

THE CONVERGENCE OF DIGITAL LITERATURE AND NET ART: NETWORKED CREATION,  
DISTRIBUTION, AND OPERATION

BY

KYLE JON BICKOFF

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Professor Lori Emerson

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Professor Mark Amerika

Date \_\_\_\_\_

*The final copy of this thesis has been examined by the signatories, and we  
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Bickoff, Kyle Jon (M.A English)

The Convergence of Digital Literature and Net Art: Networked Creation, Distribution, and Operation

Thesis directed by Assistant Professor Lori Emerson

This thesis draws upon established network theory in order to understand digital literature and net art through their creation, distribution, and operation on the *network*. Although the advent of the web is often considered the defining point of transformation in both genres, the thesis indicates that the network language at the foundation of these genres existed notably earlier than has previously been indicated—before the advent of the web. These two genres (digital literature and net art) are described as convergent forms, merging with each other around networked language—the author takes a digital media studies approach to engage with the investigation. The thesis identifies multiple instances of networked language in textually rich pre-web works of literature and art to indicate that this genre convergence precedes current assessments regarding network influenced creation, distribution, and operation of these works.

The thesis critically engages most closely with theorists Latour, Hardt, Negri, Castells, Foucault, Deleuze, Kittler, Galloway, Manovich, and Kirschenbaum to defend its assertions.

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### *Introduction*

In this thesis, I draw upon the work of Bruno Latour, Manuel Castells, Winfried Nöth, Michael Hardt, Antonio Negri, and their work on network theory in order to frame a certain strain of digital literature and net art which uses networks in their creation, distribution, and operation. The electronic networks enabling the present and continual production of these forms in an information society prompt the current convergence of form between digital literature and net art.<sup>1</sup> Although the rise of the network appears to indicate the transformation of these forms, I evidence that in fact, influence of the network, network language, and network communication is indicated notably earlier than previously marked—and indeed existed before the advent of the Net.

I argue that a new theoretical framework is required in order to understand the shifting, convergent, space between digital literature and net art. Scholars, including Katherine Hayles, David Ross, and Lawrence Rinder help us to better understand the common elements of these two forms as we look chronologically backwards to see the shift of form. Moreover, the apparent convergence of the forms becomes visible through a historical approach, a precise digital forensic application to study these forms, and an understanding of the networks that create, distribute, and allow these forms to operate. When I discuss convergence, I refer to the convergence of form in relation to the network. It is this network convergence that I indicate occurs far earlier than previously noted. Indeed this convergence around the network occurs before the advent of the web, internet, or widely distributed network communication systems. I can therefore observe the distinct formal shift in contemporary digital literature and art works by

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<sup>1</sup> Manuel Castells, *The Rise of the Network Society* (Malden: Blackwell, 2000), 21.

engaging in studies of networked authorship, digital publication, and finally electronic distribution. Further, I argue that through these practices, the convergence of these forms and network-influenced characteristics, can be observed in works preceding the advent of the WWW. I indicate that the precursors to early digital literature and net art works contain these network influenced elements. Even though a shift occurs in the publication of these works, works predating the web and works produced after the advent of the web are all constructed by a language that is structured around a communicative network society. Though the advent of the early internet is claimed to be the shifting point from whence these works were inspired, I argue this shift occurs much early than previously observed.

What is the meaning of a network in the information age? What makes a work digital literature? What makes a work net art? And what is the origin of this (apparent) division of these two media that this thesis revolves around? These questions, among many more, I will attempt to answer. My inquisition originates from interests that evolved to critical insights on: the function of networks, distributed control in a network society, centralized control from above, and the network's role in creation and distribution of textually rich media.

In proceeding with a critical investigation of these theoretical approaches, I sought to categorize my own knowledge in relation to existing criticism. Regarding networks and the network society, I have housed my approach with Latour, Hardt, Negri, Nöth, and Castells. Regarding classifications of control and organization I have consulted Michel Foucault and Gilles Deleuze; for forensic approaches to technology I use Friedrich Kittler, Alexander Galloway, Wolfgang Ernst, Jussi Parikka, Lev Manovich, Eugene Thacker and Matthew Kirschenbaum. I reach my points after much deliberation, and always armed with skepticism—even regarding my own research. But the words I have written I will defend.

Although my interests may derive from a technical origin, I seek to manifest them through my observations of the media around me—notably, I was privileged to work with much of the digital literature that I reference in its original format, on legacy computing systems at the University of Colorado Boulder’s Media Archaeology Lab.<sup>2</sup> Moreover, I was privileged to write a large portion of this thesis within the walls of the Media Archaeology Lab—the writer was able to sit surrounded by hundreds of linear feet of materials, between stacks of hardware piled to the ceiling, encircled by 9”, 5.25”, 3.5” floppy disks, magnetic tapes, and a multiplicity of Cathode Ray Tube monitors. From this mode of thought, emerging buried beneath the byproducts of a society that discards earlier resources, forgets past media, and ignores the importance of studying new media in relation to the old, my work derives its critical motives.

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<sup>2</sup> The Media Archaeology Lab, at the University of Colorado Boulder is the largest facility of its kind in North America—it is a place to experiment with old technology in relation to the new, and study electronic literature on the original legacy computing devices.  
<http://mediaarchaeologylab.com/>

I. *Theory and Methodology: Digital Forensics Approach to the Network*

Let me first define the term digital literature—Hayles writes that it is “generally considered to exclude print literature that has been digitized, [it] is by contrast 'digital born,' and (usually) meant to be read on a computer.”<sup>3</sup> I will emphasize that it is not always born-digital, but in fact always inspired by the digital in some sense. I should also define my use of the term net art, which I derive from an early description by David Ross in his lecture, 21 Distinctive Qualities of Net.Art: “Net.art is purely ephemeral. The opposite of the epic quality of net.art is its pure ephemerality. There’s no trace. It can have poetic brevity, that brief life in the collective consciousness.”<sup>4</sup> Net art, like digital literature, is often born-digital content and relies upon the medium of the internet, as well as the tools of the space for its creation, distribution, and operation.<sup>5</sup>

The net art works I choose to study contain significant textual elements, and accordingly, I take a literary approach to understanding these creations. Digital forensic tools become valuable for investigating and understanding the media, particularly when examining the formal elements of digital literature and net art works. The *necessity* of forensic methods is indicated by Matthew Kirschenbaum when he describes how “The forensic materiality of new media is...demonstrated by the bits and data tracks visible;” if we cannot investigate the data

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<sup>3</sup> N. Katherine Hayles, “Electronic Literature: What is it?” Electronic Literature Organization. <http://eliterature.org/pad/elp.html> and Electronic Literature Organization. <http://eliterature.org/what-is-e-lit/>

<sup>4</sup> Net art is derived from “net.art,” the early origin of the aesthetic emerging in 1994 and ending in the early 2000s. My reference to net art is synonymous in contemporary reference to the term “internet art,” as is the norm. David Ross, Lecture, San Jose State University, March 2, 1999 <http://switch.sjsu.edu/web/ross.html>.

<sup>5</sup> Ibid.



comprising the forms, then we cannot seek to understand the materiality of the works.<sup>6</sup> It becomes vital to contextualize the present within the history of computing when endeavoring to explain net art and digital literature from their origins to the present—representing studies of contemporary media and media theory enable a clear vision of the current period for future scholars. Thus, we must view these works in a historical context in order to interpret the past and envision the future of digital literature and net art. We must engage in a review of the role of the network in electronic literature and net art to better understand their convergence and their future trajectory. By taking this historical approach to studying the language of digital media, it allows us to examine the media at the level of the code itself since “*Code is the only language that is executable;*” it is an active language in its structure, and reflects this kinetic nature in systems such as the constantly evolving network that it constructs.<sup>7</sup> In this manner, one can successfully approach the medium, the technology, and the network from the bottom-up, yielding a comprehensive understanding of the current tendencies and trajectory of the field.

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<sup>6</sup>Matthew Kirschenbaum, *Mechanisms: new media and the forensic imagination* (Cambridge: The MIT Press, 2008) 19.

<sup>7</sup>Alexander Galloway, *Protocol: How Control Exists after Decentralization* (Cambridge: MIT Press, 2004), 165.

## II. *Parsing Network Theory*

A network requires, at a basic level, the *ability* to transfer data between distinct systems. In the context of cybernetics and systems theory, Winfried Nöth explains that semiotic communication is the “interaction between any two entities,” and communication is “the exchange of information between dynamic systems capable of receiving, storing, or transforming information,” a definition inclusive of the “processes of interaction between machines.”<sup>8</sup> Nöth further explains that communication entails the data transfer between two machines, so a network must require communication between greater than or equal to two machines.<sup>9</sup> Thus, the network can be defined by a multiplicity of machines capable of receiving, storing, or transforming information, retaining the *ability* to communicate.

Such an understanding of information within the network is vital to my own understanding because it entails not only a demonstration of communication between two computers to evidence the network, but also the *ability* of two computers to communicate if necessary. One considers a multiplicity of computers networked if they are arranged so that a command would prompt communication; one would not consider a network of computers disjointed merely because communication is not currently occurring. Moreover, two computers built around the same architecture, which can conceivably communicate if networked properly, likely contain the same operating system, computer language, and embedded programs on the system, all of which are built around the same *language*—this system language is what the theoretical possibility of the network is constructed around. Thus, digital literature and net art are

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<sup>8</sup> Winfried Nöth, *Handbook of Semiotics* (Bloomington: Indiana University Press, 1990), 170-1.

<sup>9</sup> *Ibid.*, 171.

constructed around the possibility of their transference over a network and their ability to be accessed online, creating the tendency towards a common structure—either literary or artistic.

Michael Hardt and Antonio Negri can further contextualize how systems of networks, like the web, tend to influence smaller networks that make up larger networks (sub-networks), such as the greater digital literature movement, and foster increased association between disparate sub-systems than had previously existed. Hardt and Negri express in *Empire* (2001) that first, the network is now everywhere in the advanced capitalist state, and second that the networked society is a result of the mode of material and social production.<sup>10</sup> This, I argue, explains the propensity of the network to facilitate the convergence between these two, previously disparate, creative forms: net art and digital literature. The datasets, which make up net art and digital literature, have begun to gravitate towards a similar form only since the advent of the information society and the onset of mechanized information production. Describing systems of networked production, Hardt and Negri explain, “in general, the hegemony of immaterial labor tends to transform the organization of production from the linear relationships of assembly line to the innumerable and indeterminate relationships of distributed networks.”<sup>11</sup> Here, Hardt and Negri indicate the propensity of labor production to trend over time towards the merging of networks.

Hardt and Negri indicate the impulse of such labor networks to not only become *more* networked, but within a limited system, to converge with similar networks—all ultimately

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<sup>10</sup> Michael Hardt and Antonio Negri, *Empire*. (Cambridge: Harvard University Press, 2001), 113; Jürgen Habermas, *Legitimation Crisis*. (Boston: Beacon Press, 1975), 33-6.

<sup>11</sup> Hardt and Negri, *Empire*, 113.

converge in the current global information economy.<sup>12</sup> Hardt and Negri facilitate this understanding by summoning Foucault's *Discipline and Punish* (1975), describing his argument that "the prison resembles the factory, which resembles the school, which resembles the barracks, which resembles the hospital and so forth. They all share a common form...link[ed] to the disciplinary paradigm," resembling one another.<sup>13</sup> Hardt & Negri continue, elaborating that "Today, by contrast, we see network everywhere we look."<sup>14</sup> Such a global network is a recent phenomenon, and if networked information production can only begin when the information society enables the mass production of information, then such networks and their convergence may only begin in such a time—a time we will review in the early period of electronic literature and art—beginning in the mid-1980s.

It becomes vital to comprehensively understand the history of network influenced works in order to construct an argument consistent with the current trajectory of the field. The present convergence of digital literature and net art, I argue, stands resolute under Bruno Latour's understanding of *crossings* regarding a certain network's trajectory in a realm of space. Latour's study of crossings allows one to "compare two modes, two branchings, two types of felicity conditions, by revealing...the contrasts" that define them, for example "abstract and concrete." Latour describes networks as identifying to an individual the present "surprise of association" and the potentiality to "follow heterogeneous connections" in the future.<sup>15</sup> Utilizing Latour's

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<sup>12</sup> Castells, *The Rise of the Network Society*, 20.

<sup>13</sup> Hardt and Negri, *Multitude: War and Democracy in the Age of Empire*. (New York: Penguin Press, 2004), 142.

<sup>14</sup> Ibid.

<sup>15</sup> Bruno Latour, *An Inquiry into the Modes of Existence* (Cambridge: Harvard University Press, 2013), 63.

understanding of the network, and the [NET-PRE] network, one seeks to understand the current associations between digital literature and net art, and the future trajectory such associations will force upon the forms.<sup>16</sup> The current formal structure of these works, the common language of *code*, similarly networked methods of authorship, and finally common modes of publication and distribution all tend towards this Prepositional Network convergence, which Latour's *crossings* associate.

Latour's extrapolation of a [NET-PRE] *crossing*, when understood in greater depth, relies upon coded language. His entire book, *An Inquiry into Modes of Existence* (2013), itself depends upon this coded language. The seminal media theory work relies upon crossing ideas throughout the course of the text: concepts such as [REP] (reproduction) and [DC] (Double Click), among many others, dominate the text.<sup>17</sup> Latour's process of creating associations quickly becomes prominent. These associations harken back to Actor-Network Theory—a theoretical framework enacted to better understand networks. These 'crossings' are what a graph theorist would call 'edges' in the discipline. Ultimately, we may have many words for these concepts, so the critical capacity exists to discuss them already. Unfortunately, such language is often fragmented across disciplinary divides. I attempt to adhere to the most valuable terminology and hope my own critical selections resemble a vocabulary that is accepted in both media studies, the sciences, and the social sciences. LevManovich and theorists such as Matthew Kirschenbaum and Alexander

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<sup>16</sup> Ibid., 62. Prepositional Network. Latour uses the term *preposition* to refer to the category of the theoretical *mistake*. Employing the *preposition* in Latour's method of *crossing* allows an understanding and comparison of *discontinuities* and the traced trajectories of these discontinuities to be formed.

<sup>17</sup> Ibid., 488-9.

Galloway who work across those convergent realms greatly help to adhere my arguments. I will invoke Manovich's work in far greater detail in Chapter V.

Latour, as a media theorist, is employing code in order to further his argument; the networks he refers to become so complicated that only a language prepared for and structured around the necessary descriptive values can seek to further perpetuate his sophisticated theoretical argument. Such an implementation by a major media theorist indicates the desire for a language able to properly describe the constructed networks of the information society in which we currently live.

To truly understand the significance of Latour's theoretical implications, one must examine such thought in relation to Actor-Network Theory (ANT), specifically by considering Latour's writing in *Reassembling the Social: An Introduction to Actor-Network Theory* (2007). Within this text, Latour lays the groundwork how we might attempt to engage in a coherent study of the "sociology of the social" in the sense that one might understand the 'social' through a scientific approach.<sup>18</sup> Specifically, if we seek to understand the sets of social relations that exist in the observable environment, then we begin to understand the social connections in which we daily engage in as a piece of the network.<sup>19</sup> Latour's text does not describe how a network comes into existence, nor does it create something new; rather the text functions as a "guide," telling one "where to travel," which he hopes might become tossed around in backpack, scribbled on,

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<sup>18</sup> Bruno Latour. *Reassembling the Social: An Introduction to Actor Network Theory*, 262; Bruno Latour, "When Things Strike Back – A Possible Contribution of 'Science Studies' to the Social Sciences." *British Journal of Sociology*, 14.

<sup>19</sup> Latour also notably describes the network here as a location "which dislocates simultaneity, proximity and personality," which I draw from in my description. Bruno Latour, "On Interobjectivity." *Mind, Culture, and Activity* Volume 3, No. 4 1996, p 4.

stained with coffee, and well-used. ANT helps us to navigate the social connections which exist in a network, and indeed the network society.

Within any network, as Latour describes, both material objects and social relations exist.<sup>20</sup> The ‘actant’ may indeed exist in either human or non-human actors.<sup>21</sup> Thus, the material-semiotic relations may manifest themselves in relation to “*ideo-*, or *techno-*, or *bio-*morphisms” that incarnate the actant in a human or non-human form.<sup>22</sup> Such definitions indicate that within the network of observation, the actant may indeed take a variety of forms, but ultimately represents a point or *node* of influence within a given network. It is from this node that influence is exerted across the network in a horizontal manner. Within this network context I identify textually rich works of digital literature and net art; within the same conditions I scrutinize their influence on the network itself.

When Latour discusses a ‘collective’ within a network, he explains that he refers to not just a homogeneous social force, but “an action that collects different types of forces woven together because they are different.”<sup>23</sup> Specifically, a collective (within a network), as he describes, should be understood as an aggregate of forces with different momentums, that exert a certain momentum on the network to shift the distributions of social relations within the network itself. I would also suggest here that a strong enough collective could exert enough force in the

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<sup>20</sup> Latour. *Reassembling the Social: An Introduction to Actor Network Theory*, 74.

<sup>21</sup> Ibid., 54 and Latour, “Social Theory and The Study of Computerized Work Sites” *Information Technology and Changes in Organizational Work*. (London: Chapman and Hall), 11.

<sup>22</sup> Law, John. *The New Blackwell Companion to Social Theory*. 141 and Latour, *Reassembling the Social: An Introduction to Actor Network Theory*, 54.

<sup>23</sup> Latour, *Reassembling the Social: An Introduction to Actor Network Theory*, 74.

network to redistribute the power and control structures within and encompassing the network. It is within this space that the network exerts influence upon us, upon the media that make it up, and across the entire framework. Actors (or ‘nodes’) of media on the network, it seems, can clearly influence the entire network. If each medium I study is an actor, then groupings of these media with associations might certainly map similar associations onto the network and onto newer ‘media actors;’ likewise the network should reflect this force and map associations onto the works.

Latour judges that since as a society we are no longer ‘modern,’ the assemblies of society and nature are insufficient boundaries; rather, in the information age we must “restudy what we are made of and extend the repertoire of ties and the number of associations way beyond the repertoire proposed by social explanations.”<sup>24</sup> Latour here, in this ‘where to travel’ guide of a theoretical framework, urges the reader to expand the boundaries in this network of study—he embraces a broad vision for ties and associations that link these nodes. Latour’s guide opens up the possibilities within the network for defining associations—to understand the social, he says we have to understand the deployment, stabilization, and composition embedded in a network. The contribution to the collective becomes clearer upon understanding this set of acts. Latour’s imagined process can lend clarity to the associated sets of media that I study. One might say that the sets of data I examine, which includes works’ text, the formal traits visible to the user during playback, and the resemblance of the networked distribution processes (through creation, distribution, and operation) all embrace such a roadmap when studying the associations within a sociology of the social.

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<sup>24</sup> Ibid., 248.



Moreover, the media that I study is not always viewed through the lens I place before it, but through a critical and literary approach to digital media studies. Moreover, the media lend themselves to this insight. Latour allows for, and even calls for literary theorists (and thus digital media theorists) to work with ANT, describing it as appropriate because “the diversity of the worlds of fiction invented on paper allow enquirers to gain as much pliability and range as those they have to study in the real world.”<sup>25</sup> Latour here ascribes positive value to the methods and the freedom that media theorists may exercise when engaging critically with their texts. Moreover, Latour encourages this engagement for the benefit of ANT, since “only through [the] continuous familiarity with literature [can] ANT sociologists... become less wooden, less rigid, less still in their definition of what sort of agencies populate the world.”<sup>26</sup> Equipped with such a mentality, I shall proceed.

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<sup>25</sup> Ibid., 55.

<sup>26</sup> Ibid.

### III. *Deciphering Early Internet Network Tendencies*

What differentiates the work of information produced by the creator from that which a machine might produce randomly or create based off of a previous set of instructions? What identifiable mark might a human author transcribe? The propensity towards similar language within electronic works of art and literature is clear—we need only look at readily apparent similarities in computer languages, code, the glitch aesthetic, and new aesthetic to identify the familiar in these network-influenced works.<sup>27</sup> Digital art and literature similarly display this tendency, indicative of the mode in which these works are constructed: a networked, humanly-collaborative production system, the network of the internet itself, commonly mechanically reproduced operating systems all perpetuate this shared language and visual aesthetic.

We might begin by engaging with a work, representative of early digital literature, indeed digital poetry: bpNichol's *First Screening*. Its advent lies before the creation of the web and it exists within its own *network*, a network of physical exchange around 5.25" Floppy disks. Specifically, I will look at the digital poetry of bpNichol, and the role of kinetic poetry in these early days. The mid-1980s network surrounding this work was in fact a human network. The small group of artists, working on similar material as Nichol, shared hardcopies of their digital works by mail and traded in person. Lionel Kearns, a colleague, said when "Barrie [Nichol] distributed his screen poems to his friends on 5.25-inch floppy disks [and] [w]henver he came to town he would show those of us who had IIE's what he was doing, and how the program

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<sup>27</sup> The New Aesthetic is a term first used by James Bridle and the SXSW festival panel, creating this new art movement. It began with his <http://new-aesthetic.tumblr.com/> page, and is expressed more fully in his <http://booktwo.org/notebook/sxaesthetic/> commentary.

worked, or didn't."<sup>28</sup> By distributing his works to friends and colleagues, he worked to refine his BASIC language and construct a collection of poems, and eventually through this collaborative curatorial process, he created *First Screening*.<sup>29</sup> His works are code poems written in BASIC and are collected in *First Screening*—each poem floats, flits, flies, or crashes against the user's screen; each engages the user in a previously unknown manner through their poetic forms. These works remain significant as the first works of digital poetry; such pivotal works, I show, evolve around the structured language of BASIC itself, a language which relies upon its uniformity for its success as well as the ability for users to communicate with any Applesoft supported interface, including all Apple II series computers.<sup>30</sup>

Geof Huth notes that Nichol's work preceded the advent of the web by a decade, so that at the time, "the standards and interoperability that the internet brought ... were absent, and there was no good way to distribute digital poetry."<sup>31</sup> I argue that at this time, certain standards tending towards interoperability in these machines existed, but had not yet reached the state to which interoperability might enable instant global exchange. While Microsoft's Apple BASIC allowed for the compatibility of the popular, relatively speaking, non-Macintosh Apple II computers, it was a more affordable alternative for DIY computer hobbyists such as the Franklin Ace line of

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<sup>28</sup> Lionel Kearns, "On bpNichol." <http://vispo.com/bp/lionel.htm>

<sup>29</sup> Ibid.

<sup>30</sup> "Applesoft" refers to the dialect, Applesoft BASIC, a form of Microsoft BASIC that widely used on Apple computers, notably the Apple II Series.

<sup>31</sup> Geof Huth, "First Meaning: The Digital Poetry Incunabula of bpNichol," <http://vispo.com/bp/geof.htm>

computers.<sup>32</sup> The Applesoft BASIC dialect was able to run on all of these systems, including the Apple II, which was the bestselling personal computer from the late 1970s to the early 1980s.<sup>33</sup> This dialect's existence is dependent upon an operating system which, although not compatible with contemporary managed networks, is built around a network of computer users and their personal computers with similar architecture and identical operating systems. This enables a network of users to then physically exchange and read this newly formatted information language.

