<u>A CULTURAL AND POLITICAL ECONOMY OF WEB 2.0</u>

by

Robert W. Gehl
A Dissertation
Submitted to the
Graduate Faculty
of
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of
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By

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Master of Arts
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Dedication

This dissertation is dedicated to one TJ, Teddy, who kindly slept through most of it and danced through the rest, and another TJ, Jesse, who works so hard for our little family. It is also dedicated to my parents, who filled my childhood house with books, computers, and love. Thank you.

Acknowledgments

Singlehandedly authoring a dissertation on Web 2.0 – a phenomenon which can at its best be about multiauthor collaboration in creative projects – is an ironic act. While I might claim authorship of this dissertation, it really is the result of many people working together. Specifically, my wonderful dissertation committee. The chair, Hugh Gusterson, came to GMU at just the right time to set me off on new paths of inquiry. Along the way, I and other students have benefited from his good nature, patience, and impressive command of social theory. Unfortunately for me, he has set such a high standard for scholarship and teaching that I don't know if I could ever live up to it, though I will try. Alison Landsberg's contribution to my intellectual development and to this dissertation is immeasurable. First, it was her suggestion to her Visual and Performance Culture course that set me off on this line of inquiry: "I wish someone would write about YouTube." Second, through her critiques of drafts and her teaching, she has pushed me to clarify my arguments and logic, and I will take her critiques with me as I start my academic career. But most importantly, she brought her intellectual optimism (inspired by Benjamin and Krakauer) to this project and my studies, reminding me that the world is not all doom and gloom, but a place of possibility and immanence. Tim Gibson, likewise, has offered invaluable critical feedback along with encouragement. I intend to steal as many of his ideas about political economy and media as I can get away with. In addition, he offered a great chapter for a book I co-edited, and I look forward to more collaborations with him. Mark Sample offered his insights into my work over coffee, taking time from a busy schedule and a particularly long commute to provide me with ideas about future directions.

I've also benefited from the cultural studies community as well as quite a few people outside CS. Roger Lancaster, the director, pushed me to get work done and do it well. Michelle Carr is the heart of the department, and I had the benefit of her guidance and support. I had excellent courses with Paul Smith, Rosemary Jann, Scott Trafton, Jean Paul Dumont, Paula Petrik, Dan Klein, and Amal Amireh, all of whom exposed me to new landscapes of theory and knowledge.

If my teachers exposed me to new landscapes, my fellow students in the cultural studies program showed me ways of inhabiting them. Through collective support, my cohort – Nayantara Sheoran, Fan Yang, Lisa Andion, Rachel Martin, Mika'il Petin, Win Malaiwong, Young Jung - helped me adjust to PhD work and showed me how to grow into a degree. I have made friends among the rest of the students, but I am especially grateful for the help, collaboration, commiseration, and friendship of Jarrod Waetjen,

With all this said – after this long list of people who have been instrumental in my PhD career – it should be noted that the mistakes, shortcomings, and oversights in this dissertation are all my own. I see a dissertation as a chance to make mistakes, and I look forward to an academic career as my chance to learn from them and fix them.

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Abstract

A CULTURAL AND POLITICAL ECONOMY OF WEB 2.0

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In this dissertation, I explore Web 2.0, an umbrella term for Web-based software and services such as blogs, wikis, social networking, and media sharing sites. This range of Web sites is complex, but is tied together by one key feature: the users of these sites and services are expected to produce the content included in them. That is, users write and comment upon blogs, produce the material in wikis, make connections with one another in social networks, and produce videos in media sharing sites. This has two implications. First, the increase of user-led media production has led to proclamations that mass media, hierarchy, and authority are dead, and that we are entering into a time of democratic media production. Second, this mode of media production relies on users to supply what was traditionally paid labor. To illuminate this, I explore the popular media discourses which have defined Web 2.0 as a progressive, democratic development in media production. I consider the pleasures that users derive from these sites. I then examine the technical structure of Web 2.0. Despite the arguments that present Web 2.0 as a mass appropriation of the means of media production, I have found that Web 2.0 site owners

have been able to exploit users' desires to create content and control media production. Site owners do this by deploying a dichotomous structure. In a typical Web 2.0 site, there is a surface, where users are free to produce content and make affective connections, and there is a hidden depth, where new media capitalists convert user-generated content into exchange-values. Web 2.0 sites seek to hide exploitation of free user labor by limiting access to this depth. This dichotomous structure is made clearer if it is compared to the one Web 2.0 site where users have largely taken control of the products of their labor: Wikipedia. Unlike many other sites, Wikipedia allows users to see into and determine the legal, technical, and cultural depths of that site. I conclude by pointing to the different cultural formations made possible by eliminating the barrier between surface and depth in Web software architecture.

1 Introduction: a cultural and political economy of Web 2.0
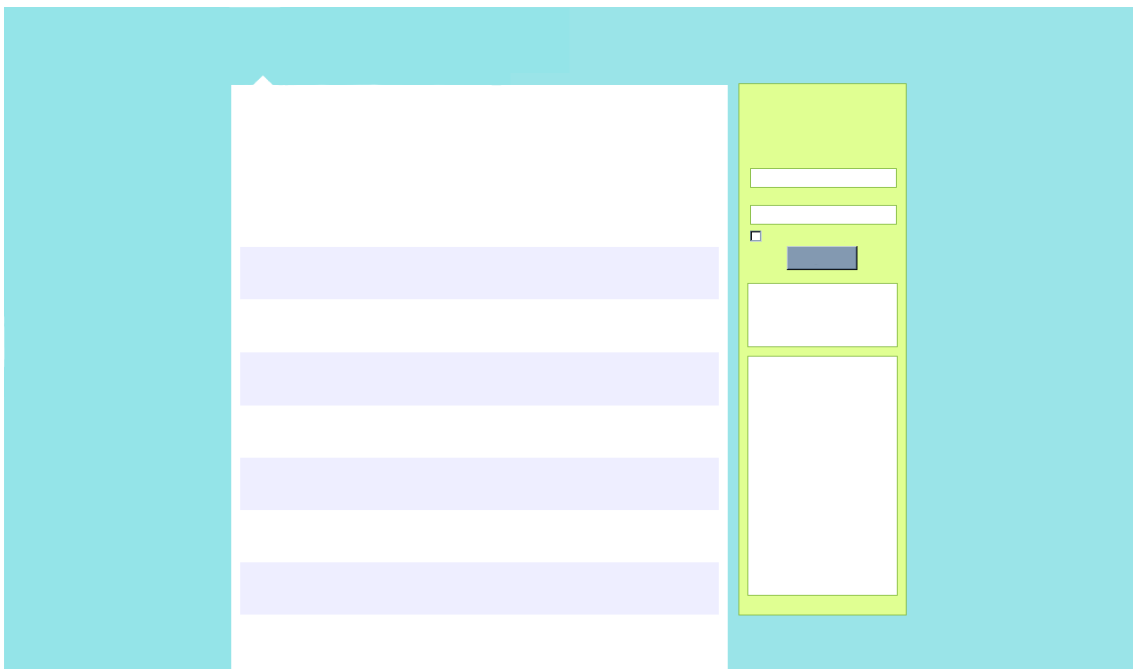
Figure 1: An example of sumoto.iki's anti-Web 2.0 art. This "ghostly form" is of Twitter.

Web artist sumoto.iki's "web2diZZaster" is a collection of bland, muted pastel images which contain little more than rectangles and lines.[1] There is not much for a viewer to use to determine what these images are; moreover, the images are unremarkable, even unattractive. However, for anyone who browses the Web in the 2000s, many of these

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[1] Available at http://www.lrntrlln.org/web2dizzaster/

images seem eerily familiar. A second glance reveals why: these muted rectangles take shape as common Web sites. On the right is Digg, the social bookmarking site, identifiable by the peach tabs which indicate the number of "diggs" that users have given to various stories. The tabs are empty, as is the rest of the page, but this largely empty frame is still recognizable. Third down on the left is MySpace, the social networking site, identifiable by the blue banner and login fields, and directly below it is the even more sedate Facebook homepage. The media sharing site YouTube is harder to recognize until the viewer sees the iconic red polygon and the two series of four rectangles where featured videos normally appear. Twitter (figure 1) is perhaps the most recognizable due to its light blue field and narrow, prominent center column.

I'm having trouble describing the momentarily unsettled response I had to sumoto.iki's art. However, after a moment of squinting at the images and contemplating, I realized precisely why: sumoto.iki presents all of these flagship Web 2.0 sites *without any user content*. In the absence of comments, videos, lists of friends, and editorial recommendations, these sites appear as "ghostly forms" which iki offers as a "First impression of a possible apocalypse where only HTML vestiges would remain inside a dehumanized network of all networks." Thus, all I had to go on were the most basic elements of HTML and CSS: div tags, positions and floats, colors, and empty Javascript forms. Without that user-generated content – that is, in the "dehumanized network" – these Web 2.0 sites appear as mere frames, and unappealing ones at that. Without content, these sites are lifeless shells. Without it, Web 2.0 cannot work.

Of course, Web 2.0 is working just fine, precisely because users *do* contribute so much to these frames. More than half a billion people populate the social networks MySpace and Facebook, creating constant streams of comments, links, and applications. Twitter's meteoric growth is also measured in user-generated content; roughly 20 million people use the micro-blogging service. Over 40 million people visit the social bookmarking site Digg. Amazon enjoys millions of user-written reviews of books and products. And the company that is perhaps the exemplar of Web 2.0 is Google, which relies on user-generated links, videos, and blogs, to power its highly profitable search and advertising business. Investors who participated in the 2004 Google IPO have seen their investment grow substantially; the stock was offered at $85 and now trades for over $500. This rise in value comes directly from user created content.

Considering the history of the Web, it seems unlikely that Web 2.0 would be such a commercial success. It was only a short decade ago that the term "dot-com" - that is, business on the Web - drew derision from anyone with an interest in business. The 2000-2001 financial/technology bubble burst is now largely seen as a result of irrational exuberance; investors in failed online commercial sites such as Pets.com lost millions of dollars when that business model failed to catch on. The direct-to-consumer sales of pet supplies, groceries, and gardening supplies had all the sustainability of a paper fire. Investors withdrew from the market almost immediately; According to PriceWaterhouseCoopers (Anon. 2009a), the first quarter of 2000 saw investment in IT peak at $2.8 billion, and the first quarter of 2002 saw investment of 10% of that peak. Investment has come nowhere close to even 25% of the peak of the bubble years.

While this market rejection of direct-to-consumer marketing of mass produced goods and online commerce was a troubling development for venture capitalists seeking to profit from the Web, another more sustained movement was attacking global capitalism, mass culture, and private property – and relying on the Web to do so. Writing about the Zapatista movement of the 1990s, Maria Elena Martinez-Torres (2001, 347) notes that "A paradox has emerged from the revolution in communications: the same technology that has taken world capitalism to a new stage of development—corporate globalization—has also provided a significant boost for anti-corporate and anti-globalization movements." By coopting the Internet as a space of spectacle, anti-globalization and progressive movements have been able to transmit their messages to worldwide audiences (Froehling 1997; Warf and Grimes 1997; Cleaver Jr 1998; Knudson 1998; Bennett 2003; Salter 2003; Kahn and Kellner 2004). Even in the midst of the dot-com euphoria of 1999-2000, protesters were able to use the Web to organize massive, coordinated demonstrations against the World Trade Organization in Seattle. The actions of the estimated 40,000 protesters were supplemented with the advent of Indymedia, a user-led, anti-capitalist news source that began as an alternative to mainstream coverage of the Seattle protests. These anti-capitalist uses of the Web are engagements in what Nick Dyer-Witheford (1999) calls the "struggle for the general intellect." Drawing on Marx's (1993) iconoclastic "Fragment on machines," in the *Grundrisse,* Dyer-Witheford argues that the Internet has simultaneously enabled extensions of Taylorist domination of labor and the very means for labor to short-circuit global capital. On the one hand, the Internet might allow for "fast capitalist" (Agger 2004) flows of commodities, but on the other hand it allows for the fast and space-eroding coordination of protest.

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Thus, we see two interweaving movements become epiphenomenal online. On the one hand, capitalism's cycles of boom and bust (Perelman 2003; Brenner 2002) came to the Web as the irrational rationality of herdlike investment movements seized upon cyberspace as the next great marketplace. On the other hand, the strong counter-hegemonic possibilities of the Internet and Web were being explored by an increasing number of "hacktivists," cyber-socialists, and anti-globalization agitators.

This seems to be an unlikely place for Web 2.0 to thrive. However, in 2004, technology book publisher Tim O'Reilly and journalist and technology blogger John Batelle (2004) confidently stood up in the inaugural Web 2.0 Conference in San Francisco and argued that Web-based commerce and traditional media were making a comeback. Their proof for this argument came from companies which recognized the chaotic, unpredictable nature of discourse of on the Web and were able to create sites that harnessed this "collective intelligence."

In this milieu, the user-generated, anti-neoliberal Indymedia is transmogrified into the user-generated, for-profit CNN iReport. The Zapatistas and their supporters are now welcome to connect via Facebook at the Chiapas Project.[2] The spectacle of mass protests drives news coverage, and thanks to the personalization of Google News and user-generated tagging services Digg and del.icio.us we can keep up with the latest developments. Nick Dyer-Witheford's manifesto *Cyber-Marx* is available on Amazon; for those unsure of spending $25 on it, there are seven glowing user-written reviews to consider. In short, Web 2.0 is the corporate response to the mass creativity, collaboration,

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[2] Available at http://www.facebook.com/pages/The-Chiapas-Project/30038469340#!/pages/The-Chiapas-Project/30038469340?v=info . Last accessed February 2010.

and desires of networked peoples. It is a tacit admission: when given a choice, people prefer content produced and recommended by their friends over that of mass culture and editorial authorities. They are leery of mass culture and globalized corporations so they seek to create their own culture. They will express political opinions and offer frank assessments of commodities, corporations, and states, and they want to share their opinions with their friends and colleagues. However, it is not as if new media capitalists are simply stepping aside and allowing users to lead the way; Web 2.0 is new media capital's attempt to capture this explosion of user-generated content as objective surplus value. Whatever the form – from fandom to anti-globalization manifestos – if the user-generated content occurs within the "ghostly frames" of many Web 2.0 sites, it is being exploited for profit.

1.1 The plan of the work

This dissertation contributes to the critical conversation about Web 2.0 by answering this simple question: how? That is, how has Web 2.0 contributed to what Andrejevic (2003) calls the "surveillance economy"? How has it encouraged users to produce content for free? Where is the line between the pleasure of users and their exploitation, and how is that line made technologically and socially feasible? Moreover, what are the politics of those empty frames that sumoto.iki drew her inspiration from? To answer these questions, I fuse science and technology studies and Marxian political economic analysis, and I focus upon the history of the development of computer and networking technologies.

My dissertation draws on the traditions of science and technology studies (STS), particularly the social construction of technology school. This branch of STS orients researchers away from technological determinism – the idea that science and technology are independent of human history - to the social construction of science and technological artifacts. That is, STS scholars take scientific and technological programs not as matters of epistemology, but rather as a matter of sociology. STS scholars look at scientists and technologists within their social networks, seeking to uncover the contingent, social, and sometimes accidental nature of scientific and technological innovations (Hughes 1969; Hughes 1983; Donald A. Mackenzie 1990; MacKenzie and Wajcman 1985; Bijker, Hughes, and T. J. Pinch 1987). To do so, STS scholars typically examine the ways in which science and technology are coproduced (Jasanoff 2004) with and within social structures and regulations. STS scholars see science/technology and society in a dialectical relationship, which challenges the both the notion of transcendent, apolitical truth produced in laboratories by scientists as well as the idea of technological determinism, where technological change is seen as inevitable and uncontrollable. Rather, these scholars recognize that technology is a political force which serves the interests of different social groups in different historical contexts. The science and technology we experience today is not necessary, but contingent; we must examine it in its social and historical context to discover alternative formations to our current technoscientific milieu.

My other major theoretical and methodological inspiration is Marxian political economy (MPE). MPE takes the sociological and economic analysis of Karl Marx and applies those ideas to a wide range of social phenomena. At its core, MPE orients researchers to

historicize objects and phenomena and place them in complex contexts. The most dominant mode of inquiry in MPE is, of course, economic/materialist inquiry. That is, MPE scholars seek to understand how the production and distribution of objects affect social structures.

I find the confluences and tensions between these two perspectives to be generative. Many scholars in both fields have willingly inquired into the complex, dialectical relationship between the material (in the form of technique, technology, and production) and ideal (in the form of ideology, social structures, and discourse). The best works of STS and MPE attempt to bridge the Kantian/Cartesean philosophical gap between material and discourse, attempting to understand the dialectical relationship between agency and structure, language and materiality, and epistemology and sociology.

In sum, this dissertation draws on the insights of three key researchers in STS: David Noble, Langdon Winner, and Andrew Feenberg. These three researchers have done significant work in the intersection between technology and economics. David Noble's examination of the production of scientific rationality in the United States (Noble 1977) and the impact of computers upon industrial workplaces (Noble 1984) both present science and technology as intricately tied to the needs of dominant economic institutions. Noble passionately argues against the popular perception that science and technology are politically and economically neutral objects destined only to lead to prosperity (assuming, that is, that we uncritically accept them at face value). Rather, Noble sees science and technology as driven by free market capitalism; as such, they can never be neutral expressions but instead are particular manifestations of social power. Similarly, Langdon

Winner (1977; 1986a) has drawn attention to architecture as a key site of crystallized socioeconomic power. His famous chapter "Do artifacts have politics?" (Winner 1986b) draws sharp attention to the impact of path dependence upon social life. If a complex technological system such as a bridge or a mechanical tomato harvester is deployed, he argues, we reap particular political consequences. A bridge might be built low enough to prevent buses from going under it, thus preventing working-class people from reaching the other side of that bridge. A tomato harvester might increase production of tomatoes, but only of a particular breed of tomatoes which are more resistant to bruising and do not taste as good. Moreover, the tomato harvester is expensive enough to prevent small farmers from competing in tomato markets. These technological systems are the sometimes conscious, sometimes unconscious produces of the dominant politics of the day; as Winner (1986a, 27) argues, "What we see here... is an ongoing process in which scientific knowledge, technological innovation, and corporate profit reinforce each other in deeply entrenched patterns, patterns that bear the unmistakable stamp of political and economic power." Finally, Andrew Feenberg's influence arises from his "technical code" approach to analyses of networks (1995; 1999; Feenberg and Hannay 1995). The technical code approach seeks to simultaneously interrogate the cultural and economic values that give rise to technologies and techniques as well as the cultural and economic values made possible by them. These values and cultural assumptions that animate them are built into the designs of technology and are very often taken for granted. In this sense, then, the "code" in "technical code" takes on many felicitous meanings; it is a material object (lines of computer programming which nearly instantaneously make binary decisions, legal codes, the "laws" of economics) and it is ideal (the discursive acts which

animate all of the former). Moreover, technical code is not static, but always in flux, overdetermined by myriad social contingencies. Finally, the technical code approach draws our attention to what's missing; that is, we must consider alternative designs which are just as possible as current ones but which, for whatever reason, are not made available.

This intersection of STS and MPE, as found in Noble, Winner, and Feenberg, is a very useful tool for a study of the social Web. It is clear that we live in a time where ordinary people can stand upon the platform of Web 2.0 and express themselves: amateur videos which capture politicians making racist statements can shape elections; user-generated fiction can draw in more fans that mass-produced fiction; one's social network can now span the globe; users can now produce media and distribute it freely; users are driving the technological developments behind Web 2.0. In addition, this is a time and space where technologists such as Tim O'Reilly and Matt Zuckerberg can proclaim that these new uses of the Web will connect everyone and everything in a network of incredible social value which maps directly onto actual, lived, preexisting human experience. Many see this mediascape as one where a new democracy of thought is forming, enabling heretofore unimagined forms of agency among people previously excluded from media production. But it is equally true that, despite the constant proclamations about our weightless new "information economy," we still live in an economic order increasingly regulated by the extraction of surplus value from laborers – that is, from the actions of very material, very real bodies – and that this surplus is used solely to further grow the American iteration of globalized capitalism. In Web 2.0, the media, networks, and content produced by users

are seen by new media capitalists as free labor, and therefore cheap surplus value, available to further fuel the growth of transnational media companies. In sum, in this dissertation, I want to consider how Web 2.0 has been structured to allow free user expression and yet exploit it.

To do so, I begin with discourse and pleasure. In chapter two, I analyze the various tropes associated with "Web 2.0," from the utopian response to the critical rejoinder. In chapter three, I explore the pleasures of Web 2.0; I carefully consider the many ways users enjoy sites such as Facebook and YouTube. I then examine the ways in which these contingent desires are captured and digitized by Web 2.0 site owners who seek to convert pleasure into profit. These two chapters consider the possibilities of Web 2.0 for agency and new discursive freedoms. They also plant the seeds for a critical examination of the exploitation which is not only possible in Web 2.0, but is too often its driving feature.

In the next three chapters, I shift focus to the architecture of Web 2.0. I explore the ways in which the pleasure of users can become the profit of new media capital. In chapter four, I argue that the decades-old, predominant way of developing software, where software is built on top of hardware in layers called "abstractions," has been migrated to the Web. These abstractions are purposely built to hide the layers underneath. On the Web, the surface is the Web site where users interact with digital ephemera. This layer hides another underneath: the layer of site owners, venture capitalists, and administrators which benefit from the activities of users. In chapter five, I look at the contradictions of Internet protocols and explore the ways in which Web 2.0 site owners have used this contradiction to mask exploitation. The Internet is comprised of two key protocols:

TCP/IP and DNS. TCP/IP is radically distributed and decentralized. This leads to the belief that the Internet is anti-authoritarian. However, TCP/IP is bisected by a rigidly authoritarian protocol, DNS. The tension between these two protocols forms a structure which I call "distributed centralization." This structure has been used by Web 2.0 site owners to simultaneously "open up" the Web and to capture user-generated content and affect. In chapter six, I see the roots of today's power imbalance between media companies and users in the traditional architecture of the computer, where processing and memory are separated. This 1940s computer architectural breakthrough (commonly refered to as the "Von Neumann architecture") has indirectly determined a common social practice in Web 2.0: users process data, while site owners capture that data in archives.

In chapter seven, I shift again, returning to the user as a site of analysis. I examine one particular use of Web 2.0: personal branding. Like many forms of self-help, this use of Web 2.0 is individualistic; personal branding advocates argue that Web 2.0 allows individual users to build their social capital, take control of their lives, and "stand out from the crowd." Most importantly, this use of Web 2.0 is performed by users who have full knowledge of the exploitative structure of these sites; their intention is to gain social capital from within the structure of new media capitalism. However, this individualistic use of Web 2.0 simply reinforces many of the exploitative structures I have outlined in previous chapters.

In the final chapter, I argue that alternatives to this architecture of new media capitalism are already available. For all its faults, Wikipedia is the alternative. Wikipedia does not deny users the myriad pleasures I explore in chapter three. However, through what was

essentially a labor strike, its users actively denied for-profit exploitation of those pleasures. Wikipedia users do produce both subjective and objective value, but unlike the personally branded, they do so in conscious denial of new media capitalism. They are able to achieve this because Wikipedia is structured to allow users full access to its surface and its depth.

Looking back at sumoto.iki's art, I hope this dissertation offers critical insight into both the content so noticeably missing from iki's art and the frames which iki reproduces. That is, I not only explore how those ghostly HMTL and CSS frames get filled, but also who built them in the first place. I also explore how user content – which is produced in subjective processes of pleasure – is objectified and exploited by new media capital. In the end, I hope it is clear that I do not see this exploitation as evidence of "false consciousness," the Marxist idea that individuals cannot comprehend their exploitation due to some sort of psychological obfuscation inherent in the capitalist system. Rather, drawing on the work of the social construction of technology school of science and technology studies, I argue that this exploitation arises due to the technological structure of Web 2.0. We can see this exploitation as part of a Gramscian consensual agreement between users of these sites and their owners. Since Web technology is increasingly being presented as overly complicated with a high learning curve, Web 2.0 sites allow users access to services which are maintained and housed on servers outside of user control. In exchange, users agree to give up their private data. Alternative structures, such as peer-to-peer (P2P) technologies, are presented in popular culture as the evil tools of pirates and scofflaws. Moreover, the Internet has for years been presented as a wild frontier just as

full of spammers, child pornographers, and identity thieves as it is full of educational and commercial goods. In light of this dubious characterization of P2P and of the broader Internet, Web 2.0 sites offer users a safe means to associate with each other and consume media, just as long as the users exchange their private data for these services. All the while, the technical side of the Web is increasingly hidden from users behind layers of code and protocol, eliding encoded social power.

Thus, to borrow terms from architecture, one way of conceptualizing Web 2.0 is as a structure full of facades, false walls, hidden passages, and yes, panopticons. But more exactly, I see Web 2.0 exploitation as a problem of surfaces versus depth. Users are allowed much control over the surface of Web 2.0; they are the ones who fill in the ghostly frames, make connections, remix content, and process digital artifacts. However, all too often in Web 2.0, the depth – the code (both computer and legal) and the material behind the ghostly frames - is controlled by new media capitalists, who deny users the ability to determine how their content is used.

2 Web 2.0 Discourses

What is Web 2.0? If, as its name implies, Web 2.0 were simply an update to the technical structure of the World Wide Web, this would be a simple question to answer. I could look at another object, Hypertext Markup Language (HTML), for guidance. HTML, which is the basic coding language of the Web, is soon to be updated from version 4 to version 5. This process involves the collaboration of technologists who work via email and meetings to discuss standards, language, and features and then implement those changes by openly documenting them on the Web. As Web browser developers update browsers such as Firefox, Safari, Opera, and Explorer, they can examine HTML5 documentation and integrate those features into their code. This is a fascinating process, worthy of ethnographic and sociological study.

However, the development of a new HTML is no model for this dissertation. Web 2.0 is not nearly so neat an object. While HTML is developed by a small group of people and involves discrete (if incremental) changes, Web 2.0 is more of a discursive concept than a particular technology. Exploring it requires first an analysis of how people talk about it. Thus, In this chapter I explore four key definitions which arise from the broad literature dealing with this phenomenon. First, "The Web as Platform," which is by and large the original definition of Web 2.0. For the purposes of this dissertation, this definition is

extremely important because it presents Web 2.0 as a spatial construct, with a hierarchy of layers and a "surface" and "depth." The second definition, "Silicon Valley is back," largely arose out the popular media reception of that first Web 2.0 conference. The third, "A new revolution," is a definition which encapsulates many techno-utopian yearnings.

Finally, I will offer my own definition, one that is in part a synthesis of the above three and is derived from two key theoretical perspectives I will rely upon in the remainder of this dissertation: science and technology studies and Marxian political economy.

2.1 Definition One: The Web as Platform

The term "Web 2.0" is commonly associated[3] with technologist and publisher Tim O'Reilly's annual Web 2.0 conferences, which began in October 2004 and have since become an annual forum for technologists, venture capitalists, state actors, and journalists to gather and discuss developments on the Internet. This conference and the media attention it has received have propelled the term "Web 2.0" into the lexicon. For example, a Google search for the term returns over 47 million results. However, despite its current popularity, Web 2.0 was initially little more than a catchy name for O'Reilly Media's 2004 technology conference. It was only after the conference was titled when O'Reilly Media defined "Web 2.0" in order to organize the conference and attract presenters and attendees.

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[3] While Tim O'Reilly is commonly referred to as the coiner of "Web 2.0," The earliest print appearance of the term "Web 2.0" is in an article by Darcy DiNucci (1999) titled "Fragmented Future." DiNucci's article focuses on Web design issues arising from the increasing ubiquity of Web-enabled devices.

The definition they offered was simple: Web 2.0 meant that the dark days of the 2001 Internet bubble burst were over, and that Web-based online commerce was beginning to make a comeback by using more mature business models. Given the contemporary popular perception of online commerce, this was an ambitious argument. The crash of 2001 was fresh in the minds of consumers and investors. However, by 2003, it was clear that several Web-based companies, notably Amazon and eBay, had survived the crash and were beginning to turn profits. O'Reilly and his associates at O'Reilly Media began to question how these companies survived. They concluded that there were two key differences between Web 2.0 and 1.0 companies: what they called value production and the presence of user-generated content. By the time they delivered their opening remarks at the inaugural Web 2.0 conference (O'Reilly and Battelle 2004), they argued that in Web 2.0 value production in online commerce was radically different from the 1990s model. In the 1990s model, Web commerce loosely replicated offline commerce; retailers sought virtual real estate in the form of exact domain names (Pets.com for pet supplies, for example) and advertisers sought to place ads on high-traffic sites. "Value" as was understood in the 1990s was in attracting attention in the form of millions of unique visitors to sites such as Yahoo! or Excite. The site which could attract this volume of users could either advertise to them or sell them products. The "Web 1.0" (to use O'Reilly's retronym) mode of value production depended upon the political economics of attention.

In Web 2.0, however, these "portal" sites are less important. Instead, as O'Reilly *et al* argue, value migrates away from these sites to two different layers: the database layer and

the user interface layer. An example of the database layer would be mapping data in Navtec or the database Google creates both as its bots crawl the Web and index pages and as it stores and analyzes user search patterns. Rather than attempting to attract millions of visitors, Web 2.0 commercial sites instead opt to gather as much data as possible on smaller numbers of users, a process referred to as "leveraging the long tail" (Anderson 2006). The database layer is not immediately visible to users of the Web. I will explore this point further in chapter 4.

O'Reilly and Batelle argue that the user layer is comprised of network effects, where masses of users participated in building content. Network effects theory holds that the more users participate in a network-based technology, the more valuable it is. For example, if I own a telephone, but no one else does, its use-value as an object that connects me to others is nil. If enough users are involved in a network-based technology, then its use-value is extremely high. However, O'Reilly and Batelle argue that what distinguishes Web 2.0 from a technology such as the telephone is that Web 2.0 sites allow users not just to communicate with one another but to build content. The use-value of a telephone is high because I can call my mother with it, but once the conversation is over, the content of our conversation is no longer available save in our memories. In Web 2.0, if I send a greeting to my mother on a social network such as Facebook, that greeting remains asynchronously available, and not just to my mother, but also entire my friend network. When users create enough content which is archived and available asynchronously, then the network effects of Web 2.0 sites are much stronger than is usually the case with other communication technologies.

This is a key point of emphasis for Batelle and O'Reilly; in Web 2.0, they argue, the customers are building the business for you." That is, users are generating the content on many of these sites, content which is archived, categorized, and reused in different contexts. "The business" in question here is the political economics of attention. With more content archived and available asynchronously across many different Web sites, users are spending more time online paying attention and sometimes repeatedly refreshing their connection. This is a goldmine for the attention industry of advertising. Social networks such as Facebook and MySpace, video sites such as YouTube, and retailers such as Amazon all rely on user-generated content and also enjoy longer site visits than their competitors.

In sum, O'Reilly and Battelle argue that in Web 1.0, Web sites were considered to be analogues of brick-and-mortar sites offline. In contrast, O'Reilly and Batelle use a spatial metaphor to define Web 2.0. In Web 2.0, the Web is a "platform," analogous to the "platform" provided by the operating system on a personal computer. In fact, the subtitle of the conference was "The Web as Platform." Upon it, commerce sites build applications such as photo sharing sites, user-review sites (think of Amazon reviews), and the audio sharing technology of podcasting. These companies are encouraged by O'Reilly *et al* to allow other developers and customers to have space upon the platform. These groups are to be "harnessed"; their "collective intelligence" is to be used to produce content and mutations of the original site. And, below the platform, data is stored on servers. This data can be summoned from any location given the proper interfaces. In the O'Reilly value theory of Web 2.0, value arises from those two key spaces on the platform: above

the platform companies seek to attract and grow a community of users who upload content such as book reviews, pictures, or videos; below they store data, either information about their customers (habits, desires, demographics) or other information such as maps. Furthermore, the site itself – whether it be Google, Yahoo, Barnes and Noble – is as banal as the planks used to build any platform. In contrast to the "Web 1.0" value model of the statistics of mass advertising, the value theory of Web 2.0 is thus more akin to Adam Smith and David Ricardo's classical political economic labor theory of value: get the users to create content for you, capture it, and while they do so, show them ads. According to the presenters at the 2004 Web 2.0 conference, this was the path to profitable and viable online business.

O'Reilly has consistently maintained this definition of Web 2.0 throughout his papers on the topic (O'Reilly 2005a; O'Reilly 2007; O'Reilly 2008; O'Reilly and Batelle 2009; O'Reilly 2005c). "The Web as Platform" remains his key definition of the initially undefined "Web 2.0." However, judging from the popular response to "Web 2.0," this idea of the Web as Platform did not quite catch on. Instead, "Web 2.0" remained somewhat vague and undefined, prompting popular media actors to inject other meanings into the term. I will explore those meanings below.

2.2 Definition Two: "Silicon Valley is Back!"

The 2004 Web 2.0 conference attracted much attention from technology journalists. This is understandable, given the technology luminaries who presented, a list including Lawrence Lessig (a lawyer and author of *Code 2.0*) Mitch Kapor (founder of Lotus and

chair of the Mozilla Foundation), Jeff Bezos (founder of Amazon), Mark Cuban (co-founder of HDNET), Marc Andreessen (founder of Netscape), and Mike Ramsey (co-founder of TiVo). This collection of Website owners and computer entrepreneurs was intriguing to reporters, especially given the recent embarrassment of the 2001 Web commerce bubble burst and recession. Many of the presenters and attendees at the 2004 conference were heavily involved in Web commerce during the run-up to 2001. For them to gather and proclaim that the Web was entering into a new phase was indeed newsworthy.

For those reporters in attendance, particularly those on the West coast of the U.S., the proceedings of the Web 2.0 conference were signs that online business would make a comeback. To be fair, the idea that online commerce was not dead was O'Reilly Media's starting point for organizing the conference in the first place, although it was not their ultimate argument. O'Reilly et al's ultimate definition – the Web as Platform – largely did not catch on among reporters. Rather, for reporters, Web 2.0 is a resurgence of online commerce. They tended to focus on business opportunities on the Web and how users will benefit. In a sense, reporters tended to focus on the "surface" of the Web as Platform, largely ignoring the technical details of databases.

For example. Gary Rivlin (2004) opens a *New York Times* article with the proclamation "Silicon Valley is back." In a later article in the *New York Times Magazine*, he (2005, 64) writes

> Talk of what some in Silicon Valley are calling Web 2.0 began about two
> years ago. What started as a self-conscious whisper has now turned into a
> full-throated rallying cry. ...There's never been a better time for a startup:

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you hear this so often in Silicon Valley today that it could be just a
marketing slogan, but to the startup set, the sense of urgency ringing
through it is very real.

Perhaps the most representative example of the new exuberance came from the *San
Francisco Chronicle*, where Vern Kopytoff (2004) wrote that the Web 2.0 conference
meant that "It was as if the Internet implosion never happened."

Aware that this enthusiastic definition of Web 2.0 – Silicon Valley is back - might have
seemed too redolent of the hype of the late 1990s, which after all ended in a crash, some
reporters noted the newfound humility of the entrepreneurs at the Web 2.0 conference.
For example, Shirleen Holt and Kristi Heim (2005, A1) of the *Seattle Times* write:

As the tech economy revs up again, a post-recession character emerges:
Drunken optimism is out; sober reality is in. Job hopping is out; loyalty is
in. Living to work is out; working to live is in. Greed is out; gratitude is in.
In short, the old-economy workplace is new again.

Similarly, John Koopman (2005) of the *San Francisco Chronicle* – a reporter who has a
track record of cynicism about Web business - argued that Web 2.0 was Web 1.0 but this
time with a viable business model. In short, in these articles, Silicon Valley is back, but
with humility.

Thus, the reception of the O'Reilly Media 2004 Web 2.0 conference, and by extension
their definition of a new wave of online commerce, was largely positive among
journalists.[4] Their positive review of the conference was borne out in large part by events

[4] A note on sample size: I have content-analyzed a sample of 311 articles from major world newspapers
and magazines between 2004 and 2008 which focus on Web 2.0. A majority of these articles expressed
optimism about the business and consumer prospects of Web 2.0. They also focused on the "surface" of the
Web as Platform. One major exception is Levy (2004), who explains that in Web 2.0, "Things may look the
same as the old Web, but under the hood there's been some serious tinkering, and after years of hype among
propeller-heads, some of the effects are finally arriving." However, Levy does not go into more detail than
that.

in Web-based business. MySpace, which was founded in August of 2003, saw huge growth, culminating in NewsCorp's purchase of it on July 18 2005. Its rival Facebook was founded on February 4th 2004 and also saw growth in 2005. Amazon was newly profitable since 2002. The Howard Dean presidential campaign relied on blogging and a Web presence for a large portion of their fundraising, pointing to the power of reaching constituents via the Web. February 15th 2005 saw the beginnings of video site YouTube. Flickr, founded in 2004, was acquired by Yahoo in March of 2005. But most importantly, Google's stock rose exponentially from its initial public offering in August 2004, an event that more than any other signaled the return of e-commerce.

2.3 Definition Three: A New Revolution

In 1953 during his confirmation hearing for Secretary of Defense, then General Motors president Charles E. Wilson famously said "what was good for the country was good for General Motors and vice versa," a comment now commonly shortened to the much more crass-sounding "What's good for GM is good for the country." If we look for a contemporary paraphrase of Wilson's remark – or rather the more crass shortened version of it - it might be "What's good for Google is good for the country." With the Web 2.0 conference a success and more importantly with the exuberance of the Google IPO, more and more reporters and bloggers began paying attention to the Web 2.0 business model. Moreover, they began to attach more meanings to the term, specifically utopian visions of how Web 2.0 was going to radically reshape the media landscape.

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The cultural resonance of Wilson's apocryphal "What's good for GM" remark arises from a common perception that highly profitable businesses are a boon for a nation because they employ many laborers, provide useful goods to consumers, repay wise investors, and contribute tax revenues to state coffers. According to utopian freemarket economic theorists, an unfettered marketplace produces the most social wealth and most accurately rewards labor and capital for their respective inputs. As long as entrepreneurs are free to buy, sell, and pursue profitable activities as they please, this theory goes, then goods and services will naturally be distributed to precisely where they need to satisfy the widest possible swath of individuals. Moreover, the unfettered market is presented as the unparalleled guarantor of democratic freedoms (Milton Friedman and Rose D. Friedman 2002; Adam Smith 2003; Hayek 1996). If each of us is free to pursue employment or business as we see fit, this logic goes, then we are also free enough to elect leaders who will provide the minimal, non-invasive infrastructure to support such a market. Finally, this argument holds that the free market is the only institution which can reconcile humanity's natural, hedonistic urges with the need for social organization.

This brings us to the third definition of Web 2.0: Web 2.0 is a revolution. It is not simply a matter of Silicon Valley's resurgence, but rather a space of entrepreneurial innovation and the revolutionary and radically democratic reshaping of media. This revolution puts the common user at the center of media production. Web 2.0 sites are therefore natural results of a free, unfettered market on the Web. They allow individuals to engage in selfish pursuits, and yet the aggregation of these pursuits leads to greater social welfare. Thus, even while presenting Web 2.0 as some sort of revolutionary break with the past,

this utopian mythology might best be described as an example of Walter Benjamin's "ur-past." Susan Buck-Morss's (Buck-Morss 1991) reading of Benjamin holds that "the utopian images that accompany the emergence of the new always concurrently reach back to the ur-past." As Marc Andrejevic (2003, 26) might argue, the popular media presentation of Web 2.0 as a new form of community harkens back to a mythological time in human history when we were organized into small, intimate groups. Likewise, in the utopian economic theory, human freedom arises from free markets, spaces which utopian economics sees only in interstitial areas that were beyond overbearing government regulation. Thus, the entrepreneur-worship I will present below, along with the tributes to users, all fall within these curious mixtures of present wishes and the mythologies of the past.

Part of this definition of Web 2.0 presents it as a space where young entrepreneurs are free to innovate and create products that fulfill human needs. For example, *Newsweek*'s April 3, 2006 cover story by Steven Levy and Brad Stone (2006) points to the entrepreneurial vision of MySpace's founders Tom Anderson and Chris DeWolfe as well as Flickr founders Stewart Butterfield and Caterina Fake, all of whom "are leading a charge of innovators making hay out of the Internet's ability to empower citizens and enrich those who help with the empowerment." This story is supplemented with a wide range of *encomia* dedicated to the young and wealthy Web 2.0 elite. David Vise's (2005) *The Google story* praises the "Google Boys" Sergey Brin and Larry Page as mathematical, computer, marketing, and business geniuses. Sarah Lacy's (2008) *Once you're lucky, twice you're good* is largely a tribute to Facebook founder Matt Zuckerberg,

followed up with her later book (2009) *The Stories of Facebook, MySpace, and YouTube*. Both tell the story of the "Web 2.0 geniuses" who have willed this new wave of new media capitalism. Likewise, Amazon founder Jeff Bezos enjoys a dozen such tributes.

However, these *encomia* to the young leaders of Web 2.0 are not the entire focus of the popular media. Not long after the Web 2.0 conferences began, the popular press began a second narrative which is still dominant today. The Web, this narrative goes, allows for *everyone* to become a media producer. No longer are we beholden to the whims of corporate CEOs who decide what we like, what media we will consume, and what advertisements we will see. No longer are we subject to the oppressive homogeneity of mass culture. The democratization of media production leads, as this argument goes, to democratic, entrepreneurial freedom for all who are connected. Thus, these profiles are also supplemented by stories about garage tinkerers, YouTube celebrities, and part-time inventors.

For example, John Markoff (2005) of the *New York Times* presented user-led content generation as "a compelling alternative" to Hollywood because it is a "bottom-up creative process that is shifting the flow of information away from a one-way broadcast or publishing model, giving rise to a wave of new business ventures and touching off a scramble by media and technology companies to respond." In the *Seattle Times*, Paul Andrews (2005, C1) places citizen journalism under the Web 2.0 umbrella:

> Two developments in 2006 should further accelerate the shift [on the Web]. Craig Newmark of craigslist.org, the online classified-ad service, plans to inaugurate a grass-roots journalism venture. If it adopts his classifieds approach, it promises to "relocalize" ... news right down to the neighborhood level.

Citizen journalism is presented as a radical reinvention of the news gathering process, allowing the "grass-roots" to gather, write, and edit the news. Similarly, Eric Turnbull (2005) of *The Birmhingham Post* examines podcasting, noting "In the spirit of Web 2.0, the Odeo free audio service offered the world a chance to record and publish its own 'podcasts' - pseudo-radio shows made by the people, for the people." Thus, rather than rely on centralized media companies like ClearChannel radio stations, "the people" will produce their own media.

Perhaps the most famous example of this line of rhetoric came in 2006, when *TIME* dedicated its iconic "Person of the Year" issue to "You." The cover of the December 25 issue featured a Mac computer screen with a YouTube video still of one bold word: "You." The subtitle proclaims "You control the information age. Welcome to your world." Cover story author Lev Grossman (2006) explains the cover by citing Thomas Carlyle's "Great Man" theory of history, which held that "the history of the world is but the biography of great men." "That theory," Grossman writes, "took a serious beating this year." This introduction to the "Person of the Year" story purposely challenges the logic of *TIME*'s perennial decision to place one notable, newsworthy person on the cover. Instead, the Grossman article and the 2006 cover choose to celebrate the collective with

> a story about community and collaboration on a scale never seen before.
> It's about the cosmic compendium of knowledge Wikipedia and the
> million-channel people's network YouTube and the online metropolis
> MySpace. It's about the many wresting power from the few and helping
> one another for nothing and how that will not only change the world, but
> also change the way the world changes.

Like other reporters, Grossman attaches the rhetoric of democracy to the term "Web 2.0":

> The new Web is a very different thing. It's a tool for bringing together the

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small contributions of millions of people and making them matter. Silicon
Valley consultants call it Web 2.0, as if it were a new version of some old
software. But it's really a revolution.

Thus, for *TIME,* Web 2.0 is nothing less than a revolution that will transform the
production of everything from the production of media to the design of cars. Grossman
states that "We're looking at an explosion of productivity and innovation, and it's just
getting started, as millions of minds that would otherwise have drowned in obscurity get
backhauled into the global intellectual economy." This tribute to "You" acts as a
counterweight to many of the book-length *encomia* dedicated to the captains of new
media capital described above.

In fact, the user-led mythology spawned several book-length analyses of how the masses
would produce their own culture. Central to this user-led mythology is Chris Anderson's
(2006) *The Long Tail: why the future of business is selling less of more*. Anderson argues
that the economic model most appropriate to cultural and media production on the Web is
not the 80/20 rule. That is, in brick-and-mortar shops, 80% of the sales come from 20%
of the media objects. This 20% are the "hits": top selling albums, books, and movies.
Anderson argues that this business model determined an elaborate infrastructure of
marketing which emphasized the popularity of this small slice of cultural production. In
addition, stores which face physical space limitations have an incentive to stock only the
hits and to ignore other media objects which are less likely to sell. Anderson contrasts this
business model with one emerging on the Web: niche marketing. In this environment,
storage of media objects costs nearly nothing, so stores can have huge "inventories."
Online music stores such as Rhapsody and iTunes can thus cater to a much wider range

of markets than a physical store. Anderson argues that online sellers of digital content are finding that the sales of niche items add up to be far greater than that of "hit" items.

The implications of Anderson's argument extend beyond simply affirming the business models of iTunes or Amazon. Web 2.0 enthusiasts have taken up his claims and applied them to the use of social networking sites, blogs, and wikis, arguing that the countless sites dedicated to the narrowest of interests have freed consumers from the tyranny of mass culture. By praising niche markets and deriding mass market hits, these enthusiasts argue that the user/consumer is rising in importance, and that mass media companies are being relegated to the dustbins of history. The most salient example of this is Don Tapscott and Anthony D. Williams's (2008) book *Wikinomics: how mass collaboration changes everything,* an encomium to *TIME*'s 2006 person of the year. Much like Anderson, they argue that Web 2.0 has brought about a "new economic logic" (2) of "a world where value creation will be fast, fluid, and persistently disruptive" (12). This is the world of the "prosumer," a landscape where firms "crowdsource" (Jeff Howe 2008) their research and development and content creation to the masses. Where Anderson focuses on corporations which do not overlook niches, Tapscott and Williams focus on companies that open their previously proprietary information to the world via the Web and thus receive feedback, suggestions, and content from mass collaborators. Updating previous tributes to globalization (Thomas Friedman 2006), they argue that Web 2.0 will enable people from impoverished regions of the world to gain employment as the beneficiaries of outsourcing. Citizens of third-world states would have access to labor markets via the Web. According to Tapscott and Williams, there is no danger of

inequalities or losses of social welfare; rather the worst effects come from "great upheaval, dislocation, and danger for societies, corporations, and individuals that *fail to keep up with relentless change*" (15, my emphasis). In short, Web 2.0 will change everything, so states and corporations had better begin to crowdsource. Their most commonly cited example of companies that failed to heed their suggestions are media companies, a group which are ignoring user-generated content due to an archaic need for authority and elitism: "Media organizations that fail to see the writing on the wall will be bypassed by a new generation of media-savvy prosumers who increasingly trust the insights of their peers over the authority of CNN or the *Wall Street Journal*" (147).

Thus, while the popular media made much hay of tributes to executives and the young entrepreneurs of Web 2.0, they also paid tribute to Web 2.0's ostensible leaders – the users. This dual tribute is not contradictory; rather it maps neatly onto the neoliberal ideology of economics, wherein "what's good for [GM, Google, NewsCorp, Raytheon, etc is good for America," and where the consumer is sovereign. Much like the simple, second definition – Silicon Valley is back – this definition of Web 2.0 tends to ignore the "Web as Platform" hierarchical vision of surface and depth, focusing instead on the surface upon which users interact with Web 2.0 sites. I will explore this in greater detail in chapter 4.

2.4 The critical response

All of this is not to say that there has been no critical response to the concept "Web 2.0" or its cognates in various sectors. In the popular media, while many journalists explored

the utopian potential of Web 2.0, there certainly were detractors. For example, the editors of the *Economist* (Anon. 2005b) and Kevin Maney (2005) call it "Bubble 2.0," framing it as a return to the irrational exuberance of the late 1990s. Maney's article is particularly sarcastic: "Woo hoo! Tech is back!" he exclaims. "Kind of like Nixon in '68. Or an REO Speedwagon reunion tour. Gives you a bit of an uneasy feeling." Similarly, John Cook (2005) of the Seattle Post-Intelligencer argues that the lessons of the 1990s were lost on the advocates of Web 2.0.

Several writers (Cook 2005; Blodget 2005; Koopman 2005; Mossberg 2005a; Mossberg 2005b) dispute the name "Web 2.0" on technical grounds, given that it was not properly a new version of software. They argued that some of the companies involved (notably eBay and Amazon) were holdovers from the "Web 1.0" days, thus undermining the implications of a second generation of the Web. Perhaps the best example of this line of criticism came from the inventor of the World Wide Web, Tim Berners-Lee, who said in an interview (Berners-Lee 2006) "I think Web 2.0 is, of course, a piece of jargon, nobody even knows what it means. If Web 2.0 for you is blogs and wikis, then that is people to people. But that was what the Web was supposed to be all along." Berners-Lee's scoffing at the concept of Web 2.0 largely arises from his original intentions for the Web; he wanted it to be a "read-write" medium rather than simply a read-only, top-down one, a medium where editing was just as easy as browsing (Berners-Lee and Fischetti 2000). It is no wonder that the suggestion that his original invention, "Web 1.0," did not have this feature must have bothered him.

Perhaps the most scathing indictments of Web 2.0 came on the grounds that this newest generation of the Web allows for democratic (or rather amateur) production of news, video, and photos. Andrew Keen (2006) of *The Weekly Standard* mixes doubt about the viability of the Web 2.0 business model with an argument against amateurism. These quotes are lengthy but cannot be paraphrased:

> Buzzwords from the old dot.com era--like "cool," "eyeballs," or "burn-rate"--have been replaced in Web 2.0 by language which is simultaneously more militant and absurd: Empowering citizen media, radically democratize, smash elitism, content redistribution, authentic community . . . . This sociological jargon, once the preserve of the hippie counterculture, has now become the lexicon of new media capitalism. (Keen's emphasis)

This "new media capitalism" strikes Keen as so radical it must be Marxist:

> Empowered by Web 2.0 technology, we can all become citizen journalists, citizen videographers, citizen musicians. Empowered by this technology, we will be able to write in the morning, direct movies in the afternoon, and make music in the evening. Sounds familiar? It's eerily similar to Marx's seductive promise about individual self-realization in his *German Ideology*: "Whereas in communist society, where nobody has one exclusive sphere of activity but each can become accomplished in any branch he wishes, society regulates the general production and thus makes it possible for me to do one thing today and another tomorrow, to hunt in the morning, fish in the afternoon, rear cattle in the evening, criticise after dinner, just as I have a mind, without ever becoming hunter, fisherman, shepherd or critic." Just as Marx seduced a generation of European idealists with his fantasy of self-realization in a communist utopia, so the Web 2.0 cult of creative self-realization has seduced everyone in Silicon Valley.

Setting aside the disorienting idea that Silicon Valley venture capitalists are now Marxists, Keen's critique of Web 2.0's "cult of the amateur" - which would later become the title of his book (Andrew Keen 2007) on the same subject - encapsulates much of the pushback against the term "Web 2.0." In a sense, Keen's article and subsequent book provide a mirror image of the *Newsweek* and *TIME* features; where those articles

celebrate the amateur and argue that Web 2.0 is a technology of mediated democracy, Keen decries the loss of authority, echoing Edmund Burke's criticism of French liberalism.

2.4.1 Critical Academic response

There has not been much explicit critical discussion of Web 2.0 among academics. The most notable examination is in a special issue of the peer-reviewed online journal First Monday. Special issue editor Michael Zimmer (2008) explains, "this collection of articles will work to remove the blinders of the unintended consequences of Web 2.0's blurring of boundaries and critically explore the social, political, and ethical dimensions of Web 2.0." These articles focus on what might be called the negative externalities of Web 2.0: increased centralization of the Web in the hands of media capital, surveillance of user activity, and the capture of the fruits of free user labor. As users input more and more personal data into Web 2.0 sites, new media capitalists are gaining clearer and clearer pictures of user tastes and desires. This is very valuable marketing information. In short, Zimmer et al present these concerns as a response to much of the utopian discourse described above.

For example, Trebor Scholz's (2008) contribution reads as a response to Yochai Benkler's (2006) tribute to the "networked economy": "The core question for Yale law School professor Yochai Benkler is how 'to manage the marriage of money and nonmoney without making nonmoney feel like a sucker.' In other words, how can we harvest/monetize the labor and presence of those millions on Myspace, for example,

without making them feel bad?" He argues that the answer is in the discursive technique of novelty. The "2.0" in Web 2.0 is meant to imply cutting-edge technologies and technique, and that this emphasis on newness elides the exploitation occurring within these networks. Thus, his critique centers on Web 2.0 as a brand; it functions as an ideological object which privileges commercial ways of thinking about online collaboration and de-emphasizes non-profit ones.

Building on Scholz's argument, Kylie Jarrett's (2008) contribution examines the ideology of interactivity. She notes that interactivity has been proposed as a means to counter disciplinary power (Barry 2001). In this argument, interactivity allows for new forms of subjectivity and agency which "disrupt the knowledge/power nexus … and the basic power relations of mass broadcast media." It does not determine a subject made via surveillance to fit the needs of power, but rather one that is heterogeneous and multitudinous. Therefore, the increased ability of users to interact made possible by Web 2.0 must logically lead to a decrease in Foucauldian discipline and surveillance. However, she argues against this. Foucault's description of discipline is accurate for the 19th century model of a liberal state, and interactivity might be an antidote to that political formation, but interactivity is a disciplinary tactic of the *neo*liberal state. As Jarrett explains,

> The agency associated with the 'You may!' injunction subjects Web 2.0 consumers to a normative judgement of practice in terms of activity and self–determination central to neoliberal citizenship. This judgement, when (if) inculcated into the subject, becomes the basis of self–policing practice, where a regime of free choice is normalised and individuals become disciplined to accept and exercise their own agency. The Web 2.0 user who accepts the call to interact is being shaped into, or reinforced as, the active, entrepreneurial citizen of neoliberalism.

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That is, interactivity is the disciplinary force of the age of mass customization, where the consumer-sovereign is the imagined subject of all political, economic, and juridical discourse. To be sure, the neoliberal subject is expected to form himself through interaction, but within the constraints of the market system. As Jarrett explains, "the interactive Web 2.0 consumer is, therefore, not only the *subject of* advanced liberal government as previously argued, but is also *subject to* that particular form of governance."

Finally, Soren Mork Petersen's (Petersen 2008) article explores the oscillating movement between participation and enclosure which occurs in Web 2.0. He rightly points to autonomous potentials of the Web, noting that non-profit, anti-profit, and pirate sites do exist online, and that they rely upon user-participation to produce content which is aimed towards at the very least not adhering to the goals of global capital. However, he also traces the history of the enclosure of such spaces. For example, the for-profit company Google purchased the archives of the non-profit, communitarian UseNet, an entity dating back to the earliest days of the Internet. The contributors to UseNet likely did not imagine that their content would become property used to create profits. However, as Petersen reminds us, "Although there are zones of autonomy and piracy online, it is important to acknowledge that the Internet, always and already, operates within the confinement of capitalism." The archival capacity of the Internet creates databases which can be later mined, and the asynchronous property of user interaction makes interaction a very tempting target for new media capital to survey after the fact. UseNet is an example of

sites dedicated to a non- (if not anti-) profit motive which are later subsumed by new media capital.[5]

While the *First Monday* special issue is perhaps the only dedicated site of critical engagement with Web 2.0, there are many scholars examining Web 2.0 by other names. Marc Andrejevic (2007a; 2003; 2007b) and Johnathan Zittrain (2008; 2009b) are both notable for their concept of the "digital enclosure." Both of these authors argue that the Web is suffering a similar fate as the pastoral commons of pre-Industrial England. What was once common property is being closed off and accumulated by new media capital. For Andrejevic, the key heuristic is surveillance, what he calls "the work of being watched." As users are acculturated in a media milieu which privileges "reality," they begin to perform their identities for an unseen audience. Sites such as Facebook, MySpace, YouTube and services such as blogs are key areas where "the real" can be performed. This sort of performance is inevitably shunted towards the expression of consumer preferences, and all activities are brought under the watchful gaze of new media capitalists.

For Zittrain, the enclosure is occurring because of fear. That is, as more people migrate to the Web, they encounter a wild space of viruses, hackers, pedophiles, and identity thieves. Zittrain argues that this fear is being exploited by the makers of hardware and software. They promise to keep Web surfers safe by providing "closed" technologies which are secured from the unsavory elements of the Web. However, these same, safe devices are

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[5] Unfortunately, Linux might provide another example. Angus Kidman (2010) of *APC Magazine* reports that 75% of the Linux kernel is being developed at for-profit companies. This centralization of kernel development might portend a shift in priorities from the community, volunteer ethos of Linux to an attempt to accumulate this valuable operating system.

also easily surveyed by new media capital. For example, one can use a TiVo computer to record and replay television programs, but this technology requires a service which tethers the machine to the central TiVo servers. Customers who use these machines must subscribe to the service and agree to have their viewing habits recorded. In contrast, there are open technologies such as Mythbuntu, an operating system which provides digital recording and services for free. However, this service is subject to the contingent vagaries of the Internet, which (presumably) includes hackers and identity thieves.

In sum, this critical response provides a powerful rejoinder to the techno-utopian rhetoric of technologists and journalists. I intend my dissertation to join in the critical response by examining the historical development of Web 2.0. But first, I offer a working definition of this complex object.

2.5 Conclusion: Social actors and a composite definition

How are we to make sense of this object? Is Web 2.0 a "platform" for new modes of organizing consumers and gathering their "collective intelligence?" Or is Web 2.0 a revolutionary, democratic shift in media production where users take the lead? Or is it, as Berners-Lee argued, simply a "piece of jargon"? In sum, it is all of these things.

2.5.1 The social network of the social Web

Drawing on the tradition of science and technology studies (STS), I would first argue that Web 2.0 is a collection of technologies which are not neutral, but rather are developed to meet the needs of powerful actors. As theorists in the social construction of technology (SCOT) school argue, technological systems are so complex and overwhelming to the lay

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observer that they appear to have a logic (and a velocity) all their own. Certainly, Web 2.0 appears to be this way, arising logically and almost ahistorically out of the technological trajectory of personal computing and Web development. However, as a wide range of STS theorists such as Thomas Hughes (1969; 1983; 1987), Thomas Misa (1988), Trevor Pinch and Wiebe Bjiker (1987), David Noble (1977; 1984), Langdon Winner (1986b), Donald MacKenzie (1984; 1990; MacKenzie and Wajcman 1985), and Sheila Jasanoff (2004; 2005; 1990) argue, technologies get their momentum from the very actors who put them into motion. The determining factor is the *social construction* of technology. They arise out of the myriad, overdetermined needs and desires of networks of social actors who use social and material power to jockey for control of technological systems. For example, an engineer of a large system (such as the Internet) must "deal with the messy economic, political, and social vitality of the production systems that embody the complex objectives of modern men and women" (Hughes 1983, 1). Engineers and technologists do not simply make technology in a social vacuum. Instead, technological development is determined in part by social conditions, notably social power. This is the proper object of study for anyone seeking to understand the complex "momentum" of technology.

Likewise, in the case of Web 2.0, the shape of this technology and ideology depends on the struggles for social power among a wide range of actors. I have briefly mentioned these actors in this chapter; here I want to illuminate them all in more detail. First, technologists such as Tim O'Reilly have a stake in the dissemination of Web 2.0 ideology and practice, because they seek cultural capital as "thought leaders" who can guide

newcomers through bleeding-edge technologies and techniques, predominantly through programming manuals. This is demonstrated by O'Reilly Media's desire to associate itself with "Web 2.0" in order to monopolize Web 2.0-themed trade shows. O'Reilly Media has trademarked the term and has sued other organizations who have promoted Web 2.0 conferences (Raftery 2006a; Raftery 2006b). O'Reilly claims ownership over the term, seeking to closely control its use to benefit from the cultural capital it conveys as long as is possible.

Technology reporters and bloggers are key actors involved in Web 2.0 for similar reasons. Whereas O'Reilly Media is built in part upon coining buzzwords to describe technology trends, journalists and bloggers have built industries around explaining and nuancing these buzzwords for broad audiences. Notable among them are John Battelle, Richard MacManus, and Verne Kopytoff. Batelle is a frequent contributor to the *New York Times* but is probably more notable for his *Search Blog,* a site which was instrumental in popularizing Google. He was also involved in the Web 2.0 conferences. Richard MacManus was a blogger who was an early enthusiast of Web 2.0; his blog, *ReadWriteWeb* is now a major source of news on Web technologies. Verne Kopytoff is a journalist with the *San Franscisco Chronicle* and covers the technology beat in Silicon Valley. Like O'Reilly, these writers have an interest in maintaining their social capital as "thought leaders." Thought leadership is a particular form of public intellectualism which is heavily invested in new technologies and techniques (Phillips 2005; Klavans and Boyack 2008). It has a great deal in common with personal branding (a topic I cover in detail in chapter seven) because technology reporters and writers attempt to claim

authority as experts in technological systems. An expert in Web technologies can transform social capital into consulting and publishing enterprises.

In addition, Web 2.0 has arisen during late- (Mandel 1975) and postmodern (Jameson 1997; Harvey 2003; Harvey 2006) capitalism, and as such it is marked by the needs of investors in and owners of media industries. The list of venture capitalists involved in Web 2.0 is extensive, including Sequoia Capital (investors in Google, YouTube, and Blippy), Accel Partners and Greylock Partners (both investors in Facebook), and Benchmark Capital and Union Square Ventures (both investors in Twitter). These investors tend to not only invest in new Web businesses, but also sit on the boards of directors of these companies. When this personal involvement is coupled with the geographical density of venture capital firms (the majority of which are in Southern California), a tightly knit social network arises, likely leading to the concentration on one dominant economic model of new media: seek ways to exchange a service for the private data of users. This economic model becomes solidified when the venture capitalists' investments pay off, which typically happens when the company has a public stock offering (as in the case of Google) or is bought by an established media corporation (as in the case of Newscorp buying MySpace or Microsoft investing in Facebook). In sum, the heavy reliance on venture capital and later upon public stock options has created a largely homogeneous economic model in Web 2.0, a phenomenon I will explore further throughout this dissertation.

The final set of social actors involved in Web 2.0 are, of course, the users. Users of these sites are incredibly heterogeneous, and the actual number of users likely is in the billions.

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Based on this incredible popularity, it is understandable that there have been so many utopian promises made on the behalf of these sites. Because the uses of Web 2.0 are so radically varied, this dissertation will not be an attempt to catalog them – this would likely prove impossible.

Rather, this dissertation is an attempt to understand the desires of site owners and venture capitalists and how those desires are expressed in the architecture of computers and networks. As a product of the late capitalist historical context, Web 2.0 is in many cases a means to extend surveillance and capture surplus value from the millions of participants laboring in the digital enclosure. How is this achieved? This is where a return to the O'Reilly definition is useful. In the "Web as Platform," Web 2.0 site owners provide spaces in which users can enjoy the pleasures of connecting with one another, constructing their identities, and collaborating. However, these activities often occur on the "surface" of the Web as platform. Below this surface, Web 2.0 site owners surveil user activities and transform subjective pleasures into objective economic value.

Thus, technologists/"thought leaders" such as O'Reilly might present Web 2.0 as spaces where hierarchies are flattened. However hierarchies remain, but are simply displaced. This is apparent when we examine Web 2.0's history and technological structure. Web 2.0's technological structure arises out of years of technological decision-making shaped by a wide range of actors, most of whom desired power over the productive capacities of the Internet. In short, the tradition of SCOT-STS orients us towards the contingent development of new technologies, reminding us that they are the products of debate, struggle, and collaboration among a wide range of actors. Web 2.0 is no exception.

Ultimately, by drawing on the traditions of STS-SCOT and Marxian political economy and by considering the social actors involved in Web 2.0, I have come to the following definition of Web 2.0. While it is lengthy, this definition encompasses the complexity of the object:

> *Web 2.0 is a loose constellation of ideologies, programming techniques, infrastructures, and managerial techniques which a) orient new media capitalists to the cost-cutting potentials of distributed online labor and the profit-making potentials of the Web-enabled attention economy, and b) orient users to the possibilities of participating in the production of media and thus also orienting users to new forms of subjectivity. Web 2.0 thus sets two groups of actors into what Henry Jenkins (2004) calls an "uneasy truce": site owners desire to harness the unpredictable creative capacities of Web users, but want this done in a way that produces their wealth and power. Users desire to be a part of the media, but want to do so in ways beneficial to them. These two groups depend upon each other.*

The remainder of this dissertation explores the structure in which these two groups of actors meet. Their mutual dependence mirrors the dependence between workers and owners of capital.

3 Web 2.0 Pleasures and Exchanges

As Kate Soper (1981) notes, there is an inherent tension between interpellation and agency, and this tension plays out along matrices of needs, desires, joys, and pleasures. In other words, the tension between social structure and individual autonomy is manifested in value. On the one hand, we might see value as an immaterial, emotional, subjective phenomena, idiosyncratically tied to agency. Individual pleasure is impossible to quantify. On the other hand, we see every day in late capitalism how our desires and pleasures have become reduced to objects - very often alienated from us – and are dangled before us as a means to overcome alienation and satisfy desire. In those instances, value becomes objective. It is measurable, signaled as it were by price. We work to consume. We consume to work. Our desires, being objectified, point to the ways in which we ourselves are objectified.

In her later collection of essays, Soper (1990, 7) calls this phenomenon "troubled pleasures," an uneasy state where our incessant striving for fully realized subjectivity is constantly undermined by objectification, exploitation, and environmental degradation. As disconcerting as this is, Soper notes the difficulty of "troubling" people's pleasure: "Asking others to be 'troubled' by their pleasures... is in itself troubling, and a source of potential embarrassments and rancour even among the politically like-minded, let alone

across divisions of wealth and class." Troubled pleasure, then, is the fault line upon which cultural studies often sits. On one side is the emphasis of uses and pleasures and the possibilities of agency; grating against it is the Marxian critique of the material conditions of production and labor.

This dissertation is, I hope, situated somewhere along that same fault line. It is largely an exercise in troubling the pleasures of Web 2.0. However, in order to trouble Web 2.0 pleasure, one must have a grasp of what those pleasures are. In this chapter, I first explore several sources of subjective pleasure in Web 2.0. Drawing on a survey of empirical and ethnographic research, I claim that users of Web 2.0 sites enjoy five key pleasures. These pleasures, I argue, are largely autonomous of the economics of Web 2.0; they are not necessarily determined by Web 2.0. Many of them precede Web 2.0; they have roots throughout the history of the Internet, if not in many other mass communication technologies.

However, as autonomous as they might be, these pleasures and user desires are being exploited and shaped in Web 2.0. Many Web 2.0 sites are structured to convert these contingent, unpredictable pleasures into objective, measurable quantities of exchangeable goods. In this way, the subjective and ideal are converted into the objective and material. To illuminate this process, I will rely on Marx's dialect of use-value and exchange-value. In the *Grundrisse* and in key parts of volume one of *Capital*, Marx argues that subjective use-value – the product of desires and emotions – is dialectically linked to objective exchange-value, which is the product of rationalized market exchange. This is the key to understanding the contradiction between users of Web 2.0 and Web 2.0 site owners. Users

of Web 2.0 produce use-values in the form of the pleasures I explore in this chapter. Web 2.0 site owners seek to objectify these pleasures into exchange-values. Surplus-value – profit – arises because *economically* the aggregated use-values possible in Web 2.0 are heavily outweighed by exchange-values. In short, Web 2.0 site owners treat users as productive labor, producing exchangeable, objectified (that is, digitized) pleasures, affect, and desires.

The ultimate goal of this chapter is to establish this dialectic as it exists in Web 2.0. This lays the groundwork for the next three chapters, which will explore the technological structure of Web 2.0 and how that structure allows new media capitalists to objectify user pleasure.

3.1 Pleasure on the Web

According to the existing academic literature, pleasure on the Web predominantly (but not exclusively) falls into five broad categories: controlling streams of information; the ability to play with identity both individually and among a cohort; connecting with others (particularly in the form of strengthening existing bonds); synoptic and scopophilic pleasures; and collaborating and participating in civic and democratic activities. These forms of pleasure are not necessarily limited to Web 2.0; in fact, they precede Web 2.0, although in forms which are shaped by historical context. Moreover, these forms of pleasure in Web 2.0 are not mutually exclusive; rather, they tend to bleed across the taxonomy I am offering here. Taking pleasure in controlling information might in some cases encompass playing with identity, particular if a user is attempting to present herself

as a connoisseur of some topic. Identity-play is certainly related to taking pleasure in looking, since in spaces of consumption, we often look to imagine ourselves owning the object and therefore transformed by its ownership. Users often strengthen social bonds while engaging in civic and political actions. Despite these fuzzy borders, this taxonomy is useful for understanding pleasure in the social Web.

3.1.1 Control of information streams

Technology is not a static thing. Rather, it is a process. The creation of tools and techniques arises from the negotiation between and among people and whatever material they choose to work with. One source of pleasure comes from the ability to master this process, to control it, and if successful, technologists feel that they control their environments (Turkle 1984; Turkle 1995; Edwards 1990; Edwards 1996; Hapnes 1996; Kleif and Faulkner 2003). This has been an underlying pleasure in the discipline of communication; the inventor of cybernetics, Norbert Weiner (1948), argues that communication *is* control; the abilities to manipulate symbols and to create systems which enhance human power over an environment are intensely pleasurable.

However, this is not only about control of an environment. Stopping at that point would ignore the social aspects of technology. The mastery has to be *displayed* for a social network. For example, in their study of robot builders and software engineers, Kleif and Faulkner (2003) argue that technologists seek recognition for their mastery. After making a breakthrough or creating a successful artifact, the technologists seek recognition from laypeople they associate with and with other technologists. Kleif and Faulkner argue that

technologists hold recognition from their peers in higher esteem than those of laypersons., but in either case, technologists actively seek out acknowledgement.[6]

For users of Web 2.0 sites, pleasure from control happens in one key way. The Web is a vast and often bewildering compendium of documents and media artifacts. One mode of mastery in this environment is the ability to navigate and to extract information from this often confusing mediascape. Social bookmarking sites, blogs, and online social networks are techniques that people use to share articles and media objects they find. These Web 2.0 services allow users to experience control over the mediascape, overcoming what Clay Shirky (2008) aptly calls "filter failure." Rather than drown in information, these users seek to master it. This involves significant investment of time and skill, as users customize a variety of filters available in sites such as Twitter, Facebook, YouTube, and Google. Part of the pleasure of control arises from creating one's own custom information streams to manage information. In blogging, for example, pleasure arises from publishing one's views on a variety of topics. Technology bloggers typically attempt to display a mastery of the material and of the current news and analysis of the topic at hand. Even family-based blogs, where users post pictures of their families and keep their friends and relatives up-to-date on day-to-day events, demonstrate a sense of control; it is as if a mother is saying, "there's a lot of noise on the Web, but this is a space where that noise is reduced and important things like children are featured." Following Edwards (1990;

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[6] Many studies of technology/control/pleasure cited here argue that, in general, control is a pleasure felt predominantly by men. Because most of this dissertation deals with labor and class in the digital sphere, I feel that it is best for me to bracket off the question of gendered differences in Web 2.0 uses. However, I would be highly sympathetic to a study which took gender as a key point of entry into how Web 2.0 sites are structured and what sort of (if any) gendered subjectivities they imagine. In any case, Web 2.0 appears to provide a sense of control over a bewildering mediascape; as such, it provides pleasure which has typically been gendered masculine.

1996), we might call this process the creation of "information microworlds," spaces where mastery over a bewildering array of informational variables (particularly signal and noise) is demonstrated. Elsewhere (Gehl 2009), I argued that this process is akin to curating vast archives; curators have power to extract "facts" from decontextualized, flattened collections of objects. Likewise, users experience power as they curate the Web with social media, pulling out that information that is relevant to their respective audiences and presenting it in clearly captioned exhibits.

Moreover, this mastery is not a solitary act, but is performed in front of peers. For a user of social bookmarking or social networking sites, pleasure arises from finding an interesting media object *and* presenting it to others – and this is key – first. Once that object is presented, social norms dictate that peers will comment on it, alternately noting the significance of the artifact and praising the original person for posting it. Control over information streams – a skill that is often called "digital literacy" - and the ability to use these streams to build social capital or navigate the world marks a key pleasure in Web 2.0.

3.1.2 Playing with identity

In the 1980s, many researchers looking at the Internet focused on the pleasures users have gained from playing with their identities in online environments. Typically, these works assert that the text-based, anonymous, and global nature of the Internet allowed users to assume a wide range of identities, from different genders to different species. Since the sites were text-based, users had to write themselves into being in order to

populate them. The body was not a limiting factor; gender and sexuality, race and ethnicity were all in flux. The poor could be rich, the shy could be gregarious, and the reticent heroic. Sherry Turkle's *The Second Self* (1984; 2005) examination of users in Multi-User Dungeons is the most notable example of this, followed by her *Life on the Screen* (1995). Howard Rheingold's *The Virtual Community* (1993) and Julian Dibble's (1998) *My Tiny Life* have extended Turkle's arguments with further ethnographic and autoethnographic explorations of identity construction in cyberspace. All contain remarkable stories of identity construction and transformation.

However, in the 2000s, the most popular Web 2.0 sites predominantly differ from this history because user profiles within them tend to be based on "real-world" identities. As danah boyd (2008a, 128) puts it, Web 2.0 profiles are often "tightly tethered to the individual behind the profile, if for no other reason than because they serve as a direct digital representation of that person for mediated interactions. " However, this does not mean that identity-play does not happen in these sites. In her examination of teens' use of social networks, she argues that even though profile construction is not a from-scratch textual composition of self, MySpace and Facebook profile creation is "an art. Choosing photos, selecting songs, creating layouts, and determining how to fill in various text fields takes time because teens consciously consider the impressions that their profiles might leave " (ibid 130). She likens it to fashion since the social network users are more likely to know each other offline.

If in fact the construction of profiles in these social networks – whether done by teens or adults – is an act akin to paying attention to fashion, then we can easily see the pleasure

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users take in the process. It is a form of play, a process by which we learn social norms and the outer limits of our agency. In this context, those who engage in social networks learn who they are through their profile building, just as they would through the use of clothing. As Adriana Manago et al (2008, 454) argue, social networks like MySpace "opens up a new space for those experiencing a period of identity exploration to cultivate ideal selves by trying them out in virtual reality." The ability to shape our appearances in online environments reflects the pleasure we feel when we select clothes, but this shaping is of course attenuated by myriad social conventions. Teens are not the only ones indulging in this pleasure; while their changes of personal appearance might happen less frequently and less obviously, adults engage in these same behaviors and explore many of the same social conventions.

Moreover, as Kerry Mallan and Natasha Giardina argue, identity construction in this environment is highly collaborative. They call this phenomenon "wikidenties," arguing that, like collaborative knowledge production in wikis, social networking identity construction relies on the production of "communally negotiated truth, where verification strategies such as searching for mutual friends can help establish a reasonable degree of veracity to the information presented." While this sounds as if individuals are no longer able to play with their identities/profiles since identity is structured within a social network, in fact Mallan and Giardina see this process as playful for all involved, resulting in communally-produced social network profiles that are the products of negotiation between individual and the group.

Although social media sites tend to reduce opportunities for complete freedom in identity creation, they have not eliminated outright the wholesale creation of online identities. Many users of Web 2.0 have created "fake" profiles based on fictional characters or famous personas. Examining MySpace profiles built around television show characters, Paul Booth (2008, 517) argues that "MySpace allows fans to explore their own identity formation... in a public, conceptual space of their own creation. Fans use MySpace to create personas of fictional television characters, and through role-play with these characters, identify with, and insert themselves into, the narrative of that show. In doing so, fans integrate themselves not only into the text itself, but also into a community of other fans." He argues that this "space" of identity role-play is outside the strategic enclosures of media capital; fans are using these personas entirely on their own terms in order to create new identities. In his view, the media texts which give rise to this mode of play are "practices," not "objects," removing them from traditional, industrial-economic conceptions of media production and consumption. Booth's work might help explain the slow rise of fake profiles on Facebook, particularly the curious practice of the creation of profile pages for dead anthropologists. It also helps describe the success of YouTube's Lonelygirl15 phenomena, even after Lonelygirl15 was revealed to be a fiction. In both cases, fans are less concerned with the "real world" facts of identity and are instead engaged with compelling personae.

In both cases – partial or full identity construction within Web 2.0 – users are gaining value by playing with their identities. They "try on" different musical tastes or appearances. They engage with media texts by "friending" the profile of a fictional

character. They use different profiles for work and personal relationships. Booth and boyd both explicitly move away from economic analyses of value creation, instead emphasizing value created through identity and connection in a social matrix. This is a pleasure that cannot be discounted.

3.1.3 Connection and re-connection

Howard Rheingold's *The Virtual Community* (1993) is perhaps the most notable of the early cyber-utopian vision of the Internet as a space where all the people of the world could exchange ideas and, moreover, would willingly seek out the ideas of strangers. Drawing inspiration from Marshall McLuhan's "global village" meme, he argues that the Internet would be used to create global-spanning communities as individuals would seek out new connections around the world. However, the actual practice of users is significantly different from this vision. Research has shown that users of Web 2.0 sites often (but not exclusively) build their connections out of already-existing networks of friends and colleagues. This indicates that people are using Web 2.0 to strengthen their real-world connections, drawing pleasure from maintaining (rather than extending) social bonds across time and space.

Again, danah boyd's work is important here. She and J. Donath (Donath and boyd 2004) found that users of social networks relied upon real-world connections of friends, family, and colleagues to populate their online networks. Their 2004 study was important because the predominant assumption was that sites such as Friendster and MySpace would be used by people to find dates and connect with strangers rather than maintain

existing connections. boyd's later ethnography (2008a) of high school students' use of MySpace and Facebook links the social anxieties of teenage life to the social structures of those social networks, further demonstrating the deep connections between real-world and online social networks. Teens took their real-world cliques, feuds, and love lives into their Web 2.0 profiles and practices, and enjoyed using these technologies to craft their social identities.

Similar to danah boyd's findings, Andre Schrock (2009) found that users of MySpace are highly extroverted, actively using the social network to connect with friends. This actually contradicts previous media research, which found that extroverts did not use media as much as introverts, preferring instead to have personal connections:

> These sites are multimedia, centered around social activities such as cultivating lists of friends and sending messages.... If the most popular uses of the Internet are social ... and friendships created by young people are maintained through a combination of online and offline activities, social media such as [social networking sites] may be likely to be more attractive to extroverts than a decade ago when such sites were text–based and less popular.

Thus, active social connection is happening in Web 2.0 sites, built upon existing social practices and "real-world" networks. These findings confirm previous studies by Nicole Ellison et al (2007), who found that Facebook users most often build on existing social networks and therefore enjoy increased social capital and connection to their friends.

While many users of social media build their online networks out of their offline ones, Web 2.0 site users also engage in networking beyond their immediate social circles. Although this is a less explored area, my anecdotal analysis of social networking and

media sharing sites indicates that some users take pleasure in the accumulation of many thousands (or millions) of friends and contacts.[7] Twitter, for example, prominently displays the amount of "followers" any given user has. This reflects a simple formula: presumably, the more followers someone has, the more popular/important they are. Twitter users do this one of two ways: first, they might leverage their offline popularity. As of this writing, basketball player and four-time NBA champion Shaquille O'Neal has nearly three million followers on Twitter. Since he is a prominent athlete, his use of Twitter has garnered much attention, and many people subscribe to the insights of The_Real_Shaq. He himself is only following 560, a ratio of 6000:1, indicating that his tastes are more exclusive. He does not follow all of his followers. On the other hand, another method is to rely on reciprocity; Twitter user and artist Axepose has over 1100 followers and follows over 1600 people. This is a more equal ratio, indicating that Axepose built its following by following others. YouTube's channels, MySpace celebrities, and Facebook fan pages typically use these same logics of accumulation, and all display the number of contacts prominently. While most users do not approach the level of Shaquille O'Neal's Twitter account, some users attempt to at least accumulate as many contacts as possible.

In addition, users do also engage in the longstanding Internet practice of building social groups centered on affinities. In the 1980s, Internet sites such as Usenet were organized

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[7] At this point, I am not aware of academic research into how people approach obtaining or managing thousands of "friends." There are popular media and blog articles on this topic. In *Newsweek,* Steven Levy (2008) discusses Facebook's 5000 friend limit and the problems with referring to that many people as "friends." On *ReadWriteWeb*, Josh Catone (2008) discusses similar issues. Recently, anthropologist Robin Dunbar's argument that humans can manage 100-150 friends has received much attention in the popular media, as writers have contrasted this academic work with the seemingly irrational activity of teens on MySpace and Facebook. For my part, in this section I want to consider the pleasures of accumulation without attempting to discover how this is actually managed.

around interests such as computers, arts and entertainment, and sex. This practice/structure was repeated on specialized bulletin board services, services such as AOL and Prodigy, and forums and web-rings in the 1990s. Web 2.0 sites often replicate this structure; Google Groups, Facebook groups, and specialized blogs enjoy popularity. These sites are organized less around individuals or existing networks and more around fandom, political activism, or interests. However, the research of boyd, Shrock, and Ellison et al indicate that this practice is likely not independent of users' offline networks. That is, if I am a fan of Nirvana, my friends likely are as well. If I am on Facebook, my friends likely are. If there is a Facebook Nirvana fan page, we are all likely members.

Whatever their form, these modes of connection provide intense pleasures for users. For those who seek to strengthen their real-world connections, blogger Tara Flowers (n.d.) recommends Facebook because "At a time in my life where I have never felt more alone nor lost, [Facebook] has afforded me a foundation of support I had long since forgotten. Through the wonders of its technology I have reconnected with those individuals from my past who were the ones I shared my deepest dreams with, commiserated with, laughed with and even got arrested for underage drinking with." For those who seek a group centered on an interest, Michael Boyle (2009), a strength training coach who formed a Facebook group for his alumni, writes

> Truth is I created a Facebook page because I thought it might be good for business. However, I had a very pleasant surprise. ... people who I thought I would never see again suddenly came back into my life via Facebook. It seems like almost every day I get a fun little blast from the past from one of my former athletes. It's great to see who's married, who has kids and who lives where. I still haven't figured out how to leverage Facebook for business purposes but, I will soon. In any case it doesn't matter because I am thoroughly enjoying my use of social media just to renew old

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acquaintances. I now have over 1000 Facebook friends and am adding new friends every day.

And for someone who seeks to build networks of fans of bands, MySpace member

Blanche (2007) writes

I had no idea that there were so many independent musicians and djs [sic] just waiting for their music to be heard! Everytime [sic] I see a friend request from a musician in my inbox, it's like opening a gift--getting to hear raw, unfiltered voices and tracks that have not yet been managed or altered by huge music corporations to fit some formula. Hearing tracks from DJ's all around the world is thrilling as well, each one having their own distinctive sound. So glad to see people living out their dreams and being able to communicate with them one on one. Thanks to all of you for your inspiration...

Clearly, these connections are a key source of pleasure in Web 2.0, reinforcing what

Sherry Turkle (1984) aptly called the "holding power" of computers and computer-

mediated communication. The constant updates of friends, the potential digital reunion

between long-lost loves, and the new musicians that enter into networks all keep users

glued to their computers.

3.1.4 Synoptic and Scopophilic Pleasures

Users also gain pleasure in Web 2.0 from their ability to watch others and to look at an

ever-changing array of digital artifacts. Both acts of looking – the one synoptic, where

everyone surveils everyone, the other scopophilic, where the user gazes at objects – are

readily enabled by Web 2.0 sites. Thanks to the continued refinement of search engines,

users can "find" anything from avatars of old friends to old collectibles via the Web. They

can browse these objects and make "public displays of connection" (Donath and boyd

2004) to them (by friending or "liking" them), or they can do so in near-anonymity, never alerting the object of the gaze to their presence.

Synoptic pleasures abound in this environment. Both Andrew Hope (2005) and Anders Albrechtslund (2008) argue that participants in new media environments can gain pleasure from watching others and being watched. Hope argues at "surveillance is not just concerned with discipline and control, but also with entertainment and play. The fascination of the public with a host of 'reality TV' programmes and 'fly on the wall' documentaries illustrates the entertainment appeal of the many watching the few" (362). Similarly, Albrechtslund argues that "It is important to not automatically assume that the personal information and communication, which online social networking is based on, is only a commodity for trading. Implicit in this interpretation is that to be under surveillance is undesirable. However, to participate in online social networking is also about the act of sharing yourself – or your constructed identity – with others." In this mode of surveillance, which Albrechtslund calls "participatory surveillance," users are aware of being watched, and they share their personal lives accordingly. In exchange, they get to watch other users. This is the social networking version of what Hille Koskela (2004) calls "empowering exhibitionism" among home Webcam users, where Webcams were used to create exhibitionist spaces where the subjects can control how they are being watched.

This is in many ways the *raison d'être* of social networking and media sharing sites. In order to attract attention, social networks and media sites attempt to make it simple to search for whomever one is looking for (Acquisti and Gross 2006). For example, if I

want to find someone I knew from high school, I can search for him in Facebook or MySpace. Since those social networking sites require users to provide personal information, it is very easy to find people within them. Facebook, for example, provides multiple heuristics to discover acquaintances: by school, by work, by name, by email, by instant messenger handle. This multiplicity of methods belies the social networking site's strategy of relying on users' synoptic pleasures to bring more people into the network, people who can expand the network by watching other users and have that gaze returned.

While synoptic pleasures rely on mutual surveillance within the digital enclosure, the older Internet scopophilic pleasures – watching anonymously and getting pleasure from that gaze – is certainly not reduced in Web 2.0. Media sharing sites such as YouTube largely rely on this form of pleasure. YouTube offers a wide range of channels and categories for individual browsers to use to find media objects they desire to see. Users are invited to browse or search their way through the site to find the object of their desire. The site's scope renders it a virtual archive, a place where one can get lost in a bewildering array of media artifacts. As the most popular of the "tube" sites, YouTube has largely influenced the appearance of many other media sharing sites, from Yahoo! video to pornography tube sites, all of which offer some variant of the channels/categories taxonomic system and a promise of completeness and inclusion. These search heuristics and taxonomies allow users to observe from the digital shadows, finding one object and moving on to the next. Moreover, the clipped nature of the videos inspires quick viewing rather than long contemplative observation, reinforcing the user's desire to move from object to object.

Of course, this mode is also apparent in commerce sites. In their excellent examination of eBay, Janice Denegri-Knott and Mike Molesworth (2010) argue that the commerce site's ever-changing inventory allows for a drama of flânerie, as users daydream among all the artifacts for sale. "eBay's significance as a seductive site to consume (in) lies in its ability to allow for an accelerated construction of latent wants while providing consumers with the tools to react to these wants in various ways, in some cases ultimately rejecting them altogether." (57). Like a window-shopper, eBay allows users to look, buy, or walk away, but always imagining themselves as the owners of those objects, constructing their consumption via the gaze. "Digital virtual spaces such as eBay not only offer hope that a desired watch (or very many other commodities) can be found, but may even provide an opportunity to actualize desire through digital virtual simulation" (58). Other commerce sites, such as Amazon, function in much the same way. They produce and are produced by desires, and users derive pleasure from the search for objects within them.

Ultimately, given the breadth of material produced by users in Web 2.0, synoptic/ scopophilic pleasures and user imagination form a sort of chicken-and-egg conundrum: do we desire a media object/friend profile/artifact and then produce it via search in order to see it? Or does it already exist, somewhere online, waiting for us to simply type in the right words into the search engine? If there is an object we desire to own (whether for real or in our imagination), who will place it online, tag it, and make it visible? If it is not there, should we produce it ourselves and alert our friends to its existence? Or should we wait for it to (seemingly inevitably) appear? If our friends are not in the network, do we email them until they join? Web 2.0 is predicated in part on the pleasure of the search, of

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performance, of mutual watching, of the gaze, and if need be, of user-led production of the objects of desire. It is a recursive, never-ending process; once the object is found, the user is expected to search for the next, never settling down.

3.1.5 Collaboration and Volunteerism

Finally, the Web 2.0 promise of participation has been interpreted by many users to mean democratic and civic participation. Web 2.0 sites are often used by those who seek the pleasures of altruism, collaboration, and volunteerism in civic or political spheres. This is another pleasure that has a longer history than Web 2.0; its roots lie in the advent of liberal democracy.

Relying on theories of social capital (especially Putnam 1995; Putnam 1997; Scheufele and Shah 2000; Shah, Kwak, and Holbert 2001), Sebastian Valenzuela et al (2008) found that Facebook use is positively associated with increased participation in civic and political activities. Users of Facebook's Groups features were found to have increased social capital. Valenzuela et al argue that users' social capital, defined as life-satisfaction, trust, and civic engagement, was enhanced by Facebook. They observe that "...online social networks are useful structures for connecting people, allowing them to create content and participate in public affairs in a meaningful way. Second, [social networking sites] are not just a place for 'hanging out' but are useful tools for collective action" (33). In short, they argue that Facebook Groups can be a valuable avenue for democratic engagement. Nonprofits and political organizations are responding to this, forming social networking pages, YouTube channels, Twitter accounts, and blogs. Valenzuela et al's

findings seem to confirm what we have seen since 2004: Web 2.0 can be used by political activists, from the Howard Dean campaign for president to the exposure of George Allen's "macaca" gaffe to the use of social media and texting by street protesters in Iran.

In addition to using social media for "real world" political engagement, the production of content *within* social media can be a political or civic-minded activity. As Axel Bruns (2007, 2) argues, collaborative media production among users (what he calls "produsage") is marked by four characteristics:

- a shift from dedicated individuals and teams as producers to a broader-based, distributed generation of content by a wide community of participants;
- fluid movement of produsers between roles as leaders, participants, and users of content – such produsers may have backgrounds ranging from professional to amateur;
- artifacts [sic] generated are no longer products in a traditional sense: they are always unfinished, and continually under development – such development is evolutionary, iterative, and palimpsestic;
- produsage is based on permissive regimes of engagement which are based on merit more than ownership: they frequently employ copyright systems which acknowledge authorship and prohibit unauthorised commercial use, yet enable continuing collaboration on further content improvement.

The argument that this is a political challenge to traditional media production should be clear. By participating in this mode of media production, users are attempting to wrest control of content production from mass media outlets. In this mode of production, nothing is ever finished – hence the name "produsage." Rather, each user who encounters an artifact is encouraged to play with it and build upon it. Other users who judge those changes valuable will continue the process. There is no central authority deciding how these changes will take place.

The argument that this is intensely pleasurable for users is borne out by the explosion of collaboratively-produced content in Web 2.0. Wikipedia is the most notable example. The English version alone has over 3 million articles written by untold thousands of volunteers. They do so within a media space which is simultaneously fun and political. Wikipedia is collective and open-source. It is a playful, collaborative venture, not centered on individual attribution. To be involved in Wikipedia, or for that matter, many other social media sites, is to be prepared for feedback from other users or for those users remixing one's work.

In sum, Web 2.0 does enable political and civic engagement and collaboration, both in terms of the politics of the "real world" and in the politics of content production. Much like identity-construction, connection, or synoptic pleasures, these pleasures are performative. They are mediated in Web 2.0, where users engage in affective exchanges based upon their civic and political engagements.

3.2 Value in Web 2.0: troubling the pleasures

These are all very intense and wonderful pleasures. But they are troublesome. Specifically, what is troubling in Web 2.0 is the way in which Web 2.0 site owners seek to exploit user pleasure by treating it as unpaid, freely given labor. As Tiziana Terranova (2000, 33) argues, this "free labor" is "simultaneously voluntarily given and unwaged, [and] enjoyed and exploited." This reinscription of the pleasures of the Web into a category of labor objectifies pleasure, reducing it to an input in a larger productive process. Consumption and production become blurred into the "prosumption" Bruns

(2007; 2008) writes about, as users' consumption of Web 2.0 services becomes production of affect, connection, and content. This has implications for the creation of value; Terranova argues that "the process whereby production and consumption are reconfigured within the category of free labor signals the unfolding of a different... logic of value" (35).

This different logic of value can be illuminated by turning to Marx's exploration of the dialectical relationship between use-value and surplus-value in the *Grundrisse* and in volume one of *Capital*. In the *Grundrisse (1993, 267 - 268)*, Marx notes that "In the relation of capital to labour, exchange value and use value are brought into relation; the one side (capital) initially stands opposite the other side as exchange value, and the other (labour) stands opposite capital, as use value." His personifications of capital and labor pit objectivity (capital) and subjectivity (labor) against each other. Each have their own ends in this meeting "...The commodities are of interest in the exchange-value relation... only in so far as they have exchange value; on the other side their exchange value is only of passing interest, in that it suspends the one-sidedness – the usefulness, use value, existing only for the specific individual, hence existing *directly* for him." Thus, for capitalists, the commodity is meaningful only as something that can be exchanged, preferably at a profit. For labor, the commodity is meaningful because it fulfills a need or a desire.

So far, this is not dialectical so much as it is confrontational. However, in an extended note, Marx elaborates on a startling vision of value as a *unity* of use-value and exchange-value: "Is not *value* to be conceived of as the unity of use value and exchange value? In

and of itself, is value as such the general form, in opposition to use value as particular forms of it?" As economist Steven Keen (1993) notes, this dialectic is developed further in volume one of *Capital* (Marx 1990). In "The sale and purchase of labour-power," Marx discovers that surplus-value arises from the difference between the use-value of labor and its exchange-value. Thus, labor can be a unity of the subjective (use-value) and objective (exchange-value), but what is more has "the peculiar property of being a source of value, whose actual consumption is therefore itself an objectification of labour, hence a creation of value" (ibid 270).

In short, value is not a thing. It is not something we can hold in our hands. We cannot extract it from an object as one might extract a chemical. It can, however, be crystallized in an object – a commodity – by the actions of people. The commodity can be simultaneously an object of desire, an object of exchange, and an object of production. In sum, value is a social construct, made real because of particular social relations. It is never essential. It is drawn along both subjective and objective lines, the first arising out of subjective pleasures and desires (themselves the products of socialization), the second out of market-based exchange and production (which are also social institutions). The former, use-value, is determined by the user. It is largely shaped by culture, as it embodies immaterial content such as aesthetics, the commons, and the social fabric. The latter, exchange-value, is determined on the market - assuming that it is brought to a market.

Thus we can see in the above survey of typical Web 2.0 pleasures that Web 2.0 is a technological field which enables emotional and affective exchange. It enables the

creation of subjective value. Desires, connections, emotion, joy arising from collaboration: all of these are subjective use-values. Despite the best efforts of disciplines such as cognitive psychology and liberal economics, these pleasures know no measure. It is impossible for one person to measure the emotional impact of an artifact upon another person. It is also impossible to deny that an artifact (an emotion or an object) may have a subjective effect upon someone.

So how are they converted into measurable quantities? This is where the objective side of value, exchange-value, is important. Value in Web 2.0 is also in part highly rational and objective. It arises from the historically contingent perceptions of those involved in the creation of Web 2.0 sites. As Rosemary Hennessy (2000, 95) argues, value as it appears in commodities is "seeable" by anyone who is socialized in capitalism: "What seems the empirical reality of a commodity like a sneaker is not seeable in itself; it only becomes seeable because of the historically available ways of seeing we bring to knowing this thing. In this sense, perception – a historically produced cultural knowledge – is inseparable from the social relationships of labor and power commodity capitalism is premised on." While this explains commodity fetishism in consumers, it also explains commodity fetishism in *owners of capital*. Simply put, user pleasures – or more specifically, the digitized representations of those pleasures - are perceived by Web 2.0 site owners as things capable of being commodified, of being brought to market. In the capitalist view, Web 2.0 users produce content and affective connections. The content and affective connections freely and voluntarily created by users are aggregated into

databases. This archive of digitized affect can be sold to the highest bidder – usually advertisers – or studied for better insights into consumer behavior.

The mechanism for the transfer of this user-created use-value into new media capitalist owned exchange-value is the tradition of private property and capital. Since users are allowed to use Web 2.0 services (often for free, assuming they devote a portion of their attention to advertising) which are housed on servers owned by someone else, the content and affect they create are often made via license agreements the legally owned property of the owners of those servers. The new media capitalist claims legal right to the data that those users produced as they enjoyed the service. This data becomes objectified, exchangable value. Thus, user consumption becomes production in the form of free labor. As Terranova argues, "Free labor is the moment where [the] *knowledgeable consumption of culture* is translated into *productive activities* that are pleasurably embraced and at the same time often shamelessly exploited" (37, my emphasis). The users trade their "knowledgeable consumption" for moments of pleasure, while Web 2.0 site owners gain personal data. When it comes to economic value, this exchange is uneven; surplus-value arises because the use-value the users enjoy does not match the economic value of the exchangeable data created through their activities and affect. The difference would be recognized instantly by Marx as surplus-value. In this way, Web 2.0 site owners seek to map an objectifying logic of surplus value extraction onto user social relations that have constituted the Web.

Is this an ethical exchange – use-value for exchange-value? No, I do not think it is. Simply put, it is objectification, reducing human activities, desires, pleasures, and joys to

digitized things and simple means to a particular end. Even if we set aside the millions

and billions of dollars of profit that Web 2.0 sites enjoy due to the freely supplied labor of

users, this process still represents the further commodification of all of these pleasurable

activities. While users are encouraged to freely connect with one another, anonymously

or openly watch one another, collaborate, and play with their identities, we have to

consider the troubling ramification that these loose, contingent, and longstanding human

activities and pleasures are happening in spaces where subjectivity-building is imagined

by new media capitalists to be primarily the work of further refinement of consumer

preferences. In short, this is part and parcel of the longstanding processes of

neoliberalism. As Rosemary Hennessy (2000, 77) argues, "In fostering consumption,

neoliberalism provides the fabric for [interpersonal] connections, but it replaces

community for critical citizenship with shopping malls." Or, as in the case of Web 2.0,

critical citizenship is replaced with social networking sites and media sharing sites which

value consumption above democratic participation. In Web 2.0, users, their connections,

and their activities are being defined by Web 2.0 site owners in increasingly granular

matrices of directed desires and rationalization. These desires are assumed to be always-

already directed to consumption, and the subject is always-already considered to be a

rational actor seeking only to increase his or her utility. These matrices are filled with

data drawn from Web activity, purchase history, credit scores, publicly made comments,

affective exchanges between friends, user location, political and religious views, sexual

desires, and demographics. Despite its apparent informational complexity, this is an

extremely reductive vision of human subjectivity. We and our pleasures are reduced to a

few bits of information. In short, we are digitally objectified, or as Gilles Deleuze (1992)

puts it, "dividuated." In a sense, pleasure is viewed by new media capitalists simply as a "psychological wage" (to borrow a term from W. E. B. Du Bois). Ultimately, objectified user desire is what is desired by owners of these sites.

How can users enjoy Web 2.0 pleasure without being confronted with this troubling reduction? We might turn to "false consciousness," a theory that holds that users are somehow duped by the mystifying social relations of capitalism. However, I believe that the answer lies instead in traditional computer architecture, which is used to create spaces of "untroubled pleasure" - realms where the exchange of use-values is encouraged - as well as spaces of economic exploitation where these activities is watched and information about it is extracted. Web 2.0 site designers have relied on techniques such as software abstraction, protocol, and the memory/processor dichotomy to privilege certain user activities and elide other possibilities. In many Web 2.0 sites, users are free to enjoy identity-play, connection, synoptic/scopophilic pleasures, and collaboration in certain areas of sites, while venture capitalists, new media capitalists, and copyright lawyers survey user activity and lock down user content with intellectual property agreements and appeals to the tradition of private property. Users are often very aware of the gaps between pleasure and profit, but since the history of media production has been dominated by mass industrial models, they are rightly latching on to whatever space of media production and pleasure that they can find (Andrejevic 2003). Web 2.0 does fulfill this desire, at least in part, but it is often structured to exploit the gap between use- and exchange-value.

This structure demands critical exploration. As Langdon Winner (1986a, 25) argues in his famous chapter "Do artifacts have politics?", "If our moral and political language for evaluating technology includes only categories having to do with tools and uses, if it does not include attention to the meanings of the designs and arrangements of our artifacts, then we will be blinded to much that is intellectually and practically crucial." Although we cannot ignore them, we cannot stop at uses and pleasures. I will explore "designs and arrangements" - ie, the architecture of the "Web as Platform" - in the next three chapters.

4 Above and Below the "Web as Platform"

In a now often-cited blog post, technology book publisher and conference organizer Tim O'Reilly (2005b) attempted to further refine the term "Web 2.0," a term which had begun to rise in popularity due to the 2004 Web 2.0 conference in which a handful of dot-com entrepreneurial luminaries first espoused ideas of a new wave of online commerce.[8] While journalists were struggling to come up with a definition for the term beyond exuberant variations of "Silicon Valley is back," O'Reilly sought to solidify the buzzword with his own definition. For O'Reilly, Web 2.0 means "the Web as Platform." In computer science, a platform is the site where end-user software is located. To use a familiar example, Microsoft Word "sits" on the platform offered by Microsoft Vista. Vista performs the role of a base upon which applications like Word can be built, providing support and shuttling user input back and forth between input devices and hardware. O'Reilly argues that the Web is the new operating system, replacing the older, desktop-based model.

O'Reilly argues platforms are the key to power in the computer business: "In each of its past confrontations with rivals, Microsoft has successfully played the platform card, trumping even the most dominant applications. Windows allowed Microsoft to displace

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[8] For the archives of that conference, see http://conferences.oreillynet.com/web2con/

Lotus 1-2-3 with Excel, WordPerfect with Word, and Netscape Navigator with Internet Explorer." However, in his view, Microsoft's near-monopoly control over the software industry is threatened by a new vision of the platform: "This time, though, the clash isn't between a platform and an application, but between two platforms, each with a radically different business model: On the one side, a single software provider [i.e., Microsoft], whose massive installed base and tightly integrated operating system and APIs give control over the programming paradigm; on the other, a system without an owner, tied together by a set of protocols, open standards and agreements for cooperation." This "system without an owner" is the Web. On the Web, O'Reilly argues, software developers are experiencing new freedom to build applications which are not tethered to any computer. For example, Google has built a suite of office applications that rival the Microsoft Office suite, and Google offers this application for free if one gets a Google account.

However, O'Reilly's account is not about a shift in the locus of power in the software world, where Microsoft is overcome by Google but where day-to-day users are nonetheless still beholden to a monolithic software giant, albeit a new one; rather, he argues that the "Web as platform" has changed the "rules of the game." No longer are large corporations such as Microsoft or even Google going to determine how we interact with computers. Instead, we will, through our collective efforts: "An essential part of Web 2.0 is harnessing collective intelligence, turning the web into a kind of global brain." This "global brain" is comprised of user-led software and content creation, where "smart mobs" of users collaborate across time and space to create new killer apps. "The world of

Web 2.0 is... the world of what Dan Gillmor calls 'we, the media,' a world in which 'the former audience', not a few people in a back room, decides what's important." O'Reilly argues that no one – not Microsoft, not Google, not even traditional media companies – can determine Web content in this milieu. O'Reilly cites multiple examples of this shift: Amazon book reviews are written by readers, not elite reviewers; del.icio.us and Flickr's "tagsonomic" categorization of digital artifacts is user-led, not imposed from on high; and Apache, MySQL, and Linux, software which form the infrastructure of the Web, are peer-produced, not corporate-produced and are, in fact, free of charge to anyone who wants them. In short, O'Reilly argues that if the Web is the new site where software applications can be written and used, if it is the powerful new "platform," then users are taking a privileged space upon it, pushing aside traditional content producers and realizing their own powers and destinies as media producer/consumers.

As I explored in chapter two, O'Reilly's arguments were soon followed by a new wave of cyberenthusiasts making proclamations redolent of the hype of the 1990s. Here, I want to highlight one in particular. Yochai Benkler's (2006) *The Wealth of Networks* further refines O'Reilly's claims by exploring the "nonmarket production" which is "displacing the industrial information economy that typified information production from about the second half of the nineteenth century and throughout the twentieth century." This nonmarket production is enabled by the fact that "the material means of information and cultural production" are "in the hands of a significant fraction of the world's population" (3). In other words, many of us own computers and we can (finally) participate in media production. In short, it sounds as though software production is being democratized. And,

if all media are engaged in a digital convergence where the distinction between broadcast and Webcast is becoming increasingly blurred, then logically we are ostensibly entering into a new age of egalitarian, almost socialized media production across the entire spectrum of formats and distribution channels. This appears to be borne out by the roster of Web 2.0 sites: YouTube, Flickr, MySpace, Facebook, and Blogger all allow ordinary people to make video, image, and textual objects that reach millions, regardless of whether traditional media companies like it or not.

However, if this new platform is privileging the user, if the user is now finally free to shake off the oppression of top-down, mass marketed culture, and if the user now owns the means of media production, then why are traditional media companies pouring millions into Web 2.0 companies? Why did NewsCorp purchase the social network MySpace? Why is Microsoft a major shareholder in Facebook? Why are traditional media companies partnering with Google? Moreover, if, as Nick Dyer-Witheford (1999) notes, this sort of mass intelligence might be a fertile source of resistance to global capital – and hence to the very companies that seem to fully on board with Web 2.0 – how is it that the corporations participating in the Web 2.0 movement have seen staggering profits, solidification of their preeminent position and media producers, and a further centralization of the Internet into the hands of growing conglomerates? How are we to understand the contradictory logic of media capital, an institution which struggled for so long to lock down and monopolize the production of mass culture, but is now seemingly stepping aside to let the consumer become the producer?

This chapter answers these questions by exploring the "Web as platform." Here, I take seriously the spatial metaphor that O'Reilly deploys. His metaphor is drawn from a common idea in computer science, the concept of software abstraction. I will look in particular at the history of personal computing, modes of computer use, and how and why Web-based applications are developed. I first look at the impact of owning a computer. I argue that computers are a mix of material and discourse (that is, technical code) and that they allow people to be productive. Their nature as "universal machines" give rise to the idea that ordinary people can produce media objects without the mediation of large companies. I then trouble this by pointing to the increasingly complex layers of software which have been added to computers, software which according to Sherry Turkle has engendered two modes of computer use: hard and soft mastery. These layers of software, referred to by computer scientists as "abstractions," are intended to hide the material aspects of the machine; as each layer is added to the software infrastructure, human interaction with the computer is less about directly manipulating the "universal machine" and more about manipulating surface-level symbols such as icons and windows. Engaging with the Marxian concept of abstraction, I will claim that these layers of abstraction come between users and the material facts of their machines, eliding not only the conditions of production of computers, but also the full productive potentials of computers. I will show that this abstraction has continued in Web 2.0, shifting from personal computers to the Web itself. This is O'Reilly's "Web as platform." I ultimately suggest that the "platform" of the Web has two key groups of actors: the users who interact with the software applications on the Web sites – the "surface" of the "platform" - and those actors below the platform: the owners of those sites, their employees, and their

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investors. In Web 2.0, the layers of abstraction between users and their machines are now populated by these powerful actors who use this hidden position to accumulate computing, cultural, and economic power. And, for those users on the surface, the layers of abstraction between them and their computers amounts to the latest form of deskilling. However, I will also point to a moment in this history when the layers of abstraction fail, briefly revealing to computer users the intentions of the actors who lurk beneath the "Web as platform."

4.1 Computing on the surfaces

When I was a child in the late 1980s, I was very lucky. My father was (and remains to this day) a financial planner, and in order to increase his productivity, he invested in personal computers. In our home, we had an IBM PC and later a Tandy 1000 series. These two were the first of many computers. As my father upgraded, he passed the older computers on to my brother and me and gave us free rein in using them. We spent hours writing programs in BASIC and learning DOS, copying files, and playing video games.

While we played with the older computers, my father was participating in a very common activity for people in his position: home computing for business. He was busily making spreadsheets, generating quotes, and writing documents. For him, a computer was not a toy but a tool. It was an investment in a durable, capital good. At the time, an IBM PC retailed for roughly $5000, so it was a large investment. It could help him achieve an edge over others in his field. He could use it to remember things like names and

addresses and thoughts, and he could calculate payments, interest, and the growth and decline of stocks.

He was part of a growing number of people in the United States to whom companies like IBM, Apple, and Microsoft were marketing themselves. In an iconic advertisement featuring a Charlie Chaplin impersonator, IBM announced its Personal Computer, the PC, as so flexible "a person could put it anywhere: office, home. And a person could learn to use it with ease. IBM made its Personal Computer to help a person be more productive, to help a person be more creative."[9]   The PC – IBM or otherwise – was presented to consumers as a means to manage information that beforehand had been in paper form: ledgers, phonebooks, and documents. A mid-1980s television advertisement for the Tandy 1000 personal computer illustrates this: a young white man sits at a desk littered with paper. Papers threaten to topple out of a paper stacker. Leather-bound ledgers sit precariously on the edge of the desk. A desk lamp burns above it all as the young man pores over a report. The scene is shot in black and white, until actor Bill Bixby announces "the new Tandy 1000, complete with DeskMate software, for easy-to-use word processing, filing, worksheets, and communication." Instantly, the clutter is gone and the scene is saturated with color. The advertisement stresses the ease of managing complex information – it is no longer scattered in awkward paper stacks. It is now all in the box sitting neatly on the desk.[10]

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[9] Available for viewing on YouTube at http://www.youtube.com/watch?v=WqIE4NliIRA. Last accessed 10 September 2009.
[10] Available for viewing on YouTube at
http://www.youtube.com/watchv=JhEZhK9byfs&feature=related. Last accessed 10 September 2009

Thus, PCs were purchased to be productive tools, capable of managing our analog lives. To be sure, PCs were also marketed as educational toys for children; however, by the time my father brought the first computer home, they were understood to be capital. Like an oven or a sewing machines, they are objects allow people to produce things through labor. Unlike the oven or sewing machine, however, the things people produce with PCs are digitally reproducible. Scarcity in a digital environment only exists if artificial barriers such as copyright creates it (Gillespie 2007). An oven implies baking and would have limited uses beyond that. Sewing machines have a less predictable output; cloth can be made into a wide variety of objects. Computers, on the other hand, can be modified in myriad, unpredictable ways. This is done via the process of programming, the creation of machine-readable code which manipulates the hardware within only the limits of the programmer's skills.

In my father's case, the computers he had allowed him to run his own business; in part, he was able to more effectively manage the sales of financial services with the aid of the machine. Even in the case of my little brother and myself, we were able to produce things such as video games by coding them in BASIC. The games were awful, but they were of our own making. I would not call them commodities since they were not for sale, but my point is clear: we were actively engaged in creating things on our computers, and we stored our creations locally to reuse later.

Obviously, computers, ovens, and sewing machines are objects that allow people to produce things; the question is: produce for whom? If these machines are part of a household, then families can use them to produce goods for themselves. Sewing

machines allow people to repair their clothes, pizza ovens allow people to make food, and computers allow people to complete a wide range of informational tasks. However, if the oven is owned by a pizza place, then the oven is used by employees to produce pizzas to be sold at a profit that is taken by the owner. A sewing machine in a Dominican clothing factory works in a similar fashion. Likewise, a computer owned by a firm and used by a secretary is a machine that, coupled with her labor, produces a good or service that can be sold in the market, with the profits accruing to the owner of the computer.[11]

My focus on home-based use of computers and how they allow people to produce digital artifacts. However, I do not ignore the new avenues of accumulation opened up by the advent of the PC market. Obviously, IBM, Apple, and Tandy all used machines run by workers to produce these commodities – the PCs – to be sold to consumers. Moreover, the widespread adoption of PCs by consumers opened up markets for software from games to spreadsheet programs, again produced by capitalists who exploit land, labor, and capital. Much can be said about the pace of software obsolescence and the marketing of bloated programs which overwhelm older hardware, the strict intellectual property strategies of Microsoft or Apple, and the constant marketing drumbeat of the next great video game made for home computers. These practices have opened up new markets and

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[11] Obviously, a computer in an office worker's hands can also be put to what employers would no doubt call unproductive use: personal emails, social networking, and gaming. This brings our attention to another difference between a computer and sewing machines or pizza ovens: owners of the latter have mature systems of surveillance to use to discipline their workers, whereas computer users do not feel this discipline as acutely. Of course, Web 2.0 is built upon surveillance, something I will discuss in more detail later in this chapter, as well as in the rest of the dissertation. This nascent regime of surveillance could very well render office computers into even more effective machines to discipline office workers, and as David Noble (1984) and Shoshana Zuboff (1988) have shown, computers can be used to discipline the pace of manufacturing work.

regimes of accumulation, contributing to and reinforcing new subjectivities of technical knowledge.

However, all this does not reduce the radical productive capacity of the PC, particularly in the production of media. This is what Johnathan Zittrain (2008) has called the "generative" aspects of tools: their ability to be easily adapted to our needs and produce things we need. Personal computers do, in fact, keep the promise of the IBM ad: they can be used to produce books, movies, photographs, music, software, and games. They do indeed allow us to "be more productive." They are powerful and now easily affordable capital goods. One could easily argue – as several have – that they represent a break with the longstanding, accumulative tradition of capitalism.

4.2 Abstraction

However, along with this history of PCs-as-capital which many people can afford is also a slow process by which PC users become distanced from the material aspect of their machines. A personal computer is a collection of hardware run by software. Command-line operating systems, like DOS or Unix, allow the user more control over the hardware. However, this interface is challenging to most users. The creation of Graphical User Interfaces (GUIs) allowed for an abstract understanding of the machine. The history of personal computers can be told as the history of refinements of the machine (packing more processing power onto smaller silicon chips, expanding the capabilities of memories) or as the history of the triumphant companies involved (Edwards 1996). But I propose to tell a slightly different version. The history of PCs is also the history of the

accretion of layers of abstraction above the machine, and Web 2.0 is the latest chapter in this history.

The first part of this history is told very clearly in Turkle's (1995) Life on the Screen, particularly in her chapter "A Tale of Two Aesthetics." Throughout that chapter, Turkle's rhetorical technique is to create a series of binaries which describe a transition in the culture of computer use from a modernist mode to a postmodern mode. Modernist computing involves calculation and transparency and is personified by either the hobbyist who can build a computer from hardware and knows the function of every part of the computer or the hacker who has complete control of the computer's programs. The postmodernist mode is personified by the user, who is not concerned with the inner workings of the machine, but only wants it to run applications. Postmodernism is also marked by simulation, appearance, and surfaces. While Turkle is extremely careful to be nuanced, on the whole she presents the latter of these binaries as progressive and linked to emergent Internet computer culture.

These two aesthetics and their subdivisions are symbolized by the two competing computer manufacturers of the 1980s, IBM and Apple:

> The modern and postmodern aesthetics were locked in competition for the second half of the 1980s with the IBM personal computer (and its clones) becoming the standard-bearer on the modernist side. The myth of the Macintosh was that it was like a friend you could talk to; the myth of the IBM, abetted by that company's image as a modernist corporate giant, was that the computer was like a car you could control. Although most people who bought an IBM personal computer would have never thought to open it up, to modify the machine or its operating system, this possibility was implicit in the design of the system (36).

In these two competing companies' products, Turkle sees the crystallization of many of those binaries. IBM computers demanded that the user be versed in code and welcomed users to open up the box and modify internal parts (hard drives, RAM, disk drives, or memory). In that sense, IBMs appealed to hackers who would work with the code, or the hobbyist who wanted to open up the box and modify the hardware. In the case of the computers in my home, we had to do the former: we had to learn the command-line language of MS-DOS to call up programs from discs, create batch files, and manage the file system. Turkle sees this is as symbolic of the modernist impulse to 1) know the object by knowing each of its parts and their functions and how those parts interact; 2) use calculation to solve problems; and most importantly 3) wield "hard mastery" over problems. Hard mastery, Turkle argues, is the standardized method by which computer programmers approached creating programs and solving problems:

> First you sketch out a master plan in which you make very explicit what your program must do. Then you break the task into manageable subprograms or subprocedures, which you work on separately. After you create each piece, you name it according to its function and close it off, a procedure known as black boxing. You need not bother with its details again (51).

The IBM computer and its clones such as the Tandy were the objects that could be known by breaking them down to their parts and rebuilding them. They were computers that demanded users learn command-line coding in order to use them. And if any part of the machine was malfunctioning or obsolete, IBM invited users to open up the housing and replace it. In short, the IBM PC was a hard master's machine.

In contrast, Turkle argues that the 1984 Macintosh computer, with its Graphical User Interface (GUI), encouraged a wholly different way to approach computing. While the

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IBM was open to any user who wanted to modify it, the Macintosh encouraged users to stay on the surface and manipulate a simulated desktop: "The IBM system invited you to enjoy the global complexity it offered, but promised access to its local simplicity. The Macintosh told you to enjoy the global complexity and forget about everything else" (36). The Macintosh "introduced a way of thinking that put a premium on surface manipulation and working in ignorance of the underlying mechanism. Even the fact that a Macintosh came in a case that users could not open without a special tool ... communicated the message" (35).

Furthermore, rather than engaging in hard mastery and calculation, Macintosh users would use tinkering or "soft mastery" and simulation. "Soft masters" are those who eschew the modernist, hierarchical form of problem-solving in favor of playfulness and tinkering with simulated objects. They are more likely to manipulate computer icons than plan a rigid course of coding action. And the machine that introduced this mode was the Macintosh; for Turkle, the Macintosh was the postmodern machine.

The GUI was a highly successful creation. Computers that ran command-line systems began to fall behind in sales until Microsoft followed suit with its Windows GUI. From that point on, the two dominant types of personal computers – Apples or computers running Windows – featured increasingly complex GUIs and software applications. Turkle's major insight here is into the process by which most personal computer users became distanced from the hardware that they purchased. In her view, the "hard masters" and hobbyists who could open up machines, write software code, and knew computers

were diminishing as a new cultural wave of "soft masters" and surface-tinkerers grew as GUIs caught on.[12]

4.2.1 Computer scientists and abstraction

In sum, what Turkle describes is a process known in computer science as "abstracting"; adding layers of code on top of the hardware in order to simplify the use of the computer. As Colburn and Shute (2007) explain, this process has its roots in Lockean philosophy. Like the distinction between "mountain" and Mount Everest, abstraction in computing means shifting from the particularities of the machine (the specific configuration of its hardware) to general software which works on that hardware:

> At a basic level, software prescribes the interacting of a certain part of computer memory, namely the program itself, and another part of memory, called the program data, through explicit instructions carried out by a processor. At a different level, software embodies algorithms that prescribe interactions among subroutines, which are cooperating pieces of programs. At a still different level, every software system is an interaction of computational processes. Today's extremely complex software is possible only through abstraction levels that leave machine-oriented concepts behind (173).

The machine-orientated concepts which are left behind are the material, electronic events that always happen in modern computers: "Whatever the elements of computational processes that are described in textual programs... they are never the actual, micron-level electronic events of the executing program; textual programs are always, no matter what their level, abstractions of the electronic events that will ultimately occur" (177).

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[12] Throughout this dissertation, I have largely used class as an analytical category to understand the contradictions and culture of Web 2.0 computing. This necessitates that I bracket off other, equally viable categories of analysis: namely, gender, race, and age. Echoing David Noble's (1984, xii) remarkable preface to *Forces of Production*, to attempt to analyze a technology in more than one of these analytical categories would not do justice to them. These categories call for what Noble calls "a different plane of inquiry." For example, Turkle, and in the same vein Edwards (1990), use gender as a lens to understand the gaps between hard and soft mastery. They gender hard masters as masculine and soft masters as feminine.

Ultimately, as they argue, computer programmers use abstraction to hide the material machine behind increasingly complex layers of code, layers which become a stack of abstractions, the lower ones hidden by the more complex layers on top. For example, in his history of computing, Ceruzzi (2003, 91) describes the 1950s programming language FORTRAN's ability to hide "the machine's inner workings, leaving [programmers] free to concentrate on solving their own, not the machine's, problems." This aspect, he argues, led to its success; it remains popular to this day.[13]

Computer science has shifted from its roots as a discipline of building machines to one capable of creating software which could accomplish the hiding of the machine and the simulation of reality. While computer scientists initially designed software to make programming large mainframes easier, today this technique is used to make personal computers more "user-friendly." "User-friendly" software is opaque. It does not reveal the processes occurring at lower levels, but instead simulates machine processes by presenting them as icons and text. In this way, software abstraction is microcosmic of the broader practices of abstraction used in disciplines which rely on computers. Computers are used to model complex systems such as the economy, the weather, traffic patterns, and social movements. The variables used in these simulations are abstractions, radical reductions of empirical phenomena.[14] These abstractions allow researchers to bracket off

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[13] However, Ceruzzi qualifies this, arguing that more recent programming languages which hid *too much* of the machine have not achieved the popularity of FORTRAN among computer programmers. He points to C language, which allows programmers access to the lower levels of the abstraction hierarchy. As I will argue later on in this chapter, this sort of relationship to the machine does persist to this day, but average computer users are not encouraged to have this relationship with their computers.

[14] The relationship – or gap – between empirical observation and abstracted computer simulations was starkly revealed during the 2010 eruption of the volcano Eyjafjallajökull in Iceland. The eruption cause Eurocontrol, Europe's air traffic control authority, to close airspace in that region for several days. This stranded many travelers. Airlines, government officials, and travelers have complained that Eurocontrol relied too heavily on computer simulation to make their judgment to close their airspace. Critics argued that the agency should have relied more on empirical observation.

vast amounts of information, relegating that excess to "noise" or "externalities." Of course, gaging how useful these simulations are is beyond the scope of this chapter.

Computers thus can be described both as a collection of hardware (the processor, memory, hard drive, interfaces) and as layers of software abstractions above the hardware: machine language, binary code, assembly language, BIOS, device drivers, the operating system, the GUI, and the applications that run in the operating system such as word processors or Web browsers. The higher one is in this hierarchy, the farther one is abstracted away from the material machine itself, and the more opaque the lower layers are. Today, the typical computer user on a modern Macintosh, Windows, or even Linux system (running a GUI like Ubuntu) very rarely must be concerned with command-line coding, let alone writing device drivers or compiling binaries. For many people, computers are more akin to cars or even to human anatomy; their internal operations are mysterious and there is often tremendous information asymmetry between a computer user and a computer repairperson. This informational gap is reflected in modern computer design; consider Apple's iMac G5 computer, which contains the hard drive, processor, and memory in the same box as the screen, resulting in what Schaefer and Durham (2007) argue is symptomatic of the flatness and depthlessness of postmodernity. Laptops are aesthetically similar: self-contained, inscrutable, opaque, but so friendly and useful we sit with them in our laps.

Moreover, the higher areas of abstraction, known as "high-level languages," are portable: one can install an OS and GUI on other computers, and as long as the device drivers are in place, that OS can run the hardware of the new computer. The GUI with its icons and

file systems is now banal and ubiquitous; they appear on computers, cellphones, DVRs, DVD players, appliances, car dashboards, even on tables and walls. And, built on top of the GUI is the application: word processors, music players, photo-manipulation programs, games, Web browsers, email clients, personal organizers, and movie players. These applications are now expected elements in any OS/GUI, wherever it may appear. And all of these applications and complex pieces of software lie between the user and the machine.

4.2.2 The Marxian concept of abstraction

Computer science, of course, is not the only discipline to deploy the concept of abstraction to explain how its objects work. In the Marxian tradition, abstraction serves a dual purpose. First, abstraction serves Marx an entry point into a critique of political economic theories of large systems such as capitalism.[15] In the *Grundrisse* (Marx and Nicolaus 1993), Marx began his critique of classical political economy by exploring that discipline's ideological fiction of the isolated individual as the building block of society. This fiction – what Marx calls a "Robinsonade" - is an abstraction, plucking subjects out of the contingencies of history and imagining them as the atomic building blocks of civil society. Marx continues to seek out similar abstractions in political economics in order to demystify that discipline's objects.

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[15] Abstraction was also Marx's entry point into a critique of Hegel. As Martin Nicholaus (Marx and Nicolaus 1993, 35) explains, "Hegel begins his *Logic* with the most general and universal abstraction in philosophy, pure, indeterminate being, being general, which he asserted to be the most elementary reality. For Marx, the materialist, this 'being-in-general' is a figment of the philosophic mind, a category which has 'reality' only in the imagination of the fabricator." This is very similar to Marx's critique of political economy. There, he argued that political economists treated abstract categories such as the individual as universal, ahistorical phenomena.

But this is not to say that Marx did not adopt abstraction for his own purposes. In considering the complex object capitalism, Marx in the *Grundrisse* argues that the best method is to begin with the simplest abstractions, rather than a concrete object such as population. In his case, this means breaking the concrete object population into "labour, division of labour, need, exchange value, to the level of the state, exchange between nations and the world market" (100-101). From there, he proposed to rise back to the concrete; i.e., the economic activity of the population. However, this is not to suggest that the method is simply a matter of moving from abstract to concrete; that would simply reproduce the methodology of political economics. Rather, he argued, the concrete object must be held in mind as one moves through abstractions. That is, the abstract and concrete are locked in a dialectical relationship. Thus, Marx begins where he ends (or ends where he begins): he wants to study capitalism but he recognizes that to study the whole is too chaotic, so he abstracts various aspects of it in order to rebuild it as a "complex concrete" in his "thinking mind."

In sum, Marx's dual engagement with abstraction may sound contradictory; if he is critical of the rampant, reductive abