ideas" [Briet 2006, 31], Briet argues that the document is "intimately tied to the life of a team of workers or scientists or scholars," and because it can participate in a multitude of "industrial, commercial, administrative, teaching activity, etc." contexts, the content of documentation is necessarily "inter-documentary" [Briet 2006, 16].

Briet's way of defining the document is akin to the theoretical groundwork laid by D.F. McKenzie *The Sociology of Texts* [1999] and Jerome McGann's *A Critique of Modern Textual Criticism* [1983] for understanding the social nature of textual production. Both McKenzie and McGann argue for considering all aspects of a text's construction when determining its "textuality" — from its production, through its transmission, to its consumption by readers. In his Panizzi Lectures of 1985, McKenzie is concerned with "the roles of institutions and their complex structures in affecting the forms of social discourse, past and present" [McKenzie 1999, 15] and he thinks critically about these roles by identifying human roles in textuality including producer (author/editor) and transmitter (editor/printer/publisher) and consumer (reader/user). Like Briet's *document*, the *text* theorized by McKenzie and McGann is always constructed by a situated context that includes the invisible hands of editors, publishers, and book sellers among others.

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A familiarity with how text and document theories intersect is essential in understanding current thinking about the manner in which texts and documents are represented by information systems. More recently, Bernd Frohman discusses the *document* in relation to Jacques Derrida's *differance* [Derrida 1982] in a way that is particularly instructive for thinking about the work of DH infrastructure building. Arguing that documents are "different material kinds of temporally and spatially situated bundles of inscriptions embedded in specific kinds of cultural practices" [Frohmann 2004b, 396], Frohman asserts that the differences between social and natural-scientific facts are epistemological rather than ontological: "Differences lie in problems of revealing facts," he writes [Frohmann 2004, 77]. That is, Frohman argues that these facts are not essentially different since each is vulnerable to the fact that writing practices that are meant to reveal them or make them evidentiary actually help to "obscure an item of information's 'own identity'" [Frohmann 2004, 84]. In other words, what a situated individual would document on one of Otlet's cards is not representative of the essential or discrete nature of the fact that these documents represented that documenter's perspective. Accordingly, Frohman asks us to consider the human fault lines of Otlet's system: "What befalls the privileged order of facts when their signs are mechanically manipulated at will? Anyone's will?" [Frohmann 2004, 87].

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Frohman notes that a Derridean notion of iterability necessarily poses a problem for a system like Otlet's order of *facts* since every inter-documented and auxiliaried *fact* could bear the trace of an infinite number of situated networks. Frohman's perspective is much like John Bryant's who sees the textual event differently than social textual theorists and the geneticists by arguing that these camps measure process based on product where the work is always a "conceptual thing or actual set of things or even discrete events " [Bryant 2002, 61]. Just as Frohman describes the state or process of documentation as reflecting an "intensity" or a "force," an "energy that feeds this obsessive documentation" and "the drive to reveal facts" [Frohmann 2004, 84], Bryant suggests that the work is a "flow of energy," and that literary work is a "phenomenon . . . best conceived not as a produced work (oeuvre) but as work itself (travaille), the power of people and culture to create a text" [Bryant 2002, 61]. Further, Michael Witmore argues that "a text is a text because it is massively addressable at different levels of scale" [Witmore 2012, 325], and he imagines that "a hundred years from now, the available computational objects may be related to one another in new ways" [Witmore 2012, 326]. Texts will be defined by their *massively addressable* nature or the extent to which the reader can query (or address) the object at the level of the word, the phrase, the book, or at the level of a genre of works or networks such as those Otlet imagined a century ago. As such, the text's nature becomes its addressability, which would be defined by the system in which it is stored and through which it is retrieved [Witmore 2012, 326]. Texts will be defined by their *massively addressable* nature or the extent to which the reader can query (or address) the object at the level of the word, the phrase, the book, or at the level of a genre of works or networks such as those Otlet imagined a century ago. As such, the text's nature becomes its addressability, which would be defined by the system in which it is stored and through which it is retrieved [Witmore 2012, 326]. Specifically, knowledge production is manifested in the objects we create (sometimes with clay or words or paint, sometimes through identification or revelation) and choose to study, but this knowledge is put into action, is made interpretable by an interaction with information infrastructures or systems (such as the publication cycle, the creation

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and use of Otlet's cards, or the development of a database or interface). Like Briet, Frohman, and Witmore, John Bryant questions, "how shall the makers of the archive facilitate and delimit our ability to construct texts, editions, and knowledge?" [Bryant 2011, 167].

In other words, can we theorize an information system that can accommodate literary theories of *text* as well as information-based theories of the *document*? Certainly, there is a tension present in infrastructure that is built to serve conceptual *texts* or *documents* within a digital context that is equally concerned with delivering *information*. In communication theory from the beginning, *information* has been associated with uncertainty (a byproduct of the amount of noise in a signal) and the resolution of uncertainty instead of with a more connotative sense of knowledge. Indeed, the revolutionary aspect of Claude E. Shannon's 1948 piece "A Mathematical Theory of Communication," which is often considered the beginnings of information theory, was that he statistically positioned *noise* against *signal* to resolve "[t]he fundamental problem of communication . . . reproducing at one point either exactly or approximately a message selected at another point" [Shannon 1971, 31]. Shannon defined *information* as a function of the degree of uncertainty or the degree of entropy that is "produced when one message is chosen from the set" on the receiving end and that message is compared against the intended message from the information source [Shannon 1971, 31]. To explain very briefly, in Shannon's test scenario, the information source (e.g., the writer or the speaker) produces a message, which a transmitter encodes into a signal for transmission over the channel; the receiver then decodes the signals, thereby "reconstructing the message" for the "destination" or "the person (or thing) for whom the message was intended" [Shannon 1971, 34]. *Noise* in this schematic represents disturbances in the signal that create uncertainty as to whether or not the message that was received was the message sent. Consequently, there is more *information* when "the received signal is selected out of a more varied set than is the transmitted signal" [Weaver 1949, 19].

That *information* and information systems are situated social and cultural constructs, shaped by time and space is well-theorized in information and technology studies. Wilbur Schramm labeled the Shannon-Weaver communication model as the "bullet theory" in which communication was seen as a magic bullet that transferred knowledge from one mind to another [Schramm and Roberts 1971, 8]. Instead, Schramm defined information as "any content that reduces uncertainty or the number of alternative possibilities *in a situation*" [Schramm and Roberts 1971, 13]. The "message exists as a sign or a collection of signs with no meaning of their own except that which cultural learning enables a receiver to read into them" [Schramm and Roberts 1971, 15]. Michael Buckland maintains that information systems must operate on discrete entities ("what is handled and operated upon, what is stored and retrieved") or *information-as thing* [Buckland 1991, 352], but he is clear that this idea of information means situating textual and documentary theory in seemingly oppositional practical constraints: "information systems handle information only in a sense of information dismissed by leading theorists of information," Buckland writes [Buckland 1991, 358]. The same tension exists for humanists: When *text* is bits and bytes, how do we represent and consider and keep in transparent play the force and power of *differánce* that is of interest to DH scholars who work with *text* while also keeping in mind that the computer requires some level of classification, some "privileged order of facts" [Frohmann 2004, 87]?

This consideration for how we perceive the nature of *text* and *document* and how we interact with or move them through situated knowledge production systems creates an opportunity for critical inquiry into the situated contexts or the epistemic commitments that lie behind our practices in DH. This section attempts to demonstrate that *interdisciplinarity* is less productive as a technology that *un*situates us or removes us from a standpoint. Interdisciplinarity is most useful when it becomes a technology that affords our ability to better situate ourselves: to see how we see, from where we see, who is interpreting the field (and who is not), the limits to our vision, and what we see when what we see is situated in relation to other visions. Frederic Jameson reminds us that "all truths are at best momentary, situational, and marked by a history in the process of change and transformation" [Jameson 2009, 403]. A feminist perspective encourages us to responsibly embrace that portion of reality that concerns us (to situate ourselves) even as we change and transform with the realization that (a) we cannot step outside of our perspective, and (b) in the attempt to do so, we step outside the mode of intellectual rigor needed to influence our position as subject and agent. Thus, *situatedness* within a discipline reveals important factors that inspire critical differentiation and, necessarily, action. This very brief history about the mutual concerns within fields that are theorizing *textuality* and *documentation* reveals ties between literary textual studies and information studies that I will consider in the next two sections with more specific examples.

III. The Technology of Mastery and Plausibility

The Technology of Mastery

A feminist perspective based on *situated* knowledges teaches us that perspectives that seek to liberate us from the obstacles that difficulties impose often result in blinding us from the opportunities that difficulties illuminate. In digital humanities, *the technology of mastering technology* has been considered a productive means of combatting what is considered the general "degree of ignorance about information technology and its critical relevance to humanities education and scholarship" [McGann 2005, 71]. Even if one does not code, the argument goes, one should be well-versed in digital method, in project management, in data visualization and so forth. "I've spent almost twenty years," Jerome McGann writes, "studying this subject in the only way that gives one a chance of mastering it. That is, by hands-on collaborative interdisciplinary work"; likening the mastery of technology to language acquisition, McGann continues, "You learn it by speaking it and writing it. There's no other way. Anything less is just, well, theoretical" [McGann 2005, 71]. At the same time, there has been much debate in DH about whether designing and building tools gives one an indispensable knowledge of its processes and whether or not women and people of color (and others) are precluded from these activities for a variety of very real and very situated reasons. In this sense, the rhetoric of "mastery" over technology can be intellectually prohibitive since it threatens an advancement of knowledge production from other perspectives. Indeed, in McCarty's paradigm, the unsituated DH practitioner is "liberate[d] from the censure of difficulty and so allow[ed]. . . to go in heretofore forbidding directions" [McCarty 2005, 128]; in McCarty's paradigm, the DH practitioner and the scholar take "the standpoint of the master, the Man, the One God, whose Eye produces, appropriates and orders all difference" [Haraway 1988, 587]. We are blinded so we may see.

In contrast, literary texts have a history of inspiring us to let go of the desire for single-eyed mastery. "All literature is to some extent aware of itself as a technology," Richard Poirier writes. "But literary modernism thrusts this awareness upon us and to an unprecedented degree asks us to experience the enormous difficulties of mastering a technology" [Poirier 1992, 113]. Megan Simpson argues that Gertrude Stein's "writing challenges not only normative reading habits but the literary 'values' such habits depend on: clarity, unproblematized reference, linearity, decodable meaning," that "those who find Stein's work to be quite readable not in spite of, but because of the absence of these qualities seem to feel liberated from the imperative toward mastery implicit in the traditional model of literary interpretation" [Simpson 2000, 46]. Stein replaces these with what DeKoven describes as "anti-patriarchal" modes that are "incoherent, open-ended, anarchic, irreducibly multiple, and focused on what Barthes calls 'the magic of the signifier'" [DeKoven 1983, xiii]. The Baroness Elsa von Freytag-Loringhoven is another example of a female poet whose work seemed to embody a defiance for mastery. Her biographer Irene Gammel places much emphasis on Freytag-Loringhoven's ability to put herself "in control" by "putting her spectators at a distance," which is accomplished by the manner in which she "deflates the potential eroticism" of her nude performances "through humorous costuming: vegetables adorn her body; stamps decorate her painted face; her hair is shaved and head lacquered in a striking color" [Gammel 1999, 52]. As well, the bawdy humor and the vulgarities in her poetry and work had an equally disarming effect. William Carlos Williams once wrote: "Elsa von Freytag-Loringhoven came to me as sunlight. I drank pure helicon of her. But she revolted me, frightened me, beat me finally " [Little Review Records]. Literary theory has emphasized the perspective that literary texts produce knowledge to the extent that they resist simple evaluative resolutions.[5] Certainly, the DH practitioner working with experimental literary texts[6] may not "steer clear of political and professional questions" as Willard McCarty proposes [McCarty 2005] without rendering mute essential aspects of experimentation and difficulty.

Plausibility

The feminist notion of *plausibility* helps us understand how an interpretive environment can foster values that concern responsibility rather than mastery. Mary Hawkesworth describes this notion of plausibility in science as the result of disbanding "'the myth of the given'":

> Once the "myth of the given" [Sellars 1963, 164] has been abandoned and once the belief that the absence of one invariant empirical test for the truth of a theory implies the absence of all criteria for evaluative judgment has been repudiated, then it is possible to recognize the rational grounds for

assessing the merits of alternative theoretical interpretations . . . the stimuli that trigger interpretation *limit the class of plausible characterizations* without dictating one absolute description. [Hawkesworth 2006, 48–49]

Accordingly, like literary histories and texts that seem to defy singular readings and to demand alternative and alternating theoretical interpretations, DH information infrastructure should be valued by the extent to which it offers a means by which *plausible* interpretive standpoints, framed by critical (that is responsible and intellectual) judgments, can be expressed. This feminist sense of objectivity, which does not offer authoritative techniques or guarantee the production of truth, is useful when developing systems that are both computational (of bits and bytes) and used to facilitate complex, humanist critical inquiries.

Here again, an epistemic tie with information science is revealed in the extent to which many information science and technology studies scholars have grappled with the nature of plausibility in situated information systems.[7] In particular, Melanie Feinberg has identified rhetorical mechanisms in information systems that help us think critically about how information systems reflect logical argument [Feinberg 2010], ethos [Feinberg 2009b], and genre adaptation [Feinberg 2009a]. What is particularly powerful about Feinberg's overarching question within the context of DH scholarly information infrastructure is her suggestion that a system's "persuasiveness" or value is not based on the extent to which it creates "truth" but rather on the extent to which the system entices the audience to explore the ways the system "contribute[s] to the reader's own evolving interpretation of the domain of the scheme" [Feinberg 2010, 509] — or the reader's own sense of the plausibility of an interpretation given the nature of the interpretive environment. Like Haraway's suggestion that we examine the episteme of technologies through ways and practices, Bernd Frohman proposes "descriptions of documentary practices" [Frohmann 2004b, 16] that can help us identify the field of the plausible. In particular, he notes four properties for characterizing documentary practices that help us articulate how the development of a system shapes plausibility: that is, documentary practices are fundamentally (1) material; (2) institutionalized; (3) dependent on socializations such as "training, teaching, correction, and other disciplinary measures"; and (4) historicized or of a particular time and place [Frohmann 2004b, 396]. To demonstrate, in this section, I discuss how these four properties impact the field of plausible interpretations in an electronic edition of poetry by Elsa von Freytag-Loringhoven (1874-1927) that I developed and co-edited with Gaby Divay called "The Firstling/Erstling/He Complex" [von Freytag-Loringhoven 2012] [8].

"The Firstling/Erstling/He Complex" represents an open-source collaboration that seeks to represent a poem by Freytag-Loringhoven. This "complex" poem is a cluster of works (one text in the Barthesian sense) that includes thirty-three versions of a poem in two languages by Freytag Loringhoven. The entire cluster can be dated between 1923 and 1924 when the poet had just returned to Berlin after twelve years in the United States. About one third of the poems are in German and tend to be composed in a more traditional form and style. Two thirds are in English. As this versioned edition shows, Freytag Loringhoven did not simply translate this poem. She rewrote her poem over time using the two languages to embody adaptations or re-creations that reflected her changing geography, economic status, love experiences, and poetic philosophies.[9] Indeed, in Freytag-Loringhoven studies, there are a variety of materials to consider and languages and disciplines from which to approach her work. She was a published poet, a street performer, and an artist. She published in German and in English and she lived in Germany, the United States, and France.

Material

Freytag-Loringhoven's work corresponds to Raymond Williams's assertion that language in modernist writing is "more evident as a medium — a medium that could be shaped and reshaped — than as a social custom" [von Freytag-Loringhoven 2012, 46]. For example, in a selection of letters written to Djuna Barnes after her return to Germany in 1923, Freytag-Loringhoven re-examines her relationship to both American and German cultures through the manifestation of English and German in her writing:

> I know why I beg! I ask for my soul's honour, mental activity. I only move in English sounds. I am homesick for English language, my ear declines, my taste nauseated by German sound — and yet I lose my facility in English, words come not easy, sometimes meaning is doubtful, new expressions

do not present themselves. As much as I read English, it is not alive — living, because I am not, hence no fluctuation, instigation — creation . . . must again dream in English . . . I am left drifting old wreck — no I cannot — I cannot — I cannot, I am too proud!

I cannot stand the Germans, I cannot stand their language. I am traitor here! [von Freytag-Loringhoven 1928, 20]

Here, Freytag-Loringhoven's body is language. When her English is dead, she is physically stilted. When she speaks German, she is physically sick. She laments her loss of English as if she were a painter who had lost use of her fingers or a dancer unable to walk. In concert with Williams's assertion that modernists who were (or interacted with) immigrants perceived language not "in the old sense, customary and naturalized but in many ways arbitrary and conventional" [Williams 1996, 45–46], Freytag-Loringhoven experienced language as a synaesthete might — she "move[d] in English sound," her "taste nauseated by German sound." Language for Freytag-Loringhoven was a significant element of what she considered her naturalized identity. As a result, language functions as an essential aspect of provocation within her Dadaist project — she used linguistic codes as experimental tools for play. Understanding her lived presence and the posthumous literary productions surrounding that presence has become an important aspect of understanding her poetry, her performances, and her impact on literary studies. Given the material of this poem, however, an information infrastructure that facilitates access to the element of language play that Williams identifies provides for a variety of plausible perspectives.

Institutionalization

Julia Flanders considers subjectivity ("our own readerly motivations") as one aspect of humanist inquiry that standardized encoding practices tend to disregard due to precedents set by institutional-level (libraries and commercial industry) projects, which sought to represent texts from an unbiased standpoint [Flanders 2005, 58]. The digital files in the "The Firstling/Erstling/He Complex" edition comprise one file that has been encoded according to the XML (Extensible Markup Language) standard outlined in the Text Encoding Initiative's (TEI) P5 Guidelines. The TEI Guidelines, while restrictive in some senses, are reflexive in their awareness that such encoding makes "explicit an interpretation of a text."[10] XML (Extended Mark-up Language), like HTML, is a subset of SGML (Standard Generalized Mark-up Language). XML includes mark-up that describes more conceptual notions text, not just how it appears on the browser page — the primary function of HTML. For example, in the following excerpt, a line group `<lg>` and the lines `<l>` within it are "marked-up" or "tagged" with the poet's additions `<add>` and deletions `<del>`:

```
<head>Firstling</head>

<lg>

<l>Love — </l>

<l><del>Came</del> <add>SHONE </add> </l>

<l><del>Tore</del> <add>CLIPPED</add></l>

<l>Past</l>

</lg>
```

Example 1.

This work facilitates incorporating Freytag-Loringhoven's texts into an environment that has the theoretical potential to provide access to her language play and her social networks as well, which was our primary goal in providing access to her poetic work. To this end, I encoded the XML file using the parallel segmentation and location-referenced encoding described in the P5 Guidelines in order to make explicit our interpretations of the complex web of relationships across the changes represented in the thirty-three versions of the text (which manifest across twenty-two, full color,

documentary images of the manuscript pages).[11] We encoded the transcriptions with meta-text or "annotation or other marks within a text," and we used Versioning Machine[12] scripts to transform the XML file into an HTML file that becomes a web interface. Using this interface, readers can see the relationships we have marked across this poetic event while also allowing them to manipulate comparisons (see To be sufficiently and coherently critical in DH, technologies should be developed and used within a culture that is not only critically self-aware about the uses to which technologies are employed but also how that employment has been situated by the epistemic commitments of the people behind these technologies and to what effect. For example, notwithstanding its virtues, encoding with a standard such as the TEI can be extremely frustrating for editors attempting to realize abstract texts. As McGann points out, the TEI has adopted "a markup practice — a linguistic and paper-based approach — that is at odds with the theoretical opportunities that have been opened up by electronic textuality, where the limits of the codex are surpassed"; this frustration, he and others complain, results from the TEI incorporating hierarchies that "misimagine the relation of electronic to paper-based textuality" [McGann 1996]. For better or worse, these hierarchies represent the artifacts of working with computational models. On the other hand, other opportunities for new knowledge are possible with TEI encoding.

Figure 1. The Firstling/Erstling/He Complex interface using the Versioning Machine 4.0

Socialization

Situating our critical perspectives and employing a feminist notion of objective practices that seeks to facilitate plausible readings positions us to realize that systems of representation, whether digital or not, are subjective, abstract models that we build to reflect our situations. This realization should encourage us to work towards imagining alternative uses for encodings that motivate readers to think differently and critically, encodings that are not dismantled by a desire for objectivity and thus mastery over *truth*. Flanders, for example, adopts the vision metaphor to emphasize and make transparent the subjective aspect of editorial practices within TEI XML encoding. "By shifting our view," she writes, "we can understand XML as a way of expressing perspectival understandings of the text: not as a way of capturing what is timeless and essential, but as a way of inscribing our own changeable will on the text" and the "strategic positioning of our own readerly motivations" [Flanders 2005, 58].

For example, starting with manuscripts of two traditionally crafted German poems in twelve versions ("Erstling" and "Erste Lieb"), we show that Freytag-Loringhoven also develops two branches of English poems ("Firstling" and "First Love") in this edition.[13] An example of the predominant "Erstling/Firstling" variants appear together in versions 3.1 and 3.2, while the other strain of variants evolve from "Erste Liebe/First Love" into the less well represented "He" poems, making the The Firstling/Erstling/He Complex of the title. In particular, the works in this edition show that Freytag-

Loringhoven used translation as a technique to express her perspectives (and to play with these expressions) on both German and American cultures and languages. Note 5.3 verso explains Freytag-Loringhoven's perspective on at least one evolving theme: Freytag-Loringhoven tells Djuna Barnes (to whom she has sent this poem in a letter) that the German "Erstling" (3.1) was "touching and naiv [sic]," and the English "Firstling" (3.2) "bitter and grim." Further, the puns Freytag-Loringhoven derives from the name of her supposed once-lover Ernst Hardt (1876-1947) provide for one example of the sense of cross-language play in the poems. Titles such as "Firstling" (version 1.1), "First Love" (version 8.3), "First Born" (version 9.5), "Erstling" (version 3.1), "He" (version 4.2), and "Liebe" (version 10), indicate that the poems are referring to this first love (three versions of which are shown in Figure 1. The English versions 8.3 and 11, have the title "First Love" for "He," but the first part of the word "Erste" (or "First" in German) is also "Er" or "He" in English. Inserting an "n" after "Er" results in "Ernste Lieb" or "Serious Love," which contains Hardt's given name "Ernst" and corresponds to the basic, non-inflected form of the German adjective "ernst" or "earnest." The playful use of the word "wart" as an image for "heart" is another example of translating feelings with translating words as Freytag-Loringhoven indicates in her note to Barnes on version 1.3: "'He' and 'Firstling,'" she writes, "These two poems are same. I leave it to you – if you will print both? With that 'Flayed Heart -/Froze - - - -.' I consider it singular strong enough – to countenance the shriveling of the heart to the semblance and useless appendix of the heart." Allowing the reader to navigate our marked associations is an affordance of the electronic edition and an invitation consider a variety of shifting vantage points and plausible readings.

Historicization

Certainly, multimedia aspects of Freytag-Loringhoven's poetry represented by versions, images, and even encoded text are not new to editorial work or even to digital editorial work. As well, these vantage points I describe above are, in some sense "hard coded" into the edition by the mark up I used to create the edition. Yet, scholars who reflect the TEI community's intentions for increasing interpretive affordances continue to theorize how XML markup can be made more flexible. It is in the mode of "shifting vantage points" which elucidate "shifting relationships" that Alan Renear and David Dubin continue to consider representations of the "document" in projects such as the BECHAMEL XML Semantics Project. Renear and Dubin seek to theorize the "identity," "criteria," or "individuation" conditions of documents as a "method for determining whether an object x and an object y are the same object" [Renear 2003, 1]. Such differentiation in an information system is key for identifying and reidentifying, counting, and distinguishing entities. Their specific, situated, readerly motivations similarly affect their definitions: "by document," the authors write, "then we refer to the abstract symbolic expression which may be physically instantiated repeatedly and in various media. This use corresponds more or less to the FRBR term 'expression' [17] and has the colloquial synonym 'text'" [Renear 2003, 1]. Their goal is to allow for a way to conceptualize overlapping elements, to move away from the representation of text as structure to the representation of text as concept, a movement toward further abstraction. The authors write, "data structures don't have *paragraphs*, they have nodes labeled 'p'; documents don't have nodes labeled 'p', they have *paragraphs*" [Renear 2003, 5]. As a result, rather than using the syntactical relationships in XML DTDs, their strategy is to enable the determination of semantic relationships where "semantics simply means the basic facts and relationships that are represented by the occurrence of XML constructs" [Renear 2003, 5]. The authors argue that using this kind of semantic markup system means that "similarities and partial identities of various kinds" can be identified.

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What is unique about Freytag-Loringhoven, what makes her poetry texts difficult to access through traditional and new practices of literary analysis in information systems pertains to the temporal and spatial nature of language play that was so essential to the field of plausible meaning-making engaged by her poetry [Clement 2011]. Certainly, the ability to incorporate editorial subjectivity, audience collaboration, and a sense of her evolving use of language into the encoding that comprises Freytag-Loringhoven's poetry reframes what can be considered a plausible reading of her poetry. Considering these four properties (material, institutionalization, socialization, and historicization) for characterizing documentary practices in a system helps us articulate how the situated development of the system rather than the mastery of a technology shapes that field of plausible interpretations.

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III. Technologies of Self-Consciousness and Responsibility

The Technology of Self-Consciousness

The technology *of self-consciousness* in the humanities is very powerful. Geoffrey Harpham sums up "traditional rationales for humanistic study" as "[t]he scholarly study of documents and artifacts produced by human beings in the past [which] enables us to see the world from different points of view so that we may better understand ourselves" [Harpham 2005, 23]. He argues for complicating an element of "uncertainty," which "solicits its own revision in an endless process of refutation, contestation, and modification" [Harpham 2005, 30]. Because "it solicits its own revision," Harpham notes, knowledge in the humanities is produced by "being aware" [Harpham 2005, 30] or "self-understanding" [Harpham 2005, 23]. Humanists continue to ask, Who are we? What do we *do*?

The most recent spate of debates about how we become answerable to what we do in the humanities occurred at the turn into the new millennium when the debate over the "crisis" in the humanities sparked a firestorm of conferences, talks, presentations, articles, chapters and special journal issues by many humanist scholars seeking to define what humanists do as a reflection of the epistemological "superstructure" [McGann 2005] that considers why, as a culture, we should value the humanities. Sander Gilman, for example, clarifies self-understanding specifically as "the self conscious awareness of the methodological approaches that one uses" or an awareness of process [Gilman 2012, 384]. Louis Menand also identifies self-aware processes as the defining technology for humanistic knowledge production by arguing that in "developing tools for understanding ourselves" and "everything in the world of values" [Menand 2005, 15] — what Latour calls "states of affairs" [Latour 2004, 232] — humanists are instantiating "the fact of situatedness" and ultimately a necessary skepticism to objectivity [Menand 2005, 15].

Similarly, it would be remiss to posit that *self-conscious* processes are absent from DH discussions. One does not have to look further than John Unsworth's consideration of "the importance of failure" [Unsworth 1997] for evaluating digital methods, Willard McCarty's notion of a "*via negative*" or a "negative way" to knowledge in which we probe "failures" through an iterative, trial-and-error process [McCarty 2005, 39–41], Julia Flander's "productive unease" [Flanders 2009], and, of course, Smith's "technology of self-consciousness" [Smith 2005] to see evidence of the fact that DH scholars have been thinking critically about how self-consciousness is manifested in DH method.

Specifically, DH has advanced its work as new ways of asking about the very nature of traditional humanist knowledge production. Willard McCarty wrote *Humanities Computing*, for instance, as an attempt to articulate DH as a dynamic, "new form of traditional scholarly practice" [McCarty 2005, 6] that seeks to identify and explore the practice and form of digital inquiry as it relates to traditional methods and modes of knowledge production in the humanities [McCarty 2005, 220]. He notes that computing humanists use self-aware practices such as conceptual modeling, which emphasizes the scholar's search for "genuineness" as measured by her interpretive standpoint. Calling computational models "temporary states in a process of coming to know rather than fixed structures of knowledge" [McCarty 2005, 26–27], McCarty explains the nature of self-consciousness in working with computational models:

> Compromises made in how a problem is formulated, the perspective chosen, the components and relations defined and the model constructed from them sum together into a result that in general is impossible to validate in any absolute sense against the real-world object. For the humanities the only possibility is comparison between the result and the scholar's own interpretation, hence the privileging of that interpretation from the beginning. [McCarty 2005, 198]

As such, McCarty, and others [Bradley 2003, 187] posit modeling as the most rigorous method of analysis as it encourages an engagement with the processes of knowledge production as opposed to its product.

On the other hand, it seems that one of the greatest complaints concerning digital humanities work is not, as some have argued, the lack of self-consciousness critiques about the humanities that have long been the purview of the humanities, but rather the lack of self-conscious critiques about the information infrastructure that affords these critiques. Christine Borgmann, among others, calls for "a social studies of the digital humanities"; she asks, "Why is no one following digital humanities scholars around to understand their practices, in the way that scientists have been studied for the last several decades?" [Borgman 2009]. More recently, Don Waters invoked this divide between practices in the sciences and the humanities by discussing a piece by Steve Nichols entitled "The Anxiety of Irrelevance: Digital Humanities and Contemporary Literary Theory" in which Nichols, in turn, seems to recapitulate C.P.

Snow's "two cultures" argument [1959]. Nichols argues that while engineers and computer scientists ask "*How* possible" questions (or "investigations that seek to describe, explain, control, or predict material things"), humanists ask inherently divergent "*Why* possible" questions based on critical intelligences [Nichols 2013, 9]. These critical intelligences entail "distinguishing what is 'real' or 'given' from what our process of thinking about the object contributes to our cognition of the thing" [Nichols 2013, 6]. In short, or, in the words of Waters (who is, in turn, paraphrasing Nichols), critical intelligence comprises an emphasis on "objects of study in the humanities [that] are characterized by 'contingency' and 'irony' rather than truth or falsity" [Waters 2013, 5]. While Nichols disregards the possibility of a transdisciplinary digital humanities based on the premise that *How* and *Why* questions are incompatible, Waters (like Borgman) uses Nichols's argument to encourage more crossover between the sciences and the humanities in order to better understand "the disciplined methods and tools associated with the application of critical intelligence in various kinds of humanistic research" [Waters 2013, 5–6] that comprise DH projects.

39 In contrast to this perspective, rigorous DH scholarship demonstrates that opportunities for critical work are foreshortened when the value of DH is measured by its potential to produce tools that simply validate pre-existing theoretical suppositions, rather than DH's potential to help question these regimes of theory. As McCarty has argued, "all meaningful uses of computing are heuristic, and therefore that mere 'delivery' is dangerously misleading" [McCarty 2005, 6]. Others have written critically about objective versus subjective DH method [Drucker 2011], the mind over body divide [Hayles 1999], and the fact that the technologies of access in DH can reify the canon [Earhart 2012]. Most recently, the National Endowment for the Humanities' Office of Digital Humanities has changed its start-up grant description, which has historically been an important funding resource for supporting a generation of new DH tools and method to include developing new technologies of self-consciousness including "scholarship that focuses on the history, criticism, and philosophy of digital culture and its impact on society" [NEH Grant Guidelines]. So too I have shown here that infrastructural developments reflect pre-existing epistemologies about *truth* and *objectivity* than can shape the knowledge-production that is facilitated by systems. I have demonstrated how grounding digital humanities in work being discussed within information studies affords a perspective that allows us to see that information systems are themselves situated within ways of practice that shape our understanding of the plausibility of certain interpretative standpoints – regardless of whether or not the objects of study are literary texts or not.

40 At the same time, while DH has proclaimed and demonstrated (as I have done here) a self-conscious awareness of process, a sense pervades that this focus on self-conscious method reflects an unproductive tendency to view digital humanities as a partial fix for an epistemological and ontological stasis in the humanities. For Julia Flanders, this tendency is "confusing: it is vague, utopian, and self-contradictory . . . The rhetoric of digital changes exists, for the academy, as a way of producing a new narrative of progress which generates research, and a rhetoric of transformation that can carry the self-critique that is built into academic life" [Flanders 2009, 125–126]. In other words, while measuring a research method's value by how well it facilitates our ability to think critically about our own interpretations is valuable, this focus seems positioned for the sake of self - consciousness itself — as such, it becomes a *technology of self-consciousness* that serves as a means to accomplish self-critique. A feminist standpoint reminds us that while it is not enough to say that DH should employ self-conscious methods, it is equally insufficient to merely be self-conscious about methods, even when this work is still necessary.

41 A position shaped by feminist inquiry means understanding that it is our responsibility to ask if it is possible to use DH work (in this case, the development of information infrastructure) for emancipatory ends – a question I am situating within the context of this discussion as an information science question in DH feminism. In keeping with this disciplinary viewpoint and to conclude this section, therefore, I will end by sharing examples of information infrastructure development in DH that reflect the sense of *responsibility* DH must engage to go beyond the technology of self-consciousness toward actions for change.

Responsibility and Located Accountability in DH

42 The questions that Lucy Suchman posits as a kind of checklist for "located accountability" represent an extremely productive means for making more transparent how we can be responsible for the kinds of work practices that our developing information systems engender. "Working relations," Suchman writes, "are understood as sociomaterial

connections that sustain the visible and invisible work required to construct coherent technologies and put them into use" [Suchman 2002, 1]. Suchman, who describes that for which we are accountable or responsible as a reframing of "the locus of objectivity from an established body of knowledge not produced or owned by anyone, to knowledges in dynamic production, reproduction and transformation" [Suchman 2002, 2], poses some questions for evaluating the manner in which system production relates to system use that are particularly useful for disentangling work in DH that reflects activist progress based on humanist inquiry. Below, I have posed her questions [Suchman 2002, 10] to introduce some observations about areas in DH where we are making great strides in critical actions toward emancipatory ends:

1. *Recognizing the various forms of visible and invisible work that make up the production/use of technical systems, locating ourselves within that extended web of connections, and taking responsibility for our participation.* The #altac or alternative career movement, shepherded by Bethany Nowviskie and popularized on Twitter has done phenomenal work in making the invisible hands of "alternative academics" or non-tenure track staff and faculty part of a now common parlance for attributing credit broadly across many digital humanities projects [Nowviskie 2011]. As a result, professional organizations such as the Modernist Language Association and the American Historical Association have sponsored #altac panels and have published guidelines on evaluating digital humanities projects as scholarly work. Further, to set this conversation in context, "Evaluating Digital Scholarship" [Schreibman 2011] was published in the MLA journal in *Profession* (2011) to delineate the difficulties of assessing aspects of digital scholarship. These difficulties include the fact that "the creation of digital infrastructure for scholarly inquiry relies on the traditions of scholarly editing, bibliography, and philology long relegated to second-class status" in the academy [Schreibman 2011, 125]. This movement not only serves to professionalize graduate students for a wider range of professional careers outside of the academy, it also serves to provide a platform for more conversations about the work of humanist inquiry and the role that information infrastructure must play in the academy in the digital age.

2. *Understanding technology use as the recontextualization of technologies designed at greater or lesser distances in some local site of practice.* Jay David Bolter and Richard Grusin's *Remediation* [1999], Wendy Chun's *Programmed Visions* [2013], Lisa Gittelman's *Always Already New: Media, History, and the Data of Culture* [2008], and Matt Kirschenbaum's *New Media and the Forensic Imagination* [2008], Lev Manovich's *Software Takes Command* [2013], and Johnathon Sterne's *MP3: The Meaning of a Format* [2012] are just a few of the seminal texts in digital humanities that have been essential in identifying historical, social and cultural contexts behind text, images, and sound that affect our current practices of building and imagining digital humanities infrastructure. These texts form a platform off of which more work must be done to articulate not only the new media technologies that shape how we perceive and build information systems but the humanist technologies that also influence (and have always influenced) these practices.

3. *Acknowledging and accepting the limited power of any actors or artifacts to control technology production/use.* Continued conversations concerning Open Access Scholarship and online education are other areas of deep concern to professional DH organizations. The digital humanities community has been particularly keen on advocating for open access with the ODH requiring open-source software and the community developing a variety of open-access, peer-reviewed journals (*Digital Humanities Quarterly* and *Digital Studies / Le champ numérique)* as well as publishing a slew of seminal texts in open-access book venues [[Earhart 2010]; [Nowviskie 2011]; [Gold 2012]; [Hirsch 2012] to name a few]. Further, the ACH (Association for Computing in the Humanities) has gone to great lengths to help support open access and fair use in DH by joining the DH community in filing two amicus briefs in lawsuits related to digitization of in-copyright and orphaned works in the Google Books and HathiTrust corpora. Spearheaded by Matthew Jockers, Matthew Sag, and Jason Schultz on behalf of the DH community, the briefs describe "how DH scholars employ innovative data-mining techniques in ways consistent with fair use, and how scholarship could be held back if this kind of research is not well supported by the courts."[14] As of October 11, 2012, based in part on the evidence from these briefs, the United States district court ruled favorably for continued fair use in digital research.

4. *Establishing new bases for technology integration, not in universal languages, but in partial translations.*

This notion, that technological integration can never be universal, that some voices are and will always be excluded, is crucial for understanding this recommendation in terms of DH movements that seek to include multiple perspectives in DH. Virtual communities such as NITLE (National Institute for Technology in Liberal Education), HASTAC (Humanities, Arts, Science, and Technology Advanced Collaboratory), and DHCommons as well as the DH Training Network[15] institutes have provided essential virtual and real networking spaces for students, emerging and experienced scholars to become familiar with the theories and technologies of DH. Other grassroots movements have included THATCamps[16] which are locally organized *un*conferences where participants gather at low costs to familiarize and deepen their understanding of DH debates and practices. Further, ADHO (Alliance of Digital Humanities Organizations) — which has recently expanded to include the Australasian Association for Digital Humanities (aaDH) and the Japanese Association for Digital Humanities (JADH) — has developed a "Conference Code of Conduct" [2013] in the tradition of code4lib, the American Library Association, the Digital Library Federation, and the Association for Computing Machinery, which lays out principles to encourage "a welcoming conference environment that respects personal, cultural, and linguistic differences."[17] Further, groups such as Accessible Future (link: http://www.accessiblefuture.org/), Postcolonial Digital Humanities (link: http://dhpoco.org/), and Transformative Digital Humanities (link: http://transformdh.org/) seek to include voices in DH from communities that have not been well represented. Finally, DH continues to see a surge of interest and activity around the world from groups such as the Red de Humanidades Digitales (RedHD) (link: http://humanidadesdigitales.net/) and new centers in Brazil, India, Israel, and South Africa (link: http://www.dhcenternet.org/).

5. *Valuing heterogeneity in technical systems, achieved through practices of artful integration, over homogeneity and domination*. With multiple grant categories that support increasing access through digitization to supporting training and research institutes to funding advanced method and tools and international collaborations, very few entities have made as great an impact in their attempt to diversify the thinking and the work of DH than the Office of Digital Humanities at the National Endowment for the Humanities or the Andrew W. Mellon Foundation which has repeatedly supported projects for change in research, scholarship, and teaching. Don Waters sees the road ahead (situated in terms of what Mellon is already and would, in the future, like to fund) leading into six areas: (1) institutional infrastructure development that serves expressed scholarly needs; (2) digital media preservation; (3) tools and infrastructure that span the three primary areas of work in digital humanities (i.e., textual, spatial, and visual analysis) such as annotation, named entity identification, and prosopographies; (4) more tools that facilitate analysis in visual, spatial, and audio as well as areas outside the three areas mentioned above; (5) a better understanding of scholarly needs in publishing and curation and the necessary infrastructural capacities in cultural and academic organizations for such work; (6) training for scholars and students to understand and engage imaginatively in tool-based modes of intellectual pursuits is a further imperative [Waters 2013].

To conclude, these are just a few examples of areas of information infrastructure development projects in DH that directly relate to the emancipatory design goals outlined by Suchman. As Haraway has written, "We need the power of modern critical theories of how meanings and bodies get made, not in order to deny meanings and bodies, but in order to build meanings and bodies that have a chance for life" [Haraway 1988, 580]. Using feminist inquiry to understand the nature of information science questions within digital humanities helps us to articulate how we might fulfill our responsibility to become answerable to how information infrastructure impacts meaning-making in the humanities as well as action in the digital humanities.

Notes

[1] Willard McCarty proposes twenty-two fields in the "Methodological Commons" of DH [McCarty 2005, 131].

[2] While Marjorie Perloff distinguishes between what she considers the imprecise 18th century term *literature* and the term *poetics* — which she claims has a "much more ancient and cross-cultural lineage" [Perloff 2004, 6]—McCarty also uses the term *poetic* to refer to the ergodic nature of literary language [Perloff 2004, 5].

[3] Terms that McGann employs in *A Critique of Modern Textual Criticism* [McGann 1983].

[4] "Michael Buckland's Paul Otlet Page" people.ischool.berkeley.edu/~bucklandotlet.html, Accessed December 14, 2012.

[5] Two very interesting studies about the history of "difficulty" in literary study are Diepeveen 2003 and Poirier 1992.

[6] For more on the political nature of experimental literature by women see DeKoven 2006 1694.

[7] [Bowker and Star 1999]; [Bardzell and Bardzell 2011]; [Berg 1998]; [Carter 2006]; [Ensmenger 2010]; [Feinberg 2007]; [Feinberg 2009a]; [Feinberg 2009b]; [Feinberg 2010]; [Oudshoorn et al. 2004]; and [Wajcman 2007] to name a few.

[8] This edition is available online at http://www.scholarlyediting.org/2012/editions/baroness/main.baroness.html.

[9] Please see http://www.scholarlyediting.org/2012/editions/baroness/main.baroness.html.

[10] Please see http://www.tei-c.org/P4X/SG.html.

[11] All of the versions represented here are based on images created at the University of Maryland (UM), College Park, Libraries, where the original manuscripts reside in the Papers of Elsa von Freytag-Loringhoven (http://hdl.handle.net/1903.1/1501) in the Library's Literary Manuscripts Collection.

[12] Please see http://vmachine.org.

[13] The explanation that follows is best experienced by the reader by working through the edition itself which has been published online [von Freytag-Loringhoven 2012] at http://www.scholarlyediting.org/2012/editions/baroness/main.baroness.html. Each of the version numbers can be located at this publication.

[14] Please see http://www.ach.org/ach-advocacy-news.

[15] The Training Network includes the following international training institutes: DHSI at the University of Victoria, DH@Oxford at Oxford University, DH@Leipzig at Leipzig University, DHWI at the University of Maryland, College Park, DH@Bern at the University of Bern, and Brown at Brown University.

[16] Please see http://thatcamp.org/.

[17] Please see http://adho.org/administration/conference-coordinating-program-committee/adho-conference-code-conduct.

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