Another notable digital literature work, produced in this period of the "Early Network" is Paul Zelevansky's *Swallows*, which was released in 1985 for the Apple IIe.<sup>34</sup> *Swallows* is a work of digital literature produced early on in the history of computing. This work, which existed before the existence of the World Wide Web, is built upon Applesoft (Microsoft's Apple BASIC). When interacting with this text, I noticed the 'layering' inherently embedded, and *nested*, in the media. I want to consider this text beyond the level of 'screen essentialism,' but on the level of BASIC.<sup>35</sup> I will consider Niebisch's writing in *Media Parasites In the Early Avant-*

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<sup>32</sup> Microsoft's Apple BASIC was also known as "Applesoft." Huth, "First Meaning: The Digital Poetry Incunabula of bpNichol."

<sup>33</sup> "The Apple II is the world's Best Selling Personal Computer." The Internet Archive, <https://ia600607.us.archive.org/35/items/1978-06-apple-bestselling/1978-06-apple-bestselling.pdf>

<sup>34</sup> Leonardo Flores, "'Swallows' by Paul Zelevansky." <http://ilovepoetry.com/?p=279> and Loriemerson.net. "Recovering Paul Zelevansky's literary game "SWALLOWS" (Apple IIe, 1985-86)". <http://loriemerson.net/2012/04/24/recovering-paul-zelevansky-literary-game-swallows-apple-ii-1985-86/>

<sup>35</sup> Nick Montfort. "Continuous Paper The Early Materiality and Workings of Electronic Literature." [http://nickm.com/writing/essays/continuous\\_paper\\_mla.html](http://nickm.com/writing/essays/continuous_paper_mla.html)

*Garde: On The Abuse of Technology and Communication* (2012) in relation to Zelevansky's *Swallows*, to consider how *Swallows* is able to subvert traditional uses of Apple II systems.

Niebisch notes that the 'abuse of media' requires one to "(ab)use media technologies ... in the system in a way not intended by hegemonic powers."<sup>36</sup> In the history of computing on Apple systems, the Apple IIe is released in 1983, while the apple Macintosh is released in 1984.<sup>37</sup> If the Apple II line represents the open, DIY intent of computing, the Apple Macintosh line represents the blackboxed, proprietary option for Apple (Steve Jobs versus Steve Wozniak).<sup>38</sup> In *Swallows*, what Zelevansky engages in is a non-traditional representation of text and image for the system. Specifically, text represented alone typically makes use of the ASCII character-set on the Apple II, using text in Applesoft (Microsoft BASIC for Apple computers).<sup>39</sup> Image is represented on the top portion of the screen, and text is represented below (as a caption) and displayed with the Applesoft character-set. But when text is represented atop (layered over) an image, then text is represented in a non-Applesoft ASCII character set. In this case, the words are represented either through an undefined font, or in a font intended to imitate ASCII font through *image*. In such imitations, the borders of the characters lose their sharpness and some of their contrast, blurring slightly. Whether intentional or unintentional, I notice that the text repeatedly follows such a pattern. Would the author (and programmer) have embedded text differently if Applesoft supported alternative character-sets and character displays? I suspect

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<sup>36</sup> Arndt Niebisch, *Media Parasites in the Early Avant-Garde: On the Abuse of Technology and Communication*, 9.

<sup>37</sup> Apple.com, <http://www.apple.com/30-years/1984/>

<sup>38</sup> "Woz Ponders Apple IIs Impact and DIY," <http://www.eweek.com/c/a/Desktops-and-Notebooks/Woz-Ponders-Apple-IIs-Impact-and-DIY/>

<sup>39</sup> Paul Zelevansky, *Swallows: Electronic Mythology for an Audience of One*. 1986.

fonts would have been used differently. In this case image indeed subverts the ‘hegemonic power’s’ desire to define how a user will both enter and display text.

I would argue that the Apple IIe subverts the intentions of text display on the Apple II line of computers. By using the sole ‘font’ available on the system, the work embraces the interchangeable text system. Such a text system is supported across the Apple II line as well as the Franklin line of computers. Interchangeable, mechanically reproducible parts changed factory production systems, labor, and warfare; similarly interchangeable text within BASIC reverts back to the design predilection to produce for the whole, the communal, the *network*. *Not* the individual machine. Such systems of text remain highly communicable, available even in legacy format, and both then and now remain accessible on and off the web to users and viewers of the content.

Let me explain exactly how the text that makes up this work is most clearly influenced by networked models of communication. First, I will attempt to bridge the divide between these works which are labeled as digital literature and those labeled as net art. The works of digital literature that I refer to are those produced by bpNichol and Paul Zelevansky. I might often call the subject who engages with a work of literature *the reader*, although for these purposes, I will refer to that subject as *the user*. When accessing the contents of *First Screening*, the user must first type “RUN FIRST SCREENING” in order to interact with the collection of kinetic poems.<sup>40</sup> Subsequently the poems ‘run’ for the user. It is this performative gesture on the part of the user, typing the command into the Apple BASIC interface that enables access to the contents of the

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<sup>40</sup> bpNichol, *First Screening*, 1984. 5.25” Floppy disk.

medium. In this act, similar in both the context of the 1980s and in the present, the program engages the user in the language of work before it permits the user to view the contents.

The user must subject herself or himself to the constraints of the BASIC language before permission to view the poetry is granted. Zelevansky's *Swallows*, conversely, does not require such a gatekeeping measure—yet they both run on the same system. Thus, such a step is an active measure employed during 'program/poem design.' Such a step seems to call first for an engaged user. When one considers at the time, interaction with First Screening would most likely have occurred individually, rather than in a group setting, such an engagement seems to lend even greater weight to this participatory nature—the call for an actively engaged audience, and an informed one.

Mark Lombardi's highly data oriented approach to artistic structure precedes the advent of the internet and predicts a net art aesthetic. His works predicted data decoding and language decoding as artistic work. Lombardi's works belong to an earlier analog art movement dependent upon these highly structured datasets. This structure seeks to facilitate narrative within the works, and clearly treads the line between artistic data aesthetic, narrative, and political activism. Most notably, Lombardi's *BCCI-ICIC & FAB* (1972-91), his *Gerry Bull, Space Research Corporation and Armscor of Pretoria, South Africa* (1972-80), and finally *BNL, Reagan, Bush, & Thatcher and the Arming of Iraq* (1979-90) evidence his structuring of data to tell a narrative; they seek to facilitate information placement, as well as create a causal sense of historical events.<sup>41</sup> These works stand at the forefront of data-driven art and its aesthetic. The works, early in the transition to the information society, represented through their coded language of causal

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<sup>41</sup> Lawrence Rinder, *Art Life: Selected Writings 1991-2005* (New York: Gregory R. Miller & Co., LLC, 2005), 75.

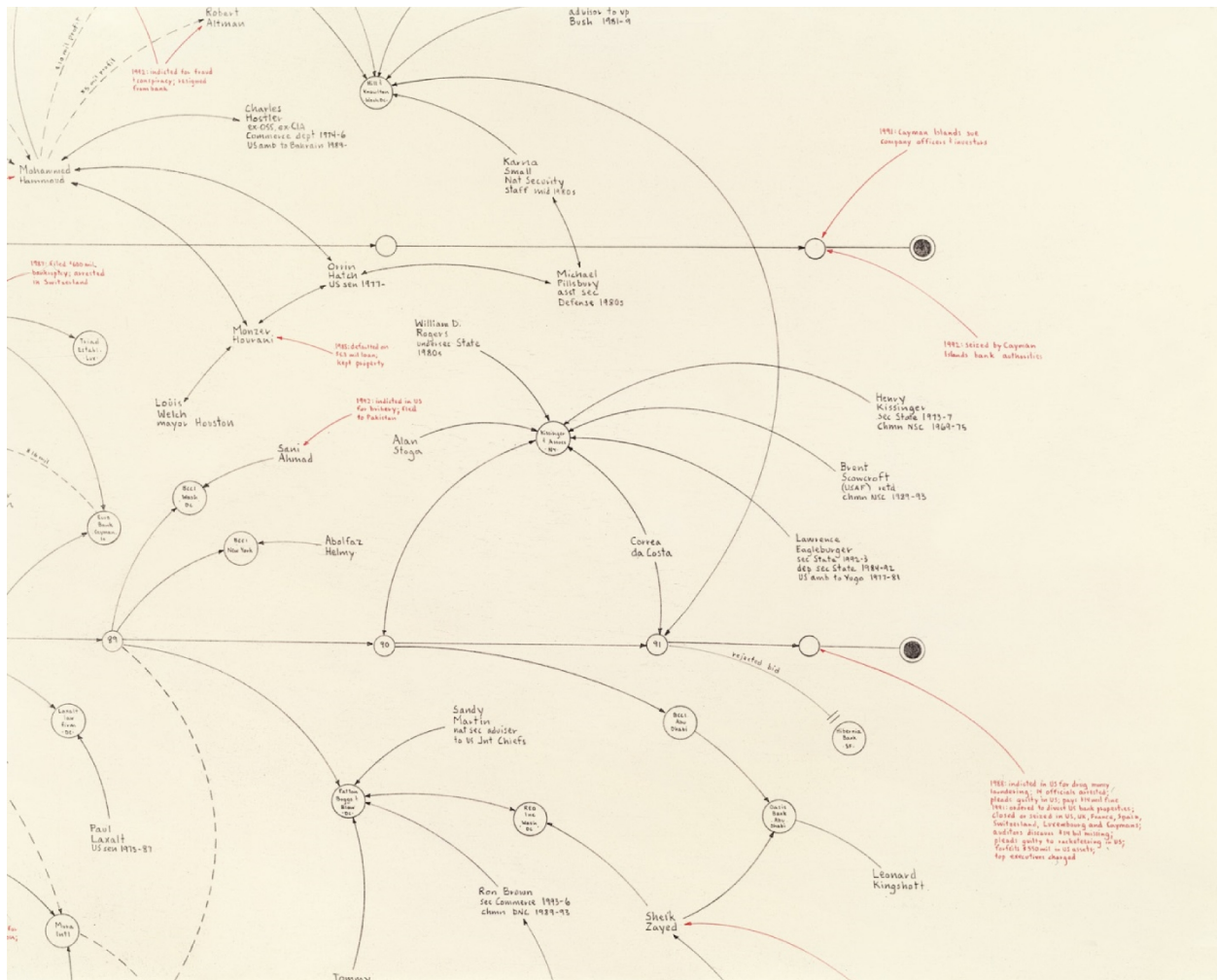
visual signals, the beginning effort of art to decode data masses and make sense of all the data through these formative methods.<sup>42</sup>

Briefly, to describe Lombardi's work, he creates large, elaborately intricate pieces of art, drawn from black and red graphite. Lombardi's images principally connect words, each surrounded by a black circle, with either red or black lines connecting each black circle to another. The words in a bubble, for example "Saudi Bank—Paris," connect to another, "George Bush," and yet another circle, "Arbusto Energy—Texas," indicating either traced fund transfer or political connection. Thus, by connecting each person, organization, or concept, Lombardi creates a *web of information* in an aesthetically alluring form. Moreover, his emphasis on the form of the word, through use of parataxis, in relation to the meticulous visual presentation of the written word, indicate a devotion to clear visual presentation as well as a programmatic linguistic structure.

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<sup>42</sup> Castells explains that information society has developed a specific social organization around the generation, processing, and transmission of information as the fundamental sources of productivity. Castells, *The Rise of the Network Society*, 21.





