

DISCONNECTION NOTICES: NETWORKS AND POWER AT THE
INTERSECTION OF TECHNOLOGY, BIOLOGY, AND FINANCE

Grant David Bollmer

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Approved by:

Sarah Sharma

Lawrence Grossberg

Mark B. N. Hansen

Ken Hillis

Christian O. Lundberg

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ABSTRACT

GRANT DAVID BOLLMER: Disconnection Notices: Networks and Power at the Intersection of Technology, Biology, and Finance
(Under the direction of Sarah Sharma)

This dissertation argues that the concept of the network has brought together technology, economics, biology, and the social under a feigned logic of totality. This study examines the origins and everyday implications of this totalizing network discourse. When networks are taken to describe all relations, the connections and flows of the above four areas define all that exists. But we are not “connected” thanks to the material structure of new technological and social networks. Instead, we have been made to think of ourselves as connected through the naturalization of an ideology. That which does not connect “properly” is rendered an aberration from existence.

This dissertation is comprised of two parts. The first part argues that the academic theorization of networks emphasizes materiality and nature in such a way as to assume there are no alternatives to networks. Connectivity and flow inevitably ground all possibilities for our contemporary moment, if not all eternity. This reading of networks is ahistorical. When the history of network discourse is acknowledged, it is clear that our understanding of networks has cultural origins that are centuries old. Networks, connectivity, and flow are contingent assumptions about reality, naturalized through technology and discourse.

The second part examines how the naturalization of network ideology produces subjects that are compelled to manage connectivity and flow throughout the network as a

whole. The two case studies discussed in this part, which examine various forms of social networks, together present how the “empowerment” produced through connectivity becomes disempowerment when individuals must manage both their own personal connections and flows along with the connectivity and flow of the networked totality. Connection management does not stop at the individual. Managing the self is equated to the management of the network—and the management of the entire network is impossible. Thus, individual human beings are rendered insignificant or dangerous to the management of connection and flow.

Nature builds no machines, no locomotives, railways, electric telegraphs, self-acting mules etc. These are products of human industry; natural material transformed into organs of the human will over nature, or of human participation in nature. They are *organs of the human brain, created by the human hand*; the power of knowledge, objectified.

Karl Marx, *Grundrisse* (1973, p. 706)

One should never tell anyone anything or give information or pass on stories... Telling is almost always done as a gift, even when the story contains and injects some poison, it is also a bond, a granting of trust, and rare is the trust or confidence that is not sooner or later betrayed, rare is the close bond that does not grow twisted or knotted and, in the end, become so tangled that a razor or knife is needed to cut it.

Javier Marías, *Your Face Tomorrow, Vol. 1* (2005, p. 3)

People want to share and stay connected with their friends and the people around them... If people share more, the world will become more open and connected. And a world that's more open and connected is a better world.

Mark Zuckerberg, CEO of Facebook (2010)

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This dissertation is dedicated to the memories of John Brubaker and Peter Brunette.

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INTRODUCTION

NETWORKS, CONNECTIVITY, FLOW, CITIZENSHIP

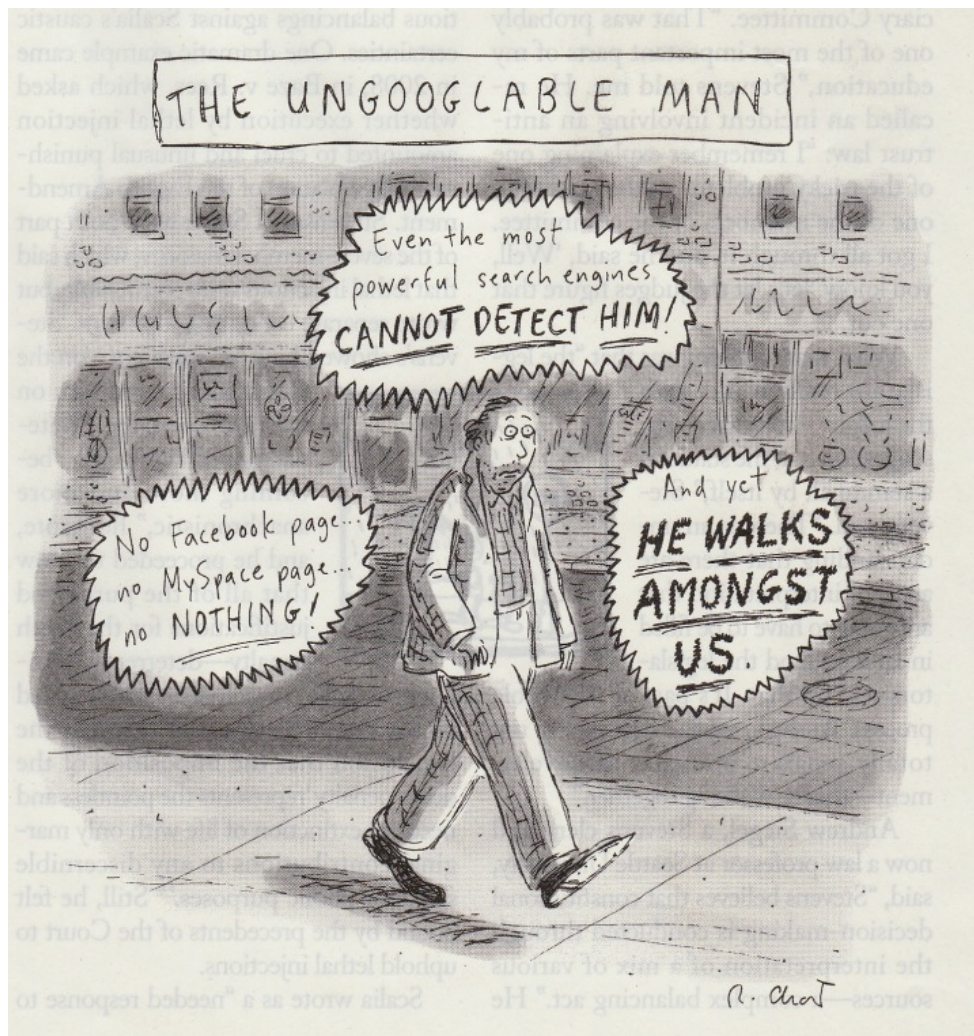


Figure 1: “The Ungoogleable Man:” “Even the most powerful search engines *cannot detect him!* No Facebook page... no MySpace page... no *nothing!* And yet *he walks amongst us.*” Source: Roz Chast, *New Yorker*, March 22, 2010.

What would it mean to be “Ungooglable?” What would happen if one were neither detected by search engines nor by social networking websites? Yuri Milner, a major Facebook investor from Russia, has suggested that social networking profiles will be our identification documents of the future. “The government issues passports. Now you have somebody else worldwide who is issuing passports for people. That is competitive, there’s no doubt about it. But who says issuing passports is government’s job? This will be global citizenship” (quoted in Kirkpatrick 2010, 328). For Milner, Facebook will replace governmental structures in a world defined by social networks. Citizenship will be based on one’s connection to a network. Likewise, former governor of Minnesota Tim Pawlenty, during his failed 2012 presidential campaign, proposed what he referred to as “The Google Test.” “If you can find a good or service on the Internet,” he claimed, “then the federal government probably doesn’t need to be doing it.”¹ But what isn’t on Google? Should the government only be doing things that are Ungooglable? Pawlenty’s Google Test resonates with a long tradition of neoliberal perspectives on technology from Ronald Reagan to Newt Gingrich. Network technologies will replace the federal government, specifically through communicative direct democracy (Mosco 2004). Citizenship, again, is not about state or government. The recognition of citizenship is based on one’s connection to the Internet.

¹ Throughout this dissertation, newspapers and online sources will be cited in footnotes. All other sources will be cited with parantheticals. The Pawlenty quote comes from Alexandra Petri, “Tim Pawlenty’s Failing Google Test,” *Washington Post ComPost Blog*, June 7, 2011, accessed October 7, 2011, http://www.washingtonpost.com/blogs/compost/post/tim-pawlentys-failing-google-test/2011/06/06/AGSlpOLH_blog.html.

Roz Chast's cartoon "The Ungoogleable Man" (Figure 1) depicts its eponymous antihero as unshaven, unclean, and slightly overweight. He has no social networking profile and is thus rendered invisible. He "walks amongst us" but cannot be identified. This cartoon brings to mind the "Forgotten Man" described by Franklin Roosevelt in his April 7, 1932 radio address. For Roosevelt, the Forgotten were the workers at "the bottom of the economic pyramid."² The Forgotten were the ones hit hardest by the Depression. They were excluded from government and economy. The Ungoogleable, on the other hand, are those beyond the boundaries of technology. The Ungoogleable do not or cannot connect to others. And, like the Forgotten before them, they are excluded from an ideal of citizenship. This new citizenship, however, is based on the logic of networks. Following this logic, if the Internet was to replace governmental institutions, then one disconnected from the Internet would be outside the limits of governance.

In the following pages, I argue that nearly any contemporary discussion of networks relies on an ideology that defines connection and the circulation of flows as natural, material, or ontological attributes of the contemporary "network society," if not all history writ large. Networks depend on *a feigned logic of totality*. That which is networked comes to substitute for all that exists. To connect and to flow are to follow the way of nature. To refuse the logic of the network is to somehow exist beyond any possibility for existence. Political struggles are assumed to take place according to the logic of the network, *and only within the logic of networks*. The naturalization of network ideology produces a conception of network subjectivity along with an increasingly

² Franklin D. Roosevelt, "The Forgotten Man," *Pepperdine University School of Public Policy: Franklin D. Roosevelt Speeches*, April 7, 1932, accessed October 10, 2011, <http://publicpolicy.pepperdine.edu/faculty-research/new-deal/roosevelt-speeches/fr040732.htm>.

prominent social imaginary made up of “network citizens.” Network citizenship is a set of proper behaviors naturalized in relation to the management and perpetuation of the network itself. As in the examples above, we are not yet network citizens. But discourse associated with technology produces network citizenship as an inevitable future ideal.

In the context of network citizenship, a hierarchy that speaks to the ability of individuals to manage their connections and flows emerges. Proper citizens are the ones who pledge allegiance to networked flows, to the global connectivity that transcends state and nation. This citizenship is not based solely on the management of self, however. It is based on managing the self *as well as* the totality of all connections and flows on a network. Discourse defines networks as inherently totalizing. Being connected means being connected to *everyone*. As a result, taking responsibility for one’s self involves taking responsibility for the entire network. The irony of this is that human beings are not very good at managing their connections and flows. Managing the totality is an impossible task. In the discourses of network culture, we are constantly reminded that we are potentially Ungoogleable. Even if one accepts the demand to connect and flow as common sense, if not foundational for the laws of nature, human beings are always positioned as that which is at risk of disconnection. Humans are viewed as transgressive network citizens in the making, as potential aberrations from the natural order of existence. And in the discourse of networks, these improper citizens do not actually exist. They are, instead, Ungoogleable. As I will argue in the coming chapters, when network ideology is naturalized, human beings are positioned as outside nature. Technology, because it exists in the form of a network, is positioned as a pure manifestation of natural law.

But a network is in no way a purely material or ontological entity. Networks are not natural things. They are, as Marx stated about technology more broadly, “products of human industry; natural material transformed into organs of the human will over nature, or of human participation in nature. They are *organs of the human brain, created by the human hand*; the power of knowledge, objectified” (1973, 706). Networks are necessarily *discursive*. They must be understood as a historical and cultural conjunction of materiality and language. They are things to think with and things that legitimate a specific way of thinking. They are ideology made manifest. And, most significantly, networks are not neutral. They produce subjects and define the proper behavior of those subjects. Too often, networks are assumed as purely material or purely natural. But to understand technology, one has to move beyond the technological. If technology is, as Marx claimed, the power of *knowledge*, objectified, then the questions that must be asked are questions *about knowledge*. Where did this knowledge originate? How did it change? How was it naturalized? And how does it produce subjects today? This dissertation intervenes in the theorization of networks by asking these questions. How do we understand networks in critical/cultural, political economic, and philosophical analyses of technology and culture? What are the historical and cultural origins of this “network theory?” And how does the naturalization of this network ideology produce everyday subjects and citizens of a “network society?” When networks are naturalized, what does it mean for the humans who are then made Ungooglable?

Defining Networks

When I use the terms “network” and “network theory” I am referring to a large and diverse body of academic work. This includes analyses of political economy (Bell 1973; Benkler 2006; Castells 2000a; 2000b; 2004; 2009; Harvey 1990; Nora and Minc 1980; Sassen 1991; Shirky 2008; 2010), political theory (Dyer-Witheford 2009; Galloway 2004; Galloway and Thacker 2007; Hardt and Negri 2000; 2004; 2009; Lazzarato 1996; Terranova; 2004), science and sociology (Barabási 2002; Buchanan 2002; Christakis and Fowler 2009; Granovetter 1973; Johnson 2001; Kauffman 1995; Kelly 1994; Kurzweil 2005; Milgram 1967; Watts 2003), and philosophy (Bennett 2010; Harman 2009; Latour 1988b; 1993; 2005; Lévy 1997; Rotman 2008; Taylor 2001; Thacker 2004a; 2005). These authors all differ considerably. Many of these works are about technology. Many are not. Yet, I argue, they all are united in assuming that networks are either material or natural. In these works, networks variously refer to technology, economics, biology, and the social. Through networks, these four areas define the world. This world is one made up of material connections and flows. In network theory, networks are not treated as ideological. Instead, the starting point is a world that is materially or naturally networked.

Let me now expand on how I define some of the terms introduced and implied above: *network*, *network theory*, and *network citizenship*. The definitions below are intended, first, to further identify discursive regularities about networks, and second, to begin to outline the implications of networks and connectivity in contemporary culture, implications that will be developed throughout the rest of the dissertation. I am not defining ontological attributes of networks here. I am simply attempting to define what

networks are given dominant discourses about networks and network technologies. In this introduction, I make three claims. First, how network theory understands networks is an invention of Western modernity that implies an overcoming of the limitations of modernity. I make this claim by comparing the assumptions of network theory with those of modern Western thought. Second, in this theory, networks are totalizing. There is no outside to a network. I contrast networks with “systems” in cybernetics to show why this is. And finally, when related to everyday life, networks define a model of citizenship based on a discourse naturalized through technology. Networks are understood to undermine the concepts of state and public central for the theorization of citizenship. Thus, the limits to citizenship must be reframed to understand how ideals of citizenship are produced through network discourse.

When networks describe the behavior of humans, proper citizens of a network are directed to behave in such a way as to mirror a discourse of technology. But technology cannot be detached from ideology. To borrow a phrase from James Carey, a network is “a thing to think with, an agency for the alteration of ideas” (1988, 204). How we understand technology has a history that is messy and contingent. Yet, when ideology is neglected, this understanding is taken for nature. Human behavior is defined in accordance with a contingent model of thought that is taken as truth because of its assumed technological materiality. The history of the discourse that produced this way of thinking is neglected. The network is taken to define all of material existence. In network theory, there are no alternatives to networks. If one refuses the logic of the network, one renders herself Ungooglable—outside of nature, politics, and technology.

Networks and Modernity

In disciplines as diverse as economics, public health, mathematics, sociology, anthropology, complexity physics, technology studies, philosophy, and so on, there exists the assumption that our current moment is primarily defined by connections and flows. In the words of mathematician Ian Stewart, “networks are hot property in biology and mathematics. They are hot property in physics and engineering too, and a popular buzzword in the business world. If you work in science or in commerce, it is very difficult not to run into networks” (2011, 246). Networks, usually through the mathematics of complexity science, some based on the structure of the Internet, define many of the models used today to explain biology, economics, technology, and social connectivity. According to Nicholas Christakis and James Fowler, a medical sociologist and a political scientist respectively, networks make us “uniquely human. To know who we are, we must understand how we are connected” (2009, xiii). Networks are defined by “*connection*, which has to do with who is connected to whom,” and “*contagion*, which pertains to what, if anything, flows across the ties” (16). Today, anything that matters can be thought of as networked (Watts 2003, 46-47).³ What matters, however, is limited to biology, technology, economics, and social relations.

“Networks,” argues Alexander Galloway, “oscillate between two related but incompatible formal structures. On one side, the chain of triumph; on the other, the web of ruin” (Galloway 2010, 281). In recent years, Galloway has become one of the foremost theorists of networks in the humanities. His writing brings together issues of technology,

³ The essays in the recent edited collection *Culture: Leading Scientists Explore Societies, Art, Power, and Technology* (Brockman 2011), for instance, are devoted to the idea that network theory can explain all of human culture.

mathematics, economics, biology, politics, and philosophy. Elaborating on themes from Aeschylus' *Agamemnon*, Galloway suggests that there are two fundamental forms of networks. The first, the chain of triumph, is an actual network of communication:

It is contagious and additive as it moves. The lighting of one hilltop beacon does not dim or dilute the previous node but effectively compounds it. The chain of triumph is communicative and telepresent. It is directional. It follows a chain of command. It is constitutive of reality rather than destructive of it. And perhaps most evocative: the chain of triumph is made of pure energy. (281)

The other, the web of ruin, is “a nonlinear mesh...designed to ensnare and delimit even the most intractable opponent. It is commonly characterized as a swarm, or a pack of animals, unknowable in quality and innumerable in form” (281). But there is a slippage in Galloway's extrapolations from *Agamemnon*. The web of ruin is described through metaphors related to netting, the original usage of the word “network.”⁴ In *Agamemnon*, textiles are used throughout as symbols for that which contains and constrains. Nets are weapons that trap. Yet the “chain of triumph” is not described using the language of networks. *Agamemnon* may describe what we would consider today to be a network of communication. But there is little evidence that we should understand these two concepts as conjoined in how the Greeks understood connectivity and technology. Clytemnestra speaks of communication via “The god of fire—rushing fire from Ida! / And beacon to beacon rushed it on to me, / my couriers riding home the torch” (Aeschylus 1966, lines 282-283). This may seem like a network to us. Yet projecting networked communications onto this “network” of beacons and flame would be a mistake that overlooks, among other things, issues of translation, history, and context.

⁴ See Chapter 2.

Nonetheless, this slippage tells us something about both *what networks are* and *how networks are understood today*. While Galloway makes the distinction between “triumph” and “ruin” he never questions the very existence of networks and connection as such. What is at issue for Galloway is the valuation of networks, connectivity, and flow. Networks are eternal. He claims, “There are many kinds of networks; they are not internally simple, nor globally uniform. Some networks are rigid and hierarchical, while others are flexible and resist hierarchy” (2010, 282). Networks are not “somehow synonymous with the technologies of modernity or postmodernity, such as the telegraph or the Internet” (282). When Galloway defines networks in this way he understands them as purely material structures with practically no specificity other than connectivity and flow, completely outside of discourse and history.⁵ Galloway’s projection of networks onto Ancient Greek drama is no accident. He is taking an ideology of the present and reading it back into the totality of Western history. In the words of Armand Mattelart, “nothing takes us further from the future than history caught in the obsessions of the present” (1996, x). When networks are material forms that have existed throughout history, the specificity of the present is lost in favor of transcendental schematics that do not and cannot change. When Galloway disarticulates specific network technologies from networks, leaving only a presumed material connectivity and flow, he forecloses a future defined by *anything* that understands materiality beyond networks.

⁵ Armand Mattelart (1996, xv) suggests that the historical discourse of networks is defined by flow, connectivity (as a “universal social bond”), spatiality, and calculation. My own analysis resonates greatly with that of Mattelart’s archaeology of communication. However, the privilege given to questions of spatiality is questionable (networks, which spatial, are often believed to transcend space). While calculation is usually implicit in many of the associations drawn from network discourse, as I’ll discuss below, it is not always explicitly identified in discourse as associated with networks.

Understanding ourselves as networked or connected is not intrinsic to the history of Western thought, however. For much of modernity,⁶ the experience of disconnection and solitude was understood to define the normal state of affairs under capitalist civilization. Disconnection was, however, a problem to overcome. Freud's "oceanic feeling," defined as an experience of "'eternity,' a feeling as of something limitless, unbounded... of being one with the external world as a whole" (Freud 1961, 12), was *unusual*. Modern civilization negated this experience of oneness and connection. Freud's conception of the world is based in the ego, that shifting, amorphous "self" that "separates off an external world from itself" (15). Yet this ego is not natural. It is instead the product of modern life. It is the source of the anxieties and neuroses treated by psychoanalysis. The oceanic feeling is an experience that is closer to nature, transcending the modern subject and inching closer to the true essence of the human. For Marx, the concepts of "alienation" and "fetishism" both describe how, under capitalism, the "commodity is the point of fracture of the social flow of doing" (Holloway 2010, 46). By reframing social relations between people as relations between things and objects, human beings are produced as individuals. They are alienated from both their own bodies and from those around them. According to Marx, because of the capitalist mode of

⁶ Whenever I invoke "modernity" in this dissertation, I am referring to the assumptions of what could be called, following Foucault, a specific *episteme* referred to as Western modernity. This is neither the only way of understanding modernity nor should it be. As Lawrence Grossberg has outlined, there are many ways of defining modernity. The struggle over modernity is central to the contemporary political conjuncture. Admittedly, even limiting modernity to Western modernity implies a sort of monolithic cultural formation that was never as singular or coherent as is often understood—and here is no exception. In spite of this, there is a cultural and epistemological discourse that is often referred to as "modernity." It is in this sense that I invoke the term. See Grossberg (2010).

production, “Men are henceforth related to each other in their social process of production in a purely atomistic way” (1976, 187). Capitalism uproots humans from their collective nature. Humans are individualized in the name of capitalist exchange. In modern Western thought, bodies, nations, cultures, identities, selves, and so on, are all constructed through the invention of an exterior—an exterior that must be policed and originates from the “interior,” but an exterior nonetheless (Agamben 1998; Esposito 2008; Foucault 2003). Modern technologies and media, likewise, divide up and atomize the senses and the experience of the world (Crary 1990; Doane 2002; Kittler 1990; 1999; Virilio 1989). Modernity perpetually divides and isolates, disconnecting an individual from others and from his own self. By the 20th Century, this process of division is extended to the fragmentation of the human body, based in atomic and cellular models that define biological bodies as little more than loose agglomerations of fundamentally isolated building blocks (Canguilhem 2008, 25-56).

Across countless fields and discourses, the subject of Western modernity is produced as an atomized individual, isolated and separate from those around him (and I use “him” here because this subject is also usually understood as male). One need not stop with Freud and Marx. According to Michel Foucault, some form of disconnection and interiority is common to the entire discourse of Western modernity, embodied in the countless permutations of the “Other:”

The unthought (whatever name we give it) is not lodged in man like a shriveled-up nature or a stratified history; it is, in relation to man, the Other: the Other that is not only a brother but a twin, born, not of man, nor in man, but beside him and at the same time, in an identical newness, in an unavoidable duality... in Hegelian phenomenology, it was the *An sich* as opposed to the *Für sich*; for Schopenhauer it was the *Unbewusste*; for Marx it was alienated man; in Husserl’s analyses it was the implicit, the inactual, the sedimented, the non-effected—in every case, the inexhaustible double that presents itself to reflection as the blurred projection

of what man is in his truth, but that also plays the role of a preliminary ground upon which man must collect himself and recall himself in order to attain his truth. For though this double may be close, it is alien... the whole of modern thought is imbued with the necessity of thinking the unthought...of ending man's alienation by reconciling him with his own essence...modern thought is advancing towards that region where man's Other must become the Same as himself. (1970, 326-328)

Modernity produces an exterior that goes by many names and is found in many forms.

But in the production of this exterior the essence of the human is placed outside of the experience of the modern subject. If the experience of modernity is one of isolation and disconnection, then this is an experience to overcome. The discontents of civilization are found in the tendency of civilization to atomize and divide humans from each other and from the essential nature of existence.

The desire to connect is a desire founded in the experience of modernity. This desire is about undoing the experience of modernity itself. Network is one name for modernity's Other. To be networked is to experience connection to a greater totality, to be one with others, mediated through connections and flows that are both material and natural (cf. Hillis 1999, xxix). Galloway's discussion of networks in terms of value is one that implicitly invokes the subject of modernity. A network is only a web of ruin insofar as connections to others erode the autonomy and rationality of the individual. Ruin depends on the subject of modernity as an ideal. A network is only a chain of triumph insofar as the flows that connect all together undo the limitations of modern experience. Triumph means to overcome the fragmentation of modernity.

But these questions of value are secondary to the contemporary assumptions about networks and network technologies. Regardless of ruin or triumph, the discontents of modernity have been cast aside thanks to the connectivity of technology, science, and

capitalism. Networks end our alienation. They return us to a world in which we are not isolated, but connected to others and to nature. Alexander Galloway and Eugene Thacker, in *The Exploit*, state this definition in yet another way: “by ‘networks’ we mean any system of interrelationality, whether biological or informatic, organic or inorganic, technical or natural—with the ultimate goal of undoing the polar restrictiveness of these pairings” (2007, 28). Networks materially deconstruct the binaries that structure modern thought. According to Bruno Latour, networks reveal to us the ultimate illusion of modernity. “No one has ever been modern. Modernity has never begun. There has never been a modern world” (1993, 47). Networks, through connectivity and flow, demonstrate how the divisions that define modernity are ontological impossibilities. Instead of the autonomy and isolation of the modern subject, everything is connected. There is no outside—there never has been. There are no Others such as the ones that defined the modern subject. There is only the One of the network. According to Thacker, “Networks are not tropes for notions of ‘interconnection.’ They are material technologies...” (2004b, xiii). These connections and flows exist outside of discourse. They are purely material, technological, or ontological. They are beyond language and thought.

In the dominant theoretical discourses of networks, they are structures that connect all to all, enabling the movement of flows between connections. They are common to technology, biology, economics, and the social. They are thought to be non-hierarchical.⁷ They are material, natural, or ontological. They are not discursive or

⁷ Even outside of the usual boundaries of network theory, Carol Gilligan (1982) defines the essential differences between genders by contrasting hierarchies and networks. She argues that men think in hierarchies, stressing competition and division, while women think in distributed networks, emphasizing connection and collaboration. Gilligan’s work

ideological. And they are not modern, even though they reflect desires and fears common throughout modernity. Instead, networks overcome modernity, either technologically transcending the divisions of modern experience or revealing that these divisions were illusions all along.

Systems Versus Networks

As assumptions of modern experience are encoded in modern philosophy, beliefs about networks, connections, and flows are likewise defined and legitimized through network theory. If modern thought was characterized by concepts such as alienation and individuality, network theory is defined by its insistence on totality and wholeness. This happens to be an attribute that is widely acknowledged by scientists and mathematicians, but is often denied by the humanistic and philosophical appropriation of the language of networks. For instance, Albert-László Barabási, a mathematician who models complex networks, is unafraid to claim:

Each of us is part of a large cluster, the worldwide social net, from which no one is left out. We do not know everybody on this globe, but it is guaranteed that there is a path between any two of us in this web of people. Likewise, there is a path between any two neurons in our brain, between any two companies in the world, between any two chemicals in our body. Nothing is excluded from this highly interconnected web of life. (2002, 18)

The cultural theorist Mark C. Taylor, on the other hand, insists that networks “*do* act as a whole, yet *do not* totalize” (2001, 155).

My belief is that this reading of networks in the humanities either comes from an assumed “postmodern” suspicion towards metanarratives or is the result of a sloppy

is only one example of how the assumptions of network theory are applied far beyond the technological.

application of scientific terms that seem similar but are actually quite different. For the former, assuming a holistic totality also assumes a teleological “end-of-history” scenario that culminates in a transcendental Oneness. Considering how this is out of fashion for many intellectuals drawing on the traditions of postmodern theory, any possibility of holism is often rejected out of hand.⁸ For the latter, the very usage of the term *network* in theoretical writings is implicitly and explicitly contrasted with that of *system*—a distinction too often glossed in humanistic appropriations of science.⁹ The difference between these two concepts is why I stress that networks inherently imply a holistic totality. This is particularly clear in scientific work in the traditions of cybernetics and complexity theory, but can also be seen in the humanistic discussions of networks, even when the possibility of holism is denied. Because networks are only defined by connections and flows it is impossible to identify an exterior. It is in this sense that networks are holistic. There is never an unknown other in network theory, as there is for modern thought. The unity of self (or state, society, body, etc.) is defined by connections, not differentiations. In the following paragraphs, I’m going to outline this distinction in scientific writings on systems and networks, then move to the cultural appropriation of network theory in the humanities by those such as Taylor. Whenever networks are invoked, they do not and cannot construct an outside.

⁸ Although this is no longer the case with some Deluzians (in particular Spinozists) and those associated with Speculative Realist philosophy, among others. Pierre Lévy’s *Collective Intelligence* (1997), which draws on Deluzian philosophy and the work of Pierre Tielhard de Chardin, is probably the most explicit single work that defines a holistic teleology based on network technology.

⁹ And often in science itself, as well. This distinction is also found in writings about the railroad from the turn of the 20th century, as will be seen in Chapter Two.

Let me first describe *systems*, in part because the assumptions of cybernetic systems theory resonate deeply with those of modern thought. The key attribute that defines cybernetics¹⁰ is the insistence on *operational closure*, or the differentiation between a *system* and a larger *environment*. A system *emerges* through its distinction from the environment, a *reductive* act that involves identifying a part as separate and relatively autonomous. This distinction is accomplished by way of reflexive self-reference, or, in Norbert Wiener's original writings defining cybernetics, feedback (1954; 1961). Through self-reference, a system defines itself as operationally closed and relatively autonomous (Clarke and Hansen 2009; Luhmann 1995; Maturana and Varela 1987). In this tradition, communication is not a flow of information from one to another. Communication, according to Niklas Luhmann, "means limitation (placing oneself and the other within limits)," as it produces both a relation as well as a difference (Luhmann 1995, 39). While there is a flow of information, that flow serves to produce both the relation between one and another as well as the very boundaries that define one and another as separate and differentiated.

Cybernetics does not deny the existence of connectivity and flow. But in maintaining and perpetuating connections and flows of information entities do not only connect. They disconnect from each other and from a larger environment. As it is in psychoanalysis, the self (or ego) is defined as a self through the creation of an exterior, maintained and policed by the self. In many ways, cybernetics is fundamentally bound together with the *episteme* of modernity (cf. Hayles 1999). The self, or system, is

¹⁰ While I am generalizing to all of cybernetics here, I am specifically referring to the traditions of second-order cybernetics, or what Bruce Clarke and Mark B. N. Hansen term "neocybernetics." See Clarke and Hansen (2009, 1-25).

produced as operationally closed through the identification and maintenance of boundaries that define an external other. This distinction requires an observer. The observer is necessarily part of the system, and the distinctions produced come from the observer's own capacity for self-reference. In this form of cybernetics, information is a "difference which makes a difference" (Bateson 1972, 315). Information enables an observer to distinguish between system and environment, between self and other, and so on. According to Katherine Hayles, "In this view, the dualism between subject and object disappears, for the object as a thing in itself cannot exist for us. There is only the subjective, inner world. The world, as this 'cybernetics' constructs it, is a monism. Nevertheless, it is not solipsistic, for Gregory [Bateson] believes that the microcosm of the inner world is functional within the larger ecosystem only because it is an appropriate metaphor for the macrocosm" (1999, 78). This is not entirely the case, as there is necessarily an environment from which the system is differentiated. The environment does not simply disappear into the mind of the observer. But, as Hayles is right to point out, this environment is also constructed as something fundamentally unknowable in its pure, objective essence. Environment, like those other Others of modernity, is something inherently separated from the subject, but is also the "truth" of the subject produced alongside it.

If systems stress the continuous process of differentiation from a larger environment, networks stress continuous connectivity. This difference can be seen in how these two scientific discourses understand the concept of *emergence*. Cybernetics understands emergence as "a movement from the chaotically complex to the manageably complex... any particular system that emerges within an environment is necessarily less

complex than that environment...” (Clarke and Hansen 2009, 11). Systems, as organized, coherent, and operationally closed, emerge through the distinction of order against a chaotic and disordered environment. Emergence is a reduction performed by an observer. Emergence in complex networks, on the other hand, is the result of greater connection of atomistic elements together at a greater and greater scale. Complex networks are anti-reductionist, meaning that they stress the totality rather than individual parts. Network theory understands phenomena entirely as the result of large-scale connectivity that cannot be observed or understood at the level of individuals. Individuals do not matter in the study of complex networks. It would appear that it is only the network as a whole that matters. The production of the new is based out of increasing connectivity and increasing interrelation. Emergence is the result of greater complexity, not less.

Obviously, privileging the observer in cybernetics problematizes assumptions of scientific objectivity and realism. Thus, the embrace of self-reflexivity is considered by some to have killed cybernetics, moving its concerns away from technology and science and towards studies of consciousness, subjectivity, and psychology. For instance, Kevin Kelly, the former editor of *Wired*, describes the importance of self-reflexive systems (or lack thereof) in the following way:

Cybernetics was strangled by “putting the observer in the box”... The insight was useful in such fields as family therapy where the therapist had to include him- or herself in a theory of the family they were treating. But “putting the observer into the system” fell into an infinite regress when therapists video-taped patients and then sociologists taped therapists watching the tape of the patients and then taped themselves watching the therapists... By the 1980s the rolls of the American Society of Cybernetics were filled with therapists, sociologists, and political scientists primarily interested in the effects of observing systems. (Kelly 1994, 454)

Observation produces the distinction between system and environment. The observer is necessarily part of the system. Studies that hope to discover the “objectivity” of systems fall into a feedback loop in which the subjectivity of the observer must be included in the objectivity of the system.

The necessity of an observer, and the need to acknowledge that observer’s role in creating a system, will not do for the ostensibly objective claims of science. The study of complex networks simply removes the observer. Self-reflexive systems are replaced with the insights of a mathematical subdiscipline known as graph theory, all while retaining many of the other key concepts of cybernetics. Consciousness and experience are replaced with mathematical formulae. Graph theory is a geometrical model that maps “nodes” and “edges,” mathematically defining existence as a series of points and connections. Graphs and networks are synonyms in the study of complex networks (Barabási 2002, 16). According to Galloway, graphs “are topological in nature; the edges are infinitely elastic, meaning that a graph’s nodes can be moved at random, producing networks that look completely different but are still isomorphic. Connectivity between nodes outweighs any spatial concern” (2010, 293). The world described through graph theory is one in which connectivity is all that matters. Explaining the world involves nothing more than explaining the connections between nodes. “Graphs are nets without holes. Or at least they are nets in which the specific shape and quality of the holes (which do exist) have no consequence whatsoever. Graphs assert the hole, but only as an exclusion from the whole, as something that is present but unable to act” (293). There are spaces between edges and nodes on a graph. But, even though the visual representation of a graph requires these absences, the mathematical formulae of graph theory simply

cannot acknowledge the existence of these holes. Graph theory appears to construct an outside, but it neither acknowledges nor defines that outside in mathematical discourse.

Galloway is, in part, critical of this form of network discourse. His theory of networks is one that asserts that political change must come from these external holes (2010; also see Galloway and Thacker 2007). Yet, if we are to suggest that discourse is not simply a distortion of reality, then we must understand how or why that which is disconnected is rendered powerless or insignificant in theories of networks. The answer to this is rather simple. While Galloway wants to assert that these holes exist, in graph theory and in the modeling of complex networks they do not. Disconnection is impossible. The visual representation of a graph appears to be spatial. But the spatial representation of mathematics is only a rough approximation of a model of total connection that is not based on the visual. The visualization of a graph is a remainder of a residual order. It holds onto the images of modernity because mathematics cannot be represented properly using current models of vision. Reality is math, while experience is an abstraction. The visual mapping of a graph produces holes that are not included in the mathematical model of that graph itself. Connection exists without reference to either temporality or spatiality, and thus cannot be represented, as any visual graph invokes both time and space.

Because of the networked character of existence, each and every entity is connected to all others that have ever existed and will exist for all eternity. “Life is a networked thing—a distributed being. *It is one organism extended in space and time.* There is no individual life. Nowhere do we find a solo organism living. Life is always plural” (Kelly 1994, 102, italics added). Everything is connected. Increasing complexity

is only about increasing the number of links, or the number of edges, between nodes. The model of the network is one “from which nothing can escape and within which every node is navigable. That is why there are no islands of people completely isolated from society at large and why all molecules in our body are integrated into a single complex cellular map” (Barabási 2002, 19). The whole always already exists as the whole. The parts come into the world fully formed as individual parts connected to the whole. There is no observer. There is no differentiation. Everything is *a priori* differentiated.

Emergence is nothing other than an increasing number of links. In the study of complex networks, differentiations between objects and things do not matter because everything enters into existence as differentiated. As well, all nodes are always-already connected through a chain that is empirically discoverable and mathematically predictable. What matters is only how tightly the nodes are connected together.

The distinction between system and network repeats the distinction between modern and non-modern discussed above. A system is about the production of exteriority and interiority through self-reflexive means that differentiate system and environment. This, however, is too often made into the assumption that systems are “closed” because they are ultimately about producing boundaries. In some humanistic work on systems and networks, such as that of Mark C. Taylor, this closure is understood to mean that systems imply totalizing holisms. This is a misreading of cybernetics. The distinction between system and environment still implies a relationship between the two. While the work of someone like Niklas Luhmann suggests that the environment is ultimately a totalizing closed system, the environment as a totality is also regarded as something that is fundamentally unknowable, much like the Others elsewhere in modern Western thought.

Systems are only *operationally* closed, implying some degree of stability, but also some degree of openness to the exterior.

Taylor argues that a network is “*a nontotalizing system or structure that nonetheless acts as a whole*” (2001, 65). Networks are “open” because they do not permit the existence of boundaries. Taylor assumes that this “openness” is openness to change and otherness. But otherness cannot exist on a network. Everything is connected. The analysis of networks is not about understanding micro-level behaviors; it is about taking the totality as a totality, rendering the individual nodes meaningless. Only the arrangement of nodes matters, in the form of totalized, calculable connectivity.

Understanding a network is about understanding the *entire* network (Johnson 2001, 78).

According to Taylor:

If bodies as well as society and culture necessarily involve information processes, it is no longer clear where to draw the line between mind and matter, self and other, human and machine. *Mind is distributed throughout the world*. Nature and culture, in other words, are the objective expression of mind, and mind is subjective embodiment of nature and culture... The networks that made me what I am are always networks within networks, which, while never complete, are nonetheless global. As a node in networks that are infinitely complex, I am the incarnation of worldwide webs. (2001, 230; 232)

Taylor wants to have it both ways. Networks point to a transcendental connectedness that dissolves the boundaries between modern binaries. But, at the same time, they are somehow incomplete. If networks are nature or ontology, which is what Taylor is suggesting, then defining networks as incomplete requires an outside that remains disconnected from the network. This possibility is precisely what Taylor is suggesting that networks deny.

According to Nigel Thrift, “the chief impulse behind complexity theory is an anti-reductionist one, representing a shift towards understanding the properties of interaction

of systems as more than the sum of their parts. This is, then, the idea of a science of holistic *emergent* order...” (2005, 52). This is precisely correct, but the meaning of “reductionist” in the study of complex networks is quite specific. Reductionism means that phenomena can or should be understood at the level of individual parts. Anti-reductionism means that reality can only be understood at the level of the totality. Individuals neither matter nor can be understood. As discussed above, cybernetics is a reductionist theory of emergence. In complex networks, the key is the investigation of the whole, not the parts. But because these wholes, and their qualities of emergence, are made up entirely out of connections—and nothing more—then we should wonder what explaining humanistic experience, everyday life, and politics in terms appropriated from network theory implies. If what matters is the macro, then what happens to the micro?

We now have a provisional definition of what networks are and how networks are theorized both in science and in the humanities. As will be evident in the next chapter, even when theories of networks do not make direct reference to science, they nonetheless imply the assumptions about reality outlined here: *networks connect everything together, maintaining flows between nodes.*

This discussion is primarily one about ontology and nature, not about the significance that networks have in the everyday lives of those who are defined as connected. The ideology of networks, however, articulates everyday freedom and liberation with the ability to connect and maintain flows of information. This ideology naturalizes the above description of networks as the proper behavior for humans (and objects). The political significance of networks is not in their ability to describe the ontological grounds upon which political action and resistance must be defined, but in

shaping the proper actions and behaviors of individuals as members of a networked collectivity. The political power of networks resides in the definition of *network citizenship*. This provides a problem for the study of networks and everyday life. Network theory, as it is concerned with holistic totalities, positions individuals as completely irrelevant for the construction of reality.

Network Citizenship

The theories and definitions of networks discussed thus far imply that networks are entirely physical and natural forms. Networks are material and natural structures in the form of a graph. Totalized connections and flows delineate the possibilities of existence. The politics of networks are rarely investigated in much detail, and when they are discussed, wholeness and openness are seen to naturally perfect an ideal of a coming democratic order that exists without state government or even human will (Benkler 2006; Kelly 1994; Latour 2010b; Lévy 1997). As long as connectivity and flow are maintained, then “nature finds a way” at the level of a global or cosmological whole (Kauffman 1995). Since networks imply a holistic totality, then the actions of any one individual appear to be meaningless (Kelly 1994, 103). The work of individuals cannot undo the power of networked connectivity. The anti-humanism implicit in these macro models of existence seems to do away with concerns about everyday anxieties and struggles that take place at the micro level.

Oddly, theories that do account for the everyday politics of networks (Galloway and Thacker 2007; Invisible Committee 2009; Terranova 2004; Tiqqun 2010; 2011), do not examine how networks produce a specific way of understanding the political (or its

absence). Instead, they *only* define *micro* strategies for resisting global capitalism through network technology. Political action is nothing more than the individualized disruption or transformation of flows and connections. This either embraces networks as an unavoidable ontological model or proposes an impossible exterior that must exist for the possibility of resistance. It's strange that these models for resistance focus obsessively on micropolitical struggles considering how most theories of networks suggest the micro level is simply unimportant. For most network theorists, the only scale that matters is the whole. Individual actions will do nothing to change the construction of reality at the level of the totality.

But the micro and the macro do, in fact, interact. These above ways of understanding networks are incomplete because they ignore the large-scale implications of networks at the level of everyday behavior and experience. In other words, what is overlooked is how in any discussion of networks exists an implicit ideal of *network citizenship*—the naturalized conventions of proper conduct on a network. Network citizenship takes the assumptions of network theory, often legitimized through network technology, and outlines a model of behavior where individuals should conform to the “nature” of networks. These “citizens” do not need to be human. They only need to be globally connected through networks, be they technological, biological, economic, or social.

There are, of course, many different definitions of citizenship. What I mean by network citizenship implies something quite different than many ways we have of defining citizenship (i.e. Anderson 2006; Berlant 1997; Habermas 1989; Miller 1993; Warner 2002), even though I draw on these authors in my theorization of citizenship

here. Networks, connections, and flows negate several concepts key for understanding citizenship. First, there is no relationship between citizen and state, because networks transcend the state (Castells 2000a). Second, there is no clear distinction between public and private, as networks eliminate this division as well (Meyrowitz 1985; Chapter 3). Nonetheless, citizenship is explicitly about the definition of proper individual behavior in relation to a larger collective body. Citizenship defines who is worthy and unworthy of inclusion in that larger body. But on a network, the collective body is explicitly defined as the totality. To be a failed network citizen is to be rendered unworthy of existence.

There are two ways of traditionally understanding the relation between media and citizenship that I want to mention here. First, technological form produces, in Benedict Anderson's (2006) memorable phrase, "imagined communities." Nation and nationalism are shaped through media that produce a shared understanding of culture and identity. Technologies produce the nation for which one can exist as a citizen. Second, media and technology are often used to promote an ideal of citizenship through cultural texts (e.g. Spigel 2008). Loosely echoing Matthew Arnold's distinction between culture and anarchy, popular texts are implicitly or explicitly designed with the goals of producing well-adjusted individuals that learn about social and civic responsibility through entertainment.¹¹ These two ways of understanding the relations between media and citizenship are directly related. While technologies produce possibilities and limitations regarding how a collective body is imagined, discourse then differentiates and delineates

¹¹ For a current example of this discourse as applied to video games, see McGonigal (2011). A critique of how reality TV does this is found in Oulette and Hay (2008).

the possibilities for behavior in accordance with the demands for proper citizenship.¹²

Toby Miller has argued that the concept of citizenship is “a polysemic category, open to contestation... Citizenship is an open technology, a means of transformation ready for definition and disposal in dispersed ways at dispersed sites” (1993, 12). Even in its multiplicity, however, citizenship is theorized as about the relation an individual has with the state as someone who exists in public. This public citizen is something that has to be produced by the means of the state, contrasted with a private individual that exists beyond the realm of social responsibility and political action. Embracing this split and entering into the public involves self-abstraction and alienation (Warner 2002, 159-186). Citizenship, in dividing up a subject into public citizen and private individual, makes some behaviors worthy of political attention and others beyond the political. But the contestability of citizenship makes it ever open to transformation, with the boundaries between public and private constantly shifting (see Berlant 1997).

The division between public and private is not about the codification of behaviors by their public or private performance. This division is instead about that which is worthy and unworthy of political attention and regulation. What I mean by network citizenship follows from this formulation of public and private. There is an expectation that one should be willing to engage in “radical transparency” on the Internet. To be connected is to keep information flowing freely. All personal behaviors should be public, in the sense that they should be made visible and openly available to all others. This division isn't

¹² Packer (2008), for instance, discusses how the automobile produces new possibilities for mobility in American culture. These possibilities are policed through (often racist and sexist) discourses that define proper citizenship through practices of driving. Ideals of nation and behavior are produced through a conjunction of technology and discourse.

between public and private in the traditional sense, but a division produced by the management and maintenance of connection and flow. To be a citizen is to remain connected, managing flows throughout the network. Entering into the network itself demands of an individual the willingness to connect and flow. To be private is, in fact, a violation of the conditions of citizenship. To desire something outside of the public is to desire disconnection.

While studies of citizenship openly acknowledge the production of a subject called citizen, they tend to overlook the likewise constructedness of the state. Networks, as they are constructed as totally connective and totally inclusive, erode the boundaries of the state in the name of global flows (Castells 2000a). Thus, the body to which the individual citizen is responsible should be broadened to include any collective formation, not simply the state. Network citizenship refers to the internalized relations an individual subject conforms to as an imagined relation to the network as totality. This collective body, just like the state, has a set of norms and ideologies that must be naturalized and internalized by the individual as a citizen of the network (cf. Miller 1993).

With network citizenship, individuals do not internalize the institutions of the state, but the rules and mechanisms of networks. If networks are defined by totalized connections and flows, then the proper behavior of the citizen maintains and manages totalized connectivity and flow. The individual must connect. She must maintain flows, be they flows of capital, of information, or of anything else. She must manage her own flows, but she must manage these flows in relation to the larger totality, meaning she must manage the flows of all others as well. And finally, she must do this in light of the knowledge that her existence is simultaneously insignificant yet essential to the totality.

The network citizen is connected to the totality and must manage the totality. The maintenance of everything rests on the individual's ability to manage everything. And yet she can be disconnected and cast aside without any real impact on the network as a whole. To be a network citizen is to internalize these demands as a reflection of proper behavior. A network citizen accepts network ideology as nature. The perpetuation and management of connectivity and flow are the ethical and moral demands of living in a "network society." Failing to connect and flow marks one as morally and ethically bankrupt, unworthy of inclusion as a citizen of the network—Ungoogable and forgotten.

Methodology: Discourse and Ideology

In *The Archaeology of Knowledge*, Foucault states, "We must question those ready-made syntheses, those groupings that we normally accept before any examination, those links whose validity is recognized from the outset; we must oust those forms and obscure forces by which we usually link the discourse of one man with that of another; they must be driven out from the darkness in which they reign" (1972, 22). This dissertation is written in this spirit. The concepts of network, flow, and connection are too often accepted as natural or material. Instead, these are discursive forms that produce the objects of which they speak. According to Foucault:

Discursive relations are not, as we can see, internal to discourse: they do not connect concepts or words with one another, they do not establish a deductive or rhetorical structure between propositions or sentences. Yet they are not relations exterior to discourse, relations that might limit it, or impose certain forms upon it, or force it, in certain circumstances, to state certain things. They are, in a sense, at the limit of discourse: they offer it objects of which it can speak, or rather (for this image of offering presupposes that objects are formed independently of discourse), they determine the group of relations that discourse must establish in order to speak of this or that object, in order to deal with them, name them, analyse them, classify them, explain them, etc. These relations characterize not

the language (*langue*) used by discourse, nor the circumstances in which it is deployed, but discourse itself as a practice. (46)

The relations and objects produced through the use of language identifies and defines regularities and relations. Discourse is not language alone, but language “as practices that systematically form the objects of which they speak” (49). In other words, this dissertation understands network, connection, and flow not as neutral descriptions of the world, but as concepts that order and arrange the world and the possibilities for the subjects that reside within it.

I differ from Foucault on a number of points, most notably on my insistence that the production of the world through discourse is *ideological*.¹³ I am less interested in the micropolitical relations of power that characterize some of the writings of Foucault than in macropolitical issues of dominance and control legitimated through the naturalization of ideology. Norman Fairclough terms this focus on ideology in discourse “critical discourse analysis.” According to Fairclough, “Naturalized discourse conventions are a most effective mechanism for sustaining and reproducing cultural and ideological dimensions of hegemony. Correspondingly, a significant target of hegemonic struggle is the denaturalization of existing conventions and replacement of them with others” (1995, 94). The securing of dominance necessarily relies on the acceptance of a specific set of linguistic codes as “common sense.” Critical discourse analysis is the examination of language, texts, and symbolic systems to understand the ideologies naturalized by the use of specific terms with the explicit goal of denaturalizing ideology. Like Foucault,

¹³ It also bothers me, for reasons that should be obvious, that Foucault regularly characterizes discourse in terms of nodes and networks. See, for one example, Foucault (1972, 23).

discourse for Fairclough is not only that which is textual or linguistic. Discourse also involves the calling into being of material relations between subjects—human or otherwise. Through language, relations of power and dominance are naturalized and legitimated. Discourse constitutes “systems of knowledge and belief... and in their interpersonal functioning they constitute social subjects (or in different terminologies, identities, forms of self) and social relations between (categories of) subjects” (6). Discourse not only calls certain entities into being. It also legitimates the existence of those entities—and any corresponding differential power relations—as natural.

For Fairclough, it is through discourse that humans act upon each other and represent their identities and relations. Discourse does not distort reality, but produces reality:

Discourses do not just reflect or represent social entities and relations, they construct or “constitute” them; different discourses constitute key entities (be they “mental illness,” “citizenship” or “literacy”) in different ways, and position people in different ways as social subjects (e.g. as doctors or patients), and it is these social effects of discourse that are focused upon in discourse analysis. (1992, 3-4)

This reality is *ideological*, in the sense of how Althusser defines it. Ideology “represents the imaginary relationship of individuals to their real conditions of existence” (2001, 109). Contrary to how ideology is often times understood, this does not imply either a distortion of an underlying reality, a lack of “fullness” that is “ideal” rather than material, or that individuals are “duped” into thinking something that they otherwise would not. An imaginary relation to the real conditions of existence implies a discursive relation to materiality and practice that must be in place for the world and its inequalities to make sense as natural and unchangeable. Through discourse, we are called into occupying a specific subjectivity. In this subjectivity we recognize ourselves through identification

with an ideology. Ideology, for Althusser, is material because it exists *in practice*, much as discourse works for Fairclough and Foucault. Ideology is not something that we believe. It is something we do.

Critical discourse analysis examines the use of language in order to discover the constitution of subjects and their relations to other subjects as enacted through practices, rituals, and actions that serve to define the behavior of a proper “self” in accordance with an ideology naturalized as common sense. Each chapter in this dissertation begins with this assumption. Language does not describe reality. It produces reality. And in so doing, specific subjects and their relations are naturalized as the way things are in accordance to the contextually specific “rules” of our current technocultural environment, if not the contextually specific “rules” of “nature.”

Throughout this dissertation, I examine how network discourse produces and naturalizes ideology. Each chapter examines that which is assumed natural whenever networks are understood to ground reality. The problem with how networks are understood today is that all discursive and ideological aspects of technology and nature are explicitly ignored in favor of *pure* materiality and *pure* ontology. Network, as it is usually theorized, is not so much a signifier that “means” something than it is a word that directly points to something that just happens to exist. I want to make explicit that “network” is a metaphor that serves to produce and naturalize connectivity and flow in the biological, the economic, the technological, and the social. Arguing that networks are purely material comes at the expense of remaining willfully ignorant to completely visible issues of power, identity, and subjectivity produced through discourse. According to Fairclough, “Some metaphors are so profoundly naturalized within a particular culture

that people are not only quite unaware of them most of the time, but find it extremely difficult, even when their attention is drawn to them, to escape from them in their discourse, thinking, or action” (1992, 195). Network is one of these words. Its obviousness and ubiquity make it easily used as a metaphor. And yet, the use of network as a metaphor is constantly denied. Because networks are “material,” the issues of ideology perpetuated through its use via metaphor are ignored. This dissertation, in returning language to the study of networks, demands that we take the effects of networks as larger *historical* and *cultural* phenomena, not purely the effects of transformations in materiality, economics, technology, or nature.

Organization of the Dissertation

There are five chapters in this dissertation, which are grouped into two parts, each examining different aspects of network discourse. Part One, “Network Theories,” examines in detail how networks are theorized today and how networks have been understood historically. The chapters of Part One focus on the historical formation of network ideology and its current legitimation in a massive amount of academic literature.

Chapter One, “Networks in Academic Discourse,” expands some of the claims made above about network theory. In this chapter, I review three different kinds of network theory. First, I examine works that suggest the primary impact of networks is in transforming the material base of capitalism through technology since the 1970s. These works understand networks as foundational for political economy, transforming culture through changes in economics. Second, I move to theories of resisting networked capitalism. As networks are understood to transform the material base rather than

legitimate a specific mode of production ideologically, then any resistance to networked capitalism is also theorized to take the form of networks. Political theories that attempt to define a way of resisting networked flows of global finance nonetheless embrace these same networks. When networks are understood as purely material, there are no alternatives. Finally, I discuss theories that position networks as the foundational ontological or natural structure of reality. In this last version of network theory, the technological transformations of the network society have revealed the networked essence of life itself. Networks are not material technologies. They are the pure and undiluted essence of all life and existence. In each and every one of these perspectives, networks are either purely material or purely ontological phenomena, permitting no possible alternative to connection and flow. The primacy of connectivity and flow are effects of either the material base or of the ontological organization of nature.

Chapter Two, “Networks in Historical Discourse,” reintroduces history to the assumptions of network theory. Making networks purely material or purely ontological strips any historical contingency from technology and technological form. Instead, a model of the present is projected back onto all eternity. Chapter Two demonstrates that this model had to be produced through discourse that articulates technology, biology, economics, and the social. In this chapter, I trace the usage of the term network through six historical moments. Beginning with, first, the original usage of “net-work” as a term to describe a manufactured net, I follow the articulations of network through, second, the nervous and circulatory networks of human anatomy in the 18th and 19th century, third, the telegraph and the railroad networks at the end of the 19th century and the beginning of the 20th, fourth, right-wing Christian fascist publications from the 1920s and 30s that

define global conspiracies as social networks, fifth, the embrace of banking networks by bankers and American citizens alike during the Great Depression, and sixth, the universalization of networks through the Internet in the 1970s. This history articulates simple technologies with the biological, the social, and the economic. Through this history, networks are transformed from technologies that constrain to technologies that liberate through the perpetuation and maintenance of connection and flow. By the end of the 1930s, there exists a discourse that defines social well-being through the management of networked flows of communication, capital, and biology, directly prefiguring the network theory of the present. In this history, the meaning of the network society was produced culturally, not through technology or ontology.

Part Two of this dissertation, “Network Citizens,” examines how network ideology naturalizes connection and flow in contemporary daily life. If Part One describes how and why we think of ourselves as networked, then Part Two investigates what this discourse currently legitimates in the management of self, connectivity, and flow. Who are valid and invalid subjects on a network? Who is a worthy citizen? Who is unworthy? What are the anxieties experienced because of the demands of network citizenship? Chapters Three and Four both focus on different aspects of these questions through case studies that investigate how networks and flows produce proper and improper subjects.

Chapter Three, “Managing Connections (and Flows): Social Networking and the Afterlife of Information,” examines cultural anxieties surrounding the life and death of human users of social networks. Death on social networks reveals that the connections one has with personal data are not natural or simply given, but must be intensely

managed. Through the examination of a wide range of discourse, including user comments, “lifestyle” news articles, essays and books by novelists and engineers, and the websites of information management services, in this chapter I argue that death online reveals how networked data are treated as both an authentic duplicate of identity and as a threat to personal identity. Because humans are understood as finite and mortal, while data is positioned as immortal and everlasting, the “life” formed out of online data is constructed as beyond any possible control of the user. With the death of the user, the perceived connection between the user and data is revealed as a contingency rather than a necessity. Information is positioned as an autonomous life, nearly identical to, yet separate from the user. The political economy of social networking, conjoined with this discourse, demonstrates how that which “labors” online is information rather than human beings. Social networks generate capital through the maintenance of connection and flow. Data connects and flows more efficiently than human beings. Because the connections a human has with data are contingent, the proper network citizen on social networking conforms to the expectations of data while human beings are constructed as insignificant, if not dangerous, for the maintenance of connectivity and flow.

Chapter Four, “Managing Flows (and Connections): Epidemiology and the Networking of ‘Contagious Obesity,’” examines a discourse in public health that defines obesity as contagious through epidemiological social networks. Moving beyond the purely technological, this chapter investigates the broad application of network citizenship into the construction of all proper behavior and relations that can be defined through networks—not only technological networks, but to all biological, economic, and social networks. In the discourse of “contagious obesity,” obesity is literally an epidemic,

spread through either a contagious virus or communicative social connectivity. Unlike the historical understanding of epidemics, which defines a contagious group or population to be excluded and isolated, the networking of contagious obesity defines health as something that must be managed at the level of the totality. In order for one to manage her own weight, she must literally manage the weight of all others to whom she is connected—which potentially includes all human beings on the entire planet. Contagious obesity brings together biological flows with technological and social flows, as well as economic flows in the form of nationalized health care. On one hand, obesity is constructed as a symptom of the inability to manage connection and flow, to be excluded and ultimately eliminated from the social totality at the level of the individual. On the other, obesity is something to which all humans are inevitably subject, an inescapable evil that arises from connectivity. The ideal of network citizenship is constructed as unattainable, and the very possibility of connectivity and relation are understood as inevitable failures from which all should disconnect in order to save themselves.

These two cases examine how the proper conduct of network citizens is defined through the management of connectivity and flow. Humans, however, are not particularly good at being network citizens. Chapter Five, “Managing Network Citizenship,” concludes the dissertation by further theorizing the implications of network citizenship. This chapter suggests that the political impact of networks is in defining the everyday possibilities for citizenship. Networks are not about liberating individual agency or enabling totalitarian control. Networks define the proper conduct of individuals in terms of connectivity and flow. Those who cannot manage connections and flows are unworthy of inclusion on a network. But these standards are often unattainable or undesirable. As a

result, human beings are positioned as that which can be disconnected and cast aside without any real impact on the network as a whole. We are failed network citizens in the making, if we have not failed already.

PART ONE
NETWORK THEORIES

The first part of this dissertation argues that network theory emphasizes materiality and nature in such a way as to assume that there are no alternatives to networks. Connectivity and flow inevitably ground all possibilities for our contemporary moment, if not all eternity. This reading of networks is ahistorical. When the history of network discourse is acknowledged, it is clear that our understanding of networks has cultural origins that have been centuries in the making. Networks, connectivity, and flow are contingent assumptions about nature, produced through technology and discourse. They are ideological. The everyday effects of this ideology—how it produces subjects and citizens—are the focus of Part Two.

Chapter One, “Networks in Academic Discourse,” critically reviews how networks are theorized in three areas. This chapter moves through political economy, theories of resistance to networked capitalism, and scientific and philosophical theories of networks. In each of these forms of network theory, networks are constructed as purely material, natural, or ontological structures. Networks exist as the foundational model for technology, biology, economics, and the social. In academic discourse, either technological transformations have changed the operation of capitalism during the 1970s or have revealed that life and existence are essentially networked.

Chapter Two, “Networks in Historical Discourse,” contextualizes the theories of Chapter One. Network discourse did not simply emerge out of thin air upon the creation of the Internet. Instead, discourse about networks had to be articulated over several centuries to arrive at the assumptions of contemporary network theory. Chapter Two examines six historical moments in the discourse of networks: (1) the original usage of “net-work” as a term for netting, (2) biological networks of anatomy in the 18th and 19th century, (3) technological networks of the telegraph and the railroad at the end of the 19th century and the beginning of the 20th, (4) social networks in the discourse of right-wing Christian fascist publications from the 1920s and 30s, (5) financial networks in the embrace of branch-banking by bankers and American citizens alike during the Great Depression, and (6) the universalization of networks through the Internet in the 1970s. Through this history, network discourse brings together the technological, the biological, the social, and the economic. This narrative demonstrates how the assumptions of network theory are cultural, rather than pure expressions of materiality or nature.

CHAPTER ONE

NETWORKS IN ACADEMIC DISCOURSE

When questions of power and ideology are evacuated in favor of materiality and nature, the term network ceases to refer to a specific, technologically inflected version of capitalism or to a historically contingent discourse. *Instead, networks are understood as the singular essence of all life and relation.* In network theory, networks are purely material things derived from technology and biology. In this chapter, I trace how networks have been theorized in the past several decades, moving through political economy, theories of resistance to political economic transformations, and finally the complete naturalization of networked connection in scientific and theoretical works. Throughout, when the term network is invoked, it is so in such a way that its apparent materiality permits no alternative to logics of connection and flow.

There are two ways of using the term network in academic literature. The first suggests that networks are a new historical phenomenon. Networks have changed the organization of the social, the economic, and the cultural. These works are often derived from Marxist critique (Berardi 2009; Dyer-Witheford 1999; Harvey 1990; Lazzarato 1996). Changes in the economic base of capitalism through a networked, digital, or “post-industrial” mode of production have resulted in larger changes in the superstructure (Bell 1973; Castells 2000a; 2000b; 2004; 2009; Nora and Minc 1980). These works are correct to identify the prominent role of digital networks in the operation of capitalism since the

1970s. Yet taking the 1970s as a complete break with the past, as if technological transformations define a new mode of production without historical precedent, ignores how many of the claims of network theory existed as a discourse—and sometimes a dominant discourse—throughout the past several centuries. The discourse legitimating a specific form of material organization is ignored in favor of pure materiality.

When the political economic critique of networks moves to a discussion of resistance networks are constructed as the only possible logic upon which contemporary social struggles must be fought (Galloway and Thacker 2007; Hardt and Negri 2000; 2004; 2009; Terranova 2004). Both networked capitalism and alternatives to capitalism rely on the same ideals and assumptions about nature and materiality. While there may be no guarantees to the politics of networks, there are also no alternatives. The network, when understood as a fully material structure, prohibits the imagination of a politics beyond connections and flows.

These claims of the “newness” of networks would appear to be corrected by the second way of theorizing networks. Instead of a new phenomenon that intrinsically breaks with the past, networks are the ontological ground of reality (Harman 2009; Latour 1993; 2005; Taylor 2001). In various works derived from science and philosophy, the world is understood as pure networked connectivity, and nothing more (Barabási 2002; Buchanan 2002; Castells 2009; Johnson 2001; Kauffman 1995; Watts 2003). While the newness of networks is eschewed in these works, these theories also ignore the historical specificity of network discourse. The absence of historical context leads to claims that structural inequalities produced by technological networks are insignificant, if

they exist at all. Inequalities and differences are ignored in favor of the belief that everything is connected.

The next chapter will return history to network theory. The assumptions of network theorists are in no way neutral reflections of the material or natural world. Network theory is, instead, part of a contingent discourse that has existed for centuries. In this chapter, however, I outline how contemporary academic work defines the network as a natural structure that brings together economics, technology, biology, and the social. With a few notable exceptions, networks are theorized as material or ontological structures. Through this discourse, connection and flow are rendered unchangeable or eternal.

Networks in Political Economy

The Network as an Economic and Technological Base

Within political economy, the dominance of networks is taken as a function of the transformation from “industrial” capitalism, in which production involved producing *things*, to banking, service work, and information processing. The “things” made today, according to Saskia Sassen, are “services and financial goods” (1991, 5). Corporations are transnational. They depend on world markets and global advertising campaigns. They rely on cheap labor in multiple countries, are managed at a distance, and are accountable to the laws of no singular governmental body (LaFeber 2002). These transnational corporations have more of an investment in image and the *immaterial* (Klein 1999; Lazzarato 1996). In recent years, this transformation has been variously called “telematics” (Nora and Minc 1980), “post-industrialism” (Bell 1973), the “information

age” and “network society” (Castells 2000a), “projective capitalism” (Boltanski and Chiapello 2005), “financialization” (Martin 2002), the “new economy” (Henwood 2003), “immaterial labor” (Lazzarato 1996), “Integrated World Capitalism” (Guattari 2000), and “flexible accumulation” (Harvey 1990), among countless other terms used to describe many of the same changes. The exceptionally broad term “postmodernity,” as defined by Jean-François Lyotard (1984), was also an attempt to encapsulate how these technological and economic changes impact cultural and epistemological shifts. While these approaches differ significantly, they all share a common focus on how digital network technology, as the foundation of a new mode of production, transforms economics and culture.

Simon Nora and Alain Minc, in one of the earliest works to outline some of these transformations, claim that the future will be defined by “mass computerization... becoming as indispensable to society as electricity” (1980, 3). The decreasing size of computers produced at decreasing prices enables the widespread appropriation of technology in business and daily life. But mass computerization is not transformative in and of itself. More important is what Nora and Minc refer to as “telematics,” the increasing connection between computers and telecommunications in the form of a network (4). Telematics will initially cause chaos unless governmental regulation properly prepares for the challenges and promises of networks, as an older way of organizing the world will be cast aside for a new one. In Nora and Minc’s predictions, telematics will transform business, leading to increased unemployment and a reshaping of global economic competition. Telematics will completely destroy the growth of new jobs in the service sector. Service work is easily transformed into self-service with the help of

technology. Telematics could lead to totalitarian domination by the state because of how a network is connected together in a single, totalized structure. They will fundamentally alter historical traditions and “collective memory” through technological databases that store historical texts.

These claims directly contradict many other analyses of the political economy of networks.¹ Most authors disagree with Nora and Minc on the decline of the service sector and the possible totalitarian aspects of the control of networks. Networks are more often assumed to be intrinsically liberatory and egalitarian. Jobs in the service sector, along with finance, are assumed to be the future of employment in an economy defined by network technology. Saskia Sassen, for instance, argues that the growth of technological networks has coincided with, not prohibited, massive expansion in service and financial sectors of employment. This has created “global cities,” massive power centers defined by metropolitan urban hubs of concentrated service and financial labor. Sassen, while she defines these large cities (specifically New York, London, and Tokyo) as power centers, nonetheless argues that this form of networked, technological growth is “ultimately part of a chain. Even industrial homeworkers in remote rural areas are now part of that chain” (1991, 4-5). Networks may concentrate capital in hubs. Yet, everyone is inevitably connected by the global flows that cut across both urban and rural life. In Sassen’s study of global cities, we can see some of the fundamental assumptions about the operations of networks. Even if networks concentrate capital in large cities, everyone and everything is

¹ Although they differ from most readings of network technologies, Nora and Minc’s fears seem to be justified given more recent events. Technology has replaced workers through “self-service” technologies (cf. Aronowitz and DiFazio 2010). In the face of possible revolution, both the Iranian and Egyptian governments were able to either monitor (in the case of the former) or shut down (in the case of the latter) all networked communications within their borders (cf. Morozov 2011).

still connected. What flows through global cities also flows through the most isolated rural homemaker by sheer virtue of the contemporary mode of production.

While there are many names for these transformations in political economy, all accounts stress the increased “flexible” flow of capital emerging after a relatively stable and “rigid” model of capitalism. David Harvey refers to this shift as the transformation from Fordism to “flexible accumulation.” Harvey claims that Fordism has been the dominant form of the organization of capitalism in the West throughout the middle of the twentieth century. Through Fordism, wages increased, along with unionization, giving rise to a so-called “middle class.” Fordism is a method of reproducing labor power through mechanisms of measurement and control. Fordism produces citizens who think of themselves as workers and consumers via a “kind of rationalized, modernist, and populist democratic society” (1990, 126). According to Harvey, Fordism is “rigid” due to built-in state and union support. It supports job stability and security for workers rather than “innovations” in growth, often through the intense management and control of both workers and governmental programs. Unlike Fordism, the mode of capital accumulation derived from technological networks relies on “flexibility.” This stresses the mobility and flow of capital rather than its stability. Through technology and governmental deregulation capitalism “is becoming ever more tightly organized *through* dispersal, geographical mobility, and flexible responses in labour markets, labour processes, and consumer markets, all accompanied by hefty doses of institutional, product, and technological innovation” (159). Like Sassen, Harvey argues that flexible accumulation relies more on financial services than industrial production. Flexible accumulation is

intrinsically related to the technological networks that enable the mobility of capitalism beyond state-regulated Fordist regimes of accumulation (147).

While technological transformation is always central to these changes in capitalism, Manuel Castells is the most explicit in linking these economic changes with changes in network and information technology. The rise of financial services is directly linked to the massive increase in digital networking on a global scale throughout the 1970s and 1980s. “The globalization of financial markets,” via technological networks, “is the backbone of the new global economy” (2000a, 106). According to Castells, along with Harvey and Sassen, technological networks are connecting everyone together, in the name of the increasing flow, fluidity, and flexibility of capital. These transformations are not ideological, but part of the material base of capitalism that then transforms human experience and culture.

Networked Space and Time

These transformations in capitalism restructure the experience of space and time. For Harvey, flexible accumulation leads to “space-time compression.” Spatial distance is overcome through technologies that can accelerate the circulation of capital regardless of spatial barriers. Citing Marx, Harvey claims that spatial distance “then reduces itself to time because ‘the important thing is not the market’s distance in space but the speed with which it can be reached’” (2006, 377). In a network, space is conceived in terms of duration to be overcome, leading to an ideal temporality that is both instantaneous and infinite (Terranova 2004, 52; Virilio 1999). New technologies work to negate space through speed. Simultaneously, they distribute the means of production across the globe,

capitalizing on newly accessible “emergent” global markets often located in the global south. While these flows of capital inherently create specific power centers based in finance rather than industry, space is, nonetheless, flexible, fluid, and based on totalizing connectivity. The only spaces that matter are those that are connected. Castells refers to these transformations as the creation of a “space of flows” and “timeless time.” Spaces are defined by the trajectories of flows that traverse geographical boundaries. Anything that inheres in a space as “place” is inconsequential (2000a, 243). Castells also argues that this understanding of time, which eliminates any chronological progression of past to present to future in the name of speed and acceleration, creates “eternity in our life span” (484). The networking of time corresponds with the negation of death as an essential attribute of human life. For Harvey and Castells, the networked mode of production is not just a transformation of capitalism. Networks transform all human relations and experiences in the name of eliminating space and time.

Networked Identity

These changes have not been greeted without resistance. Castells notes that while global flows of capital are becoming more fluid and flexible, the notion of self-identity is becoming far more rigid. The network society is defined by the prominence of fundamentalist movements, based in identity, resisting the transformative effects of technologically driven financial capitalism:

In a world of global flows of wealth, power, and images, the search for identity, collective or individual, ascribed or constructed, becomes the fundamental source of social meaning... People increasingly organize their meaning not around what they do but on the basis of what they are, or believe they are... *Our societies are increasingly structured around a bipolar opposition between the Net and the self.*
(3)

Network technology erodes the governmental boundaries and regulative mechanisms of the state in the name of the free flow of financial capital. This does not create a flat, globalized world for Castells. Instead, the “rise of informationalism at the turn of the millennium is intertwined with the rising inequality and social exclusion throughout the world” (2000b, 68). If networks are eroding identity and place in the name of the flow of capital, creating massive inequality in the process, then resistance to networks is found in the increasing rigidity of fundamentalist identity movements.

However, identity in an age of networks is not that simple. If, according to Castells, there is a deep divide between “net” and “self,” then what of those who identify with the net? According to Alan Liu (2004), techniques usually associated with Fordism, specifically Taylorist scientific management, are best implemented in post-industrial information and service work, conjoined with the production of an “identity” in which the self is directly associated with global flows of information and capital. The identity of a “knowledge worker” is constructed through her attachment to the flexibility and fluidity of networks. Workers are managed not only in terms of time and productivity, but also in terms of emotions and “self-actualization.” Corporations attend to the time of their employees through time-management methods that Sarah Sharma (Forthcoming) refers to as “recalibration.” The personal rhythms and feelings of white-collar workers are mediated through yoga and other “new age” techniques. Through yoga, the worker is encouraged to manage and maintain “flows” of “energy” that enable a greater “connection” to oneself and to the world. Liu argues that the uses of “team building” exercises, yoga, meditation, and t’ai chi in corporations are intentionally designed to create passive, if well-adjusted, subjects who identify with the corporation and networks

of global capital rather than any identity group or class. “The new corporatism,” claims Liu, “is at once the logical extreme and annihilation of identity and New Class critique. It is the subsumption of identity and class... by definition a team is *not* an identity group, and it is assuredly *not* a class formation” (2004, 47). Through technologies that manage the temporality of work, selves are produced as completely unique singularities, connected with all others via intensely managed flows. Nick Dyer-Witheford states that while “there will still be work, there will be no working ‘class,’ because class as a collective identity based on adversarial relations of production will have been dissolved” (1999, 29). It is entirely possible for there to be an identity that is a network identity, in which individuals identify with flows and connections through techniques designed to interpellate workers as subjects of networked capitalism. And it is this view that is constructed as progressive, as the “future,” to the exclusion of all other forms of being.

Historically, social struggles have been waged by contextually specific “classes” produced through common cultural experiences that differentiate one group of individuals from another (cf. Thompson 1963). This is not the case with a network. Struggles for social justice, according to Castells (2009), are defined entirely in binaries of inclusion and exclusion. There is no class struggle; there is only the need to connect everyone to global networked flows of capital and information. The solution for exploitative uneven development is posited as more connection, and only more connection (also see Christakis and Fowler 2009). This notion of justice has informed, quite prominently, MIT Media Lab founder Nicholas Negroponte’s One Laptop Per Child project, which attempts to connect Africa to the Internet through low cost computers. But divisions often still exist, even when connected. Uneven spatial development is produced

out of the expansion of global flows of capital, not their absence (Harvey 2000). Inequality and social division, not equality and social justice, are produced through the spatial expansion of technological networks. Sarah Sharma (Forthcoming) argues that responses to speed and acceleration in post-industrial forms of capitalism often rely on a very specific and differential concept of time. In this time, some are “permitted” to move at a fast or slow pace while other populations, usually in the service sector, are subject to the pace of others, often with massively detrimental consequences for health and well being of those marginalized. This is all accomplished in the name of a single, uniform rhythm defined by the requirements of global capital flows. This single flow does not exist ontologically. It is instead an ideology used to legitimate inequalities between classes, in spite of how all involved are “connected” to these global flows of capital.

It is rare for critical studies of the political economy of networks to directly naturalize the principle of the network, at least in the sense of connection being the primary, and only, foundation for the entire world. Yet networks are almost uniformly understood as an aspect of material infrastructure, not as a discourse that produces and legitimates specific capitalist relations (cf. Boltanski and Chiapello 2005). This mode of production is still assumed to be an aspect of the transformation of the material base, rather than an ideology that has existed for long before the invention of post-industrial capitalism or flexible accumulation. The rise in financial services in the past few decades is undeniable, along with the amount of capital invested in and produced by finance. But many of the claims of those discussing networks and technology as revolutionizing the economic order of the world—especially the more hyperbolic claims about how information processing has completely subsumed industrial production—tend to have

little to no empirical evidence as support (Henwood 2003). While there is a rise in the move towards networked financial production, it does not follow that the economy is exclusively conceived in terms of networks of capital flows. Yet this is exactly how political economy understands technological networks.

While the above authors are often highly critical of networked capitalism, their analyses are usually diagnostic; they rarely describe anything resembling possibilities for change. As we can already see hinted at with Castells, the issue of identity and resistance brings up a major problem of the theorization of networks in political economy. Conflict and resistance, following Marxist or Hegelian models of social relations, are often understood to arise from oppositions and differences. If the current mode of production connects everything and everyone, then is there a possible outside to the network? Can the network be resisted? Or is there only a singular totality, a One called “network,” upon which all possibilities must exist? And can this ever be disarticulated from the post-industrial base of capital and technology?

Resistance to Networked Capital

No Alternatives to Networks

If they do not naturalize networks as a mode of production, both political economy and theories of networks derived from political economy naturalize networks through discussions of resistance. Networks are not only seen as a specific mode of capitalism to be resisted, but *the only possible ground upon which all struggle must be fought*. Castells may oppose “net” and “self.” Fundamentalist identity movements assert the rigidity of identity against the fluidity of networks. Nonetheless, even these

movements based in rigid identities are organized according to the flexible principles of the network (2004). This has led Castells (2009, 20-21) to the argument that there are at least two kinds of networks. There are, first, exclusionary technological networks of financial globalization. But, second, there is a network that exists at the most primal foundation of material being, upon which all are always-already connected. Producing an economic and technological network that is fully connective, without “digital divides,” is the realization of ontological nature through human industry. Network justice is the technological manifestation of that which already exists. Network logic is naturalized not through discussions of the means of production, but *through the equivocation of connection with social movements, government, and resistance*. In a world defined by networks, political resistance *must* be practiced through the same logic of connectivity that defines networked capitalism.

While not all authors would agree with Castells, very few posit any alternative to a politics of connection. Castells believes that social justice takes the form of realizing technologically the connections that exist naturally. Others see technological connectivity through financial globalization as that which will undo financial globalization. While connectivity may not be equated to nature, there are also no alternatives to a politics of connection. Nick Dyer-Witheford (1999), summarizing some of the arguments of Autonomist Marxism, argues that connective technologies may have been put in place through capitalist global expansion. Nonetheless, networks inherently carry the possibility for resistance that can overthrow the dominance of capitalism in today’s world. *Global connection is the possibility for resistance* in Dyer-Witheford’s reading of Autonomist Marxism. Capital’s “own diffusion of the means of communication has

inadvertently assisted this connective process... To a degree, the very communication channels that circulate commodities also circulate struggles” (146). The expansion of communications networks is articulated to the management of global flows of capital (cf. Mattelart 2000). Theories of networked resistance naturalize communication via networks and then ignore the role that communications networks have played in the globalization of financial capitalism, as if the two can be separated without any additional cultural work.

Dyer-Witford’s claims are not intrinsically Marxist. They are similar to most mainstream arguments about the politics of networks, many of which are rooted in right-wing libertarianism (cf. Liu 2004; Mosco 2004). As networks permit communication and connection over great distances, new forms of democracy and production are believed to emerge through the “self-organization” of individuals connected through the Internet rather than through state government. The Internet, as a network of networks, realizes the ideal of direct democracy without the intrusion of any federal institutions. Connection and democratic representation are equivocated, eliminating the need for government, as the Internet can serve as a technology that replaces federal institutions. According to social media “guru” Clay Shirky, the economic and social “costs incurred by creating a new group or joining an existing one have fallen in recent years, and not just by a little bit. They have collapsed” (2008, 18). Because new media enables connection without effort or cost, individual people are able to join groups at will, leading to a democratic populist political force from the “hive mind” of social networking (Kelly 1994). Yochai Benkler argues that what will emerge from the Internet “is space for much more expression, from diverse sources of diverse qualities. Freedom—the freedom to speak,

but also to be free from manipulation and to be cognizant of many and diverse options—inheres in this radically greater diversity of information, knowledge, and culture through which to understand the world and imagine how one could be” (2006, 168-169). Political movements are directed not towards justice, but towards access and the maintenance of the “freedom of information” as control of ownership against “open” networks threatens to undermine the entire structure of the Internet (Zittrain 2008). Freedom, liberty, and flow are equivocated. Castells suggests, “the history, culture, and architecture of the Internet make it difficult to appropriate it privately or to regulate it exclusively for the sake of business profits” (2009, 104).^{2,3} Networks are theorized as inherently beyond the control of both capitalism and government, in spite of the fact that this actually has no grounding in history. If the past is any guide, then the unification of technological

² Castells also argues away concerns about American cultural imperialism through the global popularity of the television show *Betty la Fea* (*Ugly Betty* in the United States). From this single example, Castells dismisses the argument that globalization is tantamount to the Americanization of all culture (cf. LaFeber 2002). Certainly, American cultural imperialism isn’t as clear-cut as many seem to argue. It produces uneven cultural hybridities and new non-American cultural powers (Allison 2006; Ong, 2006). But simply arguing that it isn’t an issue through a single—rather poor and limited—example is clearly an ideological attempt to delegitimize critiques of networks and globalization.

³ Clay Shirky seems to argue that social organization was not possible before the Internet. Discussing a group of people moved to act after Michael Moore’s film *Sicko*, he claims that they “were able to exchange e-mail addresses, knowing that, *unlike exchanging addresses or phone numbers, it would let them take the moment of collective inspiration in the lobby and save some part of it for later*” (2008, 301, italics added). Why e-mail is somehow better for the organization of political movements than phone numbers or addresses, or simply local solidarity, is never explained. Or, for that matter, Shirky doesn’t give any support that any of these individuals actually became involved in advocating for single-payer healthcare. Malcom Gladwell’s takedown of Shirky (2010, 42-49) makes some particularly salient claims—namely that organization via network technology is good for fighting small conflicts that serve to maintain class power. Arguably, Shirky cannot effectively demonstrate a single time in which social structures are challenged or overthrown through social networking in and of itself.

networks tends not towards a more libratory order, but to one under singular control, most often by corporations, in spite of the almost uniform origins of all media networks in what would today be thought of as amateur “peer-production” (Wu 2010).

Luc Boltanski and Eve Chiapello are suspicious of claims about the intrinsic resistance or democratic possibility of networks and connection:

The self-organization that develops in networks can certainly prove auspicious for innovation and innovators... But there is very little chance of it providing acceptable solutions in terms of social justice on its own, precisely because the network does not offer an overarching position allowing for consideration of those who find themselves on its margins, or even disconnected. (2005, xxiii)

For Boltanski and Chiapello, networks are *explicitly* capitalist forms. Networks only acknowledge collectively produced (capitalist) “projects.” They may be creative, but are neither political nor social movements. Those who most clearly need to be addressed for progressive changes in the name of social justice cannot be acknowledged from the perspective of a network. Networks only acknowledge connectivity, and, by definition, everyone is connected on a network. The disconnected are, fundamentally, also invisible. Like Boltanski and Chiapello, Jodi Dean, who frames network discourse through what she refers to as “communicative capitalism,” has been one of its most forceful critics. She argues:

Expanded and intensified communicativity neither enhances opportunities for linking together political struggles nor enlivens radical democratic practices... Rhetorics of access, participation, and democracy work ideologically to secure the technological infrastructure of neoliberalism, an invidious and predatory politico-economic project that concentrates assets and power in the hands of the very, very rich, devastating the planet and destroying the lives of billions of people. (2009, 23)

For Dean, the mistake of those who celebrate networks is to assume that communication and connection are somehow opposed to the operation of capitalism. Communications

technologies have aided in the expansion of global capitalism since before the beginning of the 20th Century (Mattelart 2000). There may be no essential articulation between communication and capitalism. But there has not been a disarticulation between the two since then either. The fact that many of those embracing networks as a political force are right-leaning libertarians also indicates that the articulation of global capitalism with technologized democracy is a non-issue for many of those who see in connectivity a future democratic force.

Networks and Empire

Michael Hardt and Antonio Negri's trilogy of books, *Empire* (2000), *Multitude* (2004), and *Commonwealth* (2009), has probably been the most influential in arguing that global networks are the foundation for the new anti-capitalist resistance movements to globalized financial capitalism. Hardt and Negri draw heavily on the theories of Autonomist Marxism along with a post-Deleuzian reading of Spinoza.⁴ In *Empire*, they begin with the same assumptions about the changing global economy as the political economists discussed above. They argue that the "development of communications networks has an organic relationship to the emergence of the new world order—it is, in other words, effect and cause, product and producer. Communication not only expresses but also organizes the movement of globalization. It organizes the movement by

⁴ Negri is himself a notable Autonomist theorist, though I hesitate to make any blanket statements including of his collaborations with Hardt into a canon of Autonomist Marxism. This is because, unlike Hardt and Negri, other Autonomist theorists are often hesitant to embrace networks and connection as an unequivocal good (for instance, Berardi 2009). Some works rooted in Autonomist thought, in fact, position techno-capitalist connection as something to be resisted through the sabotage of infrastructure. The anonymous authors of *Tiqqun* (2010; 2011), in particular, are quite hostile to Negri's version of Autonomist Marxism.

multiplying and structuring interconnections through networks” (2000, 32). Hardt and Negri are not only interested in new forms of capitalist domination. Communications networks create a new form of global empire, a “*decentered and deterritorializing* apparatus of rule that progressively incorporates the entire global realm within its open, expanding frontiers” (xii). But, at the same time, these networks create the possibility for what Hardt and Negri call “the multitude,” an open unity in difference that emerges through technological and financial means of globalization. The networks of empire not only create a new form of capitalism. They also provide “the possibility that, while remaining different, we discover the commonality that enables us to communicate and act together” (2004, xiii). The multitude is “*an open network of singularities that links together on the basis of the common they share and the common they produce*” (129).

Networks not only define the current capitalist mode of production, but they define all possible resistance to the mode of production. The structure of capitalism must be maintained so it can undo itself. According to Hardt and Negri:

we see networks everywhere we look—military organizations, social movements, business formations, migration patterns, communications systems, physiological structures, linguistic relations, neural transmitters and even personal relationships. It is not that networks were not around before or that the structure of the brain has changed. It is that network has become a common form that tends to define our ways of understanding the world and acting in it. Most important from our perspective, networks are the form of organization of the cooperative and communicative relationships dictated by the immaterial paradigm of production. (142)

Networks are specific to the current mode of production, but are also a universal form for the organization of the present (and, for that matter, all of history). Consequently, they are the necessary ground upon which political change must occur. There is no outside to the network. The possibility of social movements occurs through connection, not

differentiation, dialectics, or hegemonic struggle. The assumption of connection as natural, and as intrinsically resistant to capitalist ownership and production, is most clear in Hardt and Negri's *Commonwealth*. Hardt and Negri argue that in post-industrial production

producers increasingly require a high degree of freedom as well as open access to the common, especially in its social forms, such as communications networks, information banks, and cultural circuits. Innovation in Internet technologies, for example, depends directly on access to common code and information resources as well as the ability to connect and interact with others in unrestricted networks. And more generally, *all forms of production in decentralized networks, whether or not computer technologies are involved, demand freedom and access to the common.* (2009, x, italics added)

New media, explicitly in the form of network technology and informational labor, inherently produces a “common” body of knowledge that is shared. This “common” refuses the logic of private property and subverts capitalism through the connectivity of networks. It exists beyond technology, in any form of distributed network between human beings. For Hardt and Negri, the post-industrial mode of networked, communicative production *inherently* undermines capitalism through social and technological connectivity.

Networks and “Free Labor”

Tiziana Terranova (2004) and Jaron Lanier (2010) have both argued that this culture of sharing information in “common” has transformed the way creative informational work is often compensated. Terranova refers to this as “free labor,” which she defines as “the moment where this knowledgeable consumption of culture is translated into excess productive activities that are pleasurably embraced and at the same time often shamelessly exploited” (2004, 78). Informational capitalism plays on certain

aspects of how the Internet relies, in part, on a gift economy, where users creatively produce goods and information, for free, and share them with others. “Especially since 1994,” Terranova argues, “the Internet has always and simultaneously been a gift economy *and* an advanced capitalist economy. The mistake of the neoliberals... was to mistake this coexistence for a benign, unproblematic equivalence” (94). But why is it a mistake to assume that technological networks make this equivalence? Or that discourse about networks makes this equivalence? Lanier (2010) refers to this transformation, somewhat problematically, as “digital Maoism.” Lanier sees in free labor a collectivist, moral demand that informational work should have no economic value—a demand that, to him, only resonates with Mao’s Cultural Revolution. In his reading, if “information wants to be free,” then the one producing information shouldn’t be paid.

However, Lanier is wrong to think that this is a communist or socialist belief, because it is in the best interest of *capitalism* to divest the workers of any capital in return for their labor. It would appear that making informational labor operate as a gift economy actually enables the realization of the capitalist dream of pure exploitation of workers through a discourse, embraced by creative laborers, that work shouldn’t actually be compensated (Ross 2009). This divestment of information workers of capital, a seeming return to what Marx referred to as primitive accumulation (Andrejevic 2007), is not interpreted as a completely negative thing for Terranova.⁵ The “free labor” of Internet information work is not a problem to be resisted, but a reality of the information age to be

⁵ Although it is considered to be exceptionally negative by Lanier, who, like many Internet theorists who originally come from engineering backgrounds—Lanier is a pioneer in the development of virtual reality technologies and Second Life—tend towards right-leaning libertarian beliefs.

addressed and taken into account, part of a “political milieu” which “looks more like a permanent battle field than like a neo-socialist utopia” (2004, 154).

Clay Shirky (2008) and Henry Jenkins (2006) have both argued that value in informational work cannot be conceived in terms of economic exchange value. Instead, value on the Internet is calculated in terms of “love” and “affect.” Likewise, Hardt and Negri argue that love “marks a rupture with what exists and the creation of the new. Being is constituted by love...” (2009, 181). For Hardt and Negri, love is that which produces the common. It is out of love that a mutual sharing comes into being, connecting all together to form their new revolutionary class without borders. Economic exchange is replaced by affective investment, and it is out of this affective investment that the revolutionary potentials of networks are realized. Pleasure has oft been equated with resistance in one strain of cultural studies (Fiske 1989, 224-239), a strain that has been recently taken up enthusiastically by libertarian political economies of network technology (Benkler 2007). Certainly, people get something from producing work online. They don’t necessarily feel exploited by the websites that use their work as free content, even though this isn’t always the case. Yet this shouldn’t efface questions of economic exploitation.⁶ But when it comes to theorizing resistance to capital, the pleasure (and resistance) of connection trumps all.

As political economy shifts to the analysis of resistance, we see economic networks inch ever so closer to naturalization. The very existence of networks “invites us to think in a manner that is appropriate to networks” (Galloway and Thacker 2007, 13).

⁶ Even though, as I’ll argue in Chapter Three, this is more complicated than most critiques of free labor let on because the “workers” online are not inherently human.

Thus, there results an odd aporia. On one hand, the economic network is posited as opposed to the network of love and communication as if the two couldn't exist in harmony. But on the other, the same technological networks are understood to ground both kinds of connections. While workers are divested of the fruits of their labor apparently on a level previously unseen in contemporary capitalism, the “satisfaction” and “pleasure” they get from their passionate attachments are enough to produce a new revolutionary force. The same material infrastructure—the Internet—is seen as the base for both of these connective forms. The divestment of capital from the worker is seen as a good thing, as in the disappearance of economic exchange for labor we find the revelation of the love that underlies productive activity, a love that is purely natural and all-inclusive, revealed through new technologies of production.

When it comes to the relation between technology and economics, networks and connection are understood as that which determines transformations in the economic base as well as the only possible resistance to the economic base. Networks are a purely material, technological structure, from which there are no alternatives. The (supposed) waning of economic networks reveals affective networks, both of which are fostered and revealed by network technology. And even beyond technology, in the case of Castells, there only are more networks and more connections between human beings. All our dreams and nightmares are pinned to the connectivity of networks.

Networks as Nature

Equivocating Biology and Technology

The ideological naturalization of networks in academic theory achieves its fullest form when networks are assumed to extend beyond the economic and the technological. Networks are understood as essential aspects of the entirety of earthy existence. We can already identify this argument in Castells' introduction of an ontological network beyond the technological (2009, 20-21), and in how Hardt and Negri "see networks everywhere we look" (2004, 142). This essentialization of networks is, in part, accomplished through a discursive equivalence between the biological and the technological. Biology is assumed to operate via the same mechanisms as machines, and vice versa. Alexander Galloway and Eugene Thacker have defined a network as "any system of interrelationality, whether biological or informatic, organic or inorganic, technical or natural—with the ultimate goal of undoing the polar restrictiveness of these pairings" (2007, 28). The connections made by networks deconstruct the oppositions separating the fabricated and the born, revealing the shared nature of both. Claims Galloway, "it is clear that for many years now *matter has become life*, this coinciding with the emergence of autonomous life forms both nonhuman and hybrid such as robots, cyborgs, and artificial life systems..." (2004, 82). In political economy, networks are assumed to be a technological attribute of the economic base. Here, networks are a pure expression of the totality of the material world, biological and technological alike.

Eugene Thacker (2004a) and N. Katherine Hayles (1999) have both argued that the equivalence between human and machine is due to a discursive transformation originating in cybernetics and genetics. Through these fields, the essence of life is

understood as disembodied information that flows through technology and the biological alike. “When information loses its body,” claims Hayles, “equating humans and computers is especially easy, for the material in which the thinking mind is instantiated appears incidental to its essential nature” (2). Information, abstracted from matter, is considered to be that which is living. The body is forgotten in favor of data. Networks, however, bring matter back into play as a universal structure that equivocates the human body and the technological. In Galloway and Thacker’s theory of networks, for instance, life is not only disembodied data, but also the material networks shared by the living and the technological. If information is the image of life disembodied and abstracted, the network provides a universal, material form into which life can be reinserted. The network is the body reimagined and regained. One of the major questions in Thacker’s *Biomedica* is, “is the body a network?” (2004a, 31). The discourse of information, flow, and connection in biology and information science produce the body as a network. While Galloway, Thacker, and Hayles are all critical of the dominance of networks and information, they all seem to embrace the inevitability of scientific discourse in the production of reality. The power of discourse, when it comes to the scientists devoted to finding the informational and networked essence of life itself, is accompanied by the “truth” of science and biology, remaking the body in conjunction with language. The practice of genetics, for instance, is literally transforming biological bodies into computers and computers into biological bodies through discourses of information and networking (Thacker 2004a; 2005).

Others—those who have already embraced the “truth” of scientific discourse—are more explicit about the natural basis for network processes. The current discursive

collapse of biology and technology through the language of networks reveals to us the intrinsic, unshakable nature of all material existence. James Beniger (1986) has argued that describing life in terms of informational networks is not, in fact, a metaphor lifted from the technological, but is instead a description of the fundamental natural order of the world. Network technologies and network biology have together shown us that life is, and always has been, an essentially networked phenomenon. The natural order of the world is one based in connection and flows of information. Mark C. Taylor has argued, “we are gradually discovering that we are, in effect, *incarnations* of worldwide webs and global networks whose complexity is fraught with danger as well as opportunity” (2001, 17). We may have been blind to it until now, but the World Wide Web reveals how connection and networks have always been at the basis not only for all human relations, but for all natural, ecological, and biological processes, as well. Networks are no longer part of a technologically determined mode of production, but the very essence of nature revealed through new media.

The Sciences of Networks

These claims of the nature of networks are often delivered with the “empirical” observations of complexity and chaos theories in physics, biology, and mathematics, all of which understand the world as an open network defined out of the totality of all connections (Barabási 2002; Buchanan 2002; Gleick 1987; Johnson 2001; Kauffman 1995; Watts 2003). Complexity science, which is foundational for any mathematical model of networking, suggests that scientific models of connection describe any and all phenomena. Derived, in part, from the mathematical field known as “graph theory” along

with the sociological observations of Stanley Milgram (1967; Barabási 2002, 25-40; Watts 2003, 37-42) and Mark Granovetter (1973), complexity suggests that there is one model for all material existence, the network, which can be modeled mathematically and, as a result, explain all existence using that one model.⁷

In spite of being well known for her “ironic blasphemy” appropriating the cyborg for feminist politics, Donna Haraway has been one of the earliest critics of the discourse that equivocates networks and biology through science. Haraway argues that equivalencies between technology and biology intrinsically legitimize capitalist relations as nature:

The computer is not just a machine built according to laws of domination related to labour and war...*But the construction of a natural economy according to capitalist relations, and its appropriation for purposes of reproducing domination, is deep. It is at the level of fundamental theory and practice, not at the level of good guys and bad guys.* (1991, 68, italics added)

If the computer and the network overdetermine how we understand contemporary capitalism (as has been argued by many of those above), then understanding biology in the same language reproduces the inequalities engendered by capitalism at the level of nature.

⁷ This is, at least, when it comes to the popular representations of complexity and chaos theories in science, many of which are written by scientists themselves (i.e. Barabási 2002; Christakis and Fowler 2009; Kauffman 1995; Watts 2003). In discussions of this point, I’ve been told that I’m misrepresenting the scientific work of these individuals—yet even a brief perusal of the popular literature on network science reveals how these authors and scientists legitimate their research with the common-sense claim that “everything is connected.” Thus, their model can explain everything. My suspicion is that in a peer-reviewed journal these claims wouldn’t pass muster (as these theories rarely aspire to be a true “theory of everything” such as ones in theoretical physics). In a popular book, however, these claims can be made without any real concern. I return to this point in Chapter Four.

Like Haraway, Catherine Malabou (2008) has argued that the network structure so popular in biology, and in particular the brain sciences via the discourse of “distributed cognition” (Hutchins 1995; Noë 2009), is directly analogous to contemporary post-industrial capitalism. The metaphors used to describe the brain follow the same transformation from Fordism to flexible accumulation described by David Harvey. Where the brain was once thought of as a central, commanding organ through which the rest of the body would be organized into a managed hierarchy, the current view of the brain is based in “flexible” neurological networks that extend beyond the body itself. Cognition arises from a self-organized network:

In the same way that neuronal connections are supple and do not obey a centralized or even truly hierarchized system, political and economic power displays an organizational suppleness in which the center also appears to have disappeared. The biological and the social mirror in each other this new figure of command. (Malabou 2008, 33)

For the biologist Michel Morange (2008), concepts like “network” and “complexity” serve “only to hide the structural characteristics of the components of organic systems” (144). Yet we can extend this argument further. Not only do these concepts obscure. They also productively legitimate a specific ideology about the order of the world as natural.

No longer, as in critiques of political economy, are networks a historically specific—if purely material—transformation of the material base. Instead, in the sciences and in humanistic work that appropriates scientific concepts, network technologies are perceived to reveal the essentially networked reality of life itself. Technology is not opposed to the biological, but instead permits us to realize the biological in the form of technology. The two are assumed equivalent because they both express the same

structure. But, at the same time, this collapse serves to legitimate ideologies through reference to nature.

Ontology and Networks

In philosophy and cultural theory, the use of the term network parallels how it is used in the sciences and in related humanistic work. Networks are not directly equated to “nature,” however, but to the ontological foundations of existence. This perspective is best represented by Bruno Latour’s “actor-network-theory” (ANT). While initially developed as a method for the sociology of science (Latour and Woolgar 1979), ANT has been transformed into a philosophy of metaphysics in Latour’s more recent writings. ANT does not directly draw upon any other theory of networks. It is, however, the most explicit in reducing all relations to networked connections.

ANT was originally developed as a method for understanding how scientists produce scientific “truth,” concluding—as a number of philosophers of science had in years prior—that objects themselves have agency, participating in the process of science and the construction of scientific “fact” (Latour and Woolgar 1979; Latour 1987; cf. Heisenberg 1958). Many of Latour’s books (1988; 1996; 2010a) are ethnographies and historical studies that perform his method of tracing “actor-networks.” These works are notable for including objects as entities that possess as much, if not more, agency than human beings. As a method, Latour’s work undoes a number of problems that have plagued the study of technology. It gives technologies agency without drifting into “technological determinism.” At the same time, it permits human beings to retain some sense of power without embracing “cultural determinism.” The network of relations

between each and every entity means that each actor, human or object, possesses agency. Yet, that agency is always overtaken by other actors. Action and agency are bound up in an infinitely complex network. To understand reality, for Latour, is to simply trace these networked connections. One should, quite explicitly, avoid any critical unveiling or even analysis as such (2005; 2010b, 131-132). Truth is revealed simply through the mapping of the network. The analysis, or more accurately, description—as a work of ANT doesn't actually analyze anything—can never stop. Latour has stated that one should stop writing when one reaches a publisher's word limit, not when any argument has been made. The network can be traced indefinitely. And academic works shouldn't make arguments, regardless (2005, 148).

Latour does not leave ANT only as a method. ANT is also a metaphysical philosophy of ontology (Harman 2009; Latour 1988). The network is the very name of Being. The essence of existence lies not in something internal, but in the connections, and only in the connections, made between object and object, human and object, and human and human. Latour can claim that ANT is a method to reveal the reality of the world because he believes the network to be a pure ontological model for the structure of the world. Reality is nothing other than objects and their connections. An additional “possible” or “virtual” aspect of reality makes no sense at all. “An invisible agency that makes no difference, produces no transformation, leaves no trace, and enters no account is *not* an agency. Period. Either it does something or it does not” (2005, 53). Reality is completely empirical and observable. To “become a social scientist is to realize that the inner properties of objects do not count” (1993, 52). The world cannot be understood through analyses that speculate on the “inner properties” of things, ideologies, questions

of consciousness, mind, or perception. One should take into account *only* the connections of the network, tracing out those connections to a greater and greater scale.

Latour claims that the network is a series of “translations” through which everything is connected (1993, 3). The Speculative Realist philosopher Graham Harman, in his book on Latour, has argued that a “philosophy of networks does not require the network to be devoid of separate parts. If everything were already linked, translation would not be such a pressing issue for Latour” (2009, 47). This is only true insofar as that which is not linked has *absolutely no effect on the reality of the world*. If something has effects, then it is connected. Translation is not a name for a disjunction to be negotiated; translation is the exact same as a connection. While no *single* object is *directly* connected to *all* others, for something to exist it is inherently connected into the network. If it doesn’t have an effect, then it is disconnected and does not exist as a part of reality.⁸

Latour believes that the concept of the network is so natural that it cannot be theorized as an “underlying framework” which shapes knowledge (2005, 156). A network is neither a material thing to think with nor an organizing metaphor. A network is the one true structure grounding all existence. This claim comes from the fact that a network, for Latour, is not something like a technological infrastructure. ANT has nothing to do with technology and is instead based around a metaphysical concept derived from the work of Denis Diderot (Latour 2007). Latour nonetheless makes the

⁸ Harman’s reading of Latour in *Prince of Networks* is most likely a result of his own theoretical projects, “Object-Oriented Philosophy” and “Speculative Realism.” Unlike Latour, Harman assumes that there are no relations or connections. Harman draws on Latour’s theorization of objects, but removes the networks. As a result, his theory assumes that objects possess essences and do not change. This latter claim may be more a result of Harman’s denial of the existence of time, which is also appropriated from Latour. Also see Meillassoux (2008).

claim that “reason” today “has more in common with a cable television network than with Platonic ideas” (1993, 119). Latour walks the line between material, technological networks, and a dematerialized metaphysical concept of “translation” which can refer to anything conceived as a connection.

Latour’s claims are developed from understanding a certain way that engineering, science, and government operates. His theory and method is derived from a critique of sociology. Sociology cannot study the “projects” that comprise “the sciences and the technologies... They go too fast. They become too soft or too hard” (1996, 200). Latour is examining, *explicitly*, the organization of work in what Boltanski and Chiapello call “projective capitalism.” Projective capitalism is organized around flexible and temporary projects undertaken by collectives not identifiable as individual humans or individual corporations. While networks characterize this form of capitalism, Latour is taking this model of capitalist and technocratic labor and assuming that it describes all of material reality—and then he denies that he’s describing an organizational structure!

ANT is a method, a structure, and an ontology. It is also inherently political, as it provides an ontological ground for the constitution of a universal collectivity. “If we define politics as the progressive constitution of a common world,” Latour claims, “we can easily see how difficult it is to imagine a collective existence, if all those who wished to participate were first asked to leave behind, in the outside vestibule, all the appurtenances and attachments which enabled them to exist” (2010b, 60). The method of ANT embraces multiple ways of understanding and producing the world by placing all possibilities on the same plane. Reality is constructed through translations and connections that bring together people, objects, and often radically different worldviews.

Latour opposes the network to the autonomous, liberated subject of Western modernity. Individual people do not make history, if they can even be said to exist. Each and every individual is, in fact, only an individual insofar as she is connected into the network of reality—and is, thus, not an individual at all. As a result of his method, Latour states:

Comparative anthropology now has the means to rekindle a dialogue that seems more fertile to me than the ones we hear at UNESCO, or the ones offered *by the tedious resentments of anti-imperialism*. For the first time, perhaps, we no longer have any barbarians—not outside the gates, and certainly not inside. *For the first time, perhaps, when we use the word “civilization,” this admirable term need not be surrounded by dark forces that are only waiting for the signal to rush across the dividing line and destroy everything. For the first time, perhaps, we can remember that civilizations are not mortal.* (34, italics added)

Actor-network-theory is a “political” theory, to be sure—in the sense that it is doing something politically, not in the sense that it is theorizing the political. ANT’s only real claim is that if something exists, then it’s connected. Thus, the very notion of “politics” vanishes in the name of connective totality, unless politics is defined as the idealist creation of a singular totality, which *is exactly* how Latour defines it.

Latour’s dream of this simple claim is that conflict from “othering” will vanish, truly achieving world “peace” (1988). With ANT, we can position all agents—human, technological, or other—and all knowledges—mythological, religious, or scientific—on the exact same plane of reality. Latour thinks that this creates a kind of achievable utopia, enabled by a simple reframing of thought in accordance with his prescriptions. Yet the phrase “tedious resentments of anti-imperialism” strikes me in the above passage. I would imagine that Latour finds anti-imperialist struggle tedious because his theory cannot account for issues of either dominance or power. When all ontology is excised except for connections, any and all formations of power that leave one group of people (or agents) dominant and another oppressed cannot possibly be explained. Everyone is,

always and already, connected together as One “civilization.” Civilization is immortal because there is only One society, the network, which can never truly change and never vanish. Actual conflicts are only minor “translations” that are not part of the politics of ANT. They just serve to obscure the fundamental connectedness of every human and thing. Issues of imperialism, of dominance, of exploitation, of colonialism and of post-colonialism, cannot be acknowledged.

Oddly, for someone who espouses to be a materialist and (as much as one still can be) an empiricist (if not a logical positivist), telling his students (and readers) to do nothing other than trace empirically observable networks, Latour’s political imperatives are entirely idealist. Changing the world involves doing nothing other than reframing our thought in such a way so that Western modernity never existed. We have never been modern, claims Latour, and thus our problems will be undone if we put the false consciousness of modernity aside in favor of networks (which, interestingly enough, reproduces the discourse of “unveiling” common throughout modern Western thought).⁹ Centuries, if not millennia, of domination and exploitation can be forgotten the moment that we understand that everyone exists in a network, a “social whole” of everyone and everything, in which all domains of knowledge are equivalent and all people and objects exist together in a singular congress of being (Latour and Lépinay 2009). Those who look at the world and see inequality and repression have been duped by modernity. To realize a world in which equality exists, in which “democracy” exists, we only have to adjust our

⁹ Clearly, Latour’s work calls for a more detailed deconstruction, as it reproduces the binary structure of critical philosophy while denying that structure’s ontological possibility.

own perspective to that of Latour's ANT. Latour has, apparently, shattered the illusions of Western modernity, and is able to save us all in our academic ignorance.

Conclusion

There is nothing intrinsically incorrect with arguing that networks exist, or that the network is the dominant model of organizing capitalism and social life in the contemporary world. But there are two major limitations to how networks are currently theorized. First, what I have been calling "network theory" forecloses any possible alternative to networks. Second, there is no acknowledgement that the concept of the network is part of a discourse that legitimates specific relations of power. Networks appear to be completely natural or material, and struggles are assumed to take place according to the logic of the network, *and only within the logic of networks*. The metaphysical aspects of networks and totalized connectivity bleed together with the perceived power of technology to connect everything into one. Latour even seems to suggest that social struggles will dissolve once we stop thinking in terms of modern thought and think in terms of networks, in part because opposition cannot be theorized in how he understands networks.

Being "connected" is assumed, quite simply, as just the way people and things are today, if not eternally. Most of those writing about networks regard our current moment as one of massive interconnection, from which there is no possible alternative. In light of this, the next chapter demonstrates how the belief that humans are naturally connected through networks is one that *had* to be produced through discourse. In years past, social connectivity was believed to be against the ideals of liberal subjectivity. Networked and

connected, if history is any indication, were not always assumed natural modes of being in Western modernity. And, interestingly, the history of the usage of the term network is one that brings together the grounds—the technological, economic, biological, and social—upon which the above academic works have been written.

CHAPTER TWO

NETWORKS IN HISTORICAL DISCOURSE

The network society is not a purely technological development. The foundations of the network society are found in a wide range of *discursive* articulations that bring together culture, economics, and technology. In this chapter I am arguing two things. First, almost all of the discursive foundations for any possible network theory had already been laid by 1930. Much of what we assume to be new about new media was already assumed about networks and technology by the time of the Great Depression. Second, many of the transformations that network theorists argue are determined by network technology are not determined by technology at all. Networks are part of a much larger cultural formation that is overdetermined by the technological, but is also overdetermined by feelings and beliefs about the economic, social, and biological. These four areas are intertwined and equated through the language of networks.

According to Isabelle Stengers, “When a concept loses its singularity, it becomes a connecting point for multiple problems and practices and enables them to benefit from the prestige of its origins” (2010, 134). The concept of the network is one that closely fits this description. Originally a term for a rather banal technological fabrication (a net), “network” has discursively equivocated the technological, the biological, the economic, and the social. The assumption that networks and connectivity are natural uncritically takes these articulations as universal truths while ignoring the historical origins of this

discourse. What is assumed to be true about networks today has messy, complicated, and conflicting origins. While there is no singular essence to networks, there is a history of discursive articulations that provide the foundations for contemporary network theory. Networks should not be taken as a neutral description of the natural world, but as an ideology, defined and legitimated through language. This history, in part, addresses some of the discursive work that had to occur in order for the contemporary claims of network theory to be assumed as a natural description of human and technological relations.

Networks were not invented with the Internet. Many of the cultural and material transformations attributed to network technologies did not happen suddenly because of the Internet's invention. The emergence of the "network society" is usually dated around 1970—when the Internet and digital communication began to have an effect beyond universities and the military (Abbate 1999). The assumptions of network theory, however, have historical precedents that span several centuries. What James Carey has suggested of the telegraph is also true for other networks. A network is "a thing to think with, an agency for the alteration of ideas" (1988, 204). Humans have not always understood themselves as connected. We had to be made to think of ourselves as connected through the naturalization of an ideology. Network theory begins with the assumption that networks are material or natural. The history of network discourse, however, reveals that these assumptions had to be developed over a long period of time.

I must stress that this history is not intended to be entirely comprehensive. This is not a history of networks themselves, but of the historical usage of the term as it has come to describe relations between human beings and technology. Many things we may consider to be networks today, from branch banking to social relations, were not always

referred to as such in years past. We call something a network because it can be understood through the discourse of networks at a specific moment in history, not because it is organized in a material form that is inherently networked. Instead, discourse works to produce this technological form. Many network theorists retroactively read networks into any historical form of connective communication, projecting contemporary feelings and assumptions about networks onto the past. For instance, Alexander Galloway (2010) projects contemporary network theory into Greek literary history without acknowledging questions of translation from the present to ancient Greece. Bruno Latour (1988; 2005) positions a network as a completely ahistorical concept. For Latour, networks are able to explain science and technology both historically and in the present because they describe the organization of all matter.

The narrative I present is reconstructed from the consultation of a wide variety of texts, but depends mostly on the historical archives of *The New York Times*, *The Wall Street Journal*, *Harper's Magazine*, *The Atlantic*, *The New Yorker*, along with British publications *The Economist* and *The Spectator*. From these archives I was also led to archives of early American newspapers and medical journals, as well as a few books and RAND reports, many of which are cited below.¹ This has led me to a story of networks that is quite different than what is assumed by network theorists.

¹ Given the limitation of my research to Anglophone sources, there are notable absences in this narrative. There is no discussion of the French concept of *réseaux*, which is translated in English as network. The use of *réseaux* in French has an even more prominent history than network in English, in part because of its centrality to the political and social theories of Henri de Saint-Simon in the early 1800s. Granted, *réseaux* in the context of Saint-Simon's writings suggests that a socialistic collectivity could be perfected by technological infrastructure. This has different resonances and articulations than some of what is discussed in this chapter, but is not radically different. For a history

To make the above arguments, I trace the usage of network through six historical moments. First, prior to the 1700s, manufactured nets were referred to as net-work, a word for a technology that was also used as a metaphor for nearly anything that resembled netting. A network was any structure, material or immaterial, considered to constrain and contain.

Second, by the end of the 1700s, the term network began to be used in the study of anatomy. Like netting, the networks of nerves and blood vessels were believed to literally hold the human body together, constraining and containing the stuff that makes up human corporality. Anatomists, however, began to theorize that the very essence of life and vitality persisted in the fluids that would traverse these networks, connecting a body to the external environment through sensory and vital flows. Life was the movement of blood, and perception was believed to rely on a fluid that flowed through the body's network of nerves. Pathologies were understood as the improper regulation of flow by the body, resulting in tumors and apoplexies (what we would today call hemorrhages and strokes). Thus, with anatomy, networks would constrain, but also connect through flow. The regulation of these flows was central to the maintenance of one's health and well-being.

Third, while this understanding of human anatomy would fall out of favor by the end of the 1800s, assumptions of flow and vitality that characterized network anatomy would resurface in discourse about railroads and the telegraph. The "iron network" of the railroad was initially feared as a constraining and uncontrollable structure, both by capitalists and workers alike. With the invention of the telegraph, which was used to

and critique of *réseaux* as employed in French, see the work of Pierre Musso (1997; 2003).

manage the railroad, these fears were reframed as fears of the inability to properly regulate flow, described in biological language directly lifted from network anatomy. The telegraph permitted the proper regulation of flow, be that flow people, capital, or material goods, throughout the network of the railroad. In this process, the telegraph dematerialized communication. Networks, by the early 1900s, were no longer understood as material structures, but as dematerialized connectivity.

Fourth, by the 1920s and 30s, the term network began to be used in right-wing populist discourse to describe social connectivity. Most prominent in the writings of anti-Semitic Nazi sympathizers, this discourse articulated networks to imagined communist and socialist conspiracies to overthrow Christian capitalism. Communism signified global connectivity, inherently opposed to liberal ideals of self-determination. Like the telegraph, this social connectivity was understood as ubiquitous and immaterial. Networks connected everyone to everyone, constraining and destroying the autonomous liberal subject. Yet, in defining a strategy to resist global communism and social interconnection, these authors nonetheless embraced networks as the only possible structure for the continuation of Christian capitalism.

Fifth, during the Great Depression networks were unequivocally embraced, for the first time in the history of the term's usage, in the discourse of North American and European finance. Drawing on the model of European and Canadian branch banking, financial publications regularly attributed the failure of American banking in the 1930s to its disconnected, autonomous structure. The Depression itself was caused by the inability to keep flows of capital circulating. While this discourse originated in the language of bankers, it was quickly appropriated by populist political figures. Fears of branch banking

were transformed into a hesitant embrace of financial connectivity as central to the well-being of a community.

By this point the foundations for contemporary network theories had been laid out in primordial form. The immaterial social, biological, economic, and technological connections and flows assumed by writers as diverse as Castells, Lazzarato, and Hardt and Negri were already present in Depression-era discussions of networks. The final moment of this chapter is the traditional origins of the “network society.” During the 1960s and 70s, the technological design of the Internet was created with the intent of producing a universal technological structure—a network of all other networks. The Internet was understood to connect all networks together as one. And through this single network would flow *information*—defined as a universal “substance” that equivocates technology, economy, and biology.

In this history, we see that hundreds of years had to pass to end where the Internet makes a single network that connects all to all. In network theory, the transformations of networks are assumed to be a result of their “new” materiality. This history demonstrates, however, that the implications of networks depend not on materiality alone. The contemporary theorization of networks relies on a discourse that has been centuries in the making. Network theory, in its disregard for history, makes networks natural or inevitable. Part Two examines how network ideology produces subjects and citizens of networks today. This chapter describes the historical and cultural articulations that had to pass to produce network ideology in the first place. This history must be traced to understand the contemporary embrace of network ideology, the subjects produced by this

ideology, and the limits to political action and thought when networks are naturalized (cf. Huhtamo and Parikka 2011; Zielinski 2006).

Net-work as Metaphor

Even in its earliest usage, network often referred both to a material technology and to a dematerialized, metaphysical connectivity. In Samuel Johnson's 1755 *Dictionary of the English Language*, the term network is defined as, "Any thing reticulated or decussated at equal distances, with interstices between the intersections."² As much as a dictionary definition can be notorious, this entry was often used by Johnson's contemporaries as an example of the failure of his dictionary and his prose style. The definition for network "has been often quoted with sportive malignity, as obscuring a thing in itself very plain," states one review of a biography of Johnson. "But," the review continues, "to these frivolous censures no other answer is necessary than that with which we are furnished by [Johnson's] own Preface. 'To explain, requires the use of terms less obtruse than that which is to be explained, and such terms cannot always be found. For as nothing can be proved but by supposing something intuitively known, and evident without proof, so nothing can be defined but by the use of words too plain to admit of definition.'"³ Johnson's definition revealed that network could only be defined through language drifting into abstraction. While the definition may have failed his own standards, network was so difficult to define because, even as early as the 1750s, the

² A reprint of this definition is found as Samuel Johnson, "Network," *The General Advertiser and Political, Commercial, Agricultural and Literary Journal*, October 4, 1790, 3.

³ "New Publications," *The Lady's Magazine, and Repository of Entertaining Knowledge*, January 1793, 90-91.



FIGURE 2.—MORNING TOILET.

Figure 2: A "head-dress" made of "network." Source: *Harper's New Monthly Magazine*, February 1864, 432.

“thing in itself” which gave the word meaning was already beginning to become obscured through metaphor. Network was one of those words too plain for definition, and would only become more so in the centuries after Dr. Johnson’s dictionary.

That thing Dr. Johnson was attempting to define was simply what we would today call a net. Threads and fibers of textiles or metal woven together by machine or human hand comprised a “net-work.” As his definition indicates, this term applied to any of these nets, from the nets thrown into the ocean to trap fish to the ornate metallic fabrics worn by women of high society. These fabrics were some of the very earliest forms of technological innovation in works such as Lewis Mumford’s *Technics and Civilization*. For Mumford, the fabrication of nets brought together, for the first time, the human appropriation of raw materials from the natural environment to produce tools to manipulate that environment (1934, 63-106; 144-145). The production of metallic nets was an early mechanism for bringing together mining, the transportation of raw materials, and the skilled fabrication of a net as a manufactured “work.” Some of the earliest forms of industrial production were to create fabrics with machines, removing the human hand from the production of network. Throughout the 1700s and 1800s this definition of network was dominant in newspapers, popular magazines, and literature. Networks were the ropes covering hot air balloons⁴ and the interconnected rigging on ships.⁵ In a fashion feature from an 1864 issue of *Harper’s New Monthly Magazine*, an illustration of a

⁴ “Plan of the Undertaking,” *Essex Journal*, July 9, 1784, 2.

⁵ “News of the Week,” *Spectator*, January 19, 1833, 50.

“morning toilet” gown for fashionable women of the time includes a “head-dress... formed of a combination of chenille and bead network” (Figure 2).⁶

In the mid-1700s the use of network was often taken beyond its material foundations to describe any form of connective structure. That network referred to a material thing in itself, obvious to all, also meant that it lent itself particularly well to metaphor. Although most uses of network still retained some sense of the physicality of the object, not all did. We can see this shift in two poems printed in 1786. A poem titled “Verses on a Lady’s Hand” compares the skin of a woman to several different kinds of fabrics:

Fine as her taper fingers slow my strains,
Soft as her hand, and shining as her veins,
Turn’d as her wrist the lines, and smooth as silk,
Feel like her palm, where roses swim in milk...
Coarse look’d the cambrick to a hand so fine!
And shades of lawn are net-work to her skin!
On her fair fingers brilliant diamonds glow,
And burn like Ætna, between hills of snow.⁷

The author first uses silk in a metaphor to describe the lady’s skin. Later on in the poem, he moves to describe her beauty in antithesis to the fabrics she wears. Cambric and lawn are both fabrics defined by their tight weave. Lawn, in particular, has a smooth texture and is often partially transparent. In contrast to the lady’s skin these two fabrics seem course, rough, and even like network. A network is a loose fabric—a material textile with interstices between intersections.

⁶ G. Brodie, “Fashions for February,” *Harper’s New Monthly Magazine*, February 1864, 432.

⁷ Dr. (James) De-La-Cour, “Verses on a Lady’s Hand,” *Cumberland Gazette*, August 10, 1786, 4.

If we compare this to the second poem, titled “Loss of Friends,” even seemingly immaterial things, such as internal memories of those passed on, can be written in the form of a network:

Toil we for sublunary pay?
Defy the dangers of the field and flood,
Or spider-like, spin out our precious all,
Our more than vitals spin (if no regard
To great futurity) Incurious webs
Of subtle thoughts, and exquisite design;
(Fine net-work of the brain) to catch a fly!⁸

Our thoughts spin out a web to trap the spirit of those friends who have passed on, leaving us behind. The spider’s web, compared to the fabric of networks because of visual similarities, is also compared to the workings of our own brains, our own thoughts, and our own desires. To remember is to catch another in the network of our mind—though this network may be fragile and weak like the web of a spider. The network contains and constrains, but can only do so as long as it can hold together. There are gaps through which things (or thoughts) can slip through and escape.

Metaphor makes mentally visible and comprehensible that which is incorporeal. It also tells us about an early shift in the usage of network. As early as 1786, a network was not only a material, physical net. It was a word taken to mean little more than a *connection* that *constrains*. As well, a network is a constraining structure that is *flexible* and *weak*. The idea that networks are “supple” (Latour 1996) or “flexible” (Harvey 1990) was already present in its usage during the 18th century. That there are spaces in a network through which something escapes (Galloway 2010) is also central to the usage of the term at this time. The metaphorical use of network combined the material and the

⁸ “Loss of Friends,” *Maryland Journal and Baltimore Advertiser*, September 1, 1786, 4.

immaterial to give coherent form to that which had none—the thoughts, emotions, affects, and desires that are seen as connections to others and the external world, overflowing the human body. These mental connections, however, were understood as permeable and easily broken (cf. Bauman 2003).

The use of network would follow from this material and metaphysical split. The theorization of networks today tends to conflate the material attributes of a technology that constrains with a metaphysical conception of connectivity, just as was the case in the 1700s (cf. Hillis 1999). In the centuries between, network has been articulated to anything that could be considered to connect, from nerves and blood vessels, technologies of connection and transportation, to emotions and spirituality. The meaning of connectivity, however, would depend on historical context.

Biological Networks: Anatomy and Medicine

The first major appropriation of network as a metaphor occurred not with any description of technology, but in the study of anatomy. “What sharp line divides a description that depicts membranes as being like ‘damp parchment,’” asks Michel Foucault, “from that other equally qualitative, equally metaphorical description of them laid out over the tunic of the brain, like a film of egg whites?” (1973, xi). What even defines them as membranes, rather than a network of interconnected anatomical fibers? In the 1700s and 1800s, anatomists and medical pathologists used the term network to describe many structures of the human corpse and its membranes, most particularly the networks made of nerves and blood vessels.

The metaphors drawn from material nets suggested that the connectivity of a network was limited to the ends of the network itself. The constraint of the network was weak. The interstices between the intersections of the net could allow the escape of what the net constrained. The use of networks to describe anatomy implied a body connected to, yet differentiated from, a larger environment. For the anatomists of the 18th and 19th centuries, a networked body was part of a universal, open totality through which would flow sensation and vitality. Through the fluids and energies that would flow within the network, circulating inside the body and beyond, external connection with the larger environment would be produced through the body's networks. At the same time, these networks enclosed the body, constraining it and isolating it. The use of the material metaphor of networks in describing the human body reproduces the meanings associated with fabric networks, as the networks of anatomy would limit the physical human body. The addition of flow to the description of networks expanded the meaning of network to nearly encompass how the term is understood today. We find in the use of networks in anatomic discourse of the 1700s and 1800s the beginnings of an understanding of the human body, and life itself, defined entirely through connection and the circulation of flows (cf. Castells 2000a; 2009; Galloway and Thacker 2007; Thacker 2010).

The discourse of networks in anatomy should be understood as part of the discourse of “tissues” and “fibers,” as opposed to cells, defining the basic building blocks of the human body. According to Georges Canguilhem, the notion of biological “tissues” suggests a belief in a “weaving” implicit in the construction of the biological body. *Tissu* is a derivation of the word *tistre*, “an archaic form of the verb *tisser* (‘to weave’)” (2008, 43). Networks, fabrics, fibers, and tissues, thus, go hand in hand. The difference between

cells and tissues, for Canguilhem, is the result of the difference between two radically opposed worldviews. “Tissue offers the image of a continuity in which any interruption is arbitrary, and it is the product of an activity always open to continuation,” while the cell “is the image of a whole closed in upon itself” (43). Tissue biology privileges connection, circulation, and flow between an organism and the external environment. Cell biology emphasizes enclosed individuals separated from the natural world.

Canguilhem sees the move from an anatomy based in fibers and tissues to one founded in a theory of cells, which occurred during the 1800s, as a move associated with the formation of the modern liberal subject. Cell theory defines the basic, ontological foundations of the biological as “individuals,” self-contained and differentiated from the larger environment and from other organisms. This transformation of scientific knowledge and norms directly corresponded to a discursive shift that privileged and produced this isolated, autonomous human being. It’s important to note, as Canguilhem claims, that “cell theory is not the affirmation that beings are composed of cells, but, first, that the cell is the sole component of all living beings and, second, that every cell comes from a pre-existing cell” (29). The succession of tissues and fibers by cells corresponded to and legitimated liberal political theories that understood human beings as separated, autonomous, and cellular. In metaphors that would equate the social body to the human body, the reproduction of the social order was accomplished at the level of individuals, not at the level of the collective. Even though cell theory existed centuries prior to the 1800s, models of the body derived from fibers and tissues were dominant through the 16th, 17th, and 18th centuries. While later advances in scientific imaging and discourse would eventually replace the networks of woven tissues with differentiated cells, there

was, nonetheless, an alternative discourse in the 1700s and 1800s, which we can now see has survived, at least in part, in the present (i.e. Sporns 2011; Thacker 2004a). This discourse defines bodies as held together, constrained yet connected, through anatomical networks understood as equivalent to the fabrics worn outside the body. While, to the naked eye, the fine skin of an aristocrat may make lawn resemble network, one discourse of the medical gaze made networks out of the apparently smooth tissues and membranes of the human body.

Take, for instance, a section of the British politician John Courtenay's 1790 essay, "Philosophical Reflections on the Late Revolution in France, etc.," reprinted in a number of American newspapers. Courtenay is writing on the biological foundations of race and inequality. His essay is an attempt to critique and disprove the ideals of the French Revolution.⁹ He legitimates racism and inequality through a biological essentialism that positions the network of nerves—directly connected to skin—as the key biological trait that determines intelligence and human worth. Courtenay drifts between the scientific language of cells, membranes, and networks. Yet the essential difference between races is defined in terms of connection, flow, and containment. While the author describes the skin as made of cells, the cellular membrane of the skin is defined as that which directly connects to a network of nerves and, ultimately, the brain.¹⁰ The weave of the cellular

⁹ Given the context, this essay was most likely written to legitimate the British slave trade as well (see Storey 2009, 168-171).

¹⁰ Canguilhem remarks that the transition from fibers to cells in anatomical discourse resulted in a number of mixed and paradoxical discourses during the 1700s and 1800s. Fibers were often described as cells, or cells were understood as parts of tissues rather than discrete entities (2008, 149-150). Courtenay's description of the anatomy of the black body would clearly fit into this history.

membrane wraps around the brain, below the epidermal surface of the body, and constrains the perceptions of those without white skin. Through embodied sensation, cognition is directly connected to the outside world. The supposed “symptoms” of the pathological other were found through the dissection of bodies, symptoms inherent in the very “nature” of the black body, defined through the language of networks and membranes. The network itself, as a constraining net, is seen to literally prohibit the possibility of perception and thought. This excerpt is from a section focusing primarily on the skin color of Egyptians:

Besides, it has been conjectured by the Abbe. Spalanzani, and demonstrated by a late dissection at Jamaica, that the cellular membrane, on which the color of the epidermis or outer cuticle depends is wondrously extended over the brain of the negroes, and completely wraps up the *cerebrum* and *cerebellum* in its curious network. Consequently, the impression made by external objects on the *sensorium* is rendered less distinct by passing through this reticular *envelope*, the nervous sensibility thereby blunted, and the rational faculties weakened.¹¹

Sensation depends on the regulation of flow of sensations from outside of the body to the brain. Racial hierarchies can be legitimated based on scientific arguments about the body’s regulation of sensory flows.

The networks of anatomy in the 1700s and 1800s were defined by a number of associations. They *constrained* the body (and, as in the passage above, thought and perception), but *connected* the body (and, again, perception), both to itself and to the larger external world. Through networks, the material of vitality and sensation would *flow* throughout the body. Networks moved fluids (namely blood, but also a hypothetical fluid within the nerves) and energy through the body. And, most significantly, networks

¹¹ John Courtenay, “Philosophical Reflections on the Late Revolution in France, etc.,” *Gazette of the United States*, August 21, 1790, 565.

were understood by a subset of medical scientists as the very essence of life itself, if not the totality of all matter. While the earliest usage of network to describe nets understood the structure as limited in its connectivity, in anatomy, especially in theories of perception, the networks of the body not only constrained it, but also connected it to a larger totality of the sensible world through fluids and energies that would flow inside the fibers of network. And, as can be seen in writings such as Courtenay's, the pathological could be defined through problems with flow and connectivity. The supposed inferiority of the black other was, for Courtenay, based in problems of connection that prohibited flow of sensation between the body and the external world.

Defining matter as networked was common after the invention and popularization of the microscope. Through the microscope, "We perceive that every particle of matter, however minute, has a regularly organized form."¹² Networks, as this organized form, were seen by many in the medical and scientific community to be the unifying property of life, from the tubes and filaments of plants, to the blood vessels and nerves of the human body. The nerves were seen as a unified, nonhierarchical, networked totality in each and every living thing, "all the portions of which contribute, in a certain degree, and especially according to their size, to the organization and functions of the whole; and not as a tree which, having only one trunk, distributes itself into branches and twigs..."¹³ The skin, when observed under magnification, was revealed to be a "marvelously woven

¹² "The Microscope," *The Columbian Star*, November 2, 1822, 4.

¹³ M. M. Tenon, "Report on a Memoir of Drs. Gall and Spurzheim, relative to the Anatomy of the Brain," *The Baltimore Medical and Philosophical Lycaeam*, January 1, 1811, 54.

network, presenting millions of interstices and apertures...”¹⁴ A paper defining the taxonomy of all matter, delivered to the Society of Natural History and the Academy of Science at Paris, defined the category of “living matter” entirely through the existence of a “nervous network” enabling sensation, via nervous connection, throughout the entire body.¹⁵

Anatomists, upon dissecting the various parts of the body, would find them to be comprised of networks of fibers, nerves, and capillaries. Networks were invoked to imply a greater connection to the environment, an ability to sense one’s surroundings in a more delicate way.¹⁶ A theoretical medical essay on sensation, written in 1817, argues that the sensation of the external world happens not in our five sensory organs, but in each and every part of the body capable of detecting a difference of “texture” in the external world. Embodied sensation, for this author, relies in part on “the network of subcutaneous vessels” extending throughout each and every part of the body.¹⁷ The flow through the body—be it blood or nervous energy—was that which enabled sensation, which could

¹⁴ Archibald MacLaren, “National Systems of Bodily Exercise,” *Macmillian’s Magazine*, November 1862, 278.

¹⁵ Oddly enough, the author of this paper, M. Bory de Saint Vincent, locates life above “mucous,” which refers to the slime on rocks, but below vegetables and rocks in his taxonomy. Animals and mucous were distinguished through the existence of a nervous network in animals. Vegetables and rocks also possessed a network of nerves, however, that was hardened to give vegetables and rocks their relative firmness and lack of mobility. So, effectively, animals would evolve out of mucous but then evolve into vegetables, which would then evolve into rocks. This problem was brought up by an audience member at the talk, but was dismissed by the presenter. See “Matter,” *The Atheneum: or, Spirit of the English Magazines*, November 1, 1824, 128.

¹⁶ “The Remarkable Fitness of Things,” *Christian Secretary*, May 10, 1828, 64.

¹⁷ J. R. Park, “An Inquiry into the Varieties of Sensation, resulting from Difference of Texture in the Sentient Organ,” *Journal of Science and the Arts*, January 3, 1817, 11.

happen at any point within the body itself. Differences in texture would produce differences in flow, and thus the entire human body was a multitude of unified sensory organs too numerous to count. One medical essay argued for a strong connection between stomach and brain, perhaps attempting to scientifically justify any special connection between mind and food. “So that, if we believe nervous sympathy to be dependent on nervous connection, no parts are better fitted to sympathize than the brain and stomach...”¹⁸ The scabs covering bodily wounds were understood as networks made by the body in order to protect and hold the body together. This natural “cautery,” “causing no sensible pain, [is believed] to arise from a coating, more or less thick, of a network of vessels, injected and covered with the epidermis already disorganised: which coating...isolates and protects the nervous tissue of the skin.”¹⁹ The limits to the body, and the limits to the body’s sensation, were defined by the limits to the connections made by the body’s networks.

The biological appropriation of networks defined them in terms of flow and circulation, either of energy or of blood, and, accordingly, “life.” The networks of the body were not analogs to fabrics holding the body together, but networks through which various vital fluids and energies would flow. Cell theory may have dominated much biological research in the 1800s. Stressing the role and development of the nerves and blood vessels, however, continued to refer back to tissues and networks in anatomy. But the network of nerves implied more than a connection between the individual body and

¹⁸ John C. Warren, “Cases of Apoplexy with Dissections,” *The New England Journal of Medicine and Surgery, and Collateral Branches of*, January 1812, 39-40.

¹⁹ “On the Application of Actual Cautery in the Erysipelas following Wounds,” *The Philadelphia Journal of the Medical and Physical Sciences*, April 1, 1826, 379.

the external environment. Through the connection of nerves in a network, energy from external stimuli would be stored and transmitted along the fibers of the nerves throughout the body.²⁰ Some scientists even argued that, depending on whether or not nerves were hollow, the transmission of energy through the body was the result of a fluid secreted throughout the “vascular net-work.”²¹ The pores of the skin were understood as connected to the circulatory system. Through sweat, the body removes that which “might prove injurious to the health of the body... these skin-exudations proved a powerful aid in the acquisition of permanent health and strength, and notably so to the health, elasticity, purity, and beauty of the skin itself.”²² The maintenance of flow was taken as a sign of good health and the proper functioning of the human body.

The pathology of the circulatory system, while beginning with these above assumptions about connection and flow, transformed the discourse of networks in anatomy even further. In the study of apoplexies, or brain hemorrhages and strokes, the visibility of a network of blood vessels began to be identified as a pathological symptom signifying problems with the flow of blood. In the dissection of a corpse, one medical scientist noted that the brain of the deceased was “covered with a network of innumerable small vessels... opaque, thickened, covered in certain places with a whitish exudation... on which they form a species of veil...”²³ Tumors in the eye were identified by the “network

²⁰ George J. Romanes, “The Beginning of Nerves in the Animal Kingdom,” *Fortnightly Review*, October 1878, 509-526.

²¹ M. M. Tenon, “Report on a Memoir,” 58.

²² MacLaren, “National Systems of Bodily Exercise,” 278.

²³ M. A. Serres, “New Division of Apoplexies,” *The Philadelphia Journal*, April 1, 1824, 300.

of red vessels” covering them.²⁴ Pathologists commonly remarked that some brain injuries were the result of uncontrolled flow of fluid through the brain. “I have very strong and satisfactory reasons for believing,” remarked one, that the brain of a corpse had been damaged “as the result merely of the natural structure of the vascular network being unfolded and distended by the effusion of a fluid...”²⁵ Brain pathologies were the result of improper flow of blood or other vital fluid throughout the network. Pathologies of intelligence and perception, as seen in Courtenay’s racist quotation above, were understood through skin preventing proper flow of external sensations.

In anatomy, the term network came to describe the human being as one ultimately constrained from their environment through networks of nerves and blood vessels (along with networks of skin), but connected to the environment through the fluids and energies that would flow through the network. Pathologies of the body, from brain hemorrhages to problems with perception and sensation, were theorized as pathologies of flow. A proper body was one through which blood and sensation would flow freely, but not without limits. Flow was constrained by the ends of networks of circulation, yet connected to the external environment by those very same networks. It is with anatomy—and, not to mention, an anatomical discourse that would fall out of favor in Western medical thought by the end of the 1800s—that we see the transformation of network from a simple, technological fabrication that would constrain and contain, to a concept upon which life and vitality were equated to the proper regulation of flow. This directly prefigures those

²⁴ James Wardrop, “On the Effects of Evacuating the Aqueous Humor in Inflammation of the Eyes; and in some Diseases of the Cornea,” *Eclectic*, January 1815, 77.

²⁵ David Craigie, “On the Pathological Anatomy of the Human Brain and its Membranes,” *The Journal of Foreign Medical Science and Literature*, April 1823, 227.

writing today who see in networks either the essence of natural existence or a conflation of technology and biology (Barabási 2002; Beniger 1986; Christakis and Fowler 2009; Galloway and Thacker 2007). While the material of networks would still contain and constrain, that which flowed through these networks—blood, nervous “fluid,” and nervous energy—were understood as that which generated vitality, perception, and even intelligence. Boundaries and blockages to flow could lead to death and ignorance, while too much connection could also lead to the same problems.

In a 1763 letter to the editor of the *Philadelphia General Advertiser*, a concerned reader, identified only as “M,” remarked on some of the daily items he or she saw as “additional proof of the activity of man’s mental faculties in his search after new objects and ideas to gratify his restless curiosity.” This line is, in the context of the letter, an ironic sentiment. M seems particularly upset about many of the new “innovations” produced in the United States and Europe, though particularly about a process for “vitrifying bones,” or transforming human remains into glass. The writer muses about drinking from a wine glass made “of the backbone of a sociable companion” or making a telescope lens out of Newton’s “frontal and parietal bones.” M concludes, “After this discovery nothing can surprise me. Should these ingenious folks make a drum-head of a soldier’s skin, or iron net-work of our nervous system. Should they find the art of changing into rubies every drop of blood shed in our country’s defense, or into diamonds every tear escaping at the sigh of suffering humanity.”²⁶ We should note that M refers to the nerves as a system, which would correspond to his or her concerns about the sanctity of the human body. The human body is outside the forms of technological connection of

²⁶ M, “From the Philadelphia General Advertiser,” *The Daily Advertiser*, October 14, 1790, 2.

the iron network, or railroad. It is isolated, autonomous, contained, and closed. For M, the network connecting the body to the external world is severed, and only its constraining features remain. Perhaps this is just the usual disgust at technological “progress” in the face of a kind of liberal humanism. But M has it reversed. Our own nerves wouldn’t be transformed into an iron network. The iron network, instead, would be transformed from a technological thing into a natural, pseudo-biological entity through the network model of the living human body that existed prior to the popularization of any transportation or communication network.

The discourse of the network would fall out of use in anatomy by the end of the 1800s in favor of cells and systems. Assumedly, this does not change the material organization of the body, although it does change the “truth” of how the body is understood and treated in anatomy. Networks in the body are not an eternal, unchangeable material form. The networks of the body are produced through the conjunction of discourse and language. And as the discourse of networks fell out of favor in anatomy it was picked up around the same time to describe the railroads—although biological metaphors would not become dominant until the invention of the telegraph and its use in coordinating the movement of trains. Through metaphor, that which would flow through the iron network would come to be understood as that which would sustain the life of a nation, as the network of veins was for the human body.

Technological Networks: The Railroad and the Telegraph

The original usage of network primarily referred to that which connected and constrained, if ever so weakly. The anatomical usage of network added flow and

circulation of vital fluids to the attributes of a network, all the while identifying pathologies as disorders of flow and circulation. Already we see an image of thought that directly precedes contemporary network theory. While flows and connections define the “network society” (Castells 2000a), they also defined human bodies in the 1700s and 1800s. The articulation of the term network to what we today think of as genuine network technologies—the railroad and the telegraph—would do two things. First, the creation and usage of these networks would articulate capital, material goods, people, and eventually communication (and information) to that which would flow through networks. These flows would come to constitute the vital fluids of technological networks through metaphors derived from anatomical networks. Second, these networks, primarily through the telegraph and its flows of communication, would dematerialize the technologies themselves. This would transform networks from a very specific material connection with limits to one that was, potentially, a universal formulation of connectivity and flow that existed without actual wires or rails. While this erasure of materiality was suggested by the anatomical use of networks to describe the connection of the body to the totality of the external world, the (ultimately constraining) network of nerves itself was never forgotten in anatomy. This is not the case when it came to the telegraph.

The sheer size of the railroad network—and, for that matter, its intrinsic relation to capital and industry—would elicit suspicion from a great number of individuals in the United States and the United Kingdom. Connection and flow were not positioned as beneficial or natural, but as negative attributes of industrial capitalism to be resisted. If the networks of anatomy, following Canguilhem, were indicative of a worldview opposed to that of an autonomous liberal subject, the networks of technology were also understood

to violate individualistic autonomy and freedom. If networks are supposedly natural, then the interpretation of networks in discourse surrounding the railroad and the telegraph demonstrate that this nature is one that has to be produced and legitimated. Much like the pathologies of anatomical networks, fears of technological networks (specifically the railroad) were the result of fears of an inability to regulate the flows of capital, people, and goods throughout a network of ever increasing size and scale. The telegraph, in its conjunction with the railroad, helped assuage popular fears of the railroad by metaphorically giving it a network of “nerves” through which the “body” could be controlled (Carey 1988, 215).

According to Wolfgang Schivelbusch, while scientists “and statesmen joined capitalists in promoting the locomotive as the engine of ‘progress’... [by] the end of the [19th] century their naïveté came home to them, especially in the United States where railroad corporations were seen as the epitome of ruthless, irresponsible business power, a grave threat to order and stability, both economic and political. But in fact from its beginnings the railroad was never free of some note of menace, some undercurrent of fear” (1986, xiii). The railroads were understood to produce differential and colonial relations between industrial centers and the marginal spaces upon which industry necessarily relied for raw materials. In connecting larger and larger geographical areas, the railroads were understood not only as connective, but also as parasitical, evacuating material goods from areas produced by technology as marginal for areas defined as power centers (Berland 2009, 74).

The massive investment of capital that it took to form the railroads played a large part in transforming the role of finance in the United States. Funding industrialization in

the 1800s was primarily accomplished with either the accumulated wealth of rich families, individuals, partnerships, or through the selling of ownership shares to a comparatively small group of associates. The production of the railroads, while initiated using similar techniques, could not be completed using established methods for financing industrial development. According to Doug Henwood,

Early lines first turned to farmers, merchants, and manufacturers living along the proposed route and to European money markets. But by the late 1840s, railroad builders began turning to Wall Street; just a decade later, all the instruments of modern finance—bonds, stocks, and even options—were well-established in the U.S., thanks to the railroads' hunger for capital. (1997, 188)

The railroads were seen as massive networks of capital, in which the interests of individual citizens would be lost and forgotten in the name of the ever-expanding power of capitalist organizations.

Devotees of Milton Friedman may believe that “competitive capitalism and freedom have been inseparable” throughout history (2002, ix). While Friedman suggests that the belief in laissez-faire capitalism in the 19th century was intended to maintain personal freedom against the government, the fear of the “iron network” of railroads suggests that the freedom apparently desired by the 19th century liberal was, in fact, positioned counter to any institution, capitalist or governmental, that was seen as a massive connective force through which individual autonomy would be threatened. In the United States, fears of a unified railroad were articulated to fears of corporate control of major national institutions, both by American farmers and by industrialists. In the United Kingdom, however, the unification of the railroads, accomplished through state regulation, was primarily understood as a force that would negate the operation of free market capitalism—even though the unification of the rails was understood as a positive

for the people. In each case, technological connection was feared as that which would negate the freedom of the individual, be that individual a worker (in the US) or a capitalist (in both the US and the UK). Stuart Brand's slogan "information wants to be free" is almost an axiom in contemporary studies of networked capitalism (cf. Benkler 2006; Shirky 2008). This assumption is not universal. The flows of technological networks, be they of capital, communication, or people, would have yet to be legitimized in the name of freedom in the 1800s.

In the United Kingdom the unification of the railroad was understood as an overtake of private industry by state power—a violation of both the believed natural operation of free-market capitalism and the rights of individuals in the name of a state-sponsored monopoly. This discourse manifested itself in prominent debates about the "uniformity of gauge" between competing railroad lines. The railroad network in the United Kingdom was constructed entirely on the basis of private corporations. Consequentially, it only covered the country as a unified transportation grid if engineering specificities were overlooked. The gauge of the railroad tracks, either the broad 7-foot gauge or the narrow 4-foot 8.5-inch gauge,²⁷ varied depending on line, resulting in a necessary transfer of passengers, luggage, and material goods at different points on the British railways. According to Schivelbusch, the British railway was "a multitude of individual lines, isolated, working without coordination, or even working against each other" (1986, 29). Railway gauge was often understood in terms of laissez-faire capitalism. A special supplement to *The Spectator* argued that the break in gauge

²⁷ "Uniformity of Gauge: Report of Her Majesty's Commissioners in Favour of National Uniformity of Railway Gauge, with Extracts from the Evidence of the Witnesses," *Spectator*, May 2, 1846, 1.

could even constitute an “intolerable evil” for a number of reasons, such as the safety of passengers at night, the inconvenience to travelers, and the difficulties of loading and unloading cargo when the gauge changed.²⁸ This proposed uniformity of gauge, while still operated by a set of competing railroads, was seen to produce “an enormous monopoly, created by the capital and enterprise of individuals, and sanctioned by the Legislature for the advantage of the country. Competition, which in other cases where capital is expended secures the public the best article at the cheapest rate, is practically in this instance inoperative as a check to extortion and a stimulus to improvement.”²⁹ In the case of the railroads, competitive capitalism had failed the people. From the perspective of the capitalists, the creation of a single, uniform network of the railroads was seen as giving the upper hand to workers and trade unions. Because of the “unity” of the iron network, workers were believed to effectively coordinate their own efforts at a strike.³⁰ The lack of uniformity was seen as a result of the free market, the direct result of competition between the railroads. The uniformity of gauge would necessarily negate the assumed positives of capitalist competition. In the case of the British railroads, the unification of a single network was understood as state-sponsored intervention into the natural order of capitalism. The devotees of the free market were, here, the ones afraid of connection and flow.

Books written on the debate of gauge, all critical of competition and demanding governmental regulation of railroad gauge, were popular enough to cover *The Spectator's*

²⁸ “Uniformity of Gauge,” 1.

²⁹ “Working of the Railway System,” *Spectator*, July 29, 1843, 708.

³⁰ “The Railway Strike,” *Spectator*, August 31, 1850, 830.

advertising pages. One page of ads from May 16, 1846, contained the following titles: *Narrow Gauge Speedier than Broad Gauge Railways, as Well as Cheaper*, then in its 2nd edition; *A Railway Traveller's [sic] Reasons for Adopting Uniformity of Gauge*, then in its 4th edition; *Unity of the Iron Network: Showing how the Last Argument for the Break of Gauge, Competition, is at Variance with the True Interests of the Public*; *Gauge Evidence: The History and Prospects of the Railway System, Illustrated by the Evidence Given Before the Gauge Commission*; and *Fallacies of the Broken Gauge: Mr. Lushington's Arguments in Favour of the Broad Gauge and Breaks of Gauge Refuted*.³¹ Each of these books agreed that the competition between the different railroad corporations, unchecked by governmental regulations, would necessarily be against the interests of the public. And, some argued, the competition between railroads would even threaten the safety of the state when it came to the military use of the railroads.³² A single network connecting and covering the entirety of the geography of the United Kingdom would best fulfill the needs of the state and its citizenry. These authors argued that open and uniform standards of a single network would be best for the people. They had yet to imagine that it could be good for the operation of capitalism, however. The interests of the people were presented in direct opposition to the interests of the capitalists who ran the railroads of the United Kingdom. Thus, the railroads and the “iron network” were held up as an example of how government intervention and regulation was necessary to maintain the democratic use of networked infrastructures, preceding today’s political

³¹ “Advertisements,” *Spectator*, May 16, 1846, 480.

³² W., “Letter to the Editor: Railway Gauge—The Bearing of the Question on the National Defense,” *Spectator*, April 1, 1848, 320.

economic critiques of capitalist ownership of media networks (see Mosco 2009). Any appeal to laissez-faire capitalism would place power in the hands of the corporate owners of the network, rather than in the hands of the people. Flows must be managed—and in this case, it was the government that must act as regulator, not the market.

This is not how the regulation of railroad gauge is remembered today. Chris Anderson, the editor of *Wired* magazine, has suggested that with railroads, “[u]niform and open gauge standards helped the industry boom and created an explosion of competitors,” even though the multitude of different lines eventually merged into only a few, effectively creating an oligarchy.³³ Anderson’s full fledged enthusiasm of “network society” capitalism, in which openness and connection fosters capitalist competition and innovation, would be an alien, radical idea in the United Kingdom of the late 1800s and early 1900s. When juxtaposed with the possibility of a British railroad monopoly we can see that connection and competition were understood as inherently opposed. Competition would be good for capitalists, but bad for the citizenry. On the other hand, connection of the railway was understood as socialistic, an appropriation of the railways by the state and an attack on individual (capitalistic) liberty.

In the United States, the conglomeration of railways into a single, unified national network of rails was feared both by everyday citizens and by investors, the latter of which understood the increasing size of corporations—the railways being some of the largest businesses known to date—as fertile grounds for graft and corruption. The massive size of the network made it impossible to accurately regulate the railroads, prompting suspicion and fear in investors as well as everyday farmers and workers. This

³³ Chris Anderson, “The Web Is Dead: Blame Us,” *Wired*, September 2010, 126.

would rapidly change upon adoption of the telegraph to regulate the railroads (and their finances) through communication.

Capitalist investors saw these corporations as too large to effectively manage, fearing the unification of multiple railway systems into a national network. Decreased competition would lead to a more stable market when it came to speculation on the railroads. But the increasing size of corporations would be a problem if crooked railway managers were to withhold information from investors. The massive size of the network would make regulation nearly impossible.³⁴ In an essay from the *Wall Street Journal*, one author, imagining a future historian examining the development of the railroad, suggested that “law-makers had forced the railway systems to develop under a false theory that railways can be controlled and regulated by competition, although in their economic nature we are even now beginning to see that they must necessarily be largely monopolistic.”³⁵ This monopoly was necessary not because of finance, but because the use of railways by multiple corporations could not be effectively coordinated. Too much connection between railways was understood to negate much of the possible increase in efficiency from railroads, as trains would have to navigate increasingly tortuous routes.³⁶ One editorial explicitly remarked that the hostility and fear of the railroads in the United States was a result of its massive national network of interconnected lines run by different railway systems. “Each company has not only a definite geographical area within which

³⁴ Goodbody, “Various Opinions: Extracts from Commission House Letters of Last Night,” *Wall Street Journal*, October 26, 1889, 2.

³⁵ “Vanderlip’s Views on the Situation are Conservative,” *Wall Street Journal*, June 22, 1907, 3.

³⁶ “Unfair and Superficial,” *Wall Street Journal*, August 18, 1923, 2.

it holds a more or less privileged position, but it likewise has a network of relations to similar companies which cross its territory or touch its lines at various points, each of which determines in some measure the character and scope of the problem which a given company has to work out.”³⁷ The problem of the railroad was its networked structure. Because of the singular network of the railroad, capitalist organizations would have to learn how to cooperate rather than compete, as they all have to share the same infrastructure. Their inability to share has resulted in the alienation of the people from the railroad. The railroad is supposed to serve the people. Because of capitalist competition between the management of different lines, the people are hostile to the railroad.

The cultural significance of the railroad (in both the United States and the United Kingdom) is necessarily articulated to the telegraph. The national networks initially cut into geography by railway tracks provided the original routes for the telegraph’s infrastructure (Starr 2004, 158; Sterne 2006, 117-135). Communication via telegraph managed, ordered, and maintained the operation of the trains, preventing collisions and regulating time schedules. But most importantly, according to James Carey (1988, 215), with the telegraph information is seen to move independently of physical matter. Communication is divorced from materiality, while simultaneously managing and ordering that which is material. This attribute of information came from the telegraph’s conjunction with the railroad. According to Carey,

The telegraph permitted the development, in the favorite metaphor of the day, of a thoroughly *encephalated social nervous system in which signaling was divorced from musculature*. It was the telegraph and the railroad—the actual, painful construction of an integrated system—that provided the entrance gate for the organic metaphors that dominated nineteenth-century thought. (215)

³⁷ “Railways as the People’s Estate,” *Wall Street Journal*, June 27, 1907, 1.

The telegraph and the railroad, when combined, transformed the use of the term network from restriction to freedom. The body of the nation would be maintained through increased circulation and management of flow, appropriating the biological metaphors of a proper and healthy body that existed prior to the invention of a synthesized telegraph and railroad network.

With the use of the telegraph, capitalist fears of the railroad began to disappear, as the opacity of railroad management would become transparent with the increased communicative abilities of the telegraph. The telegraph and the railroad together would enable a quicker turnover of capital, greater circulation, and increased “health” of the national body. Technological infrastructure and the increased movement of capital, so foundational for contemporary political economists such as David Harvey (2006), had to be first legitimated through the management of flows by communications technologies, naturalized in advance thanks to metaphors of the networked body that already existed.

Claims one *Wall Street Journal* editorial from 1906, “independent companies are coming to the larger cities seeking to be connected more directly with the great centers of trade and industry. The last step remains to be taken to couple rural and urban systems, thus forming one network of communication from center to circumference...” The greater connection via telegraph, and later telephone, combined with the increased speed of railroads, would enable a model of production and consumption that directly predicts what we would call today “Toyotism” or “just-in-time production” (Castells 2000a), or even something akin to how the Internet is understood when it comes to retail:

One certain effect of this must be the quicker turnover of mercantile capital, both on the part of jobbers and of retailers. An hour after a phone order is received at the jobbing house the goods will be on their way to the railway or trolley line

reaching out to the retail store in town, village or country cross-road. Within an hour or two the article will be in the hands of the purchaser. Or the retailer may be eliminated entirely, and the transaction take [sic] place between the city department store and the suburban or rural purchaser.³⁸

Technological infrastructure dramatically improved in the early 20th century, through roads, airlines, trolleys, and improvements in the railroads. The resulting “annihilation of space by time” was often expressed in advertisements for the technologies themselves as well as ads for other businesses that relied on flows of information, such as investment firms. One such ad from 1930, titled “Leveling the Barriers of Distance,” produced for the financial corporation Halsey, Stuart & Co., states: “On wheels and on wings, over highways of steel or concrete and via airways, moves a vast phalanx of transportation—representing about sixty billion dollars of investment. The mobility of man and merchandise—once measured by the range of a horse and wagon—is now limited only to the capacity of steam, gasoline and electric vehicles.”³⁹ As a financial services corporation, Halsey, Stuart & Co. are advertising the role of financial investment in the production of transportation and technological infrastructure, suggesting that the “whole social and commercial structure upon which all depend is constantly extended and stabilized by the pooling of investment funds.” Harris, Forbes & Company, another investment firm, also produced advertisements based on the history of the railroads, such as one titled “Forty Years of Progress,” which claims how railroads are “arteries of trade

³⁸ “Quicker Turnover of Capital,” *Wall Street Journal*, November 19, 1909, 1.

³⁹ “Leveling the Barriers of Distance,” *Wall Street Journal*, April 16, 1930, 13.

and commerce,” producing American “progress” through the development of technology that maintains circulation through the entire country as a body.⁴⁰

James Carey has suggested that it was the telegraph that enabled humans to think of communication as separate from a material foundation. Thanks to the persistence of Cartesian dualism, in the metaphors that united the anatomical and the technological the nervous network of the telegraph controlled, yet was divorced from, the body of the railroad. The relation of capitalism to the railroad dramatically shifted once communication was “dematerialized” and used to manage such a large structure, previously believed to be unmanageable. By 1925, an advertisement for Bell Telephone Securities advertised its communication network as the “things that are not seen,” in which the material infrastructure of the telephone network was “not visible to the subscribers and investors whose homes and offices they serve... Plant and service as extensive as the nation itself underlie the securities of the Bell System.”⁴¹ In the words of a 1905 article from *The Atlantic*, through a network of world-wide trade, fostered through railroads and the telegraph, “the world has become one.”⁴² The railroad network had connected the country together as One, and then the wired communications networks, first the telegraph and then the telephone, had dematerialized the connections. Networks had begun to move from the restrictive and constraining nets to that which is everywhere, all the time, circulating information and capital.

⁴⁰ “Forty Years of Progress,” *Wall Street Journal*, May 3, 1922, 9.

⁴¹ “The Things That Are Not Seen,” *Wall Street Journal*, May 5, 1925, p. 5.

⁴² Charles F. Dole, “The Monroe Doctrine: Has it Become a Claim of Preemption,” *Wall Street Journal*, April 21, 1905.

Neither the people nor capitalists greeted the railroad industry with wholehearted enthusiasm. The massive size of the railroad network was cause for concern. Attempts to unify the networks, be they through state power or through capitalist conglomeration, were believed to infringe upon the liberty of the individual and community. Yet with the introduction of the telegraph, these beliefs were cast aside, in part because the fear of connection was also a fear of the inability to control and manage flows. Through metaphors lifted from the study of anatomical networks, the telegraph was understood as a nervous network for the iron network, as would be the case with the telephone as well. The management of flows of communication would enable flows of people and capital to likewise become manageable. The telegraph and railroad signified the discursive articulation of biological and technological networks, conjoined with flows of people, capital, and information. Together, these networks of the 1800s and 1900s brought together the world which contemporary network theory equates with nature and ontology: the interconnection of the technological, the biological, the economic, and the social. But, as was the case with the railroad, interconnection had yet to be understood as natural—or even desirable—by many in the United States and elsewhere.

Social Networks: The Politics of Global Social Connection

“This year we are going to continue making the flow of information even faster,” wrote Mark Zuckerberg, the CEO of Facebook, in a 2009 blog post. “We think that as it becomes easier to connect and share across the social [network], people—as well as companies, governments and other organizations—will share more information about what is happening with them. As this happens, the world will become more open and

people will have a better understanding of everything that is going on around them.”⁴³

This is a common sentiment about the popularity of social networking. New social media technologies are fulfilling a natural human desire to connect and share over networks (Benkler 2006; Christakis and Fowler 2009; Hardt and Negri 2009; Jenkins 2006; Kelly 1994; Shirky 2008; 2010). As was already seen with the railroad, however, this “natural” desire is shaped by language, history, and context. Wanting to connect and share with other people is not natural. In the earliest discourse of “social networks,” in fact, social connectivity was directly associated with communistic collectivism, attacking and disrupting the free will and autonomy of individuals. Connection was an aberration from the natural order of the world.

In 1857, the author of an article from *Harper’s Magazine* looked through a microscope at the water of a stream and found living organisms that “generally seem to wave gracefully to and fro, but they move not as if by an act of volition. Their motions are, of course, much hampered by their close and strange connection, and can hardly be said to be the result of their own free-will, except when they succeed in freeing themselves for a time from their attached companions.” These organisms are, according to the author, “strict socialists” connected through a biological network.⁴⁴ Unlike the nervous or circulatory networks, the microscopic networks observed by the writer for *Harper’s* externally connect different organisms together as one. Like the railroad, these networks extend individuals out to produce larger “bodies.” In the process, this negates

⁴³ Mark Zuckerberg, “Improving Your Ability to Share and Connect,” *The Facebook Blog*, March 4, 2009, accessed October 1, 2011, <https://www.facebook.com/blog.php?post=57822962130>.

⁴⁴ “Little Sticks and their Kindred,” *Harper’s New Monthly Magazine*, May 1857, 758.

the autonomy and will of the individual organism. In spite of the reference to nature, there is nothing intrinsically natural about networks here. Instead, they sap the free will of potentially autonomous life forms, trapping them in a socialistic collective. Like the fears of the railroad, networked connections constrained and trapped individuals, overtaking individual will and autonomy.

This *Harper's* article is a particularly early instance equating socialistic collectivism with the concept of the network, but it precedes a popular use of the term in the first half of the 20th century. Networks would be invoked as that which would threaten autonomous liberal subjects, tying together those separated while negating free will. The perceived threat of communism, in particular, was the most explicit network to be feared. When extended to political discourse, specifically quasi-fascist discourse about socialism and communism, this understanding of networks posited a global conspiracy in which the material ties between individuals would gradually become erased, mirroring the dematerialization of connection associated with the telegraph. The “red network” was described as that which could unnaturally connect everyone and everything through global flows of ideas. This connection was not always pathologized as an ailment of communism. Networking and collective organization, leaving the autonomous subject of liberalism behind, were constructed as the only possibilities for future political struggle, from both the political right and left. Even though discourse associated with the telegraph and the railroad articulated networks to a way of thinking about technology, biology, economics, and the social, the connectivity of money and communication through networks was nonetheless feared by populist political activists. In spite of this, networks were often positioned as the only possibility for future political organization. The

embrace of the discourse of “social” networks came not from those looking to advance global communism, but from right-wing fascists claiming to save Christianity, capitalism, and the liberal subject from collective politics.

Another essay from *Harper's*, this time from 1925, criticized the emergence of “American fascism,” or nationalism formed of fears “that out of Moscow there had spread all over America the network of a vast international conspiracy to destroy the family, religion, property, all government...”⁴⁵ The various Red Scares in the US were inspired, in part, by the belief that there was a communist network invisibly infiltrating all aspects of American life. Not only were communists potentially everywhere, the very existence of government was a constraining force similar to the network of socialism.⁴⁶ In some political discourse, the possibilities for the future were coded using the broad strokes invoked by either fascism or communism. While fascism was to be feared, socialistic tendencies of centralized government, even at their most minimal, were likewise understood as necessarily blunting personal and economic freedom. “Anarchy would logically be still better than the least government, but no one except a few quaint lunatics imagines that it will operate a technological civilization... Government is a sad nuisance: it enmeshes everyone in a network of obligations, taxes, and restraints; but if we want preventive medicine, high-speed transportation and communication, and hot water in the bathroom, the yoke of government will remain heavy on our necks.”⁴⁷ In an

⁴⁵ Duncan Aikman, “American Fascism: A Plea for American Liberalism,” *Harper's Magazine*, April 1925, 518.

⁴⁶ Carl Dreher, “Collectivism and Human Nature,” *Harper's Magazine*, September 1934, 485.

⁴⁷ *Ibid.*, 491.

age of technology that must be managed, be it the railroad or the telegraph, government must intervene. Government itself is a network, constraining the power of the individual in favor of the shackles of the social, all the while managing the flows of infrastructure. In the 1920s and 1930s, networks were everywhere, and each constrained and attacked the liberal subject. Government connected the nation-state together out of financial obligations used to fund technological networks. Social networks from Russia were invoked as doing nearly the same thing. Connections from all directions were tearing the individual apart.

Fascists railed loudest against these networks of the social, envisioning them to connect the totality of Western life, if not the life of the entire globe. The British historian Nesta H. Webster, an anti-Semite and one time member of the British Union of Fascists, built a career through paranoid historical studies of invisible social networks that determined historical transformations. Her most famous book, *Secret Societies and Subversive Movements*, opens with a quote from Benjamin Disraeli speaking in the House of Commons:

a great part of Europe—the whole of Italy and France and a great portion of Germany, to say nothing of other countries—is covered with a network of these secret societies, just as the superficies of the Earth is now being covered with railroads... (1955, np.)

For Disraeli and Webster, citizens are no longer able to determine their own fates. That which determines history is an invisible agency to which all are connected. This agency supersedes national governments, even though the connections that define these “secret societies” remain unknown. Just as railroads were assumed to negate the power of capitalists in the United Kingdom, social networks of “secret societies” were believed to

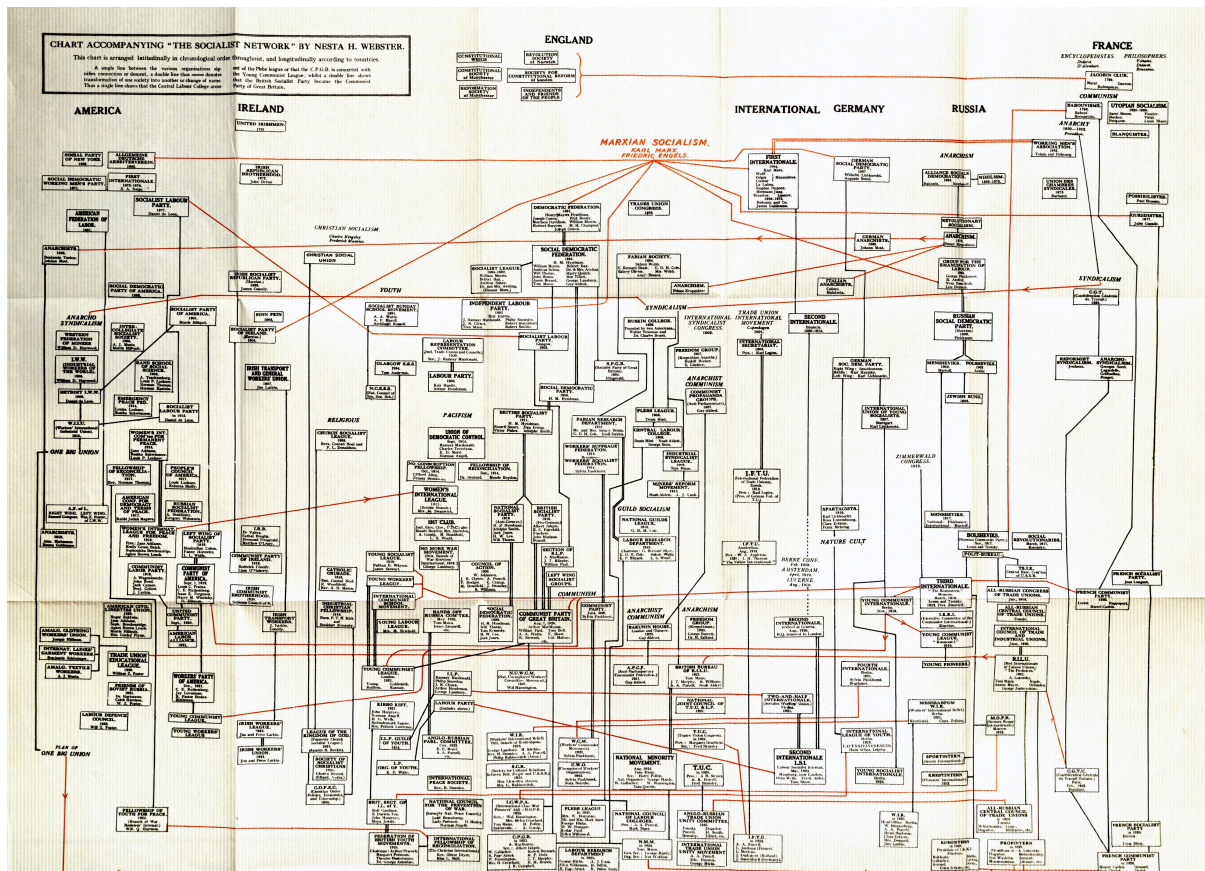


Figure 3: Nesta Webster's diagram from *The Socialist Network* (1926)

negate political power and self-determination. And like the connectivity of the telegraph, social connection via communication was invisible. For Webster, the power of these secret societies, being invisible, was often managed and maintained through the occult.⁴⁸ She believed in a Jewish conspiracy of global domination and regularly invoked *The Protocols of the Elders of Zion* in her writings. In her book *The Socialist Network* (1926) Webster eschewed many of the more mythological and occult aspects of global networks. Instead, she charted the supposed unification of the global network of socialists through

⁴⁸ Which could itself be indicative of a belief in the dematerialization and perfection of communication popular with many spiritualists of the time (Peters, 1999; Sconce, 2000).

the membership lists of various socialist, communist, pacifist, and anarchist organizations—any organization that Webster saw as counter to the solidification and maintenance of British state power (Figure 3). As just one example, she argued that Germany, in World War I, depended on “the network of pacifist organisation” in Great Britain to “prevent England’s resistance to her scheme of world domination” (33).

Webster draws several conclusions about the “socialist network” on the basis of her assumptions of global connection. First, she argues, there is no real centrality to the network itself. The socialist network is managed through a balance between the concentration of Soviet power in Moscow and the anarchist desire to destroy governmental and state organization. A network is simultaneously organized and disorganized, connecting everywhere but only marginally directed towards a hierarchical center. The socialist network is defined by flexible connections between loosely coordinated organizations that share members and goals. These organizations are not hierarchically arranged, but are multiple and dispersed. Taking out any one socialist organization would do nothing to the network as a whole. Their “leaders well know that amalgamation would be fatal” (135), but they are nonetheless united in this network form, which is loose but totalizing. Second, the network is a means for the circulation of capital *away* from capitalists. The network operates by a redistributive accumulation by dispossession. Capital is taken from its centrally concentrated holders and moves throughout the entire world population as a whole. The flow essential to a network is one in which capital is distributed in an egalitarian manner throughout the totality. Like the fears of farmers when faced with the railroad, connection signifies the rerouting of capital elsewhere. The flow of capital through the network negates private property through

connectivity. Thus, “the socialist movement has unlimited funds at its disposal” (135). Third, the network itself is “open” and has “been able to penetrate every sphere of human endeavour...” (134). The socialist network touches the totality of human life across the globe. It is everywhere, able to absorb anything previously excluded. Fourth, and finally, the resistance to socialism is for Christian capitalists to network themselves. Capitalists should mimic the loose structure of connections that makes up the socialist network. Continuing to embrace an ideal of autonomous liberal subjects in competition, for Webster, makes impossible any effort to defeat the socialist network. “Our societies are not only disconnected, but too often, instead of being allies, they are rivals” (135). Webster’s solution is not to resist the network, but to fight networks with networks, just as Galloway and Thacker argue in *The Exploit* (2007).

In only a few pages, in 1926, Webster outlines a political theory of networks that directly prefigures many contemporary theories of network politics, if from the obverse perspective. Webster’s socialist network resonates with Hardt and Negri’s (2000; 2004) reading of global networks of communication and finance. Networks are nonhierarchical; they redistribute wealth throughout the world; they connect all aspects of Earthly existence; and to resist networks, one must become networked. While Hardt and Negri see this as the only possibility for a future communism, Webster sees it as the only possibility for a future capitalism.

Nearly ten years after *The Socialist Network*, the book *The Red Network: A “Who’s Who” and Handbook of Radicalism for Patriots* was published in the United States. The book’s author, Elizabeth Dilling, like Nesta Webster, was an anti-Semite and a fascist. She was prosecuted, for arguments she made during World War II sympathizing

with Nazis, under the Smith Act in the Great Sedition Trial of 1944.⁴⁹ Dilling's stated goal with *The Red Network* was to "bring to the sound but still sleeping portion of the American public the truth about the Communist-Socialist world conspiracy which...is boring within our churches, schools and government and is undermining America like a cancerous growth" (1934, 5). Dilling does this through a series of essays bloviating about communism, and then devotes nearly two hundred pages to listing names of those she considers communists, along with the organizations to which they belong. Unlike Webster, Dilling makes no explicit connections between these organizations. "Since the Communist Party is a *secret society*," claims Dilling, "it is impossible to know, with the exception of certain open leaders and organizers, whether or not any individual is or is not a Party member" (18-19). The network itself is transformed from the visible (or at least public) interpersonal ties that define Webster's global conspiracy to something completely invisible yet totalizing, closer to Webster's secret societies than her socialist network. All are under suspicion of being a communist. The network is everywhere and yet nowhere, threatening to connect all in such a way as to completely eliminate any semblance of liberty and personal autonomy.

Dilling spends a great deal of her essays on the destruction of the family and locality. Her fears of communism are rooted in fears of the destruction of traditional local bonds, as she sees defined in the family and the church. "Jesus Christ teaches: that God is the Father of all life; that the family unit and marriage are indissoluble; that parents should love their children and children honor their parents; that Christians should

⁴⁹ This trial is considered to be something of an embarrassment, and an explicit violation of the 1st Amendment rights of those prosecuted (St. George and Dennis, 1946).

exercise love and charity toward their neighbors; that no political kingdom of worldly power should be sought by Christians, as such, but rather personal kindness and a mastery over self” (31). For Dilling, communism replaces local bonds, local autonomy, and self-determination through an invisible and impersonal global interconnection. The network is that which comes after the family and the church, replacing local community with global impersonality. As it is for Manuel Castells (2000a) and other contemporary critics of globalization (Sassen, 1991; Virilio, 1999), space becomes defined by the flows it connects. According to Dilling, with networks local specificity, or place, is eroded in the name of global flows.

Dilling removes the network from any material constraint and elevates it to a purely metaphysical connection. Social networks are everywhere and nowhere. They connect all but they connect nothing, as “true” connections must remain invisible. The red network drifts off into an ethereal fantasy of total connectivity and total enclosure from which there is no escape. Its lines cannot be traced, but nonetheless constrain and trap, annihilating locality in favor of global connectivity.

While Dilling understands the global network of communism as opposed to individualistic autonomy and localism, Webster, more interestingly, believes global networks to be the only possible future for the survival of a Christian, capitalist existence. For Webster, the networking of capitalism—and, in a way, ending competition—is the only possible way for capitalism to survive. Neither author believes networks to be a natural description of reality. In their use of the term, however, both totalize the concept. There is no alternative or outside to networks in these books. Dilling, in particular, seems to be convinced that communists are literally everywhere. Ideas, like other things that

move through networks, flow throughout the globe simply by virtue of interpersonal connection. The circulation of “correct” or “incorrect” ideas has an impact on the vital body of society. The management of flows is central to the maintenance of a well behaved and upstanding community of Christian capitalists, even while the ideal of connectivity and flow is to be resisted.

The telegraph managed, in part, to transform the relation of capitalism to network technologies. Fears of large institutions such as the railroad were at least partially assuaged because of the power of communications networks to regulate and manage flows. Conversely, the increasing networking—and dematerialization—of communication enabled reactionary anti-Communists and anti-Semites to claim a global conspiracy that was organized yet invisible. In the earliest writings that articulate networks to social organization, networks are opposed to the traditional assumptions of liberal Western subjectivity. Nonetheless, they are the only possible form of social organization that can delineate a future for Western liberalism. Networks traverse the globe, connecting all to all, eroding locality in favor of global flows of information and capital.

Financial Networks: Branch Banking and the Great Depression

With the increased influence of networked communications in the early decades of the 20th century, new technologies enabled the possibility of networking banks and finance. As already cited above, the telegraph was often featured in ads for financial corporations and banks, heralding technology’s enabling of a greater and steadier flow of capital through networked infrastructures. This was not a position embraced by all. As in

the above political theories, discourse about branch banking networks initially understood connectivity and flow as eroding individual autonomy. Networked branch banking was seen to destroy local community in the face of global flows of capital that would connect farmers to Wall Street—to the detriment of the farmers and the gain of those in New York. During the Great Depression, however, the connectivity of banking was positioned as an ideal for American banking institutions as well as for the people. Connecting the banks would enable a greater, more regulated flow of capital throughout the country, benefiting both capitalists on Wall Street and the farmers who were feeling the effects of the Depression elsewhere. A fear of connectivity was replaced with the belief that banking networks were necessary to maintain the well-being of a community.

During the Depression, one solution to American banking insolvency in the pages of the *Economist* and the *Wall Street Journal* was to increase the size of banking institutions through technological networks. This was simply following the lead of most other Western industrial countries. According to Steven Kern, “by 1900...all nations assumed that growth was good, and none questioned the wisdom of trying to achieve it.” This was accompanied by the sentiment that “big is good,” a claim with “implied political imperatives—to expand for greatness or fall into mediocrity” (cited in Berland 2009, 75). In this discourse, the central problem leading to the Depression had little to do with individual debt or monetary policy.⁵⁰ Instead, the isolated and independent banking structure in the United States prevented the flow of capital. Banks needed to expand, networking themselves, to increase the movement of capital throughout the US and beyond. Prohibitions on the networking of the banks, explicitly barring banks from

⁵⁰ As is often attributed today (see Galbraith 1954; Friedman and Schwartz 1965).

becoming “big” through branch banking networks, led American banks to disaster. If communication networks enabled the stabilization of the railroad industry, regulating flows of capital and material goods, then why shouldn’t they do the same for banking? With branch banking, the network becomes not only a begrudging necessity, but also an imperative for global competitiveness, regulating the demands of capital.

In the *Economist*, the term network was first used after the 1929 crash to analyze why American banks (along with countless others across the globe) had collapsed while Canadian banks had remained solvent. Canadian banks, in the eyes of financiers, were an exception to global banking failures during the Depression. The *Economist* argued that while American banking was made up of many isolated, independent banks, Canadian banks were formed as a national networks of branches, covering the entirety of Canada, if not whole parts of the globe. The *Economist* reported, in 1932, that

the Canadian banking system, consisting as it does of a few big institutions each owning a network of branches covering the whole Dominion, was well equipped to withstand the stream of the present crisis. Indeed, the contrast between the Canadian branch-banking system and the neighbouring American system of a huge number of small independent unit banks has been rendered all the more striking during recent years by the large number of American banking failures and the complete immunity of Canada from any such disaster.⁵¹

Even over a decade prior to the 1928 stock market crash, Canadian bankers viewed the American system as one intrinsically prone to failure because of its disconnected structure.⁵² American bankers and economists regularly regarded the Canadian economy inferior to, if not fully dependent on, the economies of the United States and Great Britain. Yet Canadian bankers would generally point to their large, unified network of

⁵¹ “Canadian Banking,” *Economist*, October 8, 1932, 10.

⁵² “Broad Street Gossip,” *Wall Street Journal*, March 16, 1918, 2.

banks as evidence that the Canadian economy was strong.⁵³ As more American banks began to fail, financial journalists in the United States and United Kingdom gradually began to take this line of reasoning as truth.

This view was not limited to Canadians and bankers. In the pages of the *Saturday Evening Post*, the American senator A. J. Beveridge, an early member of Teddy Roosevelt's short lived Progressive Party, lauded the Canadian banking network as well as the Canadian system of currency. According to Beveridge, Canadian money was not directly anchored to any "real" asset, and thus the "Canadian financial system is founded on faith" between people. Claims a Canadian banker Beveridge cites in his essay, "as a practical matter our money is safer than your American money, for we never have runs on our Canadian banks in the same sense in which you have runs on your American Banks."⁵⁴ What Beveridge saw in the Canadian network of banks was an economy that stressed human relations and human trust. The Canadian banking network comprised a way of calculating debt not based on actual gold or silver reserves, but on agreements between individuals and banks in which money was just another symbol of human interdependence. The strength of the network was one in which quasi-dematerialized capital moved between people not in the name of the market, but in the name of national community. The national banking network was a material signifier for national identity and citizenship, uniting the country as one through banking.

⁵³ "Situation in Canada not as Black as Sometimes Painted: Canadian Bankers in New York Deny that the Country is Headed Toward a Business Crisis," *Wall Street Journal*, May 27, 1913, 8.

⁵⁴ A. J. Beveridge, "Canada's Currency System Unique in Many Respects," *Saturday Evening Post*, reprinted in the *Wall Street Journal*, June 24, 1911, 6.

Beveridge was quite enthusiastic about the Canadian banking network. American bankers, however, would often disparage Canadian banks in the years prior to the Depression, in part because of the perceived insignificance of the Canadian economy. This does not mean that American bankers disregarded the benefits of branch banking networks. In the United States, bankers instead looked to Europe, valorizing size and increased flow of capital enabled by banking networks as essential for global economic competition:

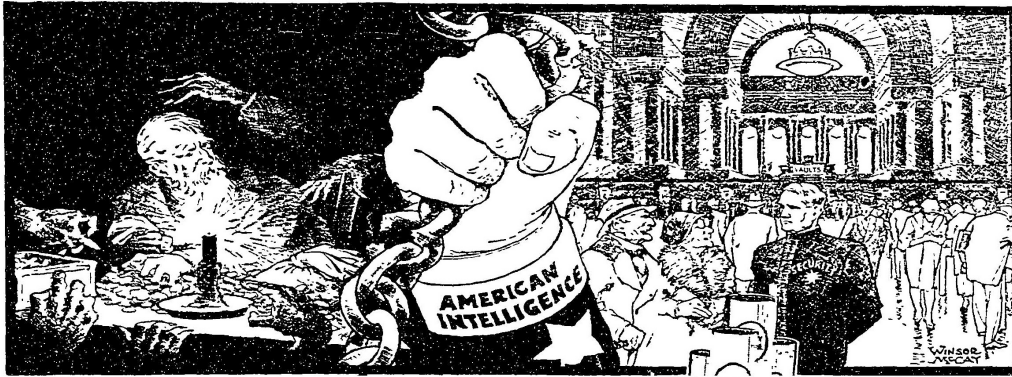
In point of view of industrial banking resources, New York does not occupy a commanding position among the world's financial centers. Both London and Berlin are the headquarters of banks with resources that put the New York City institutions in the shade. However, such a comparison is odious because one is comparing single banks with great institutions in Europe that cover their respective countries with a network of branches... Our national banking system has been built up through separate units. The result has been to develop local trade and industry, but it is a question whether, in the vital period of world-wide competition we are now facing, we will not find that our banking machinery is grossly inadequate for the struggle.⁵⁵

This narrative and discourse is striking, as historical studies written today, studies that describe how the United States became an economic superpower between World War I, the Great Depression, and World War II, often note that American banks were already tightly connected into the global economy at this time (Ahamed 2009). Thus, in the early decades of the 20th century, American bankers perceived the US economy as lagging behind the rest of the world because of one reason: American banks were prohibited from

⁵⁵ “Bank Concentrations Going on Outside the United States: Tendency Abroad is to Create Great Banking Institutions to Finance After War Trade,” *Wall Street Journal*, Dec 12 1918, 10. Also see articles such as “Evolution of Credit and Banking Methods in France,” *Wall Street Journal*, Jun 29, 1910, 7, which makes the same argument. Many articles written in the *Journal* on the supposed superiority of French, German, or British banks would often attribute their dominance to the networking and interconnection of banks.

The Old Sock is out of Date! AN ANCIENT PREJUDICE HAS BEEN REMOVED

That ancient prejudice which hoarded gold with the fanatical zeal of the miser has vanished. Under the sheltering wing of AMERICAN INTELLIGENCE flourish thousands of banking institutions to which the individual safely entrusts his wealth.



“toasting did it” —

Gone is that ancient prejudice against cigarettes—Progress has been made. We removed the prejudice against cigarettes when we removed harmful corrosive ACRIDS (pungent irritants) from the tobaccos.

YEARS ago, when cigarettes were made without the aid of modern science, there originated that ancient prejudice against all cigarettes. That criticism is no longer justified. LUCKY STRIKE, the finest cigarette you ever smoked, made of the choicest tobacco, properly aged and skillfully blended—“It’s Toasted.”

“TOASTING,” the most modern step in cigarette manufacture, removes from LUCKY STRIKE harmful irritants which are present in cigarettes manufactured in the old-fashioned way.

Everyone knows that heat purifies, and so “TOASTING”—LUCKY STRIKE’S extra secret process—removes harmful corrosive ACRIDS (pungent irritants) from LUCKIES which in the old-fashioned manufacture of cigarettes cause throat irritation and coughing. Thus “TOASTING” has destroyed that ancient prejudice against cigarette smoking by men and by women.

“It’s toasted”

No Throat Irritation—No Cough.

TUNE IN — The Lucky Strike Dance Orchestra, every Saturday night, over a coast-to-coast network of the N. B. C.

©1929, The American Tobacco Co., Mfrs.



“It’s Toasted”—the phrase that describes the extra “toasting” process applied in the manufacture of Lucky Strike Cigarettes. The finest tobaccos—the Cream of the Crop—are scientifically subjected to penetrating heat at minimum, 260°—maximum, 300°, Fahrenheit. The exact, expert regulation of such high temperatures removes impurities. More than a slogan, “It’s Toasted” is recognized by millions as the most modern step in cigarette manufacture.

Figure 4: Lucky Strikes advertisement from the *Wall Street Journal*, September 10, 1929.

becoming larger through networking and interconnection in accordance with US law. The prohibition of branch banking may foster local community and industry. In a world of increasing globalization enabled by the telegraph, however, banks needed to become networked. As Elizabeth Dilling feared, global networks were opposed to local community and local interconnection. Yet, for American bankers, global networks would be the only possibility for continued American economic competitiveness.

The discourse that privileged branch banking networks over small, independent banks was a radical departure for Americans, suggesting a fundamental shift in how Americans understood money and banking. Historically, those governing the United States have had a strong suspicion of branch banking. Any federal regulations about banking were often regarded as an affront to states' rights. Any creation of a national banking network or regulatory body was quickly dismantled by Congress until the creation of the Federal Reserve in 1913. Presidents such as Thomas Jefferson and Andrew Jackson held such contempt for banks that they often blocked legislation enabling banking to exist at a national level.⁵⁶ This opposition to banking was not the primary popular discourse during the Depression. The increased flow of capital was positioned as a social necessity. Communities were sustained through the movement of money, explicitly enabled by banking institutions. One ad from a series of Lucky Strike cigarette advertisements (Figure 4), associating American innovation and progress with the “toasting” of cigarettes, claimed, “An Ancient Prejudice Has Been Removed—That

⁵⁶ The official histories of central and branch banking in the United States routinely stress the hostility of Americans to anything but isolated, independent banking until the 20th century (See, among other sources, The Federal Reserve Bank of Philadelphia 2009; Spong 2000, 18-21).

ancient prejudice which hoarded gold with the fanatical zeal of the miser has vanished. Under the sheltering wing of AMERICAN INTELLIGENCE flourish thousands of banking institutions to which the individual safely entrusts his wealth.”⁵⁷ This ad was printed in the *Wall Street Journal*, September 1929. It appears to ignore certain historical realities that were already quite visible to both the readers of the *Journal* and to the American public at large, as it was published during the early days of the Depression, although before the Crash itself (see Galbraith 1954). Like Beveridge’s embrace of Canadian banking, this ad is based around a popular belief surrounding money in the 20s and 30s—hoarding money was the cause of economic stagnation and depression, while the circulation and flow of money enabled greater social wealth. The 1932 Frank Capra film *American Madness* along with his later and more popular *It’s a Wonderful Life* together posit a rather blunt dichotomy in the name of economic populism. Miserly bankers hoard money and refuse to extend loans to hard-working Americans, ruining the lives of regular people. Populist bankers keep money flowing regardless of situation, causing the community to flourish (Bollmer 2010a). The hardships of the Depression were blamed, in part, on the unwillingness of bankers to lend money out to American citizens, in particular to farmers. While neither the ad nor Capra articulate the flow of capital to banking networks, they both stress that the increased flow of capital enables the greater well being of the people at large. The bankers, however, had stressed since the earliest years of the 20th Century that the best way to accomplish this increase in flow was to network banks together.

⁵⁷ “An Ancient Prejudice Has Been Removed,” *Wall Street Journal*, September 10, 1929, 5.

That a radical shift needed to take place to get populist filmmakers such as Capra to embrace banking and the flow of money as central to the well being of the people should not be understated. In 1907, it was far more common for someone speaking in the interests of the people to claim that the increasing movement of capital, fostered by the interconnection of banks, would create “a vast network of pipe lines leading to Wall Street, by the very men who had effected the gigantic railway and industrial combinations.”⁵⁸ Yet, as local banks began to collapse in the final years of the 1920s, individuals previously opposed to the interconnection of banks began to change their opinion.⁵⁹

Urbanization, industrialization, and the increasing use of telegraph and telephone technologies were central to large, urban banks expanding in the 1920s. These banks were already creating branch banking networks wherever allowed by law (Spong 2000, 22-33). However, many regulations still existed even up until 1994,⁶⁰ prohibiting banking mergers and operations between different states. Some state laws prohibited the very existence of branch banking within state lines. Texas and Illinois did not permit branch banking at all until the 1970s and 80s (Rhoades 2000). Nonetheless, during the early decades of the 20th Century, increasing the size of banks through branch banking

⁵⁸ William Hayward, “For Fair Play and a Square Deal,” *Wall Street Journal*, October 5, 1907, 6.

⁵⁹ Will Nassau, “In and Out of Bounds,” *Wall Street Journal*, October 31, 1927, 11.

⁶⁰ The Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994 was passed this year. Even though the deregulation of branch banking had been discussed since the 1920s, if not earlier, it was not until this act that there were any national standards for interstate branch banking. The Riegle-Neal Act was one of the first in a series of banking deregulations passed during the 1990s (see Spong 2000, 32-33).

networks was believed to improve the operation of capitalism through the increased flow of capital. Through increased connectivity and flow, society would be better off, avoiding events such as the Depression. Ads for banks from the beginning of the Depression through decades to come would often emphasize the importance of banking networks, much in the same way that the telegraph and railroad were understood previously. “Dwarfing distance is a daily occurrence at The Canal Bank,” claimed one ad from 1927, “A connection formed with this bank now may be of incalculable value to you later.”⁶¹ Another bank ad, for The First National Old Colony Corporation, printed in 1930, claimed that through “multi-wire interconnection, its offices are in constant touch with...all important financial markets.”⁶²

Of course, these are ads for investors and bankers. We can see from these ads a full-fledged embrace of network technology by the banks. Networks, and the increasing size and scale of markets developed through their use, were greeted with skepticism by capitalists decades before. By the 1920s and 30s, however, solutions to economic problems were framed in terms of increased connection and flow. While it would take until the 1970s and 80s to be embraced by many Americans, the Great Depression served as a turning point for the naturalization of network discourse at the level of the everyday. As countless smaller, disconnected banks closed, the problem of capitalism was positioned as one of the flow of money, both by capitalists and populists alike. In the early 1900s, the flow of capital was first understood by farmers and populists to help produce community. Cheap credit, in films such as *American Madness*, was shown to

⁶¹ “National Contacts,” *Wall Street Journal*, September 20, 1927, 12.

⁶² “National and International Investment Banking Service,” *Wall Street Journal*, January 7, 1930, 9.

sustain a community in hard times. Yet these flows were local. Bankers happened to agree on the need for the increased flow of capital. Their agreement was just conjoined with the belief that banks must be connected in national and global networks to accomplish this.

It is at this point that we can see how much of network ideology had been laid out and legitimated by the 1930s. While it would be years to come before networks would be considered common sense or even a natural attribute of the world, by the 1930s the discourse of networks had emerged in a form that we would mostly recognize today in theoretical and popular analyses of the so-called “network society.” The networking of banks is understood in almost the same language as that of Manuel Castells, David Harvey, and Saskia Sassen. The politics of networks defined in the 1920s and 30s are nearly identical to the politics of networks in the work of Michael Hardt and Antonio Negri. In the 1930s, as well as today, we are connected through technologies and flows. These flows are not intrinsically constraining, but sustain the vitality and life of a community and nation. This discourse can be traced through the origins of networks, anatomy, technology, social connection, and financial connection. But there is one move yet to make, foundational for how networks are understood today: the universalization and equivocation of all networks. Economic flows, biological flows, technological flows, social flows—while there may be some overlap between them in this history thus far, as different flows are often equivocated or articulated at various points in time, they are never made exactly the same. These flows may be increasingly national or global, often leaving space and time behind as networks are dematerialized through communication. But they have yet to fully converge. Nonetheless, the first three decades of the 20th

Century signal the appropriation of the term network to any structure that could be considered to connect. This includes, along with what I've discussed above, power, gas, and electricity,⁶³ mines,⁶⁴ and even a hypothetical network of tubes that would connect the factories of Proctor & Gamble to the streets of Cincinnati, through which "a vast amount of soap should be pumped into every street and alley in the town."⁶⁵ The management of a flow of soap would literally clean up and maintain the city. The usage of network to describe the perpetuation and management of flow would continue and intensify to the present day. Connection—and the assumptions about connection defined thus far—would eventually be used to describe most every aspect of human existence.

The use of network discourse to describe radio and television, for instance, only seems to repeat much of what has been said of networks above. The radio and television networks enabled communication instantaneously over great distances, dematerializing communication in spite of their reliance on the wired networks of the Bell system (Wu 2010). But even if a network were dematerialized, everywhere and nowhere, these different networks were still understood as separate. In discourse thus far, there was no foundational, singular network. There were only multiple networks. The next major transformation in the discourse of networks would be to equate all networks into one.

This is what is accomplished with the Internet.

⁶³ "At the Center of Population: Indianapolis Power & Light Company," *Wall Street Journal*, March 4, 1931, 15; "One of the Interconnected Power Systems of General Gas & Electric Corporation," *Wall Street Journal*, August 19, 1926, 8.

⁶⁴ "The Hearst-Jaggers Gold Mining Company," *Wall Street Journal*, May 1 1905, 6; "United Cobalt Exploration Co." *Wall Street Journal*, November 16, 1906, 7; "Curb Market Notes," *Wall Street Journal*, March 26, 1907, 7.

⁶⁵ "The Golden Fleece," *Wall Street Journal*, April 9, 1925, 3.

Universalizing Networks: The Internet and Packet Switching

The Internet does two things to the discourse of networks. First, the discourse associated with the design of the Internet proposed a universal structure that would connect all previously existing forms of media in a distributed form. The Internet is based on a fundamental universal of communication and connection—all networks can, and should, be made into one connected internetwork. Second, the structure of the Internet relies on “packet switching,” the breaking up of data into discrete units that are disassembled, transmitted, and then reassembled. Objects can be cut up into multiple pieces and then put back together as they originally were. Things are defined by *information*, their quantifiable measure of organizational structure. They are defined as discrete yet connected entities than can be cut up, rearranged, and reassembled. Information science and cybernetics, foundational for the creation of the Internet, would understand information as the universal essence of life itself. Life and existence are defined by little more than the mapping of informational organization. With cybernetics and information science, and later with complexity theory, all of life is defined through the mathematical mapping of connectivity. With the Internet, networks become a material structure for the flows that constitute the essence of life, society, and technology.

In 1964, Paul Baran, an engineer for the RAND Corporation, published a lengthy document titled *On Distributed Communication*. This eleven-part series of memoranda systematically outlined the creation of a communication network designed to maintain military communication in the case of a nuclear attack. “Let us consider,” stated Baran in his introduction of the series, “the synthesis of a communication network which will

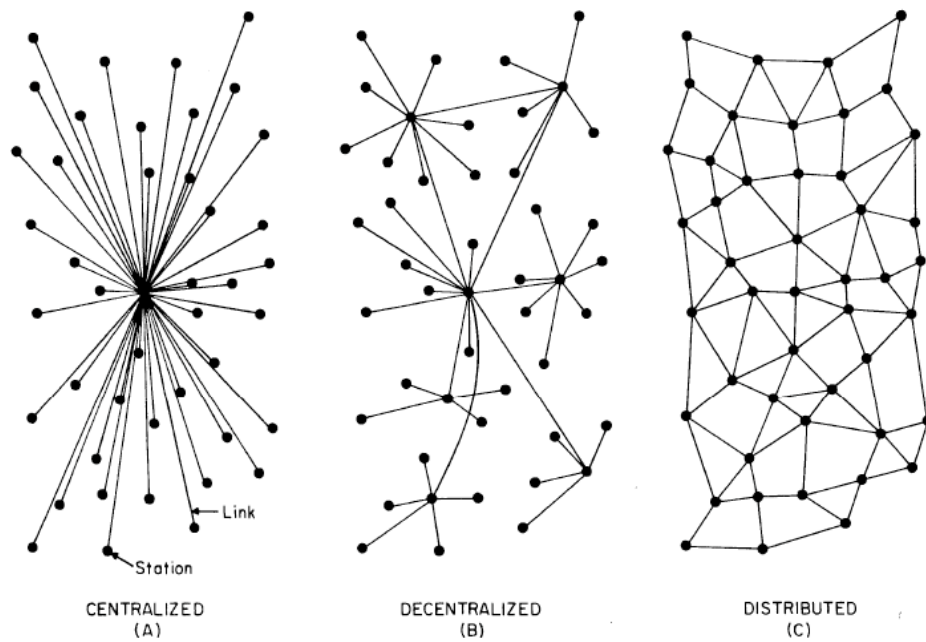


Figure 5: Paul Baran's (1964a, 2) diagrams for centralized, decentralized, and distributed networks.

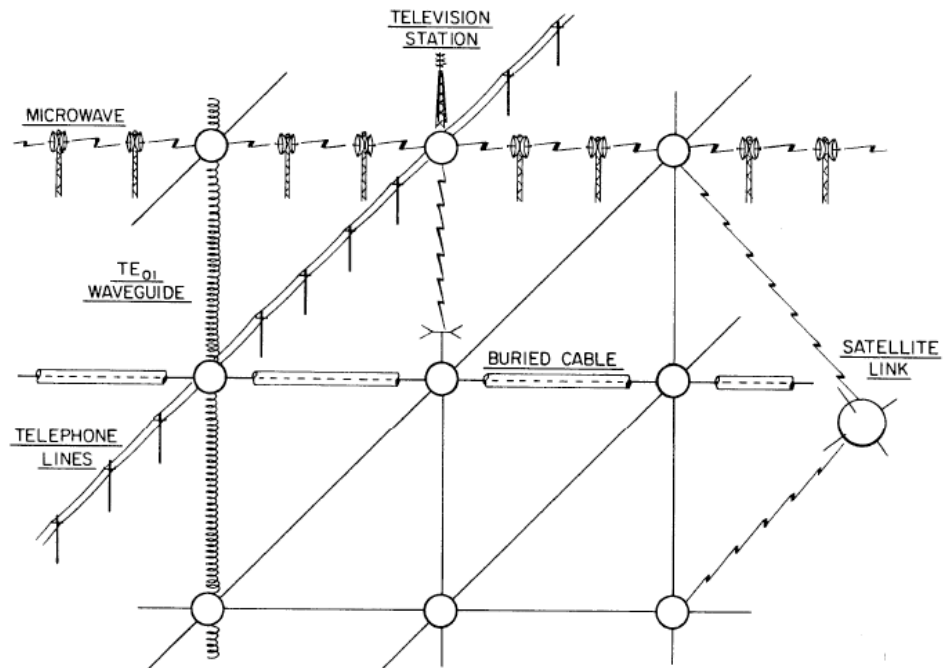


Figure 6: Paul Baran's (1964a, 21) diagram for a universal network that would connect multiple forms of technology.

allow several hundred major communications stations to talk with one another after an enemy attack” (1964a, 1). The organizational form of the military’s communication network, either through centralized or decentralized systems, was vulnerable to attack because the failure of any one link in the system could disable communication. Baran thus proposed a distributed network, a form in which any one node connected to a number of others (Figure 5). Through the redundancy of its interconnected links, the distributed network could withstand attack regardless of the failure of one isolated connection—or even through the destruction of a large part of the network itself. Taking out one or several locations would not damage or change the network’s structure in any significant way. The flexibility accorded by the interconnection of a large number of weak links would ultimately lead to the strengthening of the network as a whole. The distributed form of the network was designed so individual nodes would be insignificant as long as the connectivity of the greater totality would remain in place, undisrupted, when any one part of the network fails or becomes disconnected.

As initially proposed, this distributed network would include a variety of media, from the telegraph to microwaves, TV stations, and communications satellites (Figure 6), all eventually connected via an all-digital form of communication. Baran fully believed that the equipment at hand was good enough to produce this network. “Our present-day components are fully adequate,” he claimed in his conclusions. “The difficult problems lie in hooking them together” (1964c, 19). Theorizing the network was easy, but creating standards for communication, enabling the different networks that already exist to communicate with each other, was the hard part. Thus, along with proposing this engineering problem of connection, Baran also proposed that the messages sent

throughout this network be cut up at the source and reassembled at reception.

Communication throughout the network, regardless of specific device, could be made possible as long as messages could be cut up and transformed into standardized digital signals. Baran proposed this through what is known as “packet switching,” which he described with the following “fruit salad” metaphor:

Thus, fullest advantage is taken of the mechanism within the proposed system that takes a channel or a message and chops it into small pieces (like a fruit salad), transmitting it on as a series of message blocks, each using a different path. Additionally, much unclassified material is purposely transmitted cryptographically, and perhaps even a light dose of obsolete traffic is mixed in. Given a big enough bowl, it becomes very difficult to separate the garbage from the salad. (1964b, 8)

The development of distributed communication, as proposed by Baran, would enable both stability and increased secrecy for the U.S. military. Messages could be split apart using a uniform system, prohibiting their interception on a relatively unsecured communications network, and then reassembled later.⁶⁶ Unlike a fruit salad, that which goes in would come out the same even after it was chopped up and mixed together.

Baran’s work relies highly on theories of information derived from the work of those such as Claude Shannon and Norbert Wiener. The term information is, ultimately, the organization of a pattern. It is not simply that a message is transmitted through a network; it is that this data has a pattern, and that pattern remains the same at the encoding and decoding of that message. The entire system of a distributed internetwork, as outlined by Baran, would require all of that which is transmitted to follow a standardized form of understanding information—a standard way so that what goes in is

⁶⁶ That mediated messages can be cut up and reassembled is a belief common to most contemporary media from film onward. The difference here is that this universalization of discrete data had yet to be articulated to connective networks (see Kittler 1999).

disassembled and then reassembled as the same when it comes out the other end.

However, as all of the technologies that Baran places within his distributed network were already designed to process information, their linking just required the creation of standards that would enable communication between them.⁶⁷

By the time of Baran's writing, information had already been theorized as a universal of these technologies, if not all matter whatsoever. As N. Katherine Hayles has argued, the privileging of information in science, technology, and cybernetics has created a "posthuman" way of understanding life and humanity. This discourse of posthumanism makes machines out of people and people out of machines by equating the essence of both as information. Human life is a pattern, as is technological "life," and thus there is a direct equivalence between the two. She defines this perspective with the following:

First, the posthuman view privileges informational pattern over material instantiation, so that embodiment in a biological substrate is seen as an accident of history rather than an inevitability of life. Second, the posthuman view considers consciousness, regarded as the seat of human identity in the Western tradition long before Descartes thought he was a mind thinking, as an epiphenomenon, as an evolutionary upstart trying to claim that it is the whole show when in actuality it is only a minor sideshow. Third, the posthuman view thinks of the body as the original prosthesis we all learn to manipulate, so that extending or replacing the body with other prostheses becomes a continuation of a process that began before we were born. Fourth, and most important, by these and other means, the posthuman view configures human being so that it can be seamlessly articulated with intelligent machines. (1999, 2-3)

In Baran's formulation, all technologies can be connected into a single internetwork because they all can be made to share the same language—information. Information, thanks to slippages between the messages that are transmitted technologically and the organization of those messages, is equated to that which flows through networked technological communications. And since human beings are understood as defined by

⁶⁷ And this is generally what has happened (see Galloway 2004; Abbate 1999).

information, just as any other transmitted message, the essence of our being becomes what flows through technological connection. The body becomes a limit to our connectivity.

On the Internet, information can be cut up and reattached through packet switching. Nodes can be rearranged and cut out with no real impact on the rest of the network. While there may be a technological network called the Internet, there is also a fundamental network upon which all can be connected. This network needs a universal language to enable flow and connectivity. But it already has this language in the form of information. And human beings are already understood as information. While much of what is assumed about information is also assumed to be an attribute of networks more broadly, it isn't until the Internet that these universal attributes of information are articulated to the structure of the network. And this combination is essential for how we understand networks and connection today.

Conclusion

According to Eugene Thacker, “Networks are not tropes for notions of ‘interconnection.’ They are material technologies, sites of variable practices, actions, and movements... discussions of networks—especially in cultural theory—have too often slipped into ‘vapor theory,’ eliding a specific consideration of the material substrate and infrastructure with a general discussion of links, webs, and globalized connectivity” (2004b, xiii). As seen in the previous chapter, however, most discussions about networks do not regard them as immaterial abstractions. Instead, networks are understood as purely material or ontological. But, as argued here, networks are both material technologies *and*

a contingent discourse where reality is produced, in part, through language. Forgetting this latter part, as Thacker does, results in assuming that connection and flow are natural rather than ideological. This way of thinking renders networks completely natural, material, and unchangeable. As I will argue in Part Two, individuals who do not conform to the assumptions of network discourse are either rendered aberrations to be excluded from nature or are simply forgotten.

In this chapter, I traced six moments in this historical usage of the term network as a discourse of interconnection and flow, a discourse that is nonetheless articulated to some form of technology or materiality. Throughout this history, the concept of the network was transformed from a description of a banal technological form—a net—to model of health, society, and totality. This model was initially feared as eroding autonomous liberal subjectivity, constraining and containing the individual. Through its articulation with biology, technology, finance, and the social, networked connectivity and flow were rearticulated as universals for these four areas.

A discourse that greatly preceded the current “network society” defined the limits of networks, of which the Internet is only the most current incarnation, decades, if not centuries, before the material technology of the Internet was proposed by DARPA. The discourse of interconnection and flow, its rearticulation, and its persistence, has had far more of an influence in how we understand networks today than the materiality of the Internet, in and of itself, ever has. Of course, this discourse has never existed without technologies that envision or enable connection and flow, and is therefore not an eternal ontological truth. But technologies often encompass a far broader range than what we think of when networks come to mind, and their cultural significance cannot be separated

from the discourse by which they are understood. If we are to understand what technologies do, then we cannot simply think of them as purely material things that exist separated from history. Technologies must be understood contextually. If we are to grasp the political significance of the technological, then we must accept that technology can be used to legitimate a specific, historical way of thinking as nature. When it comes to network theory, this is how network technologies are understood. When we cease to accept networks as pure materiality or ontology, however, we can begin to understand how this discourse produces subjects and citizens today.

PART TWO

NETWORK CITIZENS

The discourse of the network defines technology in terms of the material management of connection and flow. Networking becomes a way of imagining the technological itself. This discourse draws together technology, biology, finance, and the social. The assumptions of contemporary network theory rely on taking these historical articulations as purely material or natural. The “nature” of networks also has a larger cultural significance, however. The discourse of networks produces proper and improper subjects in the name of networked “common sense.” Part Two of this dissertation investigates how network discourse produces these subjects and citizens. Network discourse defines a model of citizenship that naturalizes the networked attributes of technology in everyday life beyond the technological. Individuals must manage themselves in terms of their connectivity to the networked totality. One must connect to exist. Yet, at the same time, individual network citizens are rendered as insignificant and powerless—contrary to many of the political assumptions about connectivity and technology. Human beings are not particularly adept at behaving as networked subjects. While network citizenship is naturalized as an ideology at the level of the everyday, humans are produced as failed network citizens in the making because they cannot live up to the standards of networks.

In the two cases that follow, I argue that network ideology interpellates subjects into a position where they should remain connected and perpetuate flows. Yet, at the same time, those hailed by network ideology do not embrace these demands without question. Network citizenship provokes and produces anxieties for individuals because the demands of networks are not natural. It requires a massive amount of effort for a human to be a proper network citizen. Being connected to a network means being connected to the *entire* network. If an individual does not fully connect, or proves unable to properly manage flows throughout the totality, then she is functionally disposable from the perspective of the network. Given that the totality is what matters, any one individual is negligible.

The assumptions of network technology are defined through a historical conjunction of discourse that is also about economics, biology, and the social. Understanding the “network society” today means, then, that we should also look at cases where technology, economics, biology, and the social intersect in odd and surprising ways. The two chapters of Part Two are explicitly designed to do this. To understand the limits to technological “nature” means taking detours through cases that may not immediately appear to be about technology.

Chapter Three, “Managing Connections (and Flows): Social Networking and the Afterlife of Information,” is an examination of the management of connection to social networks. Through an analysis of the profiles of the deceased on social networks, this chapter demonstrates how the connections between a user and their personal data are not given, contrary to the assumptions of many network theorists (Bell and Gemmell 2009; Blascovich and Bailenson 2011; Clark 2003; Hayles 2005; Kurzweil 2005; Lévy 1997;

Mayer-Schönberger 2009; Moravec 1988; Rotman 2008; Taylor 2001). Intelligence is not naturally “distributed” in the form of the Internet. Network technologies do not simply mimic biological networking. We do not have a right of ownership of the data we upload online because of the intrinsic connection between identity and externalized information. Instead, the connection to our online identity must be intensely managed. Networked data are constructed as both authentic duplicates of identity and as threats to personal identity. Data is not an analog of personal identity. Data is more real than the human, but it is beyond the control of the human. And from the perspective of the network, human users cannot be differentiated from data. In addition, the political economy of social networking demonstrates how that which “labors” online is information, not human beings. Social networks generate capital through the maintenance of informatic connection and flow. Data connects and flows more efficiently than human beings. Because the connections a human has with data are contingent, the proper network citizen on social networking conforms to the expectations of data. Humans are constructed as insignificant, if not liabilities, for the perpetuation of connection and flow of capital. Network citizenship, in this chapter, produces subjects who have value based on their abilities to behave like data.

Chapter Four, “Managing Flows (and Connections): Epidemiology and the Networking of ‘Contagious Obesity,’” examines a discourse in public health that defines obesity as contagious through epidemiological social networks. Networks, in this chapter, are not only technological, but are also biological, economic, and social. In the discourse of “contagious obesity,” obesity is defined through epidemiological networks. It is spread through either a contagious virus or communicative social connectivity. Health is

something that must be managed at the level of the networked totality. Obesity is constructed as a symptom of the inability to manage connections and flows: biological, communicative, and economic. It is also something to which all humans are inevitably subject, a health problem that arises from connectivity. The ideal of network citizenship is constructed as unattainable. The very possibility of connectivity and relation are understood as inevitable failures from which all should disconnect in order to save themselves.

In these two cases, being a network citizen means behaving in a way that network theory assumes to describe the materiality of technology. But this behavior, while directly or indirectly related to network technology, involves the management of self in areas not normally regarded as technological. What these cases demonstrate is how an ideology that is naturalized through the assumed materiality of the technological also manifests itself beyond technology, in the everyday lives of potential network citizens. If networks describe the totality, then all social, biological, economic, and technological relations can also be understood in terms of networks, connections, and flows. But in naturalizing this ideology, humans are produced as failed network citizens in the making, unwilling or unable to adapt to a natural world defined by global networks. Humans do not desire connection and flow in the way that network theorists assume is either natural or material. But this means that, when networks are naturalized, humans become aberrations from the natural order of existence. Network technology and information, on the other hand, become expressions of nature.

CHAPTER THREE

**MANAGING CONNECTIONS (AND FLOWS): SOCIAL NETWORKING AND
THE AFTERLIFE OF INFORMATION**

All code is burial, and to dwell within the space of code is to be already dead. But then perhaps the opposite is true as well.

Tom McCarthy (2003, 6)

Do they genuinely believe, because the girl's [Facebook] wall is still up, that she is still, in some sense, alive? What's the difference, after all, if all your contact was virtual?

Zadie Smith (2010)

On the pilot episode of the television show *Caprica*, Zoe Greystone, teenage daughter of tech industrialist Daniel Greystone, tells her father:

You can't download a personality, there's no way to translate the data. But the information being held in our heads is available in other databases. People leave more than footprints as they travel through life: medical scans, DNA profiles, psych evaluations, school records, emails, recording, video, audio, CAT scans, genetic typing, synaptic records, security cameras, test results, shopping records, talent shows, ball games, traffic tickets, restaurant bills, phone records, music lists, movie tickets, TV shows. Even prescriptions for birth control. ("Pilot" 2009)

Zoe tells her father this after she had been killed in a terrorist attack. Before the attack, she had made a digital copy of herself in an online virtual world. Thanks to the sheer amount of data accumulated over her brief life, Zoe created a duplicate by, in the words of her father, taking "a search engine and [turning] it into a way to cheat death." Near-totalized recording had enabled a version of Zoe to be maintained in the distributed cloud

of information online even after the death of the “real” biological person. According to Zoe, the real self is defined almost entirely out of that which can be uploaded, cataloged, stored, and networked. After Zoe convinces Daniel that the avatar online isn’t simply a “digital image” but is analogous to a living organism, Daniel runs Zoe’s search program to resurrect another girl killed in the terrorist attack, Tamara Adama. But unlike Zoe, seemingly comfortable in the virtual world as a “living” avatar, Tamara panics at her lack of heartbeat, discovering that she is no longer able to die. On *Caprica*, the information online is alive and immortal, while the human body is limited and finite.

Caprica is the origin story of the “cybernetic life form nodes,” or Cylons, of the 2003 television remake of *Battlestar Galactica*, the original tagline of which states, “Never create what you can’t control.” Daniel creates the first Cylon when he inserts Zoe’s digital self into a militarized robotic body. Fifty years after the events of *Caprica*, in *Battlestar*, the Cylons have evolved into a race of robotic life engaged in a perpetual war with humanity. The minds of Cylons may have originated out of information produced by human bodies. But this information is beyond human control, a threat to the very existence of humankind.

Our own everyday relationship to digital information and recordings, networked in the various “clouds” online, from Facebook profiles to the websites of financial services, seems to mirror the narrative of *Caprica*. Online data¹ produces cultural

¹ I’m using “data” and “information” interchangeably throughout this chapter. As this chapter is more related to popular discourse than technical definitions of information in information theory, I’m not making this distinction, as it is rarely made in popular discussions of data and information. However, if one were to be more technical here, data would refer exclusively to disorganized recordings, while information would be the pattern of organization that equates that data to a human life. On the technical equivocation of life and information, see Hayles (1999) and Thacker (2004).

anxieties, as it is constructed as an autonomous life form separate from the human body. Those using social networks are assumed connected through technology, with their data inherently attached to their bodily identities. But through discourses and cultural practices, from user comments about death on social networks to the writings of engineers, data is constructed as a double of personal identity that exists beyond conscious control of the user. Networks are positioned as an “ecosystem” inhabited by automated information, separated from and oppositional to the human body. Beyond the fictive world of *Caprica*, services such as Vanish, Suicide Machine, and Legacy Locker have been created to either manage or delete online data. These websites and algorithms legitimate themselves through the claim that online data must be either managed or killed off. Our online selves are immortal, exceeding any possibility of management unless we kill our data before we ourselves perish.

In this chapter I first examine these cultural anxieties surrounding the life and death of online data. Through the investigation of a wide range of discourse, I argue that death online reveals the relationship humans have with their online data is increasingly tenuous. Networked data are treated as both an authentic duplicate of identity and as a threat to personal identity that must be managed. Marshall McLuhan (1964), among others, has famously argued that technology extends and shapes the sensory and cognitive capabilities of the human body. Network technologies are “extensions” of the human body that create a technological collective through connectivity. Data are often constructed as essentially connected to personal identity. Technological utopians often imagine that the future of cyberspace is one in which we will be able to upload our own consciousness online, effectively creating immortal living selves out of data removed

from our physical bodies (Moravec 1988; Kurzweil 2005). Yet, in *Caprica*, and in our own lives, what is uploaded isn't an encoded analog of our consciousness. Mounting anxieties about death online are a product of fears related to the loss of control of data—fears of technology detaching from the human body and existing for itself. In this discourse, massive amounts of recorded data can be animated online, accumulated through the proliferation of networked media in daily life, fully reproducing “conscious” identity while divorced from the human body.

Second, I move from how discourse positions the body and information as separate to how the political economy of social networking also performs this disconnection between the body and online data. Many of the activities that generate profit for social networking corporations, specifically the generation of “content” which is commodified in the form of consumer profiles, are performed by users who will never receive any wages in exchange for their labor (Ross 2009). With labor over social networks, there appears to be the realization of the age-old capitalist dream of nearly pure exploitation of the worker. As workers do not get paid, the capitalist not only extracts surplus value from the worker, but the totality of the exchange-value of their labor. Thus, labor online is either described as “free labor” (Terranova 2004), is compensated in terms of “affect” and “love” rather than wages (Jenkins 2006), or somehow exists completely outside of the market (Benkler 2006). Through an analysis of the political economy of Facebook, I argue that it is not the case that human workers are being fully exploited by social networking’s “free labor.” Instead, labor on social networking is performed by information rather than by people. While death shows us that online information is constructed as a separate, autonomous entity, the political economy of social networking

reveals that information is able to labor on its own as well. The metrics and algorithms used by social networking websites cannot tell the difference between human users and automated data. Thus, labor is “free” because human beings are understood as equivalent to software. With online social networking, life and labor have been transferred from attributes of the human to attributes of information.

As the connection between an individual user and their data is a connection that is not natural, but must be managed, and information is positioned as that which labors online, then human beings are not actually important for the operation of social networking websites. Labor can be performed by “disembodied” data that is not essentially anchored to any actual human being. The tasks of a proper network citizen produced by social networking—connecting and enabling the perpetuation of flows—are best performed by software. Thus, human beings either behave as if they are nothing but information or resist the very possibility of networking itself.

Recording Technology, Network Technology, and the Afterlife of Data

Technologies have always externalized sensory data, transforming human consciousness and conceptions of the self. Writing transforms our memory, reshaping humans as individuals and as social beings (Ong 1982; McLuhan 1962). Radio extends what we can hear; television extends what we can hear and see (Meyrowitz 1985; Weber 1996). Network technology is understood to create a networked self, in which our cognitive and perceptual capabilities are distributed beyond the limits of the body into “para-selves” which overlap with others. The history of technology is one in which memories and thoughts are externalized, necessarily conjoining the human with

technologies beyond the skin (Clark 2003; Stiegler 1998). We are, in the words of Brian Rotman (2008), “becoming beside ourselves” with network technology, externalizing so much data that our “bodies” exist as networked information, hybridized with the technological (Mayer-Schönberger 2009; Lévy 1997; Bell and Gemmell 2009).

Each technological change, because technology stores and externalizes sensory data, is also seen as that which makes present specific remainders of those who have passed on. Recordings show us death in the “future anterior,” as having already happened but nonetheless infinitely deferred into the future (Barthes 1982). Phantoms recorded by photography and “voices” transmitted by telegraph are seen not as technical interference, but as spirits haunting the machine. The sounds emerging from the static of the radio are interpreted as emanating from another plane of existence (Derrida and Stiegler 2002; Peters 1999; Sconce 2000). Audio recordings of the living have been advertised as heirlooms for the bereaved to bring the deceased back to life, “resonant tombs” through which communication can occur beyond the grave (Sterne 2003). Technological recordings are somewhere between the living and the dead, animating, as if living, that which is left behind by those who are no longer. The recordings that transform our own conscious relations to ourselves also transform the relations others have to our ultimate absence.

That data can be separated from the human body, however, is a notion often critiqued in studies of new media. A body, it is argued, is necessary for the phenomenological experience of the world itself. The human is fundamentally bound up with embodied experience at both a cultural and cognitive level (Hansen 2006). Regardless of the believed disembodiment of an online avatar, there is, it is assumed, a

real person at the other end of a virtual connection (Stone 1995). Utopian arguments embracing digital consciousness separated from the body repeat a form of Cartesian dualism central to modern thought (Hillis 1999). Yet the separation of the body from the recordings that supposedly identify it is nothing particularly new. Older technologies, such as passports, create “selves” and “identities” divorced from the human body, selves that must be managed as representations that are simultaneously authentic yet opposed to the “real” body (Robertson 2010). The equation of data to the ontological foundations of human life is contextually specific. Nonetheless, according to N. Katherine Hayles, people “become posthuman because they think they are posthuman” (1999, 6; 2005). This discourse has force in organizing behaviors, beliefs, and anxieties. If discourse positions data and information as separate from the body, then it will organize behaviors and beliefs surrounding the “posthuman” dematerialization of the body. While the complete loss of the body is most likely a misleading dream of technologists, the power of discourse to order the ideologies of the technological cannot be dismissed so easily.

Life after Death Online

That technology seems to bring the deceased back to life is not something unique to network technology. Recordings have always animated traces of the deceased. Yet, what is new about network technology today is *the belief that the amount of data recorded and externalized gives a nearly full representation of the authentic identity of the human being*. It is not simply the presence of the deceased that causes anxiety, but the supposed fullness of that presence, formed by near-totalized recording, networked and beyond the control of the user.

As it is represented in *Caprica*, a desire for totalized recording should be articulated to a desire for everlasting life. Information lives forever while the human body withers away. That online information can exist as an entirely separate life than the life of the user can be most clearly seen in the online management of information left behind by users who have passed on. Online services have been developed to manage information in the case of death, in part because there is no real way to distinguish between the living and the dead online. A social networking profile of the living can appear exactly the same as one of the deceased. There is no box to check to indicate life or death, as there is for gender or sexuality. Being part of the online cloud of networked information involves signing over personal information to private, for-profit services under legal contracts that give the service free reign over data which are often assumed to still be part of “ourselves” and still owned by “ourselves.” Thus, in the face of death, online information is revealed not only as separate from the user, but as controlled and possessed by the network itself.

Social networking websites are developing standards and protocols for dealing with pages of the deceased, as they end up automated and treated like pages of those still living. In the user comments for an online *New York Times* article on the management of information of deceased Facebook users,² one writer notes that Facebook continues to use the image of the deceased after they have died, like the image of any other user: “My brother died in April 2010 and we [sic] keep getting suggestions to catch up, write on his

² Jenna Wortham, “As Facebook Users Die, Ghosts Reach Out,” *New York Times*, July 17, 2010, accessed November 4, 2010, <http://www.nytimes.com/2010/07/18/technology/18death.html>.

wall, or send him an email. If only I could do that. They're not comforting."³ Yet others have quite different stories. One writer unexpectedly received a friend request from someone who had passed away twenty years prior. It turned out that the sister of the deceased had set up a profile for her brother in spite of his passing. As initially jarring as the experience was, the author claims, "I know for me it was nice to see his face again some twenty years after he left us."⁴ Another Facebook user who regularly visits a page to memorialize her deceased brother states, "To be haunted virtually is just another way to stay connected."⁵ Regardless of how these users interpret the experience of being haunted by digital information on Facebook, there is an afterlife of data itself, sometimes animated by the code of Facebook, sometimes animated by family members. While the user who produced the information initially may have passed on, their information persists much longer.

For some, these pages are inauthentic versions of the self, detached and left behind after the demise of the user, animated *only* by the code of the network. The novelist Zadie Smith (2010), in an essay for the *New York Review of Books*, has argued that interactions with the dead online are symbolic of a more generalized devaluation of human life. We treat people like Facebook pages and Facebook pages like people, leading to an inability to grasp the meaning of death when someone actually dies. Because we interact with Facebook pages in the same way regardless of if the other is

³ Pam, July 18, 2010 (8:54 a.m.), comment on Wortham, "As Facebook Users Die."

⁴ oliverc1, July 18, 2010 (8:55 a.m.), comment on Wortham, "As Facebook Users Die."

⁵ Jennifer Lasater, July 18, 2010 (8:55 a.m.), comment on Wortham, "As Facebook Users Die."

living or dead, then our own relation to the other's life makes little distinction between the two.

For Smith, death on Facebook reveals a fundamental disconnection between all human relations in an age of social networks. For those who find solace in these pages, on the other hand, they enable a connection to a real self that has been fully captured by digital recording. Being haunted is an authentic way to keep in contact with those who have passed on. Even though these positions come to opposite judgments, they both argue that with social networking information and the human can be perceived as the same thing. Regardless of ethical or moral position, human beings and online information are equated as the same.

These beliefs are complicated when legal and economic issues are brought into the discussion. Another *Times* reader, whose deceased mother ran a non-profit, managed through Yahoo!, writes that

despite my having her death certificate, her valid will, and being the executor of her estate, because there was no provision for these circumstances in Yahoo's terms of use agreements, Yahoo's legal department insisted that unless I came back with a court order, I had no rights to access her account. This officious stonewalling made a difficult and painful time for my family much harder than it had to be, and caused the web site for the non-profit organization to shut down for months.⁶

Social networking sites are having difficulties creating policy for dealing with these pages of the deceased. As others often communicate with the departed as if they were still present, using social media profiles as storehouses of objects to remember those passed on, a simple deletion policy doesn't seem to work—especially when the network (and other users) can't tell the difference between a living or dead individual. From the

⁶ threephi, July 18, 2010 (8:55 a.m.), comment on Wortham, "As Facebook Users Die."

algorithms that undergird the social network, there is no clear functional difference between a living user and deceased one. And the legal contracts digitally signed upon joining a service often have few provisions in the event of death. As of 2004, MySpace's policy for pages of deceased users is to either leave a page as it is, unmoderated, uncontrolled, and open to the use of exploits from spammers and hackers, or completely delete the page if so requested by family members. Friendster, by now a social network that has significantly waned in popularity, includes in its user agreement a legal contract that would prohibit the deletion of a user's profile without express consent. In the occasion of death, the profile would be removed only if an immediate relative requested its deletion, alongside written proof of death.⁷ But, as we can see from the example above, not all websites have these policies, leaving information separated and disconnected from human users in spite of its continued network presence.

The management of these pages is still a source of anxiety, as the life of information is beyond the control of both the deceased and their family. While the personal practice of memory appears to enable kinds of connection after death, the legal and economic structure of social networking and online services reveals a fundamental disconnection between online information and the self. This disconnection must be managed to prevent the information from acting on its own, to the detriment of the personal and financial safety of the family of the bereaved. Legacy Locker is a private pay service explicitly designed as a kind of digital "storage facility" for a user's passwords in the case of death or disability. According to a quote excerpted on the

⁷ Ryan Boddy, "Ghosts in the Machines: What Happens to Your Online Self When You Die?" *Baltimore City Paper*, June 30, 2004, accessed December 12, 2010, <http://www2.citypaper.com/news/story.asp?id=8182>.

Legacy Locker website, “Passwords and usernames are the worst part of digital living... They can permanently shut out family and friends from crucial assets and communications after someone dies.”⁸ Information protection through passwords and usernames can serve as a barrier preventing an individual from accessing their own “property” online. After death, they can permanently prevent any user from accessing personal online data. If we are supposed to be connected to our online information, passwords are a constant reminder that we are, in fact, separated by the mechanisms of the network itself.

Legacy Locker advertises itself as a service for families along with estate and financial planners. On its information for estate and financial planners, the service claims that

While the work you do today helps your clients prepare their physical assets, there's virtually nothing in place for dealing with online assets. By now you've probably already experienced a circumstance where a bereaved client has tried to gain access to the online accounts of a loved one who has passed away, and found that many online companies and websites are ill prepared or simply unwilling to grant access to anyone but the account holder.⁹

Again, there is the assumption that the body and digital information are somehow connected, though here we see that this connection is almost believed to be more solid than the connection between the body and material assets. But when the connection between the body and online data disappears through death websites are unsure how to proceed. Data is constructed as belonging to the family after death—though passwords

⁸ “Legacy Locker: The Safe and Secure Way to Pass Your Online Accounts to Your Friends and Loved Ones,” Legacy Locker, accessed November 4, 2010, <http://legacylocker.com>.

⁹ Ibid.

can prevent the family from possessing what is believed to be rightfully theirs. Thus, Legacy Locker is little more than a repository for passwords—ultimately the dominant signifier of the connection between bodily identity and digital information in a society based around information technology (Deleuze 1995, 180). The password, however, is a negative connection, in that it connects a user to online data only by keeping out all other users. Even if the user is alive, a forgotten password reveals how tentative the actual connections between the user and data can be. After death, passwords demonstrate that information is isolated and separate from the living.

Facebook has recently instituted a policy of “memorializing” profiles of the deceased, where the profile would be restricted, taken out of search results and cut off from major changes, although still accessible to others already identified as friends. This policy was not designed specifically to deal with these pages of the dead sympathetically, but was primarily a response to a version of Facebook’s homepage that would suggest for users to “reconnect” with other users. In the upper right-hand corner of one’s Facebook home screen, the service would list another user with whom one hadn’t communicated through Facebook in some time, urging the user to reconnect with the other. As the network has no way of differentiating between profiles of those living or dead, some of these suggestions would be to reconnect with those who had passed on.¹⁰ The memorialize feature was implemented precisely to avoid this problem, giving the network the ability to mark one as living or dead while shutting off some features of the

¹⁰ Dan Fletcher, “What Happens to Your Facebook after You Die?” *Time Magazine Online*, October 28, 2009, accessed November 4, 2010, <http://www.time.com/time/business/article/0,8599,1932803,00.html?CNN=yes?artId=1932803?contType=article?chn=bizTech>.

deceased's profile in the name of respect. This move has actually angered many users, as they can no longer communicate with the deceased as they had previously—through the posting of videos, images, and links to the “wall” of the dead. In the many user comments on Facebook's page explaining the memorialize feature, there are repeated laments about the restriction of access to these pages and also repeated grievances from family members and widows complaining of the loss of control over these pages, as any single “friend” can effectively turn a page into a memorial. If someone else memorializes the page, then the wishes of the family may have been violated.¹¹ And this is not to mention that the memorialize feature has been subject to pranks, fabricating the death of users, in at least one case locking a user out of his own account without any way to prove that he was alive.¹²

These debates highlight how data uploaded to social networking websites are seen as owned by the person who produced the information in the first place. In the case of death, that ownership is assumed transferred to the surviving family. This is explicitly not the case, as defined quite clearly (if buried in legalese) in the Terms of Service agreement all social networking users are required to agree to. Facebook's Terms of Service, as of February 2009, grants Facebook a complete license “with the right to sublicense” to “use, copy, publish, stream, store, retain, publicly perform or display, transmit, scan, reformat, modify, edit, frame, translate, excerpt, adapt, create derivative works and distribute (through multiple tiers)” *anything* any user posts on Facebook. Facebook even retains the

¹¹ Max Kelly, “Memories of Friends Departed Endure on Facebook,” *The Facebook Blog*, October 26, 2009, accessed November 4, 2010, <http://blog.facebook.com/blog.php?post=163091042130>.

¹² Wortham, “As Facebook Users Die.”

right “to use your name, likeness and image for any purpose, including commercial or advertising” in any connection, whatsoever, with Facebook. While Facebook claims that this does not mean that they “own” your data, the language employed by the agreement is quite slippery in delineating just what Facebook can and cannot do with whatever is uploaded to the service.¹³ While most social networks seem to be willing to comply with the wishes of the bereaved, they are under no legal obligation to do so, as anything uploaded to the social network, including the user’s very name, is controlled by the network, not the user. Our “connection” to the deceased is entirely mediated through data, unconnected with the user, but legally possessed by the social network. While users of social networks often treat profiles as authentic representations of the human being (regardless of the devaluation of human life or not), death reveals that the connection between the user and their information is a connection that is actually managed by the user rather than an “authentic” or natural connection.

Managing Another Self

Death reveals how tentative our connections to data can be. The connection between the user and their online information is never a given, but is instead something that must be managed. Yet much of the discourse about online death assumes an equivalence between the user and their online data. Even when we are alive, however, our information is discursively constructed as something other to the human body and embodied consciousness of self. The persistence of data after death should also be

¹³ Chris Walters, “Facebook's New Terms of Service: ‘We Can do Anything we Want with Your Content. Forever,’” *Consumerist*, February 15, 2009, accessed November 4, 2010, <http://consumerist.com/2009/02/facebooks-new-terms-of-service-we-can-do-anything-we-want-with-your-content-forever.html>.

understood in the context of data as an entirely separate life from the human, with its own agency that cannot be controlled by the human user.

Like Legacy Locker, other online services, Vanish and Suicide Machine, have been created to manage users' online information. These services, unlike Legacy Locker, are designed erase data that is beyond the control of the user while the user is still alive. They legitimate themselves by arguing that information online enables connections that should be feared. Living online entails a disruption of privacy and opens users up to legal and emotional threats from others because too much is shared and recorded. Parts of the self one wishes to hide become exposed, acting counter to the will of the individual. These fears coincide with a discourse that equates these digital traces with the essence of human identity. This second discourse claims that the recording of online data can help us understand and manage our own lives better and more efficiently. Online information gives us a full picture of the real self invisible to our own sense of self-identity. And from this recorded real self, human lives can be resurrected thanks to the technological—not by uploading human consciousness to a computer (as is often argued), but through totalized, networked recordings that capture the essence of what makes a human a human. The sheer accumulation and storage of information from a living body is enough to functionally reproduce a living person. Thus, while advocates of networked recording argue that it shows us the truth of our own identity, for ourselves and for others, the first position sees this recording as a surrender of privacy and human agency to machines. Both of these discourses position online data as something other to human consciousness and control. Either online data is beyond the control of our own attempts to compartmentalize our various performances of identity (cf. Goffman 1959), or it is an

expansion of experience unable to be grasped by consciousness. The life online is fundamentally different than the life consciously experienced through embodied perception; it may be more complete, but it is also beyond the conscious will of the individual.

Vanish, a research project at the University of Washington, states on its web page that

Computing and communicating through the Web makes it virtually impossible to leave the past behind. College Facebook posts or pictures can resurface during a job interview; a lost or stolen laptop can expose personal photos or messages; or a legal investigation can subpoena the entire contents of a home or work computer, uncovering incriminating or just embarrassing details from the past.¹⁴

Vanish is a computer algorithm designed to delete data, either saved on a computer or uploaded to the Internet, after a set period of time. As in the quote above, the Vanish research team argues that the data on these websites, as they are never truly deleted, could arise like specters from the past, compromising the present. Sensitive personal information should remain secret from others. Financial information could, if it escapes control of the user, lead to identity theft and fraud. Recorded data are liabilities because they inherently contain the possibility of making public that which the user keeps secret. Data have a will of their own, often counter to the will of the user. This is perhaps a different way of thinking of Stewart Brand's often quoted line that "information wants to be free." Networked data do not disappear into the past as forgotten memory, but collapse private pasts into a public present through the accumulation of data, data that seem to have their own desires, counter to those of the user. Vanish's very existence is based around the notion that online information, while personal and assumed to be connected to

¹⁴ "Vanish: Enhancing the Privacy of the Web with Self-Destructing Data," Vanish: Self-Destructing Digital Data, accessed November 4, 2010, <http://vanish.cs.washington.edu/>.

the user, is in fact quite separate and beyond the control of even the most vigilant. Even the information hidden behind passwords or on a personal computer, assumed to be private, cannot be assumed to remain that way. Not only is information disconnected from the user, it possesses its own autonomy that can attack the reputation and financial standing of the user to which the data supposedly belongs.

Similar to Vanish, the Dutch website Web 2.0 Suicide Machine is a service which deletes a user's social networking website data. Unlike Vanish, Suicide Machine deletes all of a user's data as soon as they sign up. Suicide Machine presents itself like an infomercial. Its website reads:

Wanna meet your real neighbors again? ... You want your actual life back? Sign out forever! ... Unfriending has never been this easy! Stop Self-Procrastination! Isn't time really precious nowadays? So many people you don't really care about... Improve your relationship! Get rid of stalkers! Watch your 2.0 life passing by! Say good-bye with dignity! You can do it. It's so easy! May you rest in a better Real Life!¹⁵

Suicide Machine has been more popular than its creators had planned. In the month after it launched, from December 19, 2009 to January 19, 2010, it had “assisted more than 1,000 virtual deaths, severing more than 80,500 friendships on Facebook and removing some 276,000 tweets from Twitter,” often crashing the website from an excess of activity.¹⁶ In the context of the vast size of social networking websites, this is not exactly a large number. Nonetheless, Suicide Machine is still understood as a threat to social networks. Facebook, as of January 4, 2010, had blocked Suicide Machine and served its

¹⁵ “Web 2.0 Suicide Machine: Meet Your Real Neighbours Again! Sign Out Forever!” Web 2.0 Suicide Machine, accessed November 4, 2010, <http://suicidemachine.org>.

¹⁶ Sophia Yan, “How to Disappear from Facebook and Twitter,” *Time*, January 19, 2010, accessed November 4, 2010, <http://www.time.com/time/business/article/0,8599,1954631,00.html>.

programmers with cease and desist orders, which were then posted on Suicide Machine's website.¹⁷

Vanish and Suicide Machine are services that depend on common fears of technology and surveillance. Living an entire life in public view is not immediately attractive to many. Too much information is made public, which can damage the reputation of the user. The things we'd like to keep private are forced into the public, intrinsically, with the proliferation of recording devices and the popularity of social networks used to share these recordings. But also, too much time is wasted on social networks because of the visibility of the private. The fascination with the private lives of others is a distraction. Friends on social networks aren't real friends. Time that could be spent maintaining real, fulfilling relationships is instead frittered away surveilling others, monitoring those recordings that reveal what once was private. Seeming to echo Guy Debord, connections based in obsessive visual fascination and spectacular consumption have replaced authentic human relations. We not only manage our own lives, but the connections enabled by social networking do little more than compel us to continuously manage, or at least observe, the lives of others.

While Suicide Machine casually appropriates rhetoric usually associated with a positive perspective on euthanasia, this discourse could only make sense insofar as the life online is considered separate from the life of one's body—and the life online is debased when juxtaposed with the assumed reality of a life unmediated by social networks. In response to the question "What should I do after I've killed myself with

¹⁷ David Colker, "Facebook Fights Back, Disallows the Suicide Machine," *Los Angeles Times*, January 4, 2010, accessed November 4, 2010, <http://latimesblogs.latimes.com/technology/2010/01/facebook-fights-back-disallows-the-suicide-machine.html>.

Web 2.0 Suicide Machine?” the programmers of Suicide Machine offer the following on their Frequently Asked Questions page:

Try calling some friends, take a walk in a park or buy a bottle of wine and start enjoying your real life again. Some Social Suiciders reported that their lives has [sic] improved by an approximate average of 25%. Don't worry, [sic] if you feel empty right after you committed suicide. This is a normal reaction which will slowly fade away within the first 24-72 hours.¹⁸

Technological mediation isn't completely eschewed, but the emptiness of feeling disconnected is something that Suicide Machine acknowledges and attempts to normalize. Technological connection is still there, but connection via social networking is somehow false compared to other real connections. Feeling disconnected is something that can be remedied through the telephone, nature, and friends. After your online self is killed off the connections fostered by the network are severed, leading to temporary emotional emptiness. But this is only passing, as those connections were never real. Any emotional emptiness is a result of the opening of possibilities for the user's life. The severing of social network connections through “suicide” is an embrace of the potentiality and freedom that comes with eliminating the need to constantly manage the online self. These services construct a reality where online information is beyond control of the user and, thus, detrimental to the user's real life. A user's Facebook page is an evil twin that should be killed off to save the life of the real person who (mistakenly) thinks that they're connected to others. Real connections are obscured by the constant management of the social network's false ones.

The designers of Vanish and Suicide Machine argue that the online self produced by recorded data is separate and detrimental to the user because it makes public aspects

¹⁸ “Web 2.0 Suicide Machine.”

of a user's identity that the user would wish to remain private. Conversely, advocates of totalized recording of our entire existence, such as Microsoft researcher Gordon Bell, who refers to online data of human identity as "e-memory," argue that new technologies of recording and social networking will enable a greater connection with the past and a greater understanding of our own identity, even after death. Totalized recording does not lead to the production of a false self beyond our conscious control, but a greater awareness of who we really are. The things we want private we not only try to hide from others, but from ourselves as well. With a totalized record of one's time on earth, stored via technological means, Bell claims, resonating with *Caprica*, that "it will be possible to generate a virtual you even after you are dead. Your digital memories, along with the patterns of fossilized personality they contain, may be invested into an avatar...that future generations can speak with and get to know" (Bell and Gemmell 2009, 6; also see Blascovich and Bailenson 2011). Those who survive our death will still come to know us because of the sheer amount of information we have left behind. While, for Bell, this information is not itself conscious, it can be animated to imitate interactions with a living human. "We will maintain the e-memory of that person as a treasured heirloom. And, someday, we will ask it questions. The e-memory will answer. You will have virtual immortality" (Bell and Gemmell 2009, 139).

For Bell, questions of control and ownership of data are not an issue, as self-identity is, somehow, permanently connected to information. We *are* recorded data for Bell. Recorded data are not abstractions or distortions, but the very essence of our identity, speaking the truth of the human invisible to phenomenal experience. Likewise, projects such as Kevin Kelly and Gary Wolf's *The Quantified Self* see the massive

amount of recorded data placed online—and technologically quantified—as something that will help “improve” our relation to ourselves:

Real change will happen in individuals as they work through self-knowledge. Self-knowledge of one's body, mind and spirit. Many seek this self-knowledge and we embrace all paths to it. However the particular untrodden path we have chosen to explore here is a rational one: Unless something can be measured, it cannot be improved.¹⁹

Referencing the desires of Lord Kelvin, Kelly and Wolf believe that the data we upload and externalize are projected back towards us, enabling each individual to work on and manage her own existence via a personal Taylorism of identity. Data recorded and quantified tell us more about ourselves than can conscious experience. According to Bell, when data are uploaded to the Internet, “your data becomes [sic] untethered from particular devices. Your e-memory follows you wherever you go, accessible from any device you happen to be using. You, not your desktop’s hard drive, are the hub of your digital belongings” (Bell and Gemmell 2009, 10). Information on the Internet is more connected to your body than information on private, personal devices for Bell, as it becomes mobile in the placeless, totalized space of the Internet, rather than anchored to, say, a desktop computer. Others, such as futurist and inventor Ray Kurzweil (2005), argue that the data we record will, in fact, achieve self-consciousness at some point in the near future, a point he refers to as the “singularity,” when the biological and technological fully converge. As it is represented in *Caprica*, our self could be transferred to an online avatar constructed entirely out of recorded memories.

¹⁹ Kevin Kelly, “What is the Quantified Self?” *The Quantified Self*, October 5, 2007, accessed November 4, 2010, <http://www.kk.org/quantifiedself/2007/10/what-is-the-quantifiable-self.php>.

The difference between these two discourses is the relation of recordings toward the self. Is the self that we see online the “real me?” Or someone else? In an article from the online magazine *Slate* we can see that some concerns about self online echo much older observations by Erving Goffman (1959) and Joshua Meyrowitz (1985)—people are used to performing and managing multiple personas, some for public view and others for private. Yet, counter to theorization of online identity written in the 1980s and 90s that stressed the anonymity of the online avatar, social networking and the availability of recorded information potentially collapse everything into the public. Claims a magazine writer interviewed for *Slate*, “The funny thing in general about Facebook is that you're there with your colleagues and your friends... and the next thing you know you've forgotten that your status update is all about how hung over you are.”²⁰ Either social networkers then divide up their personas to different social networks (Facebook for friends, Twitter and LinkedIn for work), each giving a “false” depiction of one’s true self, or, according a web developer interviewed by *Slate*,

It's a full disclosure. A lot of people who put themselves out there use it as a litmus test for how much they're willing to sell out for the Man. “If I can't represent who I am in real life, and in the face of my potential co-workers, I'm in the wrong job. I'm good at what I do, and anyone who'll Google me and fire me for that—fuck it.” The advantage is that you never have to work a job and worry about when the hammer's going to fall because of who you are.²¹

The public display of information becomes a call to personal authenticity, of being true to one’s self. The online self is, in fact, *more* authentic than one’s everyday existence because it represents the totality of one’s self. Daily interactions only capture a partial

²⁰ Michael Martin, “Old People Facebook Disasters, *Salon*, September 29, 2008, accessed November 4, 2010, http://www.salon.com/life/feature/2008/09/29/old_people.

²¹ *Ibid.*

performance of identity. Changing that performance depending on context is considered to be the task of a fraud and a fake. In the words of Facebook's founder, Mark Zuckerberg, "The days of you having a different image for your work friends or coworkers and for the other people you know are probably coming to an end pretty quickly... Having two identities for yourself is an example of a lack of integrity" (cited in Pariser 2011, 109).

The networked self is not the autonomous, self-controlled individual posited by classical liberalism, but is instead part of an assumed series of connections that necessarily entail giving part of something we call identity over to technological services. But we cannot simply understand this as an issue only about identity and the bleeding of public and private. Joshua Meyrowitz (1985) has convincingly argued that this transformation of identity has been the case at least since the popularization of television, if not earlier. Instead, both discourses position digital information as other to the human body that the information assumedly represents. The management of the self is not simply about the management of the body and identity into a number of different performances of self. It is about the management of networked connections to a recorded other that is fundamentally different and beyond the control of human consciousness.

For those that embrace digital recording and the networking of data, the online self is a projection of identity invisible to conscious experience. It captures the totality of self, beyond the partial representations we reveal to ourselves and to others in our daily, compartmentalized performances of identity. We cannot truly know ourselves without the tools that network and quantify our lives through constant connection to online services. The real person is the one online, different than our own understanding of self from

conscious experience, beyond the control of our conscious will. Managing our connections is the only possible way to ever know who we are, as data represent identity more fully than embodied consciousness. For those that fear information online, the online self is an identity that reveals too much. Information online exceeds conscious control, thus leading to fears of connection, as connecting to others negates the ability of the individual to consciously construct her own performance of identity. Regardless, both discourses actually suggest that there is no direct correspondence between the perceived self-identity of user and their online information. Instead, there is a fundamental disconnection between the human being and digital information on social networks. The evaluation of networking and recording as either beneficial or detrimental depends on which self one believes to be “authentic,” not if one believes there to be a connection between the two. And in both cases, online data reveals more about our own identity than conscious contemplation ever could.

The Labor of Autonomous Information

Death on a social network reveals the fundamental disconnection between a user and their information. While the user’s life is finite, the life of information is everlasting. The management of online data presents information as beyond the conscious control of the user, if either in terms of violating the user’s privacy or in the ability to capture the “truth” of the user’s life invisible to their own phenomenological experience of existence. But, in addition, the political economy of social networking positions information as that which “labors.” Human users are functionally expendable or, at best, are positioned as playing no part in the circulation of capital other than as assumed consumers—even

though the ability to definitively judge what humans consume cannot currently be accomplished through social networking metrics. On social networks, acts of production and consumption are not intrinsically accomplished by humans, but can be automated and performed by data. Here, I'm going to specifically focus on the social networking website Facebook. While political economic analyses of Facebook usually focus on how the social network uses personal data in the construction of consumer profiles and targeted advertisements, that information and the human user are not intrinsically connected is often overlooked. With Facebook, the techniques used to commodify user data only focus on actions that can also be accomplished by automated data. Thus, the political economy of Facebook values only that which is connected to the network—which, as seen above, is data, not the human user that data supposedly represents.

Humans on the Internet, quite literally, appear to work for free, everyday, all the time. Users often produce content, in the form of their personal data that is commodified (or “monetized” in the language of Internet entrepreneurs) by online services, in exchange for nothing (Andrejevic 2007; Ross 2009). But the disconnect between human users and their online information is central for understanding this so-called “free labor.” Instead of pure exploitation of laboring users by social networking, the assumed connectivity of networks, combined with the disconnection between users and their data, forms some subjects that have the potential to produce value by maintaining the cycle of production, consumption, distribution, and exchange, while others do not. Those that are understood as proper network citizens are the ones who can maintain connections and manage the flows of capital. And in this specific instance, online data, divorced from users, maintains the cycle of capitalism, while human bodies matter little. Data are able to

independently produce the “connections” that undergird circulation and distribution on social networks. Data are able to produce commodities on their own, and are able to consume on their own. It is not that labor costs have been stripped to the bone; it is that people are not necessary for labor in the online post-industrial economy as defined through social networking. Human labor on social networking appears to be rendered valueless because it is indistinguishable from the labor of automated data. Humans are positioned as that which can be disconnected from the network without any real impact on the network as a whole. To understand why this is we must turn to understanding the metrics through which social networks generate capital, along with the limitations of these tools.

Production: Transforming Data into Workers

The business model of Facebook relies almost entirely on advertising and marketing (Cohen 2008; cf. Coté and Pybus 2007). There are countless suspicions that social networks like Facebook, which are often valued for tens of billions of dollars, cannot turn a profit from a model based primarily on advertising (as of this writing, Facebook has never released any official statement regarding its monetary value—it’s still a private corporation in spite of a massive amount of speculation on its value). Yet, according to the *Economist*, it is estimated that Facebook brought in over \$500 million in advertising revenue—and possibly more—in 2009. In the calculations of the *Economist*, this would be more than enough to turn a profit (Giles 2010, 12). Throughout 2009 and 2010, Facebook’s advertisers increased spending on the social network at least ten fold,

and sometimes more.²² The enthusiasm of advertisers over social networking seems to be because of the massive possible audience of Facebook users, which, in 2009, had over 430 million unique visitors, crossing the 500 million mark in the first half of 2010. If put in terms of national populations, this is a number of individual web users larger than the population of the United States by nearly 200 million, only smaller than the populations of China and India.

As is often argued in political economy of media, the audience is the commodity that is bought and sold when advertising is the primary source of media revenue (Smythe 1977). Facebook would appear to be no exception. But the massive size of the market is not actually what interests advertisers. The size of the audience is coupled with the often extremely specific data that can be collected about tastes and trends. It is user *information* that interests advertisers on Facebook. Facebook creates individualized consumer profiles from data collected about demographics, tastes, user location, as well as other bits of information that Facebook gleans from the user's online Facebook use, primarily through the short messages that users post called status updates. Facebook does not directly release this data directly to advertisers. Instead, they use their own statistical methods and data analyses to create marketing profiles out of commodified data.

While ostensibly directed at mining human recordings, human users are inessential for the process by which data is produced and commodified. The production of data, the packaging of that data into consumer profiles, as well as the circulation of information between "users," are all activities that can and are delegated to autonomous

²² Brian Womack, "Facebook 2010 Sales Said Likely to Reach \$2 Billion, More Than Estimated," *Bloomberg*, December 16, 2010, accessed October 4, 2011, <http://www.bloomberg.com/news/2010-12-16/facebook-sales-said-likely-to-reach-2-billion-this-year-beating-target.html>.

information and software. As I have argued above, the death of a user reveals a separation between a user and their information. Thus, there isn't a simple equivalence between users, audience, and user data online. While ads and consumer profiles are initially generated from the information posted by users, this information continues to generate ads and contribute to demographic analyses even after the demise of the user.

Human users, dead or alive, are not even necessary for the initial generation of user data. Ananda Mitra, the chair of Wake Forest University's Communication Department, has developed an algorithm that automates his Facebook profile, generating a stream of data in the form of Facebook status updates. Some of Mitra's status updates are ones that he writes himself. A program designed to mimic his writing style generates others. Many of Mitra's Facebook friends cannot tell the difference between his automated posts and ones that he has personally made.²³ Effectively, Mitra has created a simple form of artificial intelligence that passes a Turing test when the data of human existence is reduced to Facebook status updates. Thus, for the ordinary production of data, it is not essential that a human user be connected to the network at all. If the labor of social networking users is the production of data or "content," then this is a form of labor that does not intrinsically require human actors.

What Mitra has written is generally known as a robot, or "bot" for short. A bot is a small software program designed to do some task usually performed by a human (Leonard 1997). Like Mitra's status update program, many bots in the 1990s were designed to interact with human users, often passing for humans, as developments of

²³ Ananda Mitra, personal conversation with the author, November 2010. Mitra's goal with this project, like others which will be discussed below, is to create a computer program that can differentiate between human and computer based on semantic clues.

artificial intelligence research. It has long been the goal in artificial intelligence research to produce a computer program indistinguishable from a human being. Mitra is not alone in creating automated social networking profiles. Bots, as well, are everywhere on the Internet. Bots called “spiders” or “webcrawlers,” for instance, are used to catalogue and archive all information posted to the Internet. It is through these bots that Google and market research corporations archive and analyze the web. Bots are everywhere on the Internet and their use can have a massive impact throughout the world. Bots have been used to manipulate the stock market, causing the May 6, 2010 stock market “flash crash,”²⁴ and are used in vast money-laundering schemes carried out using, oddly enough, anti-fraud systems of online banks.²⁵ Spiders and bots trace networks until they no longer can because of passwords or firewalls. The exact abilities of a bot, however, are only limited to the program itself. Bots are often crude and simple, but sophisticated enough to pass for human users and exploit mechanisms inherent in code.

I mentioned above that there were 430 million unique viewers of Facebook in 2009. While many of these are actual people, a large number of these users are bots. This number of unique viewers radically exceeds the number of registered Facebook users, which numbered 350 million users on December 1, 2009. Even when these statistics are restricted to “active” registered users, the number of Facebook users who are identified as

²⁴ Alexis Madrigal, “Regulators Finger Dumb Algorithm in ‘Flash Crash,’” *The Atlantic*, October 1, 2010, accessed October 4, 2011, <http://www.theatlantic.com/technology/archive/2010/10/regulators-finger-dumb-algorithm-in-flash-crash/63931/>.

²⁵ Dan Goodin, “5 Botnet Kingpins Busted in \$70m Fraud Ring: Zeus’s Bad-Hair Week,” *The Register: Biting the Hand that Feeds IT*, October 1, 2010, accessed October 4, 2011, http://www.theregister.co.uk/2010/10/01/zeus_kingpin_arrest/print.html.

Americans between the ages of 20 and 24 total over 150% of the actual number of 20 to 24 year olds in the United States.²⁶ Even if every single American in this demographic had a Facebook account, this would still mean that over a third of American Facebook users between the ages of 20 to 24 are duplicate accounts, fake accounts, or bots.

Facebook has worked to block many of the more visible and intrusive bots. It has been quite successful in removing automated fake profiles that attempt to friend as many other users as possible, spamming those users with advertisements. This kind of bot is highly prevalent on MySpace, Twitter, and Tumblr, but is less pronounced on Facebook—though it should be noted that Facebook doesn't reveal if bot accounts count in its official number of registered users. Assumedly they do, as a good bot is impossible to differentiate from a human user. As well, some of Facebook's tools to identify bots, which are themselves bots, often flag the actual accounts of human users—another example of how the network cannot tell the difference between human users and data. Notably, pornographic actors and people with the same name as celebrities regularly have their profiles deleted by Facebook bots because they are assumed to have fake profiles.²⁷

Even if new programs block old forms of bots, then new forms of bots can be

²⁶ Austin Carr, "1.78 Million Facebook Users May Die in 2011," *CNN Tech/Fast Company*, January 19, 2011, accessed October 4, 2011, <http://www.cnn.com/2011/TECH/social.media/01/19/facebook.users.may.die.fc/index.html?iref=obinsite>

²⁷ Richard Abowitz, "Why Porn Stars Love Twitter," *The Daily Beast*, January 25, 2011, accessed October 4, 2011, <http://www.thedailybeast.com/blogs-and-stories/2011-01-25/why-porn-stars-love-twitter.html>; "Royal Wedding: American Kate Middleton Angry Over Mix-Up with Prince William's Bride-To-Be," *The Telegraph*, April 27, 2011, accessed October 4, 2011, <http://www.telegraph.co.uk/news/uknews/royal-wedding/8475773/Royal-wedding-American-Kate-Middleton-angry-over-mix-up-with-Prince-Williams-bride-to-be.html>.

programmed to exploit how new programs work. Even if more visible spambots are blocked, the relatively invisible webcrawlers remain undetected.

The inability to differentiate humans from bots is, as should be obvious, a cause of concern for those investing in online advertising. After Goldman Sachs made a major deal with Facebook in 2011, a journalist for *Fast Company* wondered, “So while the company's latest partner Goldman Sachs has been boasting of Facebook's 600 million-plus userbase, it's unclear just how accurate those figures will be if investors—and advertisers, for that matter—ever choose to parse the details.”²⁸ The actual “life” of a user cannot and is not clearly defined by the tools that Facebook uses to differentiate between human and data. Corporate services, such as comScore²⁹ and Omniture,³⁰ are designed to analyze web traffic while removing bots and spiders from their statistics. Yet the very need for these services indicates that the audience commodified for advertisers may not be one made up of humans. *Instead, the humanness of the audience actually needs to be produced by technological means.* When compared against each other, comScore and Omniture often determine radically different numbers in their analysis of web site traffic.³¹ From the perspective of the web site, the differentiation between human and data is something that must be determined through automated technological algorithms.

²⁸ Carr, “1.78 Million Facebook Users May Die in 2011.”

²⁹ comScore, Inc., “comScore, Inc.—Measuring the Digital World,” *comScore*, 2011, accessed October 4, 2011, <http://www.comscore.com/>.

³⁰ Adobe Systems, Inc., “Adobe Online Marketing Suite, Powered by Omniture,” *Adobe Online Marketing Suite*, 2011, accessed October 4, 2011, <http://www.omniture.com/>.

³¹ Choire Sicha, “We Need New Ways of Judging the Success of Websites,” *The Awl*, December 14, 2010, accessed December 14, 2010, <http://www.theawl.com/2010/12/we-need-new-ways-of-judging-the-success-of-websites>.

One of the more common techniques used to distinguish between humans and automated bots is called a CAPTCHA, or “Completely Automated Public Turing test to tell Computers and Humans Apart” (Figure 7). Google defines a CAPTCHA as

a program that can tell whether its user is a human or a computer. You've probably seen them—colorful images with distorted text at the bottom of Web registration forms. CAPTCHAs are used by many websites to prevent abuse from "bots," or automated programs usually written to generate spam. No computer program can read distorted text as well as humans can, so bots cannot navigate sites protected by CAPTCHAs.³²



A program that tries to read these letters will find it very difficult to actually get the correct letters due to them being out of proportion and all fuzzy. This is what fools programs that try to read outlines

This type of CAPTCHA system has a lot of security measures which makes it very hard for scripts or programs to get around!



Figure 7: Google’s reCAPTCHA (2011)

³² Google, “What is reCAPTCHA?” *reCAPTCHA: Digitizing Books One Word at a Time*, 2011, accessed October 4, 2011, <http://www.google.com/recaptcha/learnmore>; also see von Ahn, et al. (2008).

A CAPTCHA is, at its most basic, a computer program that is designed to do nothing other than present a task that a computer supposedly cannot accomplish while a human can. However, CAPTCHAs are constantly under attack by those who design bots, often with quite high success rates.³³ Unlike Google's claim, sometimes computers *can* read distorted text as well as or better than a human. The simple tasks understood as impossible for computers do not remain that way for very long. A CAPTCHA can tell us several things about the confusion of humans and automated data in the Internet. First, all that is active on the Internet is assumed not as human, but as automated software. A CAPTCHA identifies "humanness" with the ability to pass a simple test; it does not identify software as such. If a human cannot pass the CAPTCHA (by being unable to read the distorted text for whatever reason) then that user is not identified as a human. A CAPTCHA does not make a distinction between human and bot, but between those who can pass the test and those who cannot. Neither category exclusively overlaps with human or automated software. Again, we see that even with tools that are designed to make these distinctions, the difference between human and automated software cannot be made unproblematically. Because "humanness" needs to be produced through technological means, we cannot assume that those participating in "free labor" are, in fact, human.

³³ John P. Mello, "Google reCAPTCHA Cracked," *All Spammed Up: Anti-Spam in a Business Environment*, January 5, 2011, accessed October 4, 2011, <http://www.allspammedup.com/2011/01/google-recaptcha-cracked/>

Commodification: Targeting Ads, Making Connections

Humans are still assumed to be the targets of advertising on Facebook. Yet users are often quick to resist Facebook's methods for developing targeted ads. Like the fears of autonomous information discussed above, ads that utilize the personal information of users cause anxiety over the loss of control of personal data. Thus, Facebook, on its Developer Blog, continuously stresses how users may be disturbed by the continued intrusion of advertising into all aspects of their Facebook "user experience." Advertisers should scale back more overt attempts to target users, such as using names, in order to not disturb them.³⁴ Facebook, however, does not have the best record of keeping user information private, unintentionally (or perhaps intentionally) leaking the private information it collects to advertisers, private information that includes far more kinds of data than demographics.³⁵ Like users' inability to manage their own data, this leaking is simply a result of the inability of Facebook to manage user information, as well. Since all information on a Facebook page is ostensibly public, it's difficult to limit what could be used for ad targeting. Even information marked "private," or assumed private, can be

³⁴ Eric Eidon, "Facebook Emails Advertisers to Reassure Them About the Latest Privacy Changes," *Inside Facebook*, May 27, 2010, accessed October 4, 2011, <http://www.insidefacebook.com/2010/05/27/facebook-emails-advertisers-to-reassure-them-about-the-latest-privacy-changes/>.

³⁵ Wendy Davis, "Social Networks May 'Leak' Personally Identifiable Information," *MediaPost Online Media Daily*, September 25, 2009, accessed October 4, 2011, http://www.mediapost.com/publications/?fa=Articles.showArticle&art_aid=114344&passFuseAction=PublicationsSearch.showSearchReslts&art_searched=%22social%20networks%20may%22%20leak%20%22personally%20identifiable%20information%22&page_number=0; Emily Steel and Jessica E. Vascellaro, "Facebook, MySpace Confront Privacy Loophole," *Wall Street Journal*, May 21, 2010, accessed October 4, 2010, <http://online.wsj.com/article/SB10001424052748704513104575256701215465596.html>.

accessed if one either knows where to look or can hack the tools and algorithms Facebook has made public to advertisers and software developers. While Facebook does not allow the use of user information in targeted ads, many ad developers will often break the rules and nonetheless use this information in the creation and display of ads.³⁶ Various methods and techniques, some often not even particularly sophisticated, can be used to extract data from Facebook beyond the will of either Facebook or its users. The website Openbook, for instance, is a searchable database of public information posted to Facebook, connecting that information directly to Facebook users through the use of tools developed by Facebook for software developers to analyze supposedly anonymous user data.³⁷ Facebook denies that it allows personal information to be given to advertisers, but tools like Openbook demonstrate that it's not particularly difficult to attain "private" personal user data.

To assuage fears of the loss of control of personal information, the actual ads created by Facebook are not targeted all that directly. The information that Facebook accumulates does not seem to be used in the production of ads. Instead, ads are targeted using broad demographics that are not specific to individual human beings. For instance, in a technology question and answer column on *Slate*, one Facebook user asked why he was receiving gay-themed targeted ads in spite of not listing his sexual orientation on Facebook. According to a Facebook spokesperson, the original ad was probably targeted

³⁶ Robyn Reiss, "Improving the Platform Experience and Policy Transparency," *Facebook Developer Blog*, April 30, 2010, accessed October 4, 2011, <http://developers.facebook.com/blog/post/380>.

³⁷ "Openbook: Connect and Share Whether You Want to Or Not," *Openbook*, accessed October 4, 2011, <http://youopenbook.org/>.

to a wide range of people using vaguely defined demographic characteristics. It's entirely possible that the company running the ad "didn't choose to limit its ads just to gay people but, say, to all single men under 40 who live near San Francisco."³⁸ The analysis of social networks can predict sexual orientation among those who do not reveal it with surprisingly high accuracy (Jernigan and Mistree 2009). Yet, if Facebook claims are to be believed, these statistical analyses are not actually being used in the generation of advertising. And even if Facebook's PR representatives are lying about their use of user data, this only reaffirms the anxieties about data discussed above. Because one can be outed simply by their connections, data are understood to possess their own will, animated by the network, and beyond the control of the user. Because of these anxieties, Facebook either does not use user data in the production of ads, or explicitly misleads users about their systems for targeted advertising.

In spite of the lack of evidence that ads on Facebook are actually important to the company, advertising is still positioned as the primary economic thing that Facebook does. Through the discourse of Facebook employees, it's clear that they consider targeted ads and consumer services to be a primary goal of connection through social networks. "Good Ads Make for a Good Ecosystem," claims one Facebook Developer Blog post:

The Facebook Platform team is excited by the innovation we're seeing as developers create new ways to bring value to users. The canvas is yours to fill—your direct connection to users for delivering the experience you design... Developer monetization and the cultivation of a thriving, diverse ecosystem are important to us. Ensuring that users are comfortable with ads engenders more engagement and monetization for developers, and more traffic for ad networks

³⁸ Farhad Manjoo, "How Does Facebook Know I'm Gay? *Slate's* tech-advice column answers your questions about marketing on social networks, Gmail's deletion policy, and more," *Slate*, November 6, 2009, accessed October 4, 2011, <http://www.slate.com/id/2234734/>.

and their advertisers. With these steps we hope to improve the environment for all, as together we provide the best value for users and the best opportunities for everyone.³⁹

Ads, generated through automated programs that analyze user data, are positioned as essential actors in maintaining the “ecosystem” of the Facebook social network. They are natural entities, keeping money and information flowing to produce the thriving “organism” that is Facebook. Like the data users post on Facebook voluntarily, the connections between users are used in the creation of marketing data, either in the identification of places for possible consumption or tracking the tastes of groups of users identified by specific links assumed to indicate commonality.

As already seen above, the connections between users can be performed by the automation of online information. The entire process of memorializing the pages of deceased users was instituted because Facebook uses the images of the deceased to produce more connections between users. (Personally, I have had a deceased Facebook friend attempt to get me to “like” something in an automatically generated Facebook ad.) As these connections are made through algorithms based on data from status updates and “likes,” the connections are themselves often made by automated programs rather than people. And, again, since automated programs can generate data, then human beings aren’t particularly essential for the production of connection. Thus, in the generation of data, the production of connections between users, and the mining of that data and connections which are then commodified into consumer profiles, human beings are not intrinsically the focus. Instead, data, which can be automated and exist on its own, is the focus of the tools Facebook uses.

³⁹ Nick Gianos, “Good Ads Make for a Good Ecosystem,” *Facebook Developer Blog*, July 28, 2009, accessed October 4, 2011, <http://developers.facebook.com/blog/post/282>.

Ads, based on Facebook's data mining, are seen as the very forces that bring people together in the social network, connecting all through the "ecosystem" of Facebook. The sharing of data and the generation of "connections" through data is defined as an unequivocal moral good. In an editorial in the *Washington Post*, Mark Zuckerberg wrote, "we built Facebook around a few simple ideas. People want to share and stay connected with their friends and the people around them. If we give people control over what they share, they will want to share more. If people share more, the world will become more open and connected. And a world that's more open and connected is a better world. These are still our core principles today" (2010). While Zuckerberg's language may be utopian, in practice this sharing and connecting is part of a mostly automated system designed to deliver poorly targeted ads and create consumer profiles out of data that does not distinguish between living human and computer program. "Control" over what users share is not about personal control over data, but is about the potential to give over more data to the network itself. As the *Economist* explains, the "more people that join Facebook, the greater the insights the business will have into the nature of these relationships. And the more it knows about what matters to people, the better it should be at profiting from that knowledge" (Giles 2010, 6). The "it" in this statement refers less to the human beings that run Facebook than it does to a group of computer programs that are designed to analyze new ways of predicting data trends. And even though these programs are designed to figure out "what matters to people," it cannot do so without including automated programs that are designed to mimic people as well as the data of the deceased.

Through discourse directed towards software programmers on its Developer Blog, Facebook defines itself as an “ecosystem” that is maintained through advertising. The “life” of the Facebook “organism” is sustained by the connections and flows between data sets. These connections, ostensibly between different human beings, can be automated and exist after the death of the user or in the complete absence of a human user. The part of production in which human users are believed to participate, at least the human users exploited through “free labor,” is accomplished through information itself, which can exist and act independently of a human being. The “life” of the network does not require its users to be living, at least from a typical understanding of biological life. But the exclusion of humans is not only the case for the production of Facebook’s commodities. If the audience is what is bought and sold, then, assumedly, there would be some form of statistical mechanism for evaluating the effectiveness of Facebook’s targeted ads. Yet the effectiveness of these ads is measured in such a way as to be significantly influenced by bots. Not only are humans not necessary for the production of ads on Facebook, the consumption of these ads can be functionally accomplished without human users.

Consumption: Automated Data and the Evaluation of Advertising Effectiveness

The revenues generated through advertising on social networks are projected to approximate nearly two billion dollars by 2013 (Giles 2010, 17). As online marketing budgets are increasing, the way the effects of these ads are measured is still particularly poor. While there are a few marketing studies that demonstrate how the awareness of films increases after social networking campaigns (9), the success of most ads on social

networking are defined using two forms of measurement. First, in terms of page views or “hits”—a statistical measure of how many times a page was accessed. Yet this measure cannot indicate if an ad was even seen. Ads are often hidden and can be completely blocked through web browser plug-in programs, utilized by users who don’t find advertisements to be a necessary part of their own web “ecosystem.” Second, by click throughs—a term used to describe when an ad is clicked on, taking the user to the page linked by the ad. Neither of these actions requires a human user, as page views and clicks by bots are measured just like clicks from human users.

This use of bots is even referred to as “click fraud,” defined by the statistical tracking website Omniture as

the practice of using technology...to artificially inflate traffic data to defraud advertisers and web sites that provide venues for advertisers. The main goal of those engaging in click fraud activities is to click on advertiser’s links on search engines or web sites in order to maliciously drive...advertising costs higher for companies (many times competitors) and to falsely increase traffic...⁴⁰

As page views and click throughs by bots are often counted just like those of a human, much of the data on the effects of this advertising is actually based around automated software rather than human consumption. While metrics for evaluating page views and click throughs are often redesigned to separate the bots from the humans, the bots are then subsequently redesigned to pass for human once again. These numbers—or the inflation thereof—are also why Facebook continuously changes its privacy features.⁴¹ If

⁴⁰ Omniture, “Spiders and Bots: Preventing Click Fraud,” *Omniture White Paper*, September 7, 2007, accessed December 15, 2010, http://www.webmetric.org/white_paper/Spiders_Bots.pdf.

⁴¹ Ryan Tate, “Facebook’s New Privacy Controls: The Good and the Shameful,” *Gawker Valleywag*, May 26, 2010, accessed October 4, 2011, <http://gawker.com/5548496/facebooks-new-privacy-controls-the-good-and-the-shameful>.

more is made public, then there are more page views and more click throughs. There is also a greater possibility for bots to access pages, and, assumedly, more revenue as these figures are inflated. While Facebook would not agree that its practices are designed to encourage “click fraud,” the confusion of humans and automated data is inevitable on social networks. As this confusion actually increases the value of Facebook as its numbers continuously grow, the inability to distinguish between human and data intrinsic to social networking is implicitly encouraged through practices designed to maximize Facebook’s “shareholder value” even while it is still private.

The pages of the deceased, while unconnected with humans, exist as a necessary part of the way of generating revenue outlined above. Advertisements still exist on the pages of the dead. Their tastes are still used to generate consumer profiles. And their pages still serve as a kind of nexus for users and bots to trace connections and increase figures that generate more revenue. The network cannot distinguish between the two, regardless. It is in the economic interest of Facebook to keep these pages online, because the information uploaded by the deceased continues to generate value, in terms of marketing and advertising, as long as Facebook remains in control of this data. It is not in the interest of Facebook to let tools like Vanish and Suicide Machine erase the data, erase the links, and erase the possible page views generated by those who have died. Facebook makes money based on the accumulation of information and the generation of connections, the latter of which is defined entirely in terms of advertising—even though it is unclear if this advertising actually generates any real life consumer behavior or if it just generates hype about the massive data set Facebook has accumulated. Connections,

regardless, are understood as possible spaces for advertising. But neither information accumulation nor connection generation require living users. Facebook profits by turning personal information into money, and it does so in ways that create informatic abstractions that are then shaped into consumer profiles. This process, as well, does not require human users, but is automated through algorithms that analyze data while supposedly maintaining the privacy of individual users. As long as someone else owns the mechanisms through which our information is exteriorized, then, effectively, the remainders we leave behind when we die are “monetized” for the purposes of marketing and advertising—the effectiveness of which is measured in ways that can be hacked by autonomous computer programs. Humans are initially part of the circuit, at least most of the time, generating information in the first place. Yet they are gradually removed, barely necessary for the circulation of capital and the maintenance of a network.

Conclusion

Spinoza once asked the question, what can a body do? One such thing is clear—a body can die. But what can data do? Data can live forever. Data can act without conscious input from their creator, and often, it is believed, at cross-purposes of their creator’s own desires. In shows such as *Caprica*, and in techno-fantasies such as the so-called “singularity,” one must die so the other may live. The human and data are presented as antagonists, with either data attempting to annihilate humanity or with data as an evolutionary successor to humanity. This certainly informs some everyday anxieties about the networking of recorded data. But other anxieties, which resonate with comments from social networking users and the services they use to manage their online

lives, would be similar to those of Zadie Smith or Tom McCarthy—what happens when we cannot tell the difference between one who is living and one who has passed away? What happens if the representation of the body as data, as detached from the body, is one in which death cannot be represented? If it is, in effect, a difference that makes no difference? What happens when data is assumed to authentically represent the human, in spite of, or because of, its disconnection from the human body? Perhaps we can take the following from some of these anxieties discussed above: networked data cannot represent death, nor can they represent the body. We are not essentially connected or networked to our data. But, nonetheless, the contemporary discourse of social networking defines online data as a more essential representation of the human being than the body or consciousness. Our social networking profiles are more real than our conscious knowledge of our own selves. The anxieties of disconnection suggest a larger fear that humans are gradually becoming insignificant in the face of technological networks because data matters more than people.

With whom are we communicating when we communicate over social networks? I would suggest that we're communicating with data itself—not with any particular user that the data supposedly represents (cf. Myerson 2001). The afterlife of information on social networks shows us that, at a very fundamental level, data and the human body do not inherently correspond. This is a common attribute to media in general, as recordings always animate the traces of lives past. The optimism of technological utopians, however, is why death is key for understanding the meaning of near-totalized recording and the networking of data. The near-ubiquitous forms of recording, and the networking of that data, which is specific to the present moment, lead to a discourse in which recorded data

is a more complete representation of self than can be grasped through our own conscious understanding. For these authors, our true selves live on in the online cloud of information, disconnected from our bodies, beyond any possible conscious control from the user supposedly represented by that information. While this image of the future may excite some, it causes anxiety for many. If this discourse will, in part, shape the future possibilities and uses of recording technology, we must also understand how everyday anxieties will also come to define the future as well. The networked subject is one that connects and maintains flows—but, as this case demonstrates, this subject need not be a human being. Instead, the anxieties surrounding death and social networking reveal that a human subject today is one that must continuously manage her connections, making sure that she is valuable to the network by keeping capital and information flowing, or else she can potentially be discarded and cut off with no real effect.

Much that is written about the history of network technology and digital recording assumes the continued significance of the human. Yet there is ample evidence that technology does not actually need people. Data can, and does, exist independently of human beings. It can act on its own and can be identified as “human” using the techniques that are designed to make the distinction between the two. It can be mistaken for “real people” and is, in fact, constructed as being more “real” or “authentic” than embodied consciousness. The coming insignificance of humans is a belief central to the everyday anxieties about technology. Perhaps these anxieties should be taken seriously, insofar as they ground contemporary knowledge about subjectivity and identity of human beings “connected” to technological networks.

In the face of a networked totality, individuals do not matter. What matters is the persistence and management of connectivity and flow, both of which are tasks that can be delegated to technology and software. Human beings, in fact, are constructed as liabilities because they cannot manage connections and flows properly. This chapter demonstrates how we cannot assume connectivity to be a natural aspect of human existence. Social networks do not intrinsically connect human beings together in the name of nature. The next chapter investigates how human beings are explicitly constructed as liabilities in the face of a network. If a network connects all to all, then connection is also constructed as an inevitable downfall in the name of the human inability to control and manage flows.

CHAPTER FOUR

MANAGING FLOWS (AND CONNECTIONS): EPIDEMIOLOGY AND THE NETWORKING OF “CONTAGIOUS OBESITY”

The labor of concentrating and representing “a general sense of the body’s offensiveness” is not a form of employment that will seem archaic or exotic to large women in American society. It permeates the mis-en-scène of my dream, the store where “I was dubious about whether they would have any clothes that would be big enough to fit me,” whose implicit tension and dread must be resonant for almost any fat woman in this culture... Who you are and what you are means that there’s nothing here for you; your money is not negotiable in this place... this is...the precipitation of one’s very body as a kind of cul-de-sac blockage or clot in the circulation of economic value.

Eve Kosofsky Sedgwick (1993, 217)

You may not know him personally, but your friend’s husband’s coworker can make you fat... we now know that [through social networks] obesity is contagious.

Nicholas A. Christakis and James H. Fowler (2009, 110-111)

In Steven Soderbergh’s film *Contagion* (2011), Gwyneth Paltrow plays a character that, while in a Hong Kong casino, is infected with an unknown virus that resembles influenza. On the way back to the United States to her husband in Minneapolis, she has sex with an ex-boyfriend in Chicago. When she returns to Minnesota, she dies. These mundane acts initiate a global pandemic that kills millions worldwide. According to film critic David Denby, writing in the *New Yorker*, *Contagion* is “a highly controlled

film about an out-of-control event... [it] confronts reality head on; it's a brief against magical thinking."¹ According to Denby and other film critics, *Contagion* is a highly realistic depiction of a possible epidemic today. Global transportation networks connect everyone to everyone, making the spread of disease particularly virulent and the control of illness nearly impossible. In *Contagion*, according to Denby, the networking of the world and our "everyday streams of connection... become the vehicle of our destruction."

Soderbergh's film is not only about biological contagion. Among the taglines for *Contagion* are "Nothing Spreads Like Fear," and "Don't Talk to Anyone. Don't Touch Anyone." Soderbergh makes explicit parallels between the spread of disease and the spread of ideas through global communications networks. Jude Law's character in the film, Alan Krumwiede, is a blogger who appears repeatedly to accuse the Center of Disease Control of intentionally making people sick. Krumwiede is an object of scorn by the doctors and scientists trying to save humanity from an unknown disease. In the words of one, "Blogging is not writing. It's just graffiti with punctuation." His "contagious" spreading of fear through the Internet is just as much a part of the pandemic as the actual disease. Controlling and curing illness is equated to the controlling of language and communication.

According to network scientist Albert-László Barabási, the current ways we have of understanding epidemiology "were possible thanks to the wealth of data offered by the Internet, one of the most charted networks" (Barabási 2002, 142). The similarities between the network of the Internet and the networks of epidemiology—or the fact that they can be modeled using the same mathematical formulas—have been taken by

¹ David Denby, "Call the Doctor," *New Yorker*, September 19, 2011.

network theorists to mean that the flow of information over the Internet and the flow of illness in epidemiological networks follow the exact same structure. “If we want to understand life—and ultimately cure disease—we must think networks,” states Barabási (180). Steven Johnson (2002), the popular science and technology writer, has argued that the 1854 cholera epidemic in London is both the origin of contemporary epidemiology and of network theory. To understand the epidemic, early “epidemiologists” mapped the deceased and identified their material connections. The similarities between network theory and epidemiology have led Johnson to retroactively read the structure of the Internet onto social relations in Victorian London. Epidemiological contagion is held up by network theorists to demonstrate that our existence is essentially and naturally networked. As in previous chapters, evidence of networks in nature is used to legitimate claims that the Internet is a manifestation of the natural order of existence. And in *Contagion* and in the writings of network scientists, there is an assumed equivalence between the biological and communicative. Both are networked, both operate through the same means, and both must be controlled and managed because of totalized interconnection.

This chapter takes as its object the case of “contagious obesity,” the description of obesity through network discourse. Historically and popularly, it is assumed that obesity is not a contagious illness. Obesity does not follow the same epidemiological model as influenza or other diseases that incite global panics like that represented in *Contagion*. It is, in dominant depictions of weight, the result of an individual’s moral failings. But, when understood through networks, as it has since the early 1990s, obesity becomes a contagious disease. Obesity spreads and behaves like any other contagious illness. If

we're living in an obesity epidemic, this argument goes, then obesity can be explained through models of epidemiology that define society as a network through which illness flows.

The contagion of obesity takes two forms. In the first version, obesity is a biological illness. It is a symptom of a virus similar to those that cause the common cold. This discourse of contagious obesity, primarily found in the work of biologists Nikhil Dhurandhar and Richard Atkinson, was the first attempt at articulating the obesity epidemic with an actual epidemic. This version of contagious obesity was widely commented upon in British popular culture, culminating with a Channel 4 documentary on Dhurandhar titled *Fat Plague*. In the second, obesity is a cultural illness spread through social networks and network technologies. Individuals gain weight because of the flow of normative beliefs through social connectivity, including connections mediated by technology. The spread of obesity can be between people who neither know each other nor are close geographically. This discourse is associated with the work of Nicholas Christakis and James Fowler. Their work has been massively influential. Their book on social networks, *Connected* (2009), has been one of the best-selling nonfiction works on networks and network theory to date. In popular culture, the duo's research was referenced, among other places, in the comic strip *Cathy* and the television show *Boston Legal*. And, most significantly, their research has been actively embraced by both major British political parties in the creation of public health policy. In both of these discourses, obesity is contagious through the networks and connections that bring humans together.

When networks explain illness, *obesity becomes a sign of the inability to manage connections and flows properly*. There are three types of flows associated with

contagious obesity. They are biological, in terms of the illness that is spread throughout an epidemiological network. They are informational, in terms of the communicative and technological flows that spread beliefs and norms about obesity. And they are economic, in terms of the public funding of health care. In the discourse of contagious obesity, as it is in *Contagion*, the inability to manage these connections and flows has one ultimate outcome: ruin.

As suggested above, this is not just about health. In Eve Kosofsky Sedgwick's nightmare, being fat is constructed as "the precipitation of one's very body as a kind of cul-de-sac blockage or clot in the circulation of economic value" (1993, 217). The management of contagious obesity, following network models, has been enthusiastically advocated by politicians in the United Kingdom as a way to lower the operating costs of the National Health Service. In Canada, newspaper editorials claim that the cost of obesity is an excellent reason for completely dismantling nationalized health care. Overweight individuals are trotted out in news stories as examples of blights feeding off of the taxes, insurance fees, and goodwill of the people, absorbing capital that could be going elsewhere. The fat person is a threat not only to the biological well-being of society, but also to its economic well-being. Like apoplexies in the networks of anatomy, fat is constructed as a visible symptom of the failure of economic circulation.

Historically, the visible manifestation of body size has been warrant enough for marginalization of the fat person in Western culture. This marginalization is always based in failures of morality that are articulated to either individual behavior or group identity. The discourse of contagious obesity, however, disarticulates behavior, visibility, and population from obesity, as a result making the management of a population the same as

the management of a network that includes the totality of people on the planet.

Everybody is a threat. Like Gwyneth Paltrow in *Contagion*, those to be feared are located in the center of the network rather than its margins.

The threat of connectivity is not a matter of personal connection to a networked “self” or subject, as was the case with the last chapter. Being connected is not what must be managed. Instead, it is the biological, economic, and communicative flows that must be regulated. Those around you, connected to you, are positioned as people that could directly cause you to increase in weight. The management of weight is not only about the management of one’s individual behaviors, but is about the management of the entire network. My personal health is coextensive with the health of every other person to whom I am connected. Totalized connectivity is assumed as an *a priori*. This is actually a radically different notion of contagion than the one usually propagated in epidemiology and public health. Historically, epidemiology targets a specific population—usually a population already marginalized by dominant discourses—and excludes or quarantines that population as risky or unsafe. On a network, there is only one population. Everyone is risky or unsafe.

In what follows, I first cover how obesity is demonized both historically and in contemporary culture as an illness. Obesity is usually understood not as a contagious illness, but as a moral failing. Second, I move to how networks in the discourse of contagious obesity challenge traditional models of health and social connectivity. The two models of contagious obesity transform epidemiology’s understanding of disease and infection by applying networks, connection, and flow to that which was previously thought to be a matter of individualized self-discipline. When networked, obesity

becomes a health problem that affects the totality of the network. An individual's health corresponds to the health of the totality. Finally, I conclude with the economic embrace of the discourse of contagious obesity and the rejection of social connectivity more broadly. If health must be managed at the level of the totality, then individuals will inevitably fail to manage their health and the health of others. If everything is connected, then individualized strategies to manage health are impossible. This discourse is used to legitimate the elimination of nationalized health care in countries such as Canada and the United Kingdom.

Obesity in History and the Present

Applying network discourse to obesity challenges long-standing beliefs about what fat is and why people get fat. Thus, we must first describe and contextualize traditional beliefs about obesity. This is especially important, as even though we are supposedly living within an "obesity epidemic" there is no evidence that fat, in and of itself, is detrimental to anyone's health (Campos 2004; Oliver 2006). Thus, the demonization of fat is not about health. It is instead about an ideal of individualized self-management. In this traditional discourse of obesity, those who are fat cannot manage themselves. As I'll discuss below, the networking of contagious obesity challenges this discourse. And yet, in the discourse of politicians about national systems of health care, it returns rearticulated and more powerful.

The public health research that statistically correlates obesity and mortality is often based on the distortion and manipulation of statistics (Campos 2004; Oliver 2006). The number of individuals considered overweight and obese has increased, in part,

through the historical rewriting of normative coding schemes for weight—namely the Body Mass Index, or BMI scale. The BMI scale was initially devised by a life insurance agent to calculate the economic value of a life. In spite of over a century of scientific research on body size, there is no agreement, or even explanation, for why people gain or lose weight (Pool 2001). Evidence suggests that dieting is more damaging to one’s health than maintaining a steady weight, even one that is considered overweight (Campos 2004). Yet, almost uniformly, fat people are perceived as disordered and sick. According to dominant perspectives on health in the United States and elsewhere, the mere representation of fat in popular culture is understood to legitimate behaviors that clearly lead to death.

According to Kathleen LeBesco, much discussion of the obesity epidemic can be understood through the model of a “moral panic,” in which “we point the finger at individuals who we understand to be lazy, out of control, without will, ignorant, or some combination thereof” (2010, 73). Obesity has always been understood in terms similar to other infectious diseases. Both are understood as the result of a moral failing on part of an individual or group of people (Sontag 1989, 57). Even in cases in which the sick individual did nothing to get sick, she is still made to feel as if sickness were her fault. In Western culture, obesity has long been a symptom of the moral impoverishment of an individual. The identity of a fat person, as fat, marks that person as other. The obese are “bad citizens” to be feared, even when their disease is not understood as contagious. Since the mid-19th Century, they have been “a danger to themselves as well as to others.” (Gilman 2008, 4). Fat people were seen as those who would be unable to fulfill civic duties such as military service and would require additional state support—blockages in

the circulation of capital for the welfare state. Ultimately, discrimination against fat people is a result of moral imperatives handed down from protestant virtues of restraint and moderation. Bad citizens are unable to watch their weight, gluttons who consume more than their fair share. Proper citizens are moderates, managing what they eat, remaining healthy. Flows of food and energy must be managed properly to live a virtuous existence. From early on in the pathologization of obesity weight was articulated to the management of flows, be they either of capital or of calories.

The historical discourse about weight in Western cultures suggests that the obese are entirely at fault for their moral failings. Obesity is not the result of some metaphysical or spiritual sinfulness, as is often the case with other diseases (Sontag 1989). It is the result of very real, controllable actions that the fat person cannot manage. Since obesity has never been traditionally understood as contagious, attributing the term “epidemic” to obesity has met a great deal of resistance. “Obesity is not contagious,” claims an editorial in Australian newspaper *The Age*, “when one person overindulges on fast food, their colleagues and neighbours aren't put at risk. And, in 2008, nobody orders pizza without being fully aware that cheesy crusts can lead to weight gain.”² In dominant discourses about obesity, the increase in weight associated with the obesity epidemic is a reflection of widespread, if individualized, moral failings. “Our stunning growth of girth is part of a culture of self-indulgence,” according to the *Washington Times*. “We want everything; we want it now; and we aren't willing to pay the consequences. We want a free lunch and

² Chris Berg, “The Case Against: Tackling Obesity—Should the Public Pay?” *The Age*, January 6, 2008, 4.

without any calories.”³ Individual restraint and a return to protestant virtues of moderation and work are the only ways to counteract the rise of obesity. Body size is again directly associated with economic self-management. One who is overweight is also one who is lazy and wants things to come “free.”

In the United States alone, obesity is claimed to kill up to 400,000 people each year. Over 60 percent of Americans are considered to be overweight, and a quarter of the population is believed to be obese. These numbers seem to be getting worse. Obesity is said to cause, among other chronic illnesses, heart disease, diabetes, and cancer. It supposedly costs over 100 billion dollars per year in health care expenses. The increasing weight of the American population is even perceived as a public health threat that will eventually take over and destroy the entirety of American health care infrastructure (Oliver 2006, 1). The statistical support for the obesity epidemic misidentifies deaths from illnesses perceived caused by obesity (i.e. diabetes, heart disease) with obesity itself. A death from diabetes is assumed to be a death caused by fat, even in spite of the fact that there is no identifiable causal link between obesity and diabetes. Those, such as anorexics and athletes, who have extremely low body fat, are at equal risk of developing diabetes as an obese person (Wood 2006, 7). Even if these individuals with low body fat die from diabetes, their death is statistically lumped together with those caused by obesity.

As Sander L. Gilman has put it, “Obesity is not itself a disease but rather a phenomenological category that reflects the visible manifestation of body size, which can potentially have multiple (as well as multifactorial) causes. No one dies from obesity”

³ Michael Fumento, “Obesity Obeisance,” *Washington Times*, October 15, 1997, A19.

(Gilman 2010, ix). There is greater evidence to suggest that dieting and bariatric surgery (gastric by-pass techniques such as stomach stapling) are more damaging to one's health than maintaining a steady weight categorized as overweight or obese (Campos 2004). While lack of exercise can be statistically linked to health problems generally associated with obesity, there is no evidence that obesity, in and of itself, is actually a cause of concern when it comes to health aside from issues of arthritis and joint pain. Alternative models of public health, such as "Health at Every Size," remove body size from medical judgments about health (Burgard 2009). Since health cannot be statistically correlated to weight, then public health should focus on activities and behaviors that can be correlated to health without using weight as a gauge or standard of health. It is entirely possible for someone to exercise, eat well, and still be fat. This is because fat has nothing to do with the actual health of an individual.

"Infectobesity": Obesity as a Virus

While there is no evidence to suggest that obesity warrants that much attention as a public health problem, it has nonetheless persisted as something to mark people as other in Western culture. The stigma of weight is not about poor health. It is about the perceived inability to manage one's body. In making obesity contagious, however, weight is disarticulated from discourses of individual morality. Instead, obesity is a symptom of social connectedness. Its only possible management exists not at the level of the individual, but at the level of the network as a whole.

While the term "obesity epidemic" has been around for decades, it usually referred to the massive increase in numbers of those marked as obese over the years.

Obesity was not thought to obey the assumptions of epidemiology until biologists Nikhil Dhurandhar and Richard Atkinson first argued that a virus causes obesity. In a paper delivered at a 1997 conference on experimental biology, Dhurandhar and Atkinson made the claim that obesity was directly caused by Adenovirus 36 (Ad-36), a virus similar to the common cold (Gilman 2008, 22-23). An essay written several years later by Dhurandhar, “Infectobesity” (2001), argues that infectious viruses, while not the sole cause of obesity, should be taken seriously as a potential source of the “obesity epidemic.” The articulation of obesity to a contagious virus lends support to the belief that the obesity epidemic is, in fact, an epidemic. In their work, Dhurandhar and Atkinson first articulated obesity in terms of biological networks, connections, and flows. But the discourse surrounding the contagion of this specific virus is also understood to remove moral blame from fat people, violating the narratives of epidemiology and the historical construction of obesity. Instead of personal moral failings, infectobesity identifies *any and all* physical contact and connection as possible source of biological contamination. In Dhurandhar and Atkinson’s work on obesity, everyone is a potential source of illness.

If obesity were an epidemic, then one would assume it to conform to dominant narratives of epidemiology. According to Philip Alcabes, “To study how epidemics work was, and still is, to explore how society keeps the wealthy separate from the hungry. The science of epidemiology was born of this realization.” (2009, 47). The term “epidemic” in the West is one that carries with it a division between the worthy and the unworthy, the moral and the immoral, that dates back to early Christianity and the treatment of leprosy (30; cf. Foucault 2006). Naming something an epidemic necessarily carries with it implications that a certain population should be separated and cut out of the rest of

society because of their moral impoverishment. Sickness is the result of unsavory populations mixing and connecting with the “pure.” The construction of a disease as a moral failing reassures the “well” that they are morally pure as well as biologically pure.

With AIDS, epidemiology shifted from blaming poor and “dirty” populations for their illnesses to blaming individuals for having non-normative identities and lifestyles that involved behaviors coded as inherently unhealthy (2009, 157-165). As Paula Treichler (1999) has shown, believing that certain lifestyles and behaviors were more or less risky than others shaped the performance and funding of public health research on AIDS. The very study of epidemiology has, at its heart, a fear of interaction and connection. It is based on the assumption that specific groups of people can be marked as other. The health of the population will be maintained through the exclusion of these groups. As was the case with AIDS, these assumptions can blind public health scholars to larger health issues at hand, distorting the disease (and ignoring it) because of how epidemiology understands populations and contagion. Unlike the historical characterization of obesity, these moral failings are not understood as the failings of individuals, but as failings of groups of people. Prior to AIDS, these groups were condemned for a kind of metaphysical or religious sinfulness. After AIDS, this sinfulness was articulated to specific behaviors common to a specific population.

The narratives of epidemics define contagion through connective social networks (Wald 2008). The possibility of contagion is the verso of the connections produced through community and technology. These epidemiological narratives nonetheless identify a specific population as the cause of an infection’s spread throughout the network. According to Pricilla Wald, disease “dramatizes the dilemma that inspires the

most basic human narratives: the necessity and danger of human contact” (2).

Epidemiology reveals the social networks that supposedly ground contagion. The practice of epidemiology traces human interaction, often facilitated by contemporary transportation networks, to determine where an illness originated and, at least supposedly, where it may go. In the process, epidemiology uncovers social networks and social connections that are often invisible. But it does so to control and manage future possibilities for connectivity, marking populations to be excluded from the social to maintain the safety of others.

The narrative of contagious connections is what Wald refers to as the “outbreak narrative.” The outbreak narrative highlights the anxiety about connection and disconnection intrinsic to a world defined by networks. Epidemiology traces the global networks that connect all to all, while specifically pinpointing people and populations that must be excluded to maintain the health of the rest of the network. Epidemiologists follow a relatively standard script when describing how diseases move throughout different populations. Even in a globalized world defined by networks of transportation and global interconnection, epidemiologists still look for carriers that signify the mixing of populations that should otherwise remain separated. Epidemiology simultaneously tells us about global interconnection and marginalizes an “infectious” population as other, to be quarantined and excluded. Epidemiology, thus, is not simply a tracing of networks, but tracing them insofar as they can delineate a necessary exterior to community. The contagious are understood as other, relegated either to the margins or to the outside, through which the center and community are thus constituted (cf. Agamben 1998; Cohen 2009; Esposito 2008; Foucault 2003).

This boundary assumed by epidemiology—and the ability to identify the other to be excluded—is exactly what is challenged when obesity is articulated to a virus. How Dhurandhar and Atkinson define contagious obesity challenges both the outbreak narrative as well as the historical understanding of obesity and disease. They remove both population and behavior from the contagion of obesity. While making obesity a virus permits it to be described using the language of epidemiology, the specific way that contagious obesity is constructed makes it impossible to define an other that can be isolated and separated to maintain the boundaries of the well.

Dhurandhar and Atkinson’s argument was developed from decades of research on the effects of Adenovirus-36 in chickens, mice, and monkeys. According to the scientists, Ad-36 made these animals fat by stimulating the growth and reproduction of new fat cells, or adipocytes, as well as speeding up the growth of fat cells that already existed in the animal’s body. An Ad-36 infected animal could have up to three times as many fat cells as one not infected (Gilman 2008, 22-23). Dhurandhar has been cautious about suggesting that Ad-36 causes obesity in humans, claiming, “Everybody wants me to say this virus causes obesity in humans for sure. I’m not prepared to do that yet.”⁴ Nonetheless, this has not prevented the two from making causal claims. “If you are obese and you test positive [for adenovirus antibodies], there is a good likelihood that your obesity, in part, is due to the virus,” stated Atkinson. “If you are not fat and you have got the antibodies, then the chance of you getting fat is about 60 to 100 per cent.”⁵

⁴ Victoria Button, “Obesity Linked to Virus,” *The Age* (Australia), August 5, 2000, 5.

⁵ Marnie McKimmie, “Contagious Virus Can Make You Fat,” *West Australian*, July 20, 2005, 13.

An adenovirus is transmitted like a common cold or influenza. It is often mistaken for those illnesses. Advice from the researchers studying obesity and Ad-36, along with the usual directives to watch one's diet and exercise, includes "washing your hands" as a way to prevent obesity.⁶ Other preventative measures advocated by Dhurandhar and Atkinson include how governments should "start screening blood donors for the virus because it remained infectious even after being stored for a long time." Blood transfusions could lead to obesity through the transmission of Ad-36 and its antibodies. In this discourse, obesity is exactly the same as any other common illness. The strategies for preventing illness are exactly the same as those for preventing colds, influenza, and a number of other illnesses.

These strategies would seem to marginalize the contagious other in the same way that epidemiology has historically. Yet avoiding the overweight does not change one's risk of catching obesity. At least in the case of animals, those who had grown fat were no longer contagious. Atkinson takes this to mean, "A fat person who's gotten fat because of this virus isn't going to hurt you. *It's that skinny guy with a cold who's sneezing on you. Watch that guy. Discriminate against him.*"⁷ The phenomenological category of obesity is removed from the diagnosis of contagious obesity. Fat may be contagious, but fat people are not the ones who spread it.

In the dominant discourses surrounding obesity, there is a clear population that is at risk, vilified and separated out from others. Yet, in labeling Ad-36 as a cause of

⁶ Christine White, "Wash Your Hands for A Slimming Effect," *Weekend Australian*, February 4, 2006, 31.

⁷ Button, "Obesity Linked to Virus." Italics added.

obesity, Dhurandhar and Atkinson have subverted this entire narrative. While their articulation of a virus and obesity pathologizes obesity in a way previously unthought-of, literally treating obesity like a cold, their conclusions nonetheless remove moral blame from contagion. A fat person is fat not because they possess any sort of essential moral failing, not because they lack will or self control, and not even because their lifestyle is defined by unhealthy behaviors. Those who are contagious are, in fact, those who are not fat and do not exhibit the supposed symptoms of moral failing. The entire narrative of contagion defined by Dhurandhar and Atkinson turns anyone who appears to have the symptoms of a cold or the flu into potential carriers, regardless of body size (though Atkinson does single out skinny people). In other words, physical connection to *any* other human being could possibly lead to obesity.

The way in which Dhurandhar and Atkinson's research has been taken up in the press is often reported with a fair degree of incredulity, in particular in the United Kingdom where it has attracted the most popular notice. "You Ain't Fat, It's Just a Tubby Bug," ran a headline from the British tabloid *The Sun*.⁸ A Channel 4 television documentary that focused on Dhurandhar's research, *Fat Plague*, was reviewed in the London *Times* with the following suggestion: "Eat healthy food, take exercise and avoid programmes that offer an easy way out." In the perspective of the reviewer, Dhurandhar's research was just an excuse for gluttony and sloth.⁹ Another British editorial on the scientists' work sarcastically responded by asking, "Isn't it curious, though, how people

⁸ John Coles, "You Ain't Fat, It's Just a Tubby Bug: Virus Causes Obesity Says Doc," *The Sun*, January 26, 2009.

⁹ David Chater, "Television Choice," *The Times* (London), January 4, 2003, 43.

who live entirely on takeaways, chips and fizzy drinks seem to be much more susceptible to this virus than people who prefer broccoli to burgers? Hmmm. Let's hope the Government orders an immediate investigation into why this is the case."¹⁰ The arguments of Dhurandhar and Atkinson are interpreted as removing moral blame from those who possess a lack of will and absence of self-control. An editorial from the British tabloid *The Mirror* also took the news of an obesity virus with a dose of sarcasm. Two weeks after being sneezed on in the supermarket, the author claimed, "I haven't developed a cold or flu but I have put on more than half a stone in weight. This has nothing whatsoever to do with the massive amount of food I've eaten or the vast quantity of drink I've washed down. Nope, it's all the fault of the man in the supermarket... No more diets. No more gyms. No more glands. No more self-discipline."¹¹ Making obesity contagious is simply another way of blaming others for one's own problems. As it was for those discussing networks in the early 20th Century, connectivity is assumed to negate personal autonomy and self-determination.

This popular rejection of Dhurandhar and Atkinson's research is not surprising. Defining obesity as a contagious disease does two things. First, it pathologizes obesity as a genuine illness that is highly contagious, manifesting itself outside of the phenomenological category that is understood to characterize obesity. Second, it then violates how epidemics are understood discursively because it empties obesity of any specific blame, at least in terms of how that blame is traditionally understood. In the words of Alcabes, "when there is nobody to blame, we do not apply the epidemic label"

¹⁰ Julia Hartley-Brewer, "Editorial," *Express* (UK), August 26, 2007.

¹¹ Pappa Sibley, "Fat Chance of Catching Bug," *The Mirror*, January 8, 2003, 17.

(2009, 52). If obesity is an epidemic then somebody should be at fault. There must be a population that can be excluded in order to maintain the health of the dominant. Yet, in this case, the ones at fault are not the obese. When fat people cannot be blamed for being fat, then the narrative of contagion ceases to make any sense because nobody can be identified as a carrier of illness to be excluded. Ad-36 demonstrates that if moral demonization of a population is impossible, then everyone is potentially at risk. *Specific* human connections cannot be managed. The maintenance of illness cannot work by targeting and isolating a specific population. *Any and all* human contact is something to be managed as viruses and epidemics—not only obesity but also recent panics, such as the one over H1N1 influenza—become detached from populations considered other or non-normative.¹²

In an essay from the Canadian newspaper *The Globe and Mail*, commenting on the popularity of labeling nearly anything contagious, an editorialist writes:

this world we live in is rife with the possibility of contagion... we each sit at our own tables, texting in messages to others who aren't there in front of us instead of actually talking, which risks an exchange of something gross and human, like spittle... Wireless mobility has been sold to us as a way to stay connected, but increasingly we use it as a talismanic protection against the possibility of infection—a wreath of digital garlic with which we can isolate ourselves.¹³

¹² Influenza is particularly interesting because there are clear attempts to make it conform to the outbreak narrative. In the United States, recent influenza epidemics are often claimed to originate in Mexico or Southeast Asia. They are the result of illegal immigrants, global poverty, and the consumption of “strange” foods. There is little evidence to actually back up these claims. It seems more likely that recent influenza epidemics may have originated within the United States. Regardless, epidemiology’s obsession with origin stories almost uniformly vilifies specific groups of people. See Kolata (1999).

¹³ Karen von Hahn, “Fear of Contagion is Catching On,” *The Globe and Mail*, September 19, 2009, L4.

Technology appears to be a “clean” savior to produce a pure network separated from the dirty one of physical contact. The narratives told about disease today no longer tell the dominant of their purity while making the sick and poor feel guilty for their own sickness. The exterior cannot be successfully constituted in discourses of contagion such as that of Ad-36. The rich and the privileged must guard themselves against any and all contact—both between other humans and between humans and objects. Ad-36 is transmissible through anyone—and the ones you may least suspect (i.e. thin people) are the most likely to make you sick.

What this author overlooks is how contagion doesn't simply mean contagion via bodily fluids, spittle, and germs (Wald 2008, 12-13). Technology, while it may save us from contacting other bodies, cannot save us from contagion. Contagion also refers to the flow and movement of communication and ideas. Any form of connection and flow can be theorized as a possible source of danger, and the contagion of obesity is no exception. Making obesity a contagious virus also transforms any connection into something to be feared. The networks of contagious obesity are not only biological, but are cultural and communicative. While the biological contagion of obesity may be ridiculed in popular newspapers and tabloids, governmental policy makers have embraced the discourse of contagious obesity through communicative social networks. It is to how the discourse of contagious obesity moves beyond biological contagion to which we will now turn.

Social Networks of Contagious Obesity

“It has become very popular to speak of the obesity epidemic,” states medical sociologist Nicholas Christakis in the Australian newspaper *The Courier Mail*. “We

began to wonder if it is truly an epidemic.”¹⁴ Unlike Dhurandhar and Atkinson, Christakis and his collaborator, political scientist James Fowler, are not interested in the biological contagion of viruses. Christakis and Fowler study the contagion of ideas and norms through social networks. If the history of epidemiology found networks at the heart of contagion, then that which is networked in general can also be thought of as contagious like a virus, even if it is not spread through a virus.

Biological contagion was limited to the flows enabled by physical contact. Associating disease with social networks makes infection a possibility of any and all connection—although it also saves the outbreak narrative in a specific way. Contagious obesity over social networks makes the focus of management not simply one’s personal connections, but the entire network as a totality. Like Ad-36, everyone connected on the network is constructed as a potential spreader of disease. Specific populations cannot be marked as other to be separated out. There is no conception of population on a network. There is only a single totality. Yet the outbreak narrative is reintroduced at the level of individuals. Specific people are marked as those who cannot manage connections and flows—not personal connections and flows, but connection and flow as such, beyond the personal and through the entire network. These specific people are ones targeted by public health campaigns. The focus of management is not only my own connection to other people, but also everybody’s connections to everybody else.

Christakis and Fowler draw directly on the mathematical models of network science in their epidemiological studies of obesity. The accounts of epidemiology in

¹⁴ Maggie Fox, “Science Has Flown a Man to the Moon, Cured Many Deadly Illnesses and Mapped the Human DNA, But Now Its Most Startling Discovery... Your Friends Might be Making You Fat,” *The Courier Mail* (Australia), July 27, 2007, 23.

network science are remarkably tone deaf, shot through with narratives that embrace discriminatory and stereotypical language to understand contagion—although they resonate closely with how Wald defines the outbreak narrative. They tend to begin with discussions of AIDS and then branch out elsewhere to other phenomena that could be considered “contagious,” suggesting the parallels between the two mathematical models for both phenomena mean, at a fundamental level, the nature of both is identical.

Albert-László Barabási opens the chapter on epidemics in his book *Linked* with the story of Gaetan Dugas, the flight attendant labeled “Patient Zero” of AIDS. His narrative explicitly characterizes Dugas as narcissistic and self-absorbed, as one who infects others with little regard for much of anything. “Gaetan Dugas had everything he could wish for, and he knew it. With a wardrobe culled from the trendiest shops in London and Paris, and a well-built but not muscle-bound body, he was a standout in any club,” Barabási begins. Yet, “[despite] his narcissistic perfection, Dugas began developing a taste for the darker houses that revealed little of his mesmerizing physical characteristics... One night in 1982, as he prepared to exit...he switched on the lights, slowly turned towards the man he had met a few minutes before and immediately had sex with, and pointed to the purplish spots and bumps on his face. ‘I’ve got gay cancer,’ he said. ‘I’m going to die and so are you’” (2002, 123). Likewise, in Duncan Watts’ account of the mathematics of epidemics (2003, 164), Dugas is singularly blamed for bringing AIDS to San Francisco from Africa, though Watts avoids stressing the stereotypes and characterization that Barabási uses to critique the morality of Dugas, or supposed lack thereof. Narratives of Dugas in the books on networks are almost identical to those Wald has identified in her critique of the outbreak narrative when applied to AIDS.

Transforming Dugas into “Patient Zero” reduces the human into little more than a malicious carrier intent on connecting, spreading, and killing through social networks. According to Wald, in the narratives of Dugas, “Humanity drains from the gay French Canadian flight attendant...as he metamorphoses into the familiar human-virus hybrid, haunting San Francisco’s gay bathhouses, intent on ‘converting’ as many unsuspecting victims as he can find” (2008, 215-216).

In narratives of networks, Dugas is not only reduced to a hub through which disease flows, but the entire narrative of contagion is reduced to a mathematical formula that can explain any and all interaction over networks as contagious. Barabási, immediately after discussing Dugas, moves to a discussion of the “contagious” spread of a cartoon over the Internet. Both “are examples of diffusion in a complex network. AIDS spread following the links of the intricate sexual network of the 1980s, aided by the emergence of a highly sexually active gay culture. The...cartoon spread instantly through the entangled network of computers, aided by our ability to read our friends through e-mail. Both, however, followed the same fundamental laws governing the spread of fads, ideas, and epidemics in complex networks” (2002, 126). Duncan Watts moves from discussing AIDS to a discussion of computer viruses, equating the two as functioning according to the same models (2003, 162-194). Because networks are posited to explain any and all form of connection and flow, the same fundamental model for disease and technology is posited to explain both. Any attempt to understand how disease is lived and how the “sick” are vilified is excluded from the outset.

The discourse of networks makes contagion a general term for the movement of flows. Thus, anything that could be modeled using mathematical models of networked

flows could also be described as contagious. The assumption that people are connected in a network is foundational for the application of network models of epidemiology to the diffusion of information over the Internet. Both are constructed as working according the same model. This conflation of networks and illness also makes contagious disease out of that which is typically thought to be a result of individual behavior. According to Christakis, for instance, “it seemed to me that if people are interconnected, their health must also be interconnected” (Christakis and Fowler 2009, ix). With the discourse of networks, illnesses not normally thought of as contagious could be made to be so. Problems usually understood as the result of individualized human behavior and psychology—obesity, smoking cessation, suicide, and depression, among others—were also contagious in the model of networks that Christakis applied to public health.

Christakis, along with James Fowler, applied these mathematical network models to a massive longitudinal data set—the Framingham Heart Study, from Framingham, Massachusetts, which included 12,067 individuals tested repeatedly from 1971 to 2003. Over time, the prevalence of obesity spread throughout the social network in such a way that “social distance” appeared to be more important than “geographic distance” (2007, 377). Obesity followed a network model for epidemiology, spreading outward through the connectivity of personal relations over time. Links had nothing to do with the sharing of space or physical contact. Obesity was spread through the sharing of friendship. While not a virus, obesity was still “socially contagious” for Christakis and Fowler, moving through social networks via changing social norms. Obesity is transmitted though the flow of “ideas rather than by shared behaviors” (2009, 127). There was no evidence that the increase of weight gain throughout the network had anything to do with consumption

patterns or personal actions, such as sharing meals. The spread of these social norms had nothing to do with personal proximity. Network effects still existed after people moved away from Framingham to other parts of the country. Social connections were, thus, networked communications that could enable the flow of these social norms. Obesity was something “caught” through the interpersonal connections between people, often maintained through technology rather than through physical proximity or contact.

Christakis and Fowler deny that this phenomenon is the result of fat people spending time with other fat people. According to Christakis, “It is not that obese or non-obese people simply find other similar people to hang out with. Rather, there is a direct, causal relationship. What appears to be happening is that a person becoming obese most likely causes a change of norms about what counts as an appropriate body size. People come to think that it is okay to be bigger since those around them are bigger, and this sensibility spreads.”¹⁵ These contagion effects are not directly person-to-person. They exist at the level of three degrees of separation. Christakis and Fowler found that if “your friend’s friend’s friend gained weight, you gained weight” (2009, xi). Much like Dhurandhar and Atkinson’s research, the contagion of obesity cannot be managed at the level of specific personal connections. Instead, it is in the very nature of connectivity that possible “disease” is everywhere. What must be managed is far beyond the personal.

The management of weight in social networks is not about managing the self or managing one’s personal connections. It is about managing the totality of all possible connections and flows that make up the social network that connects everybody to

¹⁵ Fiona MacRae, “Friends Who Can do You a Fat Lot of Good,” *Daily Mail*, July 26, 2007, 21.

everybody. Even if contagion effects only occur between three degrees of a network, it is impossible to effectively place limits on a network, as everyone is nonetheless connected into one singular network. In Christakis's words, epidemiology and public health, when viewed through social networks, reveal how people "are embedded in a vast and complex social network of ties to their friends, family, coworkers, and neighbours and, through those individuals, in turn, to their friends, family coworkers, and neighbours, *and thence on outwards, endlessly, into a vast fabric of humanity*" (Christakis 2008a, 1468, italics added). Health is coextensive with the totality of humans on the planet, and the management of health involves the management of the entire network.

After the publication of Christakis and Fowler's original article a number of references to it appeared in American popular culture. On an episode of the television show *Boston Legal* ("The Object of My Affection" 2007), William Shatner's character, a lawyer named Denny, tells another lawyer, Carl (played by John Larroquette), that he had to fire a colleague because of her weight. Referencing Christakis and Fowler's study, Denny states, "Obesity is a disease... I had to fire her, I couldn't risk catching it... Fat people gotta go, Carl! They're contagious!" The comic strip *Cathy* interpreted the study by having three friends all order "a small dry salad and a cup of water" for each other at a meal (Figure 8). These examples demonstrate two techniques related to the management of connection when it comes to contagious obesity over social networks. In *Boston Legal*, the solution is to cut out anyone labeled contagious, a technique that resonates with the historical construction of epidemics. In *Cathy*, the solution is to manage not only yourself, but also everyone you know as well—the strategy suggested by network scientists.

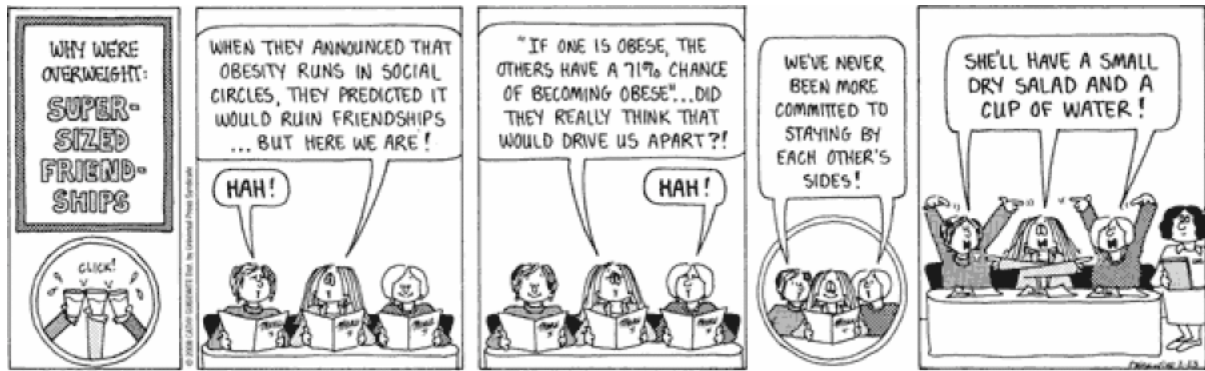


Figure 8: *Cathy* and socially contagious obesity. Source: Cathy Guisewite, *Cathy*, <http://www.gocomics.com/cathy>.

These former fears, represented in *Boston Legal*, are echoed in much of the popular reporting on Christakis and Fowler’s research. A vox populi column in the *Toronto Star* featured one Canadian stating, “If obesity was contagious I would have no friends.”¹⁶ An article on the duo’s research in *The Scotsman* was titled, “Putting on Weight? Blame Your Fat Friend.”¹⁷ One from *The Australian* came with the title, “Beware Friends and Family, Obesity is Catching.”¹⁸ Because fat friends will inherently prevent you from losing weight, an article from the *Montreal Gazette* stated, “individuals have two choices: continue exercising despite the friendly push back [and fail] or find a new set of friends who share the same set of norms.”¹⁹ When obesity is contagious, one

¹⁶ “Do You Think, As a Recent Study Suggests, That Obesity is Contagious?” *Toronto Star*, July 20, 2007, AA08.

¹⁷ Lyndsay Moss, “Putting on weight? Blame Your Fat Friend,” *The Scotsman*, July 26, 2007, 13.

¹⁸ Christine White, “Beware Friends and Family, Obesity is Catching,” *Weekend Australian*, July 28, 2007, 29.

¹⁹ Jill Barker, “Are Exercise Habits Contagious?” *The Gazette* (Montreal), March 16, 2010, C4.

should intentionally cut out those who are fat from social connection. As the *New York Times* put it, “People—and late-night comics—were drawn to a theory that seemed to offer a scientific basis for some exquisitely calculating behavior, like avoiding your friends if they get fat. (Or avoiding your friends merely because some of their friends' friends gained a couple of pounds.)”²⁰

This version of connection management is similar to how epidemiology treats risky populations and the management of illness. Yet, these strategies seem to suggest that obesity is contagious only from the first degree of interpersonal ties—the people that you personally know. This is not how Christakis and Fowler understand the contagion of obesity through social networks. Managing both your relations and behaviors, along with those of everyone you know, is far closer to how Christakis and Fowler understand the solution to contagious obesity. This is also closer to how contagious obesity is represented in *Cathy*. According to Christakis and Fowler:

If you attempt to lose weight with your friends, you might succeed, but this tiny cluster of you and your friends is surrounded by a large group of people exerting pressure to gain weight again. In all likelihood, both you and your friend will thus regain weight.

A good strategy to lose weight, therefore, might be to invite your friends to dinner and ask them to nominate their friends, and then invite those people to join a running club. If you were able to do this, you would also create a social force pressuring your friends to lose weight (since they would be surrounded), and you would create a buffer around you of people who are improving their health behavior. (2009, 133)

To actually lose weight, one must pressure those who are overweight, within multiple degrees of friendship, to also lose weight. As a psychologist from McGill has claimed, “If a group of buddies are all couch potatoes and one of them decides to exercise, the others

²⁰ Clive Thompson, “Is Happiness Catching?” *New York Times*, September 13, 2009, 28.

in the group will find 100 ways to put the guy off and sabotage his routine.”²¹ The only way to lose weight is to get *everybody* to lose weight. This strategy is also repeated in news articles on Christakis and Fowler. In the Australian paper *The Age*, one reporter has argued, “The findings also suggest two propositions: that our responsibility extends beyond our own selves, and that we help create the world we live in.”²² A reporter for the *International Herald Tribune* concludes with two suggestions: “The first is that unless you are a hermit living entirely alone, your choices and wellbeing do not affect just you. The second, and more important, conclusion is that medicine isn't simply about improving the health of an individual here and an individual there. It's about the health of the whole society.”²³ Because of the networked nature of contagious obesity, for there to be any positive social change, I must not only manage myself, but I must manage those to whom I am connected within multiple degrees. Not only do I need to manage my own connections, but I must manage others as well. My health extends far beyond my own body, but is also shaped by forces far beyond my own control and knowledge. The only way to change my health is to transform the health of everyone around me, including people I may not know.

These two positions—either exclude specific individuals or manage the totality of the network—are not as opposed in Christakis and Fowler’s work as they may seem. In

²¹ Barker, “Are Exercise Habits Contagious?” C4.

²² Katherine Kizilos, “Social Happiness Could Prove to be a Contagious Idea,” *The Age* (Australia), December 18, 2008, 17.

²³ Olivia Judson, “Friends Can be Good—and Bad—For Your Health,” *International Herald Tribune*, November 12, 2009, 6.

his regular column in the *British Medical Journal*, “Only Connect,” Christakis has related these findings to the actual practice and policy of medical caregiving:

When illness in one person is treated or prevented, others to whom that person is connected also benefit...the better connected that people are—the more family and friends they have, and the more central they are in the network—the larger these effects... This leads to a problem. Taking network effects seriously means that we should value socially connected people more. From a policy perspective—if not a moral perspective—the connected should get more healthcare attention. (2008b, 725)

Publicly funded health care can reduce costs by targeting those “hubs” at the center of social networks that have the potential to spread illness through their connection. The practice of epidemiology has historically operated through similar tactics. Hence, the demonization of Gaetan Dugas and the separation and isolation of those *specific people* marked “at risk.” While Dugas was representative of a larger population of gay men in epidemiological narratives of AIDS, in network narratives he is *specifically* identified as the *one* individual that causes disease to flow through his connectivity. The “hubs” at the center of a social network, circulating pathologies, are the ones targeted, vilified, and ostracized by public health. Historically, this rarely happened without a simultaneous vilification of an identity or lifestyle. But in a model derived from network theory, lifestyles and behaviors are not labeled as inherently unhealthy—the flows between people are what are marked as unhealthy. The connections to the hubs that spread illness are what are labeled risky. This is what is different about the traditions of epidemiology and the networking of contagious obesity. Instead of any specific identity, individuals who are both well connected and whose flows are constructed as a problem are the ones targeted. The management of the totality and the management of individuals are made

equivalent. The object of public health is the connections and flows between people rather than a direct targeting of behavior. Christakis continues:

Health care delivered to well connected people is clearly more cost effective... But should the connected therefore get easier and more access to care than the less connected? Is a connected life more valuable than an unconnected one? ... After all, this would involve merely replacing one kind of privilege with another, perhaps for the better. Our healthcare system already privileges those with particular socioeconomic positions, such as wealthy people. Why not replace an inexplicit privileging of socioeconomic position with an explicit privileging of network position? This might be more just, leading to a more equitable distribution of resources. Although giving an extra healthcare dollar to a rich person rather than a poor person does not increase the overall health or distributive justice in a society, giving an extra healthcare dollar to a connected person does. (2008b, 725)

Because the totality of the network and the management of individual behavior are equivocated, then the management of individuals is required for the health of the totality and vice versa. These conclusions assume a duty to keep even the most risky connected to the network, in part because contagion effects are understood to go both ways.

Christakis has examined this issue from the perspective of governmental funding of healthcare. Others see the embracing the contagion of obesity as a way to avoid funding for healthcare in general. One corporation, LoneStart, has embraced this discourse in order to have employees manage each other to improve health without healthcare:

By promoting what it calls “Viral Wellness,” LoneStart is proving that wellness, like illness, can be contagious, and is challenging both political parties and all candidates running for national, state and local office to embrace a practical and patriotic solution to our country's current health care crisis... without any government funding, each of us can play a role in turning the epidemic of obesity and overweight around.²⁴

²⁴ “Obesity and Diabetes: LoneStart Wellness Offers a Politically Attractive (Even Patriotic) Solution to Our National Health Care Crisis,” *Drug Week*, September 12, 2008, 2035.

Managing behavior throughout the network is not a job for governmentally funded public health, but is a “patriotic” task to be taken up by each and every citizen. Citizenship is directly articulated to managing one’s personal behaviors and connections, as well as the behaviors of all others. The task of maintaining the well-being of the global population is a task for individual citizens, not state governments.

Networking contagious obesity brings to mind how Foucault understood Jeremy Bentham’s Panopticon as a model of disciplinary power. “Inspection functions ceaselessly. The gaze is alert everywhere...” (1977, 195). Citizens are given the task of watching their own weight constantly while simultaneously watching the weight of all others. This potential for observation operates within specific institutions for Foucault, shaping good citizens through the internalization of normative behaviors. With networked contagion, there is neither an internalization of norms nor are there institutions in which discipline takes place. There is no disciplinary mechanism. The other people one must manage may be completely invisible. The social connection between one person and another, the connections through which illness flows, may be completely unknown to both. There is little here to suggest that the goal of control over networks is to internalize social norms based on discipline and the possible observation by others. Instead, other people’s behaviors must be managed because they *do not* internalize norms defined as beneficial to society. The connection to others is assumed as *inherently* infectious, not as potentially infectious. There is no institution here other than the network, which is simply the totality of connections between all people. The model of citizenship and behavior on a network is to take the totality of the social and understand it as an effect of one’s personal behavior and connections. The management of myself is

the management of all others and vice versa. But, as will be elaborated in the conclusion of the dissertation, this is also understood as an impossible task.

Taken together, both the viral and social forms of contagious obesity construct connection, as such, as a constant threat that must be managed. Obesity is everywhere, and it is going to infect you simply because of your connectedness to other people. The management of self is also the management of the network. Cutting out friends is something that most people do not want to do—and, for Christakis and Fowler, would ultimately be unhelpful. Thus, an individual person must take it upon herself to directly manage the behavior of all others. This kind of management of behavior and health should be placed in context of the economics of health care.

The Economics of Contagious Obesity

When understood as contagious, obesity becomes a ubiquitous health threat that must be managed from the perspective of a networked totality. This strategy for managing health is not a purely theoretical model. The work of Christakis and Fowler has been taken up by politicians attempting to delineate a new strategy for public health and the governmental funding of medicine and health care. In the United Kingdom, “Labour and the Tories compete in claiming how far their thinking has been influenced by Christakis and Fowler...”²⁵ Ed Miliband and the Labour Party have adopted the ideas of Christakis and Fowler on smoking cessation. According to Labour health policy, targeting well-connected individuals and improving their health will improve the health

²⁵ Ben Rogers, “Only Connect: The Power of Social Networks Has a Lot To Teach Our Politicians,” *Guardian*, May 1, 2010, 9.

of the entire network, ultimately reducing the cost of the UK's National Health Service. Conversely, Andrew Lansley, the current Secretary of State for Health and member of the Conservative Party, has echoed the popular interpretation of Christakis and Fowler with his claims that "People who see more fat people around them may themselves be more likely to gain weight." Lansley's solution to this problem resonates with many we've heard so far in popular culture, such as William Shatner's claim that "Fat people gotta go, Carl!" In a speech titled "No Nannying, No Excuses," Lansley suggests that obesity is entirely the fault of the fat people. Because obesity is socially contagious, individuals are responsible not only for their own weight, but also for the weight of the entire society.²⁶ Lansley's is an important reversal of the intent of those studying contagious obesity. While Christakis and Fowler want to rid fat people of blame, politicians such as Lansley place the entire responsibility of public health on overweight individuals. The entire cause of the "obesity epidemic" can be blamed on how fat people cannot control themselves, and therefore destroy the health of the entirety of society. When contagious obesity is taken up in political and economic discussions of health and public health policy, the discourse of the moral impoverishment of fat people returns with a vengeance. No longer are individuals responsible for their own health. They are responsible for the health of everyone else. And because of social connectedness, they are not a threat coming from the margins, but are a problem at the very center of all social relations. As in *Contagion*, social connectivity leads to the inevitable ruin of society through biological and communicational disease.

²⁶ Melissa Kite, "Politicians Keep Throwing our Weight Around," *Telegraph*, August 31, 2008, 23.

The role of the NHS is central to how health is articulated to weight in the United Kingdom. The network and flows of contagion are not only understood in terms of how fat people, through their social connections, spread obesity throughout society. Because of public funding of medicine, debates over contagious obesity also define fat people as economic blockages of flow, repeating Eve Sedgwick's nightmare. Fat people are defined as economic blights, absorbing taxpayer money that funds the NHS through programs that pay for fat people to lose weight. The NHS pays for bariatric surgery, which is reported to cost more than £32 million per year. In the words of the *Daily Mail*, which seem intentionally designed to further incite moral panic, this increase is greeted with "experts warning that many obese people are opting for a 'quick fix.' Some are even putting on weight so they can qualify for surgery rather than dieting, it is claimed." This cost of surgery has "increased ten-fold since 2000—at the same time as the NHS is being forced to ration cancer drugs..."²⁷ The NHS also subsidizes "slimming clubs" such as Weight Watchers and Slimming World in order to fight the obesity epidemic.²⁸ Much of this funding to prevent obesity, initiated during Gordon Brown's time as Prime Minister, was implemented because, in the words of an editorial in *The Guardian*, "Brown thinks that if the obesity epidemic isn't halted...the NHS will have a stroke and we will all have

²⁷ Jenny Hope, "Obesity Surgery is Costing NHS £32m Each Year," *Mail Online*, August 28, 2010, accessed October 5, 2011, <http://www.dailymail.co.uk/news/article-1306912/Obesity-surgery-costing-NHS-32m-year.html>.

²⁸ Amelia Hill, "30,000 Sent to Slimming Clubs by NHS," *Observer*, November 1, 2008, accessed October 5, 2011, <http://www.guardian.co.uk/society/2008/nov/02/obesity-nhs-health-weight-loss>.

to waddle to its grave, like giant weeping balloons.”²⁹ Even beyond the context of health care, obesity is coded as a massive economic expenditure. According to former George W. Bush speechwriter David Frum, in the Canadian paper *The National Post*, “Obesity harms the economy in other, unexpected ways as well: In 2000, U.S. airlines spent \$275-million more on jet fuel than they would have had passengers weighed the same as they did in 1990. (Environmentalists will note that the airlines also emitted an extra 3.8-million tons of carbon dioxide as a result of transporting this extra human freight.)”³⁰

Because connections to obese individuals are blamed for the health problems of the entire society, the downfall of public institutions is understood as an inevitability of society as such. Obesity cannot be marginalized. Fat people are located at the center of these networks as a kind of all-absorbing void of capital that infects all other humans economically as well as biologically. The social and economic connections that bring humans together are blamed for the failure of social institutions. The same *Guardian* article referenced above concludes with the following: “Screw the NHS! And screw Brown. (You're fat too!) I don't tell you not to race cars at high speeds or complain when I have to pay for the ambulance that drives your shattered body to hospital... So you can pay for my heart attack, you bastards. Now, if you will excuse me, I have to go. I'm hungry.”³¹ The economic interconnection of public medicine means, for this author, that the supposed irresponsibility of the few should, if not must, be compensated through

²⁹ Tanya Gold, “The Whitehall Fat Police Can Do Their Worst. No One is Going to Get Between Me and My Mini-Rolls,” *Guardian*, November 13, 2008, 11.

³⁰ David Frum, “Killing Ourselves With Food,” *The National Post* (Canada), December 1, 2007, A31.

³¹ Gold, “The Whitehall Fat Police,” 11.

public funding. The refusal to be managed is accompanied by a refusal to “help” those with whom one is connected. Similar talk about public medicine has been printed in Canadian newspapers, but as justification that the entire system of publicly funding health care should be dismantled: “Some people might say that because of medicare obesity really is a public health problem. Because we all pay for each other's health care, if my waistline expands, you do suffer harm: You're more likely to have to pay for diabetes or heart or psychological treatment for me. But that's a good argument against publicly funded health care.”³² The articulation of networks of health and economy, combined with the inability to manage the totality of networked relations, are reasons to eliminate any possible form of connection.

The possible failure of the network as a whole is reason enough for its elimination. Because capital is inherently distributed towards people who need it when it comes to public medicine, then the flow of capital is not one that is “free” and fluid. If fat people are defined as economic sinkholes, and connection to them can make you fat, then any connection to fat people whatsoever must be eliminated. Reinstating “personal responsibility” entails the complete elimination of the social and economic structures through which humans are connected. The only solution to the social and economic challenges presented by contagious obesity is the complete elimination of any and all connectivity.

³² William Watson, “My Fat’s Not Catching,” *National Post* (Canada), July 8, 2005, FP19.

Conclusion

In an editorial from the *Daily Mail*, an author laments, “What really worries me about this whole idea [of contagious obesity], though, is the idea that fatness is out to get me. I take the basic precautions—three gym trips a week, not eating myself stupid and walking round and round the town until I discover where I parked the car—but is there any point?”³³ These worries come two decades after Margaret Thatcher famously claimed, “There is no such thing as society.” But, as is often forgotten, Thatcher continued, “There is a living tapestry of men and women and people and the beauty of that tapestry and the quality of our lives will depend upon how much each of us is prepared to take responsibility for ourselves and each of us prepared to turn round and help by our own efforts those who are unfortunate.”³⁴ In this interview, Thatcher was not only suggesting that the governmental programs associated with the welfare state should be eliminated, but also that the “society” defined through governmental social programs was obscuring the “real” society made up of actual people in actual communities. In fact, what she’s suggesting is almost exactly what network scientists such as Christakis and Fowler suggest—I must not only manage myself, I must manage those around me as well.

What contagious obesity tells us is that social connections—perhaps inevitably—make us fat. Self-responsibility necessarily entails taking responsibility over the totality of the network. Individuals cannot be singularly responsible for their own health

³³ Jill Parkin, “Yes, Being Fat IS Infectious. Just Have a Look at the M&S Bra Aisle,” *Daily Mail*, November 13, 2008, 58.

³⁴ Margaret Thatcher, “Interview for *Woman’s Own* (‘No Such Thing as Society’),” *Margaret Thatcher Foundation*, September 23, 1987, accessed October 4, 2011 <http://www.margaretthatcher.org/document/106689>.

problems. Instead, social connectivity is responsible for health problems. Contagion potentially comes from anywhere and everywhere by simple virtue of connection. And today, those contagious cannot be isolated and excluded as easily as those rendered pathological in years past. Personal health is coextensive with the health of the totality of the network, and thus, the management of both personal and collective health is rendered equivalent. To manage one's own weight, the weight of others must likewise be actively managed. To manage an epidemic, all must be rendered a threat to be controlled.

The economic response to obesity indicates not a return to a classical liberal subject, but a subject that is afraid of all others and all connections. To connect means that one's personal existence is inherently coextensive with the totality of every single other thing on the planet. Because flows cannot be managed properly, any and all connections and flows must be severed. As being connected means that I inherently cannot control my body, then the very possibility of connecting (either through economic flows to support others, through social communicative flows, or through biological flows of germs via touch) is rendered dangerous and destructive.

“In spite of these potential negative effects,” state Christakis and Fowler, “we are all connected for a reason. The purpose of social networks is to transmit positive and desirable outcomes...” (2009, 295). Why this is isn't clear. Christakis and Fowler believe, following the flawed logic of evolutionary biology and psychology, that because we seem to be networked together, then we must be so because it gives us some sort of evolutionary benefit. Yet, as I've been arguing, the perceived naturalness of networks is historically specific. If there is an ideology to networks, it is precisely that we cannot escape connection at a foundational, biological or ontological level. The entire discourse

of contagious obesity suggests that this ideology is one that also constructs social connection as an inevitable threat. Our connections must be managed (which is impossible) or completely eliminated. Because social connection means that you are fundamentally unable to control your own body or weight, as the author for the *Daily Mail* asks, “is there any point” to even attempt to manage yourself?

In the previous chapter, network discourse constructed the connection between the biological, embodied self and the online data of identity as something that must be continuously managed and performed, else online data achieves a life of its own, divorced from the body. Here, we see the inverse—the totality must be managed as a unity, or else completely eliminated. The collective either must function as One, or else it must be disbanded.

CHAPTER FIVE

CONCLUSION: MANAGING NETWORK CITIZENSHIP



Figure 9: "Free Amina Arraf." A viral image posted on Facebook during the political uprisings in Syria, protesting the detainment of Amina Abdullah Arraf al-Omari. Source: <http://www.facebook.com/freamina>, accessed June 8, 2011. This page is no longer online.

The front line no longer cuts through the middle of society; in now runs through the middle of each of us, between what makes us a *citizen*... It is thus in each of us that a war is being waged between imperial socialization and that which already eludes it.

Tiqqun (2011, 12)

Network citizenship is ultimately an ideology in which individuals are simultaneously compelled to care for the totality of all existence while instructed of the futility and impossibility of this task. Proper citizens and proper subjects are ones who manage *all* the flows and connections of the totality. In this discourse, freedom is the freedom to connect and flow—as those are the only tasks delegated to citizens. But because the management of totalized connection and flow is impossible, individuals always-already fail to live up to the demands placed upon them by networks. The exclusion and erasure of any one individual from the network (and social connection more broadly) is a foregone conclusion. The “nonhierarchical” form of the network produces a hierarchy based on the exclusion of those who do not conform to the connectivity and flow of global networks—a form of exclusion that potentially includes anyone and everyone alike. As in the above quote from the anonymous collective Tiqqun, networks produce society as a holistic totality. In network discourse, there are no longer “classes” as such. There is only the network, comprised of connections and flows. The conflicts that characterize naturalized network discourse are in each individual, between the part that accepts the demand to connect and the part that knows that filling this demand is impossible.

These claims bring together what I’ve argued throughout this dissertation. In Chapters One and Two, I argued that the theorization of networks evacuates history and

ideology from how networks define the limits of reality. Networks, connection, and flow are assumed to be purely material or ontological. Connection is assumed to be an intrinsically political act, even though totalized networked connections also provide the ontological ground upon which humans naturally exist. In the history of the term network, however, connection has not always been understood as either liberating or natural. Instead, the desire for connection had to be produced through a series of discursive articulations that brought together technology, biology, economics, and the social. That theories of networks understand the world through these four areas is no coincidence. Defining existence through networks also produces limits on the description of social relations. With network discourse, connection and flow define the boundaries of reality. The way we have of understanding network technology today comes from the naturalization of a discourse that brings together far more than the technological.

In Chapters Three and Four I described how the naturalization of network ideology, along with the corresponding privileging of connection and flow, produces everyday cultural anxieties that must be managed in the name of network citizenship. Each chapter examined a different kind of anxiety fostered by the naturalization of connection and flow. In both, connection is profoundly disempowering, contrary to the ideology of networks.

In Chapter Three, the profiles of the deceased on social networking websites revealed that the socially networked connections to “ourselves” are forever tentative. Personal data and recordings are constructed as an authentic duplicate of human identity. At the same time, this identity, when uploaded online via social networks, is beyond the control of the human user. The networked subject must manage her own identity in terms

of her connection to networked data. Death also reveals that these networks are not about social relations between people, contrary to the claims of social networking websites such as Facebook. Instead, data is the primary actor online. That which is and can remain connected possesses value. Automated information, designed to generate and manage connections and flows, is central to the operation of the social network. Human users and human bodies are inessential. Data is more important and “authentic” than human beings and human bodies.

Chapter Four used the discourse of contagious obesity and epidemiology to discuss the management of flows when all humans are connected via networks. Historically, epidemiology understands the management of contagion through the isolation of populations deemed dirty, unsafe, or risky. Contagious obesity defines contagion in such a way as to make every single person on the planet one through which illness potentially flows via social networks and social connection. The management of disease is accomplished either through the management of all others to which one is connected—which possibly includes every human being—or disconnecting individuals from the social. Social connection is understood as completely disempowering. To be connected means surrendering personal autonomy to the network. By sheer virtue of connectivity, one’s health is beyond control. In the discourse of contagious obesity, individual agency is completely subsumed by the networking of health.

When networks undergird how we think of subjectivity, collectivity, and existence, humans work to maintain their connections out of fears of disconnection. But they must also manage the flows to which they are connected. They must manage all others they could encounter—and all those they will never encounter, as well. *A*

networked world is one in which human beings are presented with a future in which they do not matter, and yet the fate of the world depends on their ability to control every single other thing to which they are connected. We cannot do anything, and yet we must do everything. Both of these cases show that the management and maintenance of connectivity is a profoundly disempowering activity, not an empowering one. In both examples, the control one has over their self, identity, and body are given over to the network.

I conclude by discussing the example upheld by many as evidence of the empowering nature of network technology—social media revolution in the Middle East and North Africa. The discourse that equates social media with political power directly defines political engagement as a version of network citizenship. Democracy will spontaneously emerge, this discourse argues, once the people connect via technology and perpetuate flows of information. But, as I'll argue below, not only is there no evidence that social media and technological connection is “empowering,” the ideal of network citizenship presented here is impossible. I'm going to discuss these theoretical issues through the controversy surrounding Tom MacMaster. MacMaster is an American blogger who posed online for several years as Amina Abdullah Arraf al-Omari, a half-American, half-Syrian lesbian. Amina wrote the blog “A Gay Girl in Damascus.” In her posts and interviews, Amina espoused the virtue of life as a proper network citizen. For her, being “out” was not just about sexuality. Connection, transparency, and visibility were ideal behaviors for one on the Internet. Being out was the same as connecting and keeping information flowing throughout the network. The revelation of MacMaster as Amina triggered feelings of anger and betrayal among many on the Internet, from

journalists to actual gay bloggers in the Middle East. MacMaster reveals the contradictions inherent in network citizenship. When network discourse is naturalized, to engage in the struggle for global justice we must connect to each other, through network technologies that realize our essentially networked nature. We must communicate, keeping flows of information circulating. And yet these things are impossible to fully accomplish.

Social Media Revolutions

Beginning in 2009 revolution swept across the Middle East and North Africa. Upheaval started in Iran with the “Green Revolution.” As unrest spread elsewhere, peaking in the early months of 2011, these protest were renamed the “Arab Spring.” Popular revolts dominated the political landscape of Iran, Tunisia, Egypt, Libya, Syria, Yemen, and elsewhere. In the Western narrative of these events, social networking services Twitter and Facebook directly caused political upheaval. Social media upset totalitarian governments through connection and the free flow of information. NBC’s chief foreign correspondent Richard Engel took a picture of an Egyptian protester, which he then uploaded to Twitter (Figure 10). The protester’s sign has the word “Facebook” on it in English and “Thank you youth of Egypt” in Arabic.¹ Another Egyptian named his

¹ Catharine Smith, “Richard Engel Tweets Photo of Egyptian Protesters With ‘Thank You Facebook’ Sign,” *Huffington Post*, February 4, 2011, accessed October 4, 2011, http://www.huffingtonpost.com/2011/02/04/egypt-protesters-thank-you-facebook_n_818745.html.

daughter “Facebook” to commemorate the occasion.² Being connected to Facebook was to be connected to a cosmopolitan force willing the collapse of oppressive governmental regimes.

Throughout these revolts, Western media repeated the mantra that social media realized the democratic potential of network technology. Political upheaval in Iran was initially celebrated by social media “guru” Clay Shirky with the words, “it seems pretty clear that... this is it. The big one. This is the first revolution that has been catapulted



Figure 10: NBC Foreign Correspondent Richard Engel’s photograph of the Arab Spring protest sign: “Facebook” and “Thank You Youth of Egypt.”

² Alexia Tsotsis, “To Celebrate the #Jan25 Revolution, Egyptian Names His Firstborn ‘Facebook,’” *TechCrunch*, February 19, 2011, accessed October 4, 2011, <http://techcrunch.com/2011/02/19/facebook-egypt-newborn/>.

onto a global stage and transformed by social media” (cited in Bollmer 2010b, 244). According to Hillary Clinton, as US Secretary of State, “the use of Twitter is a very important one, not only to Iranian people but now increasingly to people around the world.”³ During the early days of the Iranian revolution, Western media behaved as if Twitter were an all-knowing and all-powerful entity for good (Morozov 2011, 3). Twitter had become the most powerful vehicle for social change imaginable in the narrative of the Green Revolution presented through American news and on the Internet.

But this was far too good to be true. In 2010, after the revolts in Iran had been sufficiently quashed by the Iranian government, Al-Jazeera sourced the Twitter accounts through which the world had become aware of Iranian unrest. Only sixty accounts were confirmed as originating from inside Iran. The number of active Iranian Twitter users fell to six after the Iranian government cracked down on online communications, using Twitter and other forms of social media to locate dissidents and arrest them (Morozov 2011, 15; Bollmer 2010b, 245). One Iranian blogger, using the pseudonym Vahid Online, claimed, “Twitter never became very popular in Iran. [But] because the world was watching Iran with such [great interest] during those days, it led many to believe that Iranian people were also getting their news through Twitter” (cited in Morozov 2011, 16). The failure of the Green Revolution did not prevent Internet technophiles from claiming a global political victory and attributing it to social media and the flow of information. Months after the revolts, Eric Schmidt, then the CEO of Google,

³ “Hillary Clinton: Twitter Important for Iranian Free Speech,” *AlterNet*, accessed October 4, 2011, http://www.alternet.org/rss/1/62367/hillary_clinton:_twitter_important_for_iranian_free_speech/.

offhandedly remarked that the uprising in Iran signified “the phenomenal success of an online movement,” incubated through the desire for information and connection.⁴

Certainly, social networks are used to organize protests. But networks alone do not guarantee the practice of democracy. There are no guarantees to the politics of networks. Often times, as was the case in Iran, connectivity is placed in the service of maintaining state power. Likewise, the actions that inspire protest and challenge regimes are ones that are less about the flow of information than about very real bodies in very specific places. The protests in Tunisia that intensified the Arab Spring were instigated not by connectivity through social media, but by a street vendor setting himself on fire at a government office.⁵ Nonetheless, network discourse reframes all struggles as *only* over connectivity and flow when networks are the central political actor. The conjoined beliefs that *connection is freedom* and *connection is resistance* are held as truisms in spite of any possible counterevidence. Social movements are formed out of a desire for the freedom of *information and flow*, not equality or social justice. The freedom of speech, as an analog to the free flow of information, is fetishized as that which naturally brings about democracy. Networks are understood to have an intrinsic political power. Connection and the maintenance of flow are necessarily correlated with individual freedom. These assumptions reduce politics and experience to the properties of networks.

⁴ Derek Thompson, “Google’s CEO Schmidt: The Internet is a Historic Force for Good,” *The Atlantic: First Draft of History*, October 2, 2009, accessed October 4, 2011, http://firstdraftofhistory.theatlantic.com/analysis/internet_is_good.php.

⁵ Robin Wright, “The Arab Spring is a Jobs Crisis,” *The Atlantic*, July/August 2011, 58.

Failing Network Citizenship: “A Gay Girl in Damascus”

The freedoms afforded the proper network citizen also delineate the possibilities of political action and resistance on a network. These “politics” are directives to manage flows and connections. Political events in other countries, like those in northern Africa and the Middle East, are reframed without cultural and historical context, completely in terms of individualistic actions that are dedicated to connectivity and flow as intrinsic social goods. Social networking “revolutions” are presented in the West as foregone successes because those participating appear to conform to the demands of network citizenship, in spite of the fact that any significant governmental or political transformation may not have actually happened. The impasse of network citizenship can be seen in the story of Tom MacMaster and Amina Arraf. In the discourse of MacMaster and Arraf, the proper network citizen has an ethical responsibility to be “transparent.” One must connect globally. One must maintain a flow of information through connections. But responding to this ethical demand is impossible.

During the early days of political unrest in Syria, Western news media focused an inordinate amount of attention on a single blog. That blog, “A Gay Girl in Damascus,” written by a half-American, half-Syrian named Amina Abdullah Arraf al-Omari, detailed the experience of an out lesbian in the Middle East. Amina Arraf’s writings were championed as evidence of the power of social media to protest and defy repressive governments and social norms. “Teargas was lobbed at us. I saw people vomiting from the gas as I covered my own mouth and nose and my eyes burned,” she wrote after

protests began, giving a first-hand account of life on the ground in Syria.⁶ Arraf believes that her Internet communication inspires others to political action. “Blogging is, for me, a way of being fearless...I believe that if I can be ‘out’ in so many ways, others can take my example and join the movement.”⁷ Her blog went viral after an April 26, 2011 post titled “My Father, the Hero,” an account of how her father confronted Syrian security agents accusing Arraf of espionage. “MY DAD had just defeated them!” she wrote in the post, “Not with weapons but with words...and they had left...I hugged him and kissed him; I literally owe him my life now.”⁸ In Arraf’s narratives, here and elsewhere, communication triumphs over force.

Shortly after this entry Arraf went into hiding, and then disappeared.⁹ In an interview with CBS News a month earlier, Arraf claimed that she was then already actively hiding from Syrian security forces. “I don’t want to go to prison, though I am not scared of it,” she reasoned. “I believe I can do more for Syria free inside Syria than as a martyr.” Her actions for Syria were devoted to communicating online to a global audience. About the blog Arraf claimed,

⁶ Quoted in Katherine Marsh, “A Gay Girl in Damascus Becomes a Heroine of the Syrian Revolt,” *Guardian*, May 6, 2011, accessed September 3, 2011, <http://www.guardian.co.uk/world/2011/may/06/gay-girl-damascus-syria-blog>.

⁷ Ibid.

⁸ Shira Lazar, “‘A Gay Girl in Damascus’ Bravely Blogs and Builds Online Following from Syria,” *CBS News*, May 6, 2011, accessed September 3, 2011, http://www.cbsnews.com/8301-504943_162-20060462-10391715.html.

⁹ Bassem Mroue, “Syrian-American Gay Blogger Missing in Damascus,” *Washington Times*, June 7, 2011, accessed September 3, 2011, <http://www.washingtontimes.com/news/2011/jun/7/syrian-american-gay-blogger-missing-in-damascus/>.

The worst thing we face is our own fear. If we want to be free, we must first overcome our own worst enemy, which is the one within us. It is that fear that has allowed the dictators to rule; it is that fear that keeps us as Arabs, as Muslims, as women and as lesbians trapped. If we stop being afraid within ourselves, we can achieve freedom. The prison of our own minds is the darkest place. For me, it has sometimes seemed like it was harder to be out as an Arab Muslim woman in America than as a lesbian in Syria. Maybe I am lucky. But, if we can be bold in who we are, we can achieve true freedom.¹⁰

For Arraf, liberation comes from speaking through networked communications. The revelation of personal data perpetuates the free flow of information.

Arraf's statements define an ideal of network citizenship. Social media—blogs, Facebook, Twitter, and so on—enable democracy and revolution through the power of free speech and global social connectivity. One must connect and flow to participate politically. *The revelation of self to others is politically revolutionary.* Arraf was a threat to the Syrian government because of the power of her voice, broadcast to others around the world through her blog. Being *out* is not just about sexual identity in Arraf's narrative. It signifies a commitment both to one's own personal authenticity and to the demands of network citizenship. To communicate is to connect with others, mediated through networked flows of information. Any possible political agency requires the transcendence of self through networked communication.

Many in the United States and United Kingdom found Arraf's story and message inspiring. In the wake of her disappearance the Internet was abuzz with calls for her safety and release. The U.S. State Department had even begun an investigation into her whereabouts.¹¹ Images demanding "Free Amina Arraf" were posted throughout Facebook

¹⁰ Quoted in Lazar, "A Gay Girl in Damascus."

¹¹ Melissa Bell and Elizabeth Flock, "A Gay Girl in Damascus' Comes Clean," *Washington Post*, June 12, 2011, accessed September 3, 2011,

and on blogs (Figure 9). “Borders mean nothing when you have wings,” stated one, echoing an ideal of cosmopolitan connectivity fostered by the Internet. The Internet enables the transcendence of geography and the state through global connection and the flow of information across borders. The repressive governments controlling populations, the police regulating geographical boundaries and the behavior of those within them, not to mention the force of localized social norms in regulating identity and the body—all of these are inconsequential. Network citizenship is global and totalizing. Borders mean nothing when you connect and flow across them.

As scrutiny increased, holes in Arraf’s narrative began to emerge. Nobody had ever actually met her. The pictures she had on her blog had been taken from the Facebook page of Jelena Lečić, a Croatian expat living in London. The posts on her blog originated from an IP address in Scotland. As the search to find Amina Arraf intensified, the harder she was to locate. This was because she did not exist. Her digital trail led to a 40-year old white, heterosexual, married American from Georgia named Tom MacMaster, a postgraduate student at the University of Edinburgh. He had been writing as Arraf on blogs and message boards for over four years.¹²

Notably, the *Guardian* was quick to defend its reporting on Arraf. The blog, the paper argued, was still valuable in terms of drawing attention to the problems of real gay and lesbian individuals in Syria.¹³ MacMaster, in an interview with the paper, claimed

http://www.washingtonpost.com/lifestyle/style/a-gay-girl-in-damascus-comes-clean/2011/06/12/AGkyH0RH_story.html.

¹² Ibid.

¹³ Robert McCrum, “Lessons Learned from A Gay Girl in Damascus,” *Guardian*, June 15, 2011, accessed September 3, 2011,

that, in creating Amina and her blog, he only wanted to distance his own identity from the claims he was making about Syria. If he had blogged as himself, “someone would immediately ask: why do you hate America? Why do you hate freedom? This sort of thing.” Blogging as a gay Arab woman would avoid controversy. “I regret that a lot of people feel I led them on,” said MacMaster, “I regret that...a number of people are seeing my hoax as distracting from real news, real stories about Syria and real concerns of real, actual, on-the-ground bloggers, where people will doubt their veracity.”¹⁴ After he had been outed as the true author, MacMaster refused to fully apologize. “While the narrative voice may have been fictional,” he wrote, “the facts on this blog are true and not misleading as to the situation on the ground... I do not believe that I have harmed anyone—I feel that I have created an important voice for issues that I feel strongly about.”¹⁵ In spite of his physical distance from Syria, the connectivity of the Internet and networked communications enabled MacMaster to claim his fictional account of Syrian life as truth. MacMaster may not be on the ground in Syria, but he is able to know exactly what it is like because of the Internet.

The ability to pass as a completely different person, with a completely different identity, has long been regarded as intrinsic to the performance of self on the Internet

<http://www.guardian.co.uk/books/booksblog/2011/jun/15/lessons-learned-gay-girl-damascus>.

¹⁴ Esther Addley, “Gay Girl in Damascus Hoaxer Acted Out of ‘Vanity,’” *Guardian*, June 13, 2011, accessed September 3, 2011, <http://www.guardian.co.uk/world/2011/jun/13/gay-girl-damascus-tom-macmaster?intcmp=239>.

¹⁵ “Syria Gay Girl in Damascus Blog a Hoax by US Man,” *BBC News*, June 12, 2011, accessed September 3, 2011, <http://www.bbc.co.uk/news/world-middle-east-13744980>.

(Turkle 1995). As a famous *New Yorker* cartoon once stated, “On the Internet, nobody knows you’re a dog.” The self performed online may be radically different than the “real” person behind the computer, but may be considered more “real” than the actual human user. According to Sherry Turkle, we take things on the Internet at “interface value,” meaning we simply accept that which is on the screen as truth. Often, computer-mediated images are more real to users than that which exists in their “real life” beyond technology (23). Other theorists of identity in cyberspace, such as Alluquère Rosanne Stone, have argued that the performance of identity online demonstrates how humans are fundamentally endowed with “multiple personalities” that exceed the human body (1995). The avatar is not simply a disembodied representation, but directly points to a real person for which that representation is an essential part. For Stone, both Arraf and MacMaster would be the same person. MacMaster wouldn’t be deceiving anyone with his blog. Arraf is part of MacMaster’s “authentic,” if schizoid identity. Ken Hillis has argued that online representations are a form of “free indirect discourse.” The user’s avatar serves “as a screen behind which the author may ‘hide,’ yet at the same time it allows him or her to communicate through it to readers” (2009, 151). The avatar is never fully an extension of the self or something completely other, but is instead a blending of the two. This last definition is clearly what MacMaster intended with the creation of Amina. She was an avatar that concealed his identity while permitting him the freedom to speak. But the intersecting vicissitudes of sexuality, race, and gender—among a number of other possible categories—make any equating of Tom MacMaster and Amina Arraf intensely problematic.

MacMaster's usage of "out" conflates sexual identity with the openness and flow of network citizenship. Being true to one's identity means that it must be communicated. According to Chris Kelly, one-time head of privacy for Facebook, "Trust on the Internet depends on having identity fixed and known" (cited in Kirkpatrick 2010, 13). Mark Zuckerberg has claimed that this fixing of identity is based in the "radical transparency" of the Internet and social media. "You only have one identity," he stated in a 2009 interview, so emphatically that he repeated this phrase three times within one minute. "The days of you having a different image for your work friends or co-workers and for the other people you know are probably coming to an end pretty quickly... the level of transparency the world has now won't support having two identities for a person" (199). Harvard law professor Jonathan Zittrain has argued that the only possibility to maintain the openness and freedom of the Internet is to permanently and openly link online identity with bodily identity. Without this link, in Zittrain's view, the Internet will descend into impersonal chaos. "When we participate in other walks of life—school, work, PTA meetings, and so on—we do so as ourselves, not wearing Groucho moustaches... The same should be possible for our online selves" (2008, 228). The emerging discourse about online identity is that the anonymity of the Internet so celebrated in the 1990s should be eliminated in the name of civility and community. Openness and visibility must be encouraged—if not demanded—for the collective and collaborative utopia of networked communications to be realized. When MacMaster, as Arraf, claims she is "out," she is, in part, using this definition. She is posting her name, image, and location. She defines her authenticity in terms of her willingness to divulge personal information. Of course, it means something different for a fiction to be radically

transparent, but nonetheless MacMaster is using these claims of openness and transparency as normative directions for proper network conduct in his fabrication of Amina Arraf.

As should be obvious, to be “out” has significantly different connotations when it comes to the marginal identities that MacMaster appropriated in creating the persona of Arraf than it does when Mark Zuckerberg argues for a necessary “radical transparency.” With sexuality, in particular, the public embrace of an identity is indeed part of a project of sexual liberation and the struggle for equality. Yet, according to Lee Edelman, the practice of making sexuality legible is also part of a homophobic ideology that demands the identification and marginalization of sexualities deemed a threat to heterosexuality:

Heterosexuality has thus been able to reinforce the status of its own authority as “natural” (i.e., unmarked, authentic, and non-representational) by defining the straight body against the “threat” of an “unnatural” homosexuality—a “threat” the more effectively mobilized by generating concern about homosexuality’s unnerving (and strategically manipulable) capacity to “pass,” to remain invisible, in order to call into being a variety of disciplinary “knowledges” through which homosexuality might be recognized, exposed, and ultimately rendered, more ominously, invisible once more. (1994, 4)

To be visible, when it comes to marginal identities, is also to become the possible object of regulation, imprisonment, and violence. With the legibility of sexuality, identification can be employed in the service of silencing those marked as other (cf. Foucault 2006).

The problematic politics of openness can be seen in reactions to the “Gay Girl in Damascus” controversy. According to MacMaster, “This experience has sadly only confirmed my feelings regarding the often superficial coverage of the Middle East and the pervasiveness of new forms of liberal Orientalism.”¹⁶ But to what Orientalism is

¹⁶ Eyder Peralta and Andy Carvin, “‘Gay Girl in Damascus’ Turns Out to be An American Man,” *National Public Radio*, June 12, 2011, accessed September 3, 2011,

MacMaster referring? MacMaster had been speaking through an invented Arab lesbian as if he fully understood her experience. He is literally speaking for an Oriental Other he created.¹⁷ Actual gay and lesbian bloggers in Syria have vehemently disagreed with MacMaster's stated intentions. According to one on Twitter, "There is no positive side effect of the Amina hoax. It did not bring attention to Syria. It brought attention to a white fantasy."¹⁸ Daniel Nassar, the pseudonym of the individual who edits a blog titled "Gay Middle East," has argued, "Because of you, Mr. MacMaster, a lot of the real activists in the LGBT community became under the spotlight of the authorities in Syria... You took away my voice, Mr. MacMaster, and the voices of many people who I know."¹⁹ According to Nassar, because of the visibility of MacMaster's blog, police action and brutality against actual gay individuals in Syria increased. The police, not to mention members of a larger homophobic society, observed those suspected of homosexuality with even greater scrutiny. Because of the openness and transparency of a fictional character, the ability of others to even think about leaving the closet was hindered.²⁰

The negotiations of visibility and identity follow tortuous routes. While Nassar is out in his everyday life in Syria, he is not out on the Internet. He would face very real

<http://www.npr.org/blogs/thetwo-way/2011/06/13/137139179/gay-girl-in-damascus-apologizes-reveals-she-was-an-american-man>.

¹⁷ If anything, this certainly fits one of the ways Edward Said (1978) defined Orientalism in the book of the same name.

¹⁸ "Syria Gay Girl in Damascus Blog a Hoax by US Man."

¹⁹ Ibid.

²⁰ Daniel Nassar, "The Dark Closet," *Foreign Policy*, June 14, 2011, accessed September 3, 2011, http://www.foreignpolicy.com/articles/2011/06/14/the_dark_closet.

threats of violence and arrest as a result of the increased visibility of network connectivity. Yet, in adopting this stance, Nassar is in violation of the demands for radical transparency that characterize network citizenship. He is being “inauthentic” in the discourse of Mark Zuckerberg and Jonathan Zittrain. Nassar has multiple identities. He is hiding behind a mask because of his refusal to reveal all parts of his personal life to those online. His connectivity is only partial. When one’s connectivity and transparency must be understood contextually, then one is not a proper network citizen.

Visibility and social control are uniquely related in the institutions of Western modernity. In *Discipline and Punish*, Michel Foucault defines an arrangement of power he refers to as *discipline*. Discipline is a form of managing humans that relies on the constant monitoring of individuals. These individuals are produced through the fixing of identity. Identity is produced through paperwork and governmental registration. Discipline understands personal identity not as a series of “masks that were put on and taken off, but the assignment to each individual of his ‘true’ name, his ‘true’ place, his ‘true’ body, his ‘true’ disease” (1977, 198). Discipline is distinguished from sovereign power—the unilateral power enacted by a King or Queen—and characterizes many of the institutions foundational for how we understand the formation of modernity in the West. Discipline characterizes the prison for Foucault. It also defines schools, hospitals, asylums, and so on.

The performance of discipline requires an elaborate apparatus specifically to monitor and separate individuals. Discipline involves the constant effort to illuminate and make visible everything to all. Foucault identifies the diagram of Jeremy Bentham’s Panopticon prison as the perfection of disciplinary power, which Foucault refers to as

“panopticism.” In Bentham’s Panopticon, the management of individual humans is still dependent on their identification, isolation, and visibility. But this identification is one that the individual internalizes and manages on her own, inducing “in the inmate a state of conscious and permanent visibility that assures the automatic functioning of power” (201). The Panopticon produces a subject that *disciplines herself* in light of the continuous *potential* of being observed.

Both discipline and panopticism rely on the creation of those in the privileged position of observing. But in the Panopticon the observers must remain hidden. They are invisible and inaudible to those who are observed. As the ultimate goal of panoptic control is the internalization of a regime of truth by the observed, the observer must forever remain phantasmagoric. The subject does not feel that she *is* being watched constantly, but that she *might be* watched at all times. She therefore acts as if she is being watched even when there is no observer present. The ability to observe while remaining invisible positions one closer to the top of the hierarchy of modern society.

It is this invisibility of the observer that MacMaster desires. Invisibility permits him to move between identities, appropriating the marginal while “advocating” for a politics from which he is personally distanced. Yet, as Foucault remarks of the Panopticon, the observers themselves are never fully immune from observation. There is always someone higher up who may be watching. The revelation of MacMaster as Amina revealed the contradictions inherent in his claims. Amina advocated for the political power of connection and radical transparency. Yet these politics could only be articulated by one who maintained his invisibility. Amina’s radical transparency—much as the case is for Facebook employees—defines proper citizenship through the fixing of “true”

names, “true” locations, and “true” bodies. Civility on the Internet—the proper relations we maintain with the others to whom we are connected—depends on our willingness to internalize and perform these “true” selves. Yet, this politics that defines publicity and identification as absolute empowerment is defined as such by an individual who remains private, and sees nothing wrong with maintaining this privacy in spite of his normative claims.²¹

But the Internet is not a Panopticon. The Internet is a *distributed network*, defined by connections and flows that supposedly exist *without* a hierarchy. Even beyond the Internet, networks are usually defined as “flat” and non-hierarchical (Gilligan 1982; Hardt and Negri 2000). In this distributed network, there is nowhere to hide. There is no privilege given to the observer above. There is no underclass produced by observation. A hierarchy cannot be maintained through observation on a network, as MacMaster surely discovered in the furor over his blog.

Yet there is a hierarchy on a network. This hierarchy is defined through one’s willingness to adhere to the demands of the network, dividing up subjects into categories of proper and improper citizens. Proper network citizens embrace the demand to *connect* and *expose oneself*, maintaining *flows* of information, all the while *monitoring and managing all others*. The democratic potential of new technologies are often framed in terms that they permit everyday individuals the ability to more effectively accomplish

²¹ The same could be said of Facebook and Google as institutions. While their employees advocate personal transparency, their actual business practices involve keeping many, many things secret from users and the larger public. This is often critiqued. Usually, the solution to this problem is to regulate and open these companies rather than question the reasoning behind demands for openness. In other words, the solution for Facebook and Google’s lack of transparency is to force them to become proper network citizens through legal means (Pariser 2011; Vaidyanathan, 2011).

these tasks, improving democracy and bettering the functioning of government through “transparency.” Steve Mann, a computer engineering professor, has used the term “sousveillance” to describe the use of individual surveillance techniques to monitor institutions of government and police.²² Science fiction author Cory Doctorow has referred to the same phenomena as the creation of a “little brother” to monitor “big brother.”²³ The power of social media, recording technologies, and connectivity comes from how new media positions everyone as a visible observer. Not only is an individual compelled to take responsibility for herself because of her potential visibility, she is compelled to monitor every other person to whom she is connected. On a network, one is both object of the gaze of the Panopticon and the subject that may or may not be in the observation tower.

In this arrangement of power, MacMaster’s only true fault was that he refused his own visibility and connectivity. While speaking in the name of connectivity, openness, and the free flow of information, he was not actually participating in what he was advocating. He was a failed network citizen, in that his conduct was directed at hiding his identity and remaining, to some extent, disconnected from the network. And he was punished for violating this ideology, even while advocating for it. It is through this distinction that network ideology produces a hierarchy, defining worthy and unworthy subjects based on their willingness to connect and flow. Those who do not connect and flow, or cannot properly manage connections and flows, are marked as those unworthy of

²² Peter Singer, “Visible Man: Ethics in a World Without Secrets,” *Harper’s Magazine*, August 2011, 34.

²³ This idea is fictionalized in Doctorow’s young adult novel *Little Brother* (2008).

inclusion on the network. Those who do not fully connect of their own volition are unworthy of connection.

The network citizen is directed to maintain connection and flow in order to benefit the totality. As is the case with all of the above examples, political struggles are reduced to struggles over connectivity and flow. In network discourse, justice demands that those who are not networked become connected. According to Nicholas Christakis and James Fowler, political marginalization is based on what they refer as “positional inequality.” This “occurs not because of who we are but because of who we are connected to. These connections affect where we come to be located in social networks, and they often matter more than our race, class, gender, or education” (2009, 300).

Strategies of social justice should focus on maintaining connections and increasing flows:

To reduce poverty, we should focus not merely on monetary transfers or even technical training; we should help the poor form new relationships with other members of society. When we target the periphery of a network to help people reconnect, we help the whole fabric of society, not just any disadvantaged individuals on the fringe. (302)

Equality demands the connection of all individuals to the network. Flows must be evoked for global justice.

Yet, while justice requires more networks, networks are also constructed as natural and ontological. “In short,” claim Christakis and Fowler, “humans don’t just live in groups, we live in networks... our desire to form connections depends partly on our genes” (214). Like many of the other authors discussing networks (Barabási 2002; Beniger 1986; Castells 2009; Taylor 2001; Watts 2003), Christakis and Fowler argue that biological evolution has guaranteed human connectivity in such a way as to render the

desire to connect as purely natural. The political work needed for social justice *always-already exists at the level of nature*.

Network citizenship demands that individuals must work to maintain their own connections and manage the connections of all others for the sake of social justice. Justice and politics are reframed as nothing other than the maintenance of connection and flow. And, finally, connection and flow are completely natural attributes of human existence. As the maintenance of connection and flow is rendered natural, then an entirely new form of hierarchy is put into place based on nothing other than the ability of an individual to conform to the demands of networks. *The failure of an individual to maintain her own connections—as well as the connections of all others—means that the individual is not only a failure, but also an aberration from the natural order of existence*. Of course, as management of the totality is impossible, then this means that *all individuals are intrinsically failures, intrinsically pathologized, undeserving of the recognition of the network*.

It is this state that we can observe above and in the previous chapters. With fears of autonomous information of Facebook, the subject that remains connected is the one that can perform connections and maintain a flow of data. The human user must actively maintain her connection or else her “personal” information is able to act on its own. Because social networks treat the data of living and deceased users as equivalent, then the actual significance of human users is minimal. The proper conduct of the individual is to maintain connections and the flow of information, or else be rendered inessential for networked connectivity. In the case of contagious obesity, connectivity itself seems to lead to inevitable weight gain and (given the dominant discourse about obesity) death.

One must manage her weight, as well as the weight of all others. But this is impossible and futile. Here, the proper conduct of the individual is to manage one's personal connections and flows, along with the flows of all others. The conduct of the human networked subject is either defined as a failure in advance or isn't as well managed as it is through technology. *Humans, as a result, are defined as either insignificant or dangerous for the continued operation of networked connectivity and flow. Since connectivity and flow are equated to nature, then human beings must be excluded from the natural order of the world, if not outright eliminated, while technology is positioned as essential for nature to persist.*

“Because no one is ever depersonalized enough to be a perfect conductor of these social flows, everyone is always-already, as the very condition of survival, *at fault* in the eyes of the norm... all risky [citizens] are everywhere pushed out, quarantined, spontaneously isolated—all those who, being subject to imperial intervention, could bring down with them, through capillary action, the adjoining links in the network” (Tiqqun 2010, 151, 155). A world of networks is a world in which human beings do not matter unless they connect, flow, and communicate. And at some point, they will fail in the management of these tasks, only to be cut off, quarantined, and erased from that which has been rendered natural.

Directions for Future Research

Future research must proceed in three directions. First, the naturalization of network discourse in fields other than those discussed here should be further interrogated. The assumptions of connection and flow as nature have far wider consequences than is

implied in this dissertation. The diagnosis and treatment of mental pathology, for instance, is currently fixated on the control, management, and correction of communicative flows from children (and adults) in the ever-expanding diagnosis and treatment of autism as well as psychopathy/sociopathy (McNally 2011; Ronson 2011). Quantum physics relies on an ontological model in which subatomic particles regularly engage in what Einstein once referred to as “spooky action at a distance,” where the matter of the universe is connected through flows that transcend time and space (Greene 2004; 2011). Ecology positions global networks and flows as that which defines the natural environment. Environmental crises are problems with the flows of nature into which humans are improperly intervening (Bennett 2010; Morton 2010; Weisman 2007). Continuing to delineate the pervasiveness of network ideology and how it creates worthy and unworthy subjects must begin to investigate the assumptions and constructions of these other areas of study, especially areas often considered beyond the political.

Second, the gradual insignificance of human beings, as suggested here by their fundamental failure to conform to network ideology, has recently been embraced in theories of philosophical “realism” derived, in part, from theories of networks (Bryant, Srnicek, and Harman 2011; Meillassoux 2008; Harman 2009). These theories attempt to define a philosophy that describes “reality” without human subjectivity getting in the way. This is an ontology where humans neither matter nor exist. Aside from being an obvious attempt to reconstruct logical positivism, the current model of philosophical “realism” is written from the perspective of a world in which human existence and human experience need not matter. The quality of “life” is extended to anything that can be said to exist (Thacker 2010), and automatic door closing devices are placed as having the

same value and worth as a human being (Latour 1988a). These models of reality should be placed in context and critiqued from the position in which the hatred and disgust for humanity implicit in their theorization is fully explored.

Finally, the ultimate direction for future research would be to delineate an alternative to networks. Resistance to networks needs to be defined in some way other than through the fear of connectivity. But what would this solution look like? And how would it come into being? In both of the cases in this dissertation, as there is elsewhere, there are hints of “resistance” to network citizenship. I am not sure that this resistance should be celebrated. It has primarily taken the form of *retreat*, *default*, and *disconnection* (Berardi 2011; Virno 2004). Resisting the imperative to connect and flow also involves the embrace of a subject that has no relation to a larger collectivity. The inability to manage “autonomous” data means that technological connections must be severed in order to live an “authentic” life. The inability to manage the networks of contagious obesity means that social health programs must be dismantled. Elsewhere, radical leftist political manifestos cry out, “Every network has its weak points, the nodes that must be undone in order to interrupt circulation, to unwind the web” (Invisible Committee 2009, 61). Political revolution will happen via the “total interruption of the flows” (105). Because of the pervasiveness of global flows of capital, resistance must take the form of the severing of connection. The increasing presence of physical walls delineating the boundaries of states signifies a rejection of global flows and an increasing commitment to xenophobia as a valid political strategy (Brown 2010). Connections must be severed to save the individual and the state. The subject of *neoliberalism*, as a completely isolated, independent subject, is posited as that which *resists* networks.

A Disconnection Notice

Understanding the phenomenon of network technology involves much more than understanding technologies alone. The network discourse that structures the current moment in time has existed for centuries, and continues to have massive effects today. Perhaps the best way of resisting network discourse is to realize what should be obvious: there is no such thing as a totality. I am not connected to the entirety of all existence. At the very least, thinking about and theorizing social and political relations should eschew the whole, though not necessarily in favor of the part. Never should we view the world as a holism, as there is always something that escapes. There is always an outside. There is always a disconnection.

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