43 Detail from *Mark Lombardi's BCCI-ICIC & FAB*

Lombardi, as a researcher, would regularly subscribe to 4-5 newspapers; he recorded each individual's name or organization name on an index card, accumulating 14,500 individual cards by the end of his life. An avid reader, he researched books and public records, beginning always with the index, as he searched for links within his cards. His work contains a strong sense of factual truth, leaving to the viewer the role of 'connecting the pieces.' The FBI consulted Lombardi's works, requesting access to a selection of Lombardi's work from the Whitney in

43 Mark Lombardi, *BCCI-ICIC & FAB*.

order to aid in an investigation shortly after the events of September 11<sup>th</sup>.<sup>44</sup> Regardless, even the FBI's gaze is attracted to this data-dense art which requires delving through information, interpreting the metadata, and attempting to find a sense of order and inherent meaning within Lombardi's superfluous datasets. Lombardi says he sought to "map the political and social terrain in which I live;" his *BCCI-ICIC & FAB* traces connections between Osama bin Laden, George H.W. Bush, and many more high- and low-profile figures, making quite apparent the FBI's use for it as the national propensity towards "surveillance, paranoia, and control" continues to manifest itself.<sup>45</sup> Certainly, Lombardi's efforts are indicative of a primal point of convergence between narrative and artistic method during the early part of the information society period—Lombardi invents the artistic tools of data driven art, using this data-forensic approach, with methods of networking still quite in use. It may not surprise the reader to know Lombardi's belief and process was deeply influenced by his unending research on political topics that some might label "conspiracy theories."<sup>46</sup> Regardless, his process is thorough, the associations are well considered, and he meaningfully maps out the data for both the informed and the uninformed viewer.

We will jump to 1994, the period at the advent of the 'net' or WWW, or internet as we know it, and observe how networked access to 'born-digital' content evidences similarly networked traits to media we have already engaged with. Early net art, conceived during the pioneering days of the internet's creation began establishing its visual aesthetic around the coded language of early digital art works. The first piece of net art from the Jodi collective,

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<sup>44</sup> Rinder, *Art Life: Selected Writings 1991-2005*, 75.

<sup>45</sup> Ibid.

<sup>46</sup> Ibid.

[www.jodi.org](http://www.jodi.org) (1994), and arguably the first work of “net.art,” at least as one widely viewed, is this website which displays a threateningly bright green hyperlink and *glitched*, seemingly senseless text.<sup>47</sup> Upon viewing the source code of the page, which can be easily seen by using the browser to access the original text by instead directing a browser to, “[view-source:http://www.jodi.org](http://www.jodi.org)” or a variation thereof depending on the browser.<sup>48</sup> One will actually find the completely logical contents of the original message from the creator: *graphic directions to build a hydrogen bomb*.<sup>49</sup> Thus, by approaching the text through a browser, the user finds that the browser itself creates the “neon nonsense,” but beneath this improperly deciphered code, lay an image intelligible to anyone acquainted with the shape of a warhead, which creates a certain reversal—this graphical representation of a code-drawn bomb spurred an outright aesthetic manifesto.<sup>50</sup> Such a work lies at the origin of net art, coded language, and the cypher of artistic interpretation—it was here the Jodi collective began to challenge how technology questions the role of art, doing so by embracing both *text* and a seemingly indecipherable *narrative* message online. This work maintains its significance as the first work of net art, while it clearly remains indicative of the disposition to integrate the form of the

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<sup>47</sup> Ken Archey, “Jodi: Street Digital,” Rhizome. <http://rhizome.org/editorial/2012/apr/23/jodi-street-digital/>. April 23, 2012 and Tom McCormack, “Corroding the Machine,” Museum of the Moving Image. <http://www.movingimagesource.us/articles/corroding-the-machine-20120406>. April 6, 2012.

<sup>48</sup> Ken Archey, “Jodi: Street Digital,” Rhizome. <http://rhizome.org/editorial/2012/apr/23/jodi-street-digital/>. April 23, 2012.

<sup>49</sup> Ibid.

<sup>50</sup> The “improperly deciphered code” here was improperly deciphered by the web browser itself. Ken Archey, “Jodi: Street Digital,” Rhizome. <http://rhizome.org/editorial/2012/apr/23/jodi-street-digital/>. April 23, 2012.

internet's infrastructure into this art aesthetic.<sup>51</sup> Moreover, this work depends upon the language of the network itself—the work cannot function without the web browser, which is created to navigate the networked space of the internet. The work also relies upon the centralized storage of information in this space, for access by others actively seeking out such material in the early days of the web, circa 1994. Such a work was shared only by access to a wide network, and shared among active online communities in this period.<sup>52</sup>

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<sup>51</sup> Ibid.

<sup>52</sup> Alexander Galloway, *Protocol*, 233.

#### IV. *Assembling Evidence of Network Influence in Late Web Works*

We will observe network influenced language within contemporary digital literature, specifically the role of *coded text* in Mez's electronic poetry collection in her "network repository" *cross.ova.ing*[*4rm.blog.2.log*][ (2003-7).<sup>53</sup> Mez uses coded language in her poetry to reference an originary source for her use of Extensible Markup Language (XML) as electronically originated. She facilitates the visual structure of the poetry by using XML formatting and *auto indent* to enable readability, imitate standard XML practice, and to communicate directly to the reader. In *cross.ova.ing* Mez creates a graphically clean, beautiful work of *literary code* inspired by HTML, higher level coding languages, and even colloquial uses language of the internet. To represent in clarity a full subsection of code, it is necessary to view the following lines, which display the formal intentions, the semantics of code, the alternate punctuation, and experimental grammar:

```
doll_tre[ru]mor[s] = <<TREMORS
<tremor name='the_5th_world'>
  <fracture>
    <fracture name='post2charinscription'>
      <polymers>
        <polymer var='user' val='YourDollUserName' />
        <polymer var='3rdperson' val='Your3rdPerson' />
        <polymer var='location' val='YourSoddenSelf' />
        <polymer var='spikey' val='YourSpiKeySelf' />
      </polymers>
    </fracture>
    <fracture name='post2skin'>
      <polymers>
        <polymer var='user' val='YourPolyannaUserName' />
        <polymer var='msg' val='YourPleading' />
        <polymer var='lastword' val='YourLastword' />
      </polymers>
    </fracture>
  </fracture>
</tremor>
```

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<sup>53</sup> Mez is also known by the names: Mary-Anne Breeze and Mezangelle. Mez Breeze, *cross.ova.ing*[*4rm.blog.2.log*][. Electronic Literature Organization. [http://collection.eliterature.org/2/works/mez\\_cross-ove/Codewurk%20\[actual%20work\].txt](http://collection.eliterature.org/2/works/mez_cross-ove/Codewurk%20[actual%20work].txt).

```

    </polymers>
  </fracture>
</fractures>
</tremor>"
TREMOR 54

```

Mez uses punctuation to separate multiple layers of meaning in the message, consistently integrating the brackets to separate each successive level of meaning in the hierarchy. Line one, for example, reads either as “doll tremor,” “doll rumors,” or another variation on “doll\_tre rumors.” This method indicates just one manner of reading the code. Second, the visual separation through the indentation in this passage imitates HTML’s structure through the indented use of angle brackets in the text. Moreover, the indentation of each line represents the hierarchical structure inherent in the framework of code. Readers fluent or familiar with HTML understand the terms (values) “YourDollUserName,” “Your3rdPerson,” “YourSoddenSelf,” and “YourSpikeySelf” as equivalent values, nested under the common term “Post2charinscription.” I will return to the idea of the hierarchy and the importance of understanding the concept of structured language, as a part of structured networks remain key in my argument later in Chapter VII.

Similarly the excerpt “\_real.le[state.b]ase+run+bac?\_” is readable as two separate messages after decoding, but also signals to two separate knowledge groups when translated—to either the social implications of the text or to the computer language itself and the structure of code. The line can either read in reference to the text’s real social implications as “real estate base – run back” or signal the computer code itself as “release – run bac.” “Release” references the idea of a *software release*—a software edition—and “run bac” could be run in BASIC which would actually *run* a file or program titled “bac,” or possibly even proclaims “run back!”

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<sup>54</sup> Mez Breeze, *cross.ova.ing*[*4rm.blog.2.log*][. Electronic Literature Organization. [http://collection.eliterature.org/2/works/mez\\_cross-ove/Codewurk%20\[actual%20work\].txt](http://collection.eliterature.org/2/works/mez_cross-ove/Codewurk%20[actual%20work].txt).

Certainly, these intentions remain partially obscured, which is purposeful, but the lack of clarity allows for broad interpretation making these aforementioned explanations only a few of many possible layers and hence interpretations of this code.

This use of code does not require the reader to be completely literate in the language of webpage design but does influence the reader's interpretation and access to the layered message. Mez, not alone among authors, writes her digital prose for a large audience, but similarly in a manner which allows for layered interpretation. By creating a coded message which can be decoded at variant levels for readers with different "digital fluencies," she adds yet another level of depth to her coded language and possible interpretations. Moreover, Mez creates a code readable both to greater and less "digitally fluent" audiences, but at any level still requires great participation and interpretation from the reader. Such text alters the author's construction of text, but also shifts the reader first into the far more actively responsible roles of translator and interpreter of the message, and only then reader. The reader takes on the role of interpreting the coded language—through training, and previous exposure to network influenced language, the reader finds the text navigable, creative, and indeed provocative.

The 'code works' of Mez employ the apparatuses of coded language to create a distinct, structured environment for the reader to engage with her works.<sup>55</sup> Such a confirmation is evidenced when Vilém Flusser writes "Apparatuses were invented to simulate specific thought processes," visibly making apparent the apparatus of language—within a coded environment an apparatus is employed to simulate a specific form of communication, and thus simulate a specific

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<sup>55</sup> N. Katherine Hayles, *Electronic Literature* (Notre Dame: University of Notre Dame, 2008), 20-1.

message to the reader.<sup>56</sup> The XML environment is simulating the digital environment, if not the webpage itself, in Mez's formal construction to readers.

The role of code in Jon Satrom's net art piece, *100 FORCE QUIT NOISE CANCEL CALCULATORS* (2013), closely parallels Mez's code poetry works.<sup>57</sup> In Satrom's piece, the Mac OS X terminal becomes a writing space used within the video to communicate a message to the user by manipulating coded language in the CLI's Unix-based Bash shell.<sup>58</sup> Regardless of the interface though, the text still remains intuitive to viewers—in this (widely used in computer) Bash environment. The messages are relayed directly to the reader through the English language, through commands in Bash to run the programs driving the video's powerful visual effects, and they even facilitate the video form's closing credits. The piece appears to the viewer as a several minute screen-capture of the Mac OS X interface. The presence of the operating system, the native Mac interface, the terminal, and finally digital audio and video manipulation tools lends a strong presence of said artificial interface to the viewer. Notably, the artist demystifies the tools that created the work. In fact, the work depends upon the tools' visibility to denote such means of production to the informed viewer.

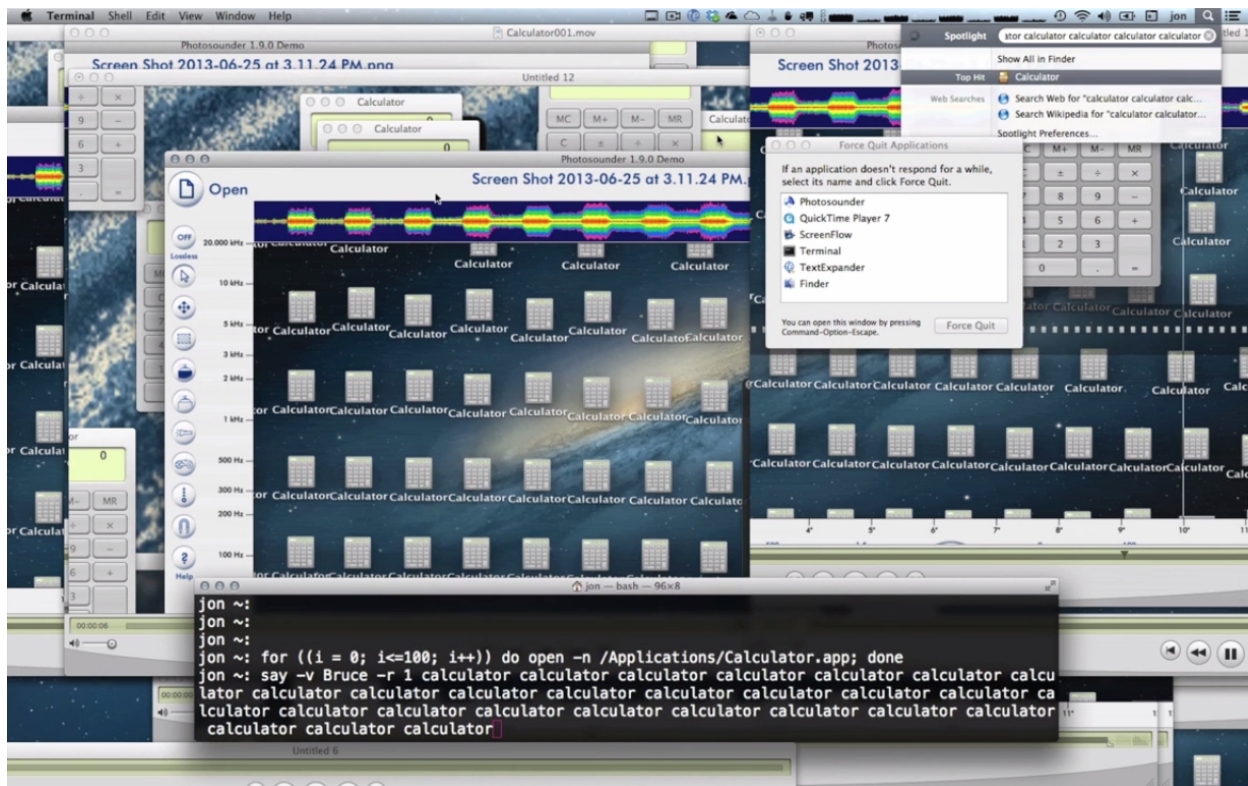
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<sup>56</sup> Vilém Flusser, *Toward a Philosophy of Photography* (London: Reaktion Books, 2000), 31.

<sup>57</sup> Jon Satrom, *100 FORCE QUIT NOISE CANCEL CALCULATORS*, <http://vimeo.com/69329675>.

<sup>58</sup> The *terminal* interface is also known as the Command Line Interface (CLI). Bash is currently one of the most widely used Unix shells and command processors





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The text within this video work remains momentous for the viewer because the text drives the narrative, it drives the execution of commands, and it allows the creator to communicate directly with the viewer. This screen-capture shows the significance of text on-screen and indicates the importance of engaging with an audience already familiar with the Mac OS X interface, or even a Windows interface—an audience need not be highly qualified to understand the language embedded in the work, but the audience must be proficient with a home computing interface in order to understand language in the *terminal* and to make sense of the otherwise chaotic disarray of text, windows, icons, and images on screen, and understand the work.

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<sup>59</sup> Jon Satrom, *100 FORCE QUIT NOISE CANCEL CALCULATORS*.

To return to Mez, her prose visually imitates HTML (HyperText Markup Language) with a great many similarities, but embedded within the language are efforts reaching far beyond the common constraints of *markup languages* (languages used to create webpages readable by web browsers)—Mez’s prose includes Boolean language (if/then instructional statements—which are widespread in computing applications) and integrates instructional commands using some *natural language* features most commonly integrated in *High-level programming languages* such as Fortran, Perl, or Python. Essentially, this natural language makes the text in Mez’s writing highly readable and practical for the reader/programmer.

Mez’s work functions at both the level of the high-level programming language, but while using the support structures below, approaches the level of *machine language*. To explain, although the high-level computing language is more naturally readable to humans, this high level language must eventually be translated through a specific process (to be described shortly) ultimately altering the language to *machine language*, typically numerical code at the basic level of the *byte*, to be fed into the processor. In machine language “100000011” might represent a certain variable, in this case “k,” which the processor interprets within a much larger variable string in a program to perform the intended command.<sup>60</sup> This string “100000011” can be read directly by the processor and interpreted, translated, and reinscribed.

Mez uses such character strings within the text, again leaving great room for interpretation. The lines below represent DNA strands (guanine, adenine, thymine, cytosine) as well as the basic level of DNA as code—literally at the same level as machine language, or more precisely biological language:

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<sup>60</sup> Tony Huang, “High Level Design.”  
<https://courses.cit.cornell.edu/courses/ee476/FinalProjects/s2006/nrs27th257/nrs27th257/index.html>

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BirdR1-ACGTGGGAGATAATTCCAAATCCTG
BirdR1-ACGTGGGAGATAATTCCAAATCCTG
BirdR3-AGGAGTTTGCTAGTACGATGCC
TTCTCCA#cut[icle].bird.ACCACAAAG
ACGTGGG#line.here#AGATAATTCCAAAT
ACGTGGG#fe[e]tally.blind#AGATAAT
AGGAGTT#cur[e]ve.d.h.orn[er]y.TGCT61

```

This basic level of biological construction is displayed by the shorthand variable for each of the four nucleobases. More than this, words clearly blended from *natural language* to the level of *machine language*, or the human constructed code created to describe through their labels our genetic material of DNA.<sup>62</sup> DNA of course is the structure which *stores biological information* in a strand, represented by this data-structure.

Kirschenbaum writes on the process of data inscription from the level of the individual bit, to the aggregate physical, magnetic space on the hard drive in his published book *Mechanisms* (2008).<sup>63</sup> Regarding code, Kirschenbaum explains “The history of codes reveals a continuum rather than an absolute rupture between human and machine reading,” entailing a murgence of language rather than a division. Kirschenbaum, among others, describes the language of code and prose as blending rather than competing or strengthening genre divisions.<sup>64</sup> Thus, Kirschenbaum explains, this current first generation of digital literature takes creative inspiration from “the screen,” or language displayed to the user on screen rather than the 0’s and

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<sup>61</sup> Mez Breeze, “Cross.Ova.Ing.” [http://collection.eliterature.org/2/works/mez\\_cross-ove/Codewurk%20\[actual%20work\].txt](http://collection.eliterature.org/2/works/mez_cross-ove/Codewurk%20[actual%20work].txt)

<sup>62</sup> Geoffrey Sampson, “Can Language Be Explained Fully?” *Synthese*, Vol. 23, No. 4 (Mar., 1972), 481,486.

<sup>63</sup> Kirschenbaum, *Mechanisms*, 31.

<sup>64</sup> *Ibid.*, 30.

l's of machine language.<sup>65</sup> He begins to signal the desire now to read data at the level of machine language, for example as a “forensic expert ... visually inspect[s] the patterns of magnetic tracks on a diskette” to try to recover data and interpret the message.<sup>66</sup> Moreover, David Bolter describes the apparent inability to see data on the digital medium, describing “If you hold a magnetic or optical disk up to the light, you will not see text at all;” but although this text may not be visual, the visible pattern still contains meaning, as both the container for and marking of the message. Returning to *cross.ova.ing*, Mez consciously integrates the language of code, as mentioned, machine language, as mentioned, but importantly represents the *container* of the message. Thus, Mez breaks this constraint of “screen essentialism,” the bias of new media artists to recent display technologies which favor non-machine language representations as well the contemporary user's commonplace graphical user interface (GUI).<sup>67</sup> Moreover, the GUI inhibits the user's textual interaction. Pure text, high-level scripts, or machine language best facilitate the reader's interaction with text, code, and pure data.

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<sup>65</sup> Ibid., 31.

<sup>66</sup> Ibid., 33.

<sup>67</sup> Ibid., 27.

V. *Compiling Data to Understand the Future of Digital Works and Decrypting Formal Convergence to Anticipate a Shared Postinternet Aesthetic*

We find the affinity towards the creation of network-influenced works most evident in the present; these formal tendencies depend upon networks for artistic creation, which is often simply described by the term: “postinternet aesthetic.” The postinternet was originally conceived as a form with a “range of artistic practices that engage with the internet as a ubiquitous presence in society and culture, rather than solely as an artistic medium,” but it now has collected multiple definitions, and has become too often associated as trendy ‘dimensional media,’ particularly adopting “glossy commercial aesthetics, images, and products.”<sup>68</sup> The postinternet may still be alive, but it may also be dead. Now, newer movements such as the *new aesthetic* and *stacktivism* have become more accurate descriptors of net art works, or works no longer on the internet, but with the internet in mind—quite often these works take a material form actively in response to the digital.<sup>69</sup> Regardless, the concept of the postinternet aesthetic directly embraces the idea that

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<sup>68</sup> Rhizome. “Video of Post Net Aesthetics is Now Online.” London Institute of Contemporary Arts, 2013. <http://rhizome.org/editorial/2013/oct/21/video-post-net-aesthetics-now-online/>.

<sup>69</sup>To see the famed blog of James Bridle, which spurred the creation of the aesthetic, and its popularization during the 2012 SXSW, refer to <http://new-aesthetic.tumblr.com/>.

So the stacktivists say, “we cannot have a conversation about something whilst it remains unseen.” Stacktivism often refers to born digital works that map, give reference to, and contextualize the physical world through the realm of the digital. A number of works employ globes maps, blueprints in order to organize the unseen, hidden infrastructure that runs (beneath) the mapped world. Self proclaimed, “#stacktivism is a term that attempts to give form to a critical conversation & line of enquiry around infrastructure & the relationship we have to it.” See <http://stacktivism.com/>. Consider the implications of Bruce Sterling’s mapping of “All the Ships in the World” <http://brucesterling.tumblr.com/post/59100767681/stacktivism-all-the-ships-in-the-world> or Extra State Craft’s “Global Infrastructure as a Medium of Polity” <http://extrastatecraft.net/Projects>.

contemporary creative works presume that the “creation, distribution, and reception of [artistic works have] been reconfigured by network technologies.”<sup>70</sup> It is this consciousness of the significance to the work itself, that I signal to and hope to indicate is not only important, but critical to the production of net art on and off the web in the digital dualist binary which we navigate.

Olia Lialina, a net artist, created the work *Summer*, in the summer of 2013, which itself consciously assumes its production and distribution as an art form produced by network technology. This work visually displays a loop of a girl swinging on a park swing. The user finds immediately, the girl begins swinging at a very slow speed, but gradually, her speed picks up. The user, upon closer inspection, will notice that each frame is hosted at a different website, and after each website becomes stored in the web browser’s cache, the load speed drastically increases. Moreover, one will notice that each frame is hosted on the website of a different web artist, net art curation site, or similar website important to members of this net artist community. Not only does this artwork force the user to consider the role of the network, webhosting, and collaborative art hosting methods, but it also question’s the individual’s role within the distribution of this art piece. Furthermore, by taking note of the networks on which this work circulates, it becomes self-conscious of its own space as a work of net art adrift in the vast digital expanse.

Within the realm of contemporary digital literature, we find also the self-identification as a product of network enabled tools, networked creation, and network distribution in works such

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Rhizome. “Video of Post Net Aesthetics is Now Online.” London Institute of Contemporary Arts, 2013.

<sup>70</sup> Ibid.

as David Clark's *88 Constellations for Wittgenstein (to be played with left hand)* (2008). The massive hypertext reads as an essay—it is a self-declaration conscious of its form, its place upon the internet, and highly aware of the parts from which it is constructed, down to the level of the binary. When navigating the star field map, which connects the subsections of text in one large visual network, we find one such subsection, “64: Digital,” engaging the reader in a discussion of the numbers zero and one.<sup>71</sup> The narrator proclaims, “In this digital world, our hands have only two fingers: one and zero...we have only one choice: one or zero...and we have only two points: here and there [represented visually by one and zero]...only one line connects here.”<sup>72</sup> The narrator proceeds to reference the communication systems on which these bits of data are transferred and how bits of data communicate between two points: what we call a network. Moreover, while nearly the whole form of the hypertext, composed of 88 sub-sections, references back to Ludwig Wittgenstein himself, this section concerns itself with the form of the work, exclusively focusing on the data structure of the piece and the place of this work within a larger system: the network of digital literature. While this work remains conscious of itself, its production, and distribution, it represents not an anomaly, but the increasing norm of digital literature works as self-referential and consciously embodying their network influenced production, creation, and operation.

It is within this consciousness that we may call this born-digital work postinternet. Regardless of its form (again, postinternet art works can be either born-digital, or material works) the work has a strong consciousness of the digital culture, and networks which have

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<sup>71</sup> David Clark, *88 Constellations for Wittgenstein (to be played with left hand)* 2009. <http://88constellations.net/88.html>

<sup>72</sup>Ibid.

allowed for its creation, and indeed which it actively critiques. The inclination I trace, indicates the significance of the role of networks in both an artistic and literary consciousness. This *network consciousness* need not limit itself to the World Wide Web, the internet as we know it, but rather to a multiplicity of networks. Such an aesthetic embraces network consciousness, and seeks to understand the mode of production that creates these works. Whether the post-internet is alive or dead, and whether similar aesthetics such as the new aesthetic, stacktivism are similarly alive is irrelevant—importantly, the newly developed aesthetics within the realm of these textually rich net art works continue to develop, self-critique, and remain highly conscious of the inherent network associations.

Lev Manovich, I believe, strongly voices the concern regarding the sort of reception on the ‘net’ to digital media when he describes *post-net* culture, which calls for new conceptual systems for the digital age to replace our traditional discourse of media.<sup>73</sup> In the digital age, he suggests, we must not describe digital media as ‘interactive,’ since by definition all media interacted with through a human-computer interface (HCI) is “by its very definition interactive.”<sup>74</sup> Similarly, he judges that we might propose that within the context of net art, there is a “distinct medium of net art based on the technology of the Net,” but that does not entail that all art that uses the “Net” is “net art.”<sup>75</sup> Manovich is correct to suggest that the labels such as “net art,” “post-internet,” “post-net,” and “post-digital” would be titles that might, when undefined, become misused and misunderstood. Certainly, the terminology long has, and continues to cause significant debate and confusion.

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<sup>73</sup> Lev Manovich, “Post-media Aesthetics,” 5.

<sup>74</sup> *Ibid.*, 4-5.

<sup>75</sup> *Ibid.*, 5.



Art and technology writer Elvia Wilk suggests that identifying a label that sticks and a label that doesn't is key when ascribing such titles, and in practice, has added to the confusion on a linguistic level, and in the historical context of the field, as *post* aesthetics.<sup>76</sup> I hope to indicate here that these aesthetics, regardless of their labelling, seek to engage critically with the heavier theoretical discourse. Not only do the labels themselves create confusion for those involved, but the difficulty in this realm indicates the inability to simplify a complex, technical, theoretical approach into a certain catchphrase (indeed nearly a hashtag) with which to brand the field. Instead, I would argue that this indicates a problem with the mode of theoretical engagement, rather than with the labels or aesthetics themselves.

I might agree with the criticism both Manovich and Wilk voice—Manovich suggests that media engagement (with either born-digital content or non-born digital), that he calls a *post-media aesthetics*, should respond to six desires, or rather necessities: 1) categories to define how users interact with the data, 2) these categories should not respond to current constructs regarding the formatting of data storage, 3) concepts and metaphors of this field should adopt from the computer and network era, 4) consider authorial intent in relation to the sign and the referent, 5) the ideal versus the actual reader/user should be considered, and 6) user's tactics of interaction follow patterns and their information behavior with the content must be considered.<sup>77</sup> It is from these six points that I show Manovich signals a desire for clarity in the realm of digital media studies. Then, Manovich indicates that the language that exists to describe these works should properly be employed. He also reveals, albeit more specifically in the full text, that the metaphor of the network need play a greater role in study, since the materials of study are

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<sup>76</sup> Elvia Wilk, "Opacity" <http://elviapw.com/1-1-vis/1-1-opacity-intro.pdf>

<sup>77</sup> Manovich, "Post-media aesthetics," 6-8.

products of a networked means of production. I should say that each point of Manovich's encourages (when read in the full length) the network be entirely embraced and understood as entirely inherent in this field of born digital and digitally influenced content. I would simply extend his points, as I am, to works existing before the advent of the web.

Through Manovich's description, it becomes distinct that the network, as he describes it, becomes a desirable metaphor in both digital literature and net art works since they depend upon the network for their creation, distribution, and operation. I share this view with Manovich, and agree that the device of metaphor is essential "in order to see old and new culture as one continuum; in order to make new culture richer through the use of the aesthetic techniques of old culture; and in order to make old culture comprehensible to new generations which are comfortable with concepts, metaphors and techniques of a computer and network era."<sup>78</sup>

Manovich indicates that this is not just a desirable exercise, rather an act that we are ethically bound to perform. It seems that this is not an optional task, but a duty to those who have come before in the field, those who will come after, and to the field's critical vocabulary.

We begin to change our own focus on human-computer interfaces and our interaction with born-digital, or digitally inspired works. Manovich says:

"We can make a parallel here with the trajectory of cultural criticism in the last few decades. Beginning in the 1970s, cultural criticism shifted attention from the author and the text to the strategies/practices of readership (psychoanalysis, cultural studies, ethnography). Critics emphasized that each reader constructs her/his own text and that readers employ various strategies of reading/interpreting/re-using cultural texts. In

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<sup>78</sup> Ibid., 6.

parallel, the designers of human-computer interfaces and software in general started to study the actual ways users employ software and other information technology.”<sup>79</sup>

I note that the use of human computer interfaces rose in this period, beginning in the 1970s, roughly the same period as the rise of cultural criticism. Yet, such criticism necessitates historical distance and such criticism did not address the fields we look back upon in the present. Although these two periods correlate, their reflection upon one another has taken a great deal of time longer to commence.

I indicate that indeed, we are headed in the correct direction in terms of the aesthetics, but the critical language, current discussion, and discourse not sufficiently applied in the field, as Manovich suggests. While we consider Manovich’s proposition that the old aesthetic and the new aesthetic are indeed one continuum, we must look back to the networks that predate the Net (WWW). Within net art, the Bulletin Board System (BBS) popularized what was originally termed “net.art,” and is a titled that in fact is likely derived from a glitched message.<sup>80</sup> The Thing.net was the first net art BBS has received considerable attention in net art study—it has not been studied as network itself though, rather for its content and role in distribution for the sake of the content. Vuk Ćosić, considered a pioneer of net art, at the advent proclaimed that “All art up to now has merely been a substitute for the Internet.”<sup>81</sup> Ćosić suggests here that content (art) has substituted for a network (the Net). Is the medium—in fact—the message?

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<sup>79</sup> Ibid., 7.

<sup>80</sup> Alexander Galloway, *Protocol*, 238.

<sup>81</sup> Ibid., 247.

VI. *On Text, Forensics, and Networks*

I look to Friedrich Kittler's understanding of the shift in language and text creation in order to better understand how textually rich literary and artistic works have inherently changed. Kittler represents in "There is No Software" how language in the digital space depends upon computer aided design (CAD) in message construction.<sup>82</sup> As we inspect our interfaces we can see them as basic extensions of the CPU's binary machine language interface—writing in the mid 1990s, Kittler refers to WordPerfect as an extension of MS-DOS (Microsoft Disk Operating System) as an extension of the system's BIOS (Basic Input and Output System).<sup>83</sup> Such interfaces for constructing textual creations depend upon "geometrical or autorouting powers" for actual generation. To elaborate upon this point, Kittler is describing how our set of signs used in the construction of string of words and character, at the most basic level, has become intensely formalized and structured—characteristics drastically different from an earlier language framework. Therefore it becomes clear how writing has been inherently changed in the digital age by the microprocessor, and is now "formalized as a countable set of instructions operating on an infinitely long paper band and its [set of] discrete signs."<sup>84</sup> Note, not only has *writing* changed, but construction of *any message* in the digital realm must similarly be inherently changed.

In order to continue observing this network shift of digital literature and net art works, it becomes necessary to employ a digital forensic approach for theoretical reasons. I cite Kittler

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<sup>82</sup> Friedrich Kittler, *There is No Software*. <http://www.ctheory.net/articles.aspx?id=74>

<sup>83</sup> Ibid.

<sup>84</sup> Ibid.

above to focus on the *interface* of the machine. By focusing on the interface, we can subsequently look beyond the GUI and avoid the fallacy of mistakenly obsessing over what Kirschenbaum describes as *screen essentialism*: when “‘digital events’ on the screen become the sole object of study,” at the cost of ignoring the code, hardware, and devices of the system.<sup>85</sup> Thus, we must continue to look both at user friendly interface, but also delve deeper using a digital forensic approach in order to identify the forensic evidence indicating a shift imposed by our network influenced language.

Within works of digital literature one must engage in a close reading to investigate the structure of the language beneath the final works. Any command or piece of encoded data is a signifier and should be examined before an understanding of the media can begin to form. Kittler describes how any coded operation within a text can and should be understood at the level of the lowest denominator: “When meanings come down to sentences, sentences to words, and words to letters, there is no software at all.”<sup>86</sup> Specifically, Kittler mentions that coded operations, within BASIC commands for example, such as “call” or “return” are “signifiers of voltage differences” in the simplest sense.<sup>87</sup> We should consider any command to be a signifier of voltage, directional voltage—the voltage has a predesigned path within the system. We work our way from voltage at the base up the hierarchy to binary machine language digits, to the BIOS, to the Operating System, to the GUI, to compositing window managers or graphics engines, to the

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<sup>85</sup> Kirschenbaum, *Mechanisms*, 4 and Trevor Owens, “Glitching Files for Understanding: Avoiding Screen Essentialism in Three Easy Steps” *Library of Congress*. <http://blogs.loc.gov/digitalpreservation/2012/11/glitching-files-for-understanding-avoiding-screen-essentialism-in-three-easy-steps/>

<sup>86</sup> Kittler, *There is No Software*. <http://www.ctheory.net/articles.aspx?id=74>

<sup>87</sup> Ibid.

application, to visual output—all culminating to create a functional human-computer interface.<sup>88</sup> Although contemporary computing systems are far more advanced than the systems Kittler describes, the layering is identical. The Matryoshka doll, a repeated computing metaphor, requires each nested shell to be placed inside in order for the user to interact with the outermost interface.<sup>89</sup>

Similar to these systems of hierarchical systems for structured data storage, compression, encoding, and other manipulation systems, I argue that control in these structures is inherently nested in the manner Deleuze observes in his “Postscript on the Societies of Control” (1992). The hierarchy, as we will see in the subsequent chapter, plays a key role in understanding distributed control, and partial resistance to vertical control in a network such as the World Wide Web.

Deleuze’s control society allows one to view both the hierarchical nature of computing and the design of computing systems and workstations by corporate entities, imitating the corporate structure of control, and recreating the corporate hierarchy within digital environments. Deleuze demonstrates how in a society of control, no longer a society of discipline, the corporation takes the place of the factory; the corporation maximizes control by presenting “brash rivalry” as healthy, and as a motivational force to force opposition between individuals, while simultaneously modulating individual salaries to create a “perpetual metastability” that operates through internal challenges, contests, and “highly comic group sessions.”<sup>90</sup> So, as the

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<sup>88</sup> Ibid.

<sup>89</sup> In relation to the Matroska file format (.mkv) and related implementation of open-source file compression containers for encoding, in relation to file storage system hierarchies

<sup>90</sup> Gilles Deleuze, “Postscript on the Societies of Control,” *Jstor*. 4-5.

corporation refines the mechanisms of the control society, similarly the corporation is designing the systems and digital language, which corporations implement into the design of the object of production. Moreover, the language referred to earlier is nested, and hierarchical to resemble the corporation.

Do contemporary works of digital literature and net art ascribe to the corporate language of control, or do these creative works seek to break down the barriers and usurp control within the digital realm? Networked language, also highly corporatized, is exploited in digital literature and net art. Although these works may be shared on worldwide networks, most of these works use the internet as a platform to re-distribute the work, rather than embed this language of control directly within itself.

I restate my argument: tendencies towards networked language have always been present in digital literature and net art and exist earlier than previously believed—but that does not necessarily require these works and new works in the present to repeat and perpetuate language of control. Material (non-digital) works of the postinternet and new aesthetic in fact well resist *repeating* and *reinscribing* this language of control. It is because digital literature and net art can operate outside of the bounds of the network they are given the unique perspective, different from all other creative aesthetics, to look back upon the digital networks, language, and control societies that we as users navigate through. This critical eye allows the creator to, through the work, speak critically upon the systems with which we interact.

VII. *Control in Networks/Control in Network Societies*

I believe that Hardt indicates that the networked communication systems in our society of control represents a system in which the walls of the previous societal institutions have collapsed around us.<sup>91</sup> Since the previous institutions of disciplinary order have reformed, now “there is progressively less distinction...between inside and outside” the modern/postmodern space. Just as one sees the public area in physical urban spaces privatized, one can see the same in the digital world: issues of net neutrality, notable CIA and FBI use of private information, information theft by sources unknown (government on government, government on individuals, individual reclamation from government) all contribute to the loss of neutral space in the digital realm (including hardware design and manufacture, software design, and web publishing).<sup>92</sup>

Galloway’s *Protocols* (2004) discusses the horizontal versus the vertical structure of control. I first will draw from Eugene Thacker, who contributes an impressive foreword to Galloway’s text, prefacing his points by first proclaiming that “post-industrial society, the information society, the network society, disciplinary society, control society, informatization, scale-free networks, small worlds, and smart mobs all [indicate that] social change is indissociable from technological development.”<sup>93</sup> Thacker evidences that forms of reading social organization and networked/stratified groups of persons are inherently linked with our relations to technology. Thus, Thacker shows that social communication and structure has always had a close relationship to its technology. Although Thacker focuses more upon code itself, he

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<sup>91</sup> Michael Hardt, “*The Global Society of Control*” 5.

<sup>92</sup> *Ibid.*, 4.

<sup>93</sup> Thacker in Galloway’s *Protocol*, xii.



describes code as a “Set of procedures, actions, and practices, designed in particular ways to achieve particular ends in particular contexts. Code = praxis.”<sup>94</sup> Thus, it is not within the communication system, but within the written language, the code, of our communication system and the embedded media where evidence for our forms of collective communication occur. But I draw greatest significance for my argument from Thacker’s notations on vertical versus horizontal protocol embedded in the network. In order to grasp systems of protocol, one must “grasp the technical and political dynamics of TCP/IP and DNS at the same time”.<sup>95</sup> I will, briefly, draw a short explanation, made clear by Thacker in the text:

“the Internet is ... constituted by a bi-level logic that [the TCP/IP and DNS structured architectures] explain. On the one hand, TCP/IP (Transmission Control Protocol/Internet Protocol) enables the Internet to create horizontal distributions of information from one computer to another. On the other, the DNS (Domain Name System) vertically stratifies that horizontal logic through a set of regulatory bodies that manage Internet addresses and names. Understanding these two dynamics in the Internet means understanding the essential ambivalence in the way that power functions in control societies.”<sup>96</sup>

I note the importance of this passage for the future discussion of large control within the framework of the net and the inherent control of the data packets that are sent over the net. I also will remark that the reader should keep in mind while reading this section that each of the layers I will describe represents another mechanism of control in a distributed network. Moreover, the

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<sup>94</sup> Ibid., xii.

<sup>95</sup> Ibid., xv.

<sup>96</sup> Ibid.

discussion may seem technical—in fact it is. The network is a technical system and the devotion of an entire field of study has created network theory—other related fields of graph theory and communication studies also greatly overlap with and contribute to network studies.

Both Galloway and Thacker evidence that deeply embedded in our communicative systems, and the architecture of Internet Protocol itself, is a bi-layered system of centralized/distributed control. Specifically, the DNS represents the *application layer* of the Internet, while TCP/IP represents the *transport later* of the Internet.<sup>97</sup> I will use the following definition throughout to refer to what both author's interchangeably label the *Net* and the *Internet*, as opposed to just an *internet*. The explanation I will carry on with during my discourse is specifically the TCP/IP, which is the foundation of the *Internet* proper: connecting the WWW, direct peer-to-peer networks, email transmission (SMTP), among many.<sup>98</sup> This differs from the OSI model (made up of seven layers as opposed to 4, and a more rigid system). The ISO (International Organization for Standardization) began developing OSI (Open Systems Interconnection Project), which is still more formally known as ISO/IEC 7489-1.<sup>99</sup> I shall digress here and give a brief technical history of the development of the internet as we know it, in order to indicate how and why the Internet Protocol Suite (made up of the four layers as we know it) came to fruition, and became the platform upon which the World Wide Web was developed.<sup>100</sup> Although the 7-layer OSI system began in 1977, and seemed to represent the route that information organization, layering, and transmission on the internet would take, by 1983 little

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<sup>97</sup> Ibid., 40

<sup>98</sup> Ibid., 42

<sup>99</sup> Ibid., 124

<sup>100</sup> Ibid., 136

headway was made.<sup>101</sup> Similarly, in January of 1983, the U.S. Department of Defense mandated the use of TCP/IP on Arpanet, and some signal this as the birth of the internet.<sup>102</sup> In 1985 the U.S. National Research Council recommends that the Department of Defense migrate gradually from TCP/IP to OSI.<sup>103</sup> In 1988 the U.S. Department of Commerce mandates that government agencies buy ISO-compliant products. But, it still seems the questions looms, “Is OSI Too Late?” – 1989.

Finally, in 1991 Tim Berners-Lee announces the public release of the World Wide Web for the internet. On the TCP/IP side, BSD became the first UNIX operating system to adopt the TCP/IP protocol in 1983 with the release of 4.1cBSD, emerging from UC Berkeley.<sup>104</sup> The Internet, with the support of the then current Internet community, ARPA, and the Defense Communications Agency began to flourish. The IAB (Internet Activities Board) and IETF (Internet Engineering Task Force) then governed TCP/IP standards in a lesser way than the ISO governed OSI—nearly all involved in both organizations were voted out of their positions of power after IAB and IETF leaders addressing a conference that recommend the Internet community adopt certain OSI protocols.<sup>105</sup> Moreover, the TCP/IP standards were free and available to all, while the OSI licensed use of its protocols. Such a choice to adopt the free, open network and language of TCP/IP for the Internet rather than the control embedded in the ISO’s

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<sup>101</sup> Andrew L. Russell, “OSI: The Internet That Wasn’t,” IEEE. <http://spectrum.ieee.org/computing/networks/osi-the-internet-that-wasnt>

<sup>102</sup> Galloway, *Protocol*, 26

<sup>103</sup> *Ibid.*, 129-30

<sup>104</sup> *Ibid.*, 124

<sup>105</sup> *Ibid.*

licensing, represents the desire to minimize vertical control on the Internet. Since the advent of formalized, world-wide, open communication systems, there has been a desire for free, accessible, open standards for communication. Moreover, this system decentralizes control, distributes control, and minimizes hierarchy.

To return to Thacker, I suspect that, likely for readability/clarity sake, he leaves out the protocol of the internet layer (for example IPv4 and IPv6) which routes information through packet-switched internetworking, which eventually route information up to the Transmission Control Protocol (TCP) at the transport layer.<sup>106</sup> Thacker also leaves out the layer beneath the internet layer, called the link layer, or Network Access Layer.<sup>107</sup> Within a TCP/IP model this usually conforms to standards such as Ethernet, or other pre-defined models.<sup>108</sup> Regardless, the link-layer uses pre-existing, undefined protocols in a TCP/IP model, which rests directly atop the hardware layer, which physically transmits data.

Moreover, to return to the greater significance of this hierarchy, I would confirm that Galloway's focus on the TCP/IP (the transport layer and internet layer) indicates his focus on the network, and collective communication rather than communication simply between segments.<sup>109</sup> Galloway focuses on the internet layer, which "connect[s] independent networks, thus establishing networking" and the transport layer, which "handl[es] host-to-host

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<sup>106</sup> Ibid., 39.

<sup>107</sup> Ibid.

<sup>108</sup> Ibid.

<sup>109</sup> Ibid., 38.

communication.”<sup>110</sup> Such a focus indicates, in his research, the necessity for the infrastructure of the entire horizontal network to exist in relation to the vertical network. Moreover, the vertical and horizontal hierarchies are dependent upon another, and cannot exist alone. Within the vertical hierarchy, each sub-layer is necessary; within the horizontally distributed network, each node equivalently adds to the strength of the overall network. This system makes up the web as we know it.

In such a system where control is distributed evenly, each node becomes a vital part of the whole. Where theorist Franco Moretti uses quantitative data analysis to understand literature, he integrates network theory as a core element of his process.<sup>111</sup> Within a text, Moretti turns characters into *nodes*, or vertices, and the communication of these characters into *edges*.<sup>112</sup> By engaging in what he calls “distant reading,” coming out of “serial reading,” he focuses on studying the abstraction from *text* to (data) *model* in order to understand the implications of the works from afar.<sup>113</sup> Although Moretti may apply the concept of the network to the individual book, his work focuses on tying books together across periods, emphasizing the significance of each text within the larger *network* of texts.

So, to return to my own focus on digital literature and net art, I indicate that in addition to the close reading of individual works of digital literature, the distant reading of these

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<sup>110</sup> Ibid., 39-40.

<sup>111</sup> Franco Moretti, *Graphs, Maps, Trees*. 4.

<sup>112</sup> “Edges,” in graph theory, refers to the lines that link the nodes in a visual graph. Eugene Thacker, *Protocol*, xviii and Kathryn Schulz, “What is Distant Reading,” <http://www.nytimes.com/2011/06/26/books/review/the-mechanic-muse-what-is-distant-reading.html?pagewanted=all>

<sup>113</sup> Moretti, *Graphs, Maps, Trees*. 4 and Moretti, *Distant Reading*. 121-122

‘tendencies’ that I describe, is also significant. By engaging in the lengthy chronology I do in the context of my own research, I seek to enable, but not but not become limited by, a distant reading of the texts’ importance within the field. By methodically selecting discrete works in my three different stages of the evolution of these genres, I indicate that these works are not interchangeable with one another, but in fact represent a distinct, constant evolution of text in the field. Moreover, I would agree with Kirschenbaum’s claim that “distance reading” to study patterns over time is not alone enough to allow us to understand a text, rather these tools are only useful in their relation to the reading of a text, whereas Martin Mueller says, “knowing how to ‘not-read’ is just as important as knowing how to read.”<sup>114</sup> Still, the converse of this statement rings true.

It is here where my own claims become justified through the understandings of Kittler—when Kittler claimed “all of literary theory is media theory,” he indicated that all such close and distant readings become significant as they relate to the study and transformations of media.<sup>115</sup> Galloway describes Kittler’s amazement with *Dracula* for its “orgy of media formats,” and describes exactly how such great works are significant in how they thematically represent media technologies, and how in their physicality, they become “tangible media artifacts.”<sup>116</sup> I maintain that the metaphor of the network facilitates a correspondingly enormous gravity in the genres of digital literature and net art. Moreover, aside from its role as a literary device, this metaphor also represents a focal point for the study of the media transformation in these genres. Such a

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<sup>114</sup> Kirschenbaum, *The Remaking of Reading: Data Mining and the Digital Humanities*.

<sup>115</sup> Moretti, *Distant Reading*. 121-122.

<sup>116</sup> Galloway, Alexander. “Franco Moretti’s ‘Distant Reading’: A Symposium by Kathleen Fitzpatrick, Alexander R. Galloway & James F. English,” 2013. <https://lareviewofbooks.org/essay/franco-morettis-distant-reading-a-symposium>.

centerpiece allows an audience great insight into the fields, and the genres themselves, but most exceptionally—into digital media studies. Couldn't one say that *all of digital literature studies digital media theory?*

VIII. *Foucault: A Defense of the Archive and an Archaeology of Knowledge*

I will elaborate here a series of events, and a logic that justifies this paper's use of the archive for source material. The archive is a vital place to search for the primary texts used in this thesis; the archive allows the study of both of these disparate realms of digital literature and net art apart and jointly; the archive lends critical distance in conjunction with that permitted by constant temporal passing; the archive allows one to organize the knowledge and help synthesize new, critical thought rather than rehash discussion of well-established realms upon which critical theory so often trounces. Jussi Parikka, in the introduction to Wolfgang Ernst's *Digital Memory and the Archive* (2012), says "we do not often visit archives, but the archives still have a keen interest in us," which emphasizes the importance of the archive to the human, and to the human systems of knowledge that Michel Foucault refers to in his *Archaeology of Knowledge*.<sup>117</sup> Although, at the time, I encountered difficulty accessing media, reproducing similar effects in digital media I was studying over a multiplicity of access time, I came to learn a great deal more about the media that I was ever expecting. More so, I came to learn a greater deal about "the archive" and the ways in which the Western archival approach categorizes knowledge, organizes knowledge, and crafts 'memory.' Such work has also emboldened me to rethink my own archival work, as well as the methods and implications of crafting 'memory.'

Examination of the archive is paramount because it allows us to study both digital literature and net art within the context of the respective *discourse*—using Michel Foucault's definition of discourse in the archive as it defines a limited set of knowledge, a "specific history"

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<sup>117</sup> Jussi Parikka in Wolfgang Ernst's *Digital Memory and the Archive*, 1.



that characterizes a unity through time, and beyond an *ouvre*, book, or text.<sup>118</sup> The discourse depends upon the *discursive formation*, which creates regularity in a group of statements that constitutes a discipline.<sup>119</sup> What the archive constructs is these discursive formations—the archive categorizes knowledge and knowledge systems. The archive is an active, living medium that is crafted and molded from the creators, the curators, and the archivists.

Archival study grants us chronological distance, and reduces the biases of the present in our contemporary positions of archivists. Foucault says that knowledge from the archive emerges in fragments—greater sharpness occurs with a greater amount of time separating it from us. For some documents, “great chronological distance [is] necessary to analyse” them—Foucault indicates here that time is always necessary, and it seems an archive of the present might be possible to create, but not to understand.<sup>120</sup>

Archival study of these disciplines allows us to compare these two seemingly disparate realms. By focusing on each group set of knowledge, since these discourses have largely been studied by distinct bodies, I am able to map out the trends in these fields as historical narrative has been created around them. Then, I am able to take the narratives of these distinct fields, and work to reduce the subjective, while observing the objective in the two histories—from this I derive my argument. This is how I observe the convergence of digital literature and net art in pre-networked, early internet, and contemporary periods. Moreover, this is how I ultimately trace

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<sup>118</sup> Michel Foucault. *The Archaeology of Knowledge*. 126.

<sup>119</sup> *Ibid.*, 74.

<sup>120</sup> *Ibid.*

these patterns to the language that resides at the foundation of the work, which represents the proclivity towards networks in the embedded language.

When taking on this task, I spoke to David M. Hays, the head archivist at the University of Colorado at Boulder Archives. He suggests (already in agreement with Foucault) that the passing of time, when studying the archive helps give historical distance, but ultimately yields greater significance when perspective shift—the subjectivity of the smaller perspective is reduced with the passing of time.<sup>121</sup> This means that the dominant view, with the most evidence, tends to be remembered ‘better.’ Hays reasserts Foucault’s notion of cumulative knowledge: as time passes history is crafted through the accumulation of previous knowledge—this is drawn from Foucault’s understanding of *disciplines* and *discourses* as devices that group previously recorded knowledge.<sup>122</sup> Beyond this, Hays discloses that as an archivist, his research is not engaged in *history*, rather *memory*.<sup>123</sup>

When creating such *memory*, turning to a visual aid such as the mosaic lends the researcher some critical grasp. In the mosaic, tiles lie in some set arrangement, with the mortar holding them together. Over time, in the mosaic, the mortar decays, loses its strength, and it may ultimately fail. Such mortar periodically needs to be replaced. The mortar is the *context* of the time, and the tiles the documents and facts. The biases of the present, in the mortar, change and thus change the viewer’s image of the mosaic. Hays, in discussion, suggests that this mosaic in

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<sup>121</sup> David Hays (University of Colorado Boulder Archivist) in discussion with the interviewer Kyle Bickoff, February 2014.

<sup>122</sup> Ibid.

<sup>123</sup> Ibid.

the archive is indeed not a two-dimensional image, rather a three-dimensional image.<sup>124</sup> Thus, as the viewer observes this mosaic, the angle and pitch of the plane changes in such a manner as to reveal a different side of the tiles. Like a holographic print, where a user's perspective may completely change the interpretation of the image, the shifting viewer's perspective in relation to the mosaic may change the reception of this image.<sup>125</sup> Moreover, the tiles of the mosaic themselves may appear differently from image fading, lighting shift, contrast deviation, among others. Thus, this mosaic, which represents memory or history as understood in the archive, also shifts. This archive of knowledge, open to constant change in perspective, permutes with the passing of time, and always in relation to the present.<sup>126</sup> This history becomes fluid and the narratives flexible.

My own argument undertakes an assertion that seeks to insert itself in this fluid history. My examination endeavors to take the current cataloged archaeology of knowledge about these two disciplines, understand them in their temporal context, and then aim to reinterpret these disciplines within the current digital age. Moreover, by embracing periods in which a set of knowledge has already been cataloged, my own research takes into account the previous methodologies used and also functions to shift the perspective on these works in the comprehensive mode our present digital media studies scholars entreat. For example, as we observe the language and the distribution methods of these works, we now view these works in a different light—we observe these works of literature and art in relation to their formal structures, based upon the language that composes these works, the language that allows the user to interact

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<sup>124</sup> Ibid.

<sup>125</sup> Ibid.

<sup>126</sup> Ibid.

with these works, and the finally the language that enables and accelerates the distribution of the media content.

Although Foucault seeks to create a methodology for historical analysis that is freed from the anthropological, Foucault understands the importance of the archive to the human. Foucault, moreover, would agree with Parikka's sense that archives have a keen interest in the human—Foucault says that the human cannot describe the archive since we are bound within its rules, and we can never describe the archive in its totality.<sup>127</sup> But, we can analyze the archive, which is “at once close to us... surrounds our presence, is at the border of time, which is outside of ourselves, [and] delimits us”.<sup>128</sup> What Foucault is saying here is that the archive is still bound, in some capacity, to the *human*. So, if the Archive has a keen interest in the human, and then as humans, we are inherently interested in creating the archives from our knowledge and classification that we will study, then the archive is inherently concerned with the human—and when we engage in archival exploration, we study the human in some capacity.

When examining the human component in these works of digital literature and net art, we are indeed investigating both the unmitigated structure of the discourse, as well as the human elements of the work. When studying technological interfaces, for example Microsoft's Apple BASIC, we engage in studies with both the structure of the system, as well as how the human can disrupt this system. Foucault points to these dispersions, ruptures, and discontinuities in order to question teleologies.<sup>129</sup> When I refer to the tendency towards networked methods of production, consumption, and distribution, I refer to this proclivity which, I claim, are

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<sup>127</sup> Foucault, *The Archaeology of Knowledge*, 130.

<sup>128</sup> *Ibid.*

<sup>129</sup> *Ibid.*, 8.

predilections inherently derived from the 'human' elements. The human itself lies distributed across the network. As noted in Chapter V, the network has replaced art, and the network as a medium itself has become the message. By interpreting this message and its transference one finds that at the core of the message lies the human. The network is an inherently humanistic system and perpetually reproduces such a message. In a circular fashion, this is the system that allows us to organize disciplines and discourses of knowledge—the archive itself becomes a network of human memory.

IX. *Conclusion or 'Force Quit System Process'*

As we have traced digital literature and net art temporally, we see these forms continue to refer to their design, implementation, and communication about and within the network and the information society—visibly, early works of net art and digital literature, including those of bpNichol and Mark Lombardi, may have preceded the creation of the internet, but were still constructed around the notion of information networking in order to arrange and begin organizing the multitudinous data in the given aesthetic.<sup>130</sup> In this convergent realm, this centering began before the advent of the web, but in fact revolved around networked language of the time and continues to evolve around the network. In the present, the networks influence creation, distribution, and operation. I indicate the network's influence can be traced from as early as these pre-internet works to the advent of the internet. Upon the emergence of the internet, we observe works such as Jodi.org and Mez's code poetry which are built upon internet markup languages, and the ability to be accessed in the web browser by a mass audience.<sup>131</sup> Finally, in the present we observe Jon Satrom and David Clark, utilizing the command terminal, the GUI, and binary language to communicate directly through their works. As we see an inclination towards this convergence of form and genre, we witness the web become a common creation and publication mode coupling these formerly disparate cultural techniques.<sup>132</sup> Nöth, Hardt & Negri, and Latour create the theoretical bridge to understand how exactly the form or

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<sup>130</sup> Castells, *The Rise of the Network Society*, 21.

<sup>131</sup> HTML and XML, respectively

<sup>132</sup> *Kulturtechniken*, or cultural techniques. Such a term seeks to “to account for basic operations and differentiations that give rise to an array of conceptual and ontological entities which are said to constitute culture,” within a German media studies context. Geoffrey Winthrop-Young. “Cultural Techniques: Preliminary Remarks.” *Theory, Culture & Society*. November 2013 vol. 30 no. 6, 3-19. [http://monoskop.org/Cultural\\_techniques](http://monoskop.org/Cultural_techniques)

work itself is influenced by the network, and indicate precisely how and why such sub-networks tend to converge. Here we reaffirm the tendency towards a more common form and trend in the future in the postinternet, or more likely the *new aesthetic* or *stacktivism*.<sup>133</sup> Regardless, the postinternet and other contemporary forms entail that the creator must engage in referencing creative process and its specifically network influenced form in a system that no longer seeks to escape the Net or its inspired digital tools, where we act as “compulsive participants of [the] inherent culture.” The works consciously understand the reality of and the desires of our current information society and our now advanced capitalist mode of information production.<sup>134</sup> Thus the true integration of the inevitable reality of the “network society” is most clearly visible now through our art and literature.<sup>135</sup> This postinternet/new aesthetic/stacktivist aesthetic nourishes this inclination in an interdisciplinary mode—certainly inclusive of both net art and digital literature. More importantly, by approaching these media through the context of their relative contemporary information societies, this historical approach to media studies reveals the underlying dependence upon networked communication, network culture, and the network society in this cyclical feedback loop of a networked mode of production. It is, certainly, the network itself that has created the structured communication languages of Apple BASIC, markup languages, and the common structured interface of the terminal. By making apparent the network underlying the current digital literature and textually rich net art works, I hope to have made palpable the existence of network-influenced art works, the continued penchant towards the

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<sup>133</sup> Even these terms as concrete aesthetics remain in question, as creators begin now to circulate words such as “post-new aesthetic”

<sup>134</sup> Jürgen Habermas, *Legitimation Crisis*, 33-6 and Manuel Castells, *The Rise of the Network Society*, 21.

<sup>135</sup> Castells, *The Rise of the Network Society*, 21, 407-8.

further network-influence of works, and the future direction in which these modes are headed as these networked works (or *netwurks*—to reference Mez) continue to converge and integrate these common elements.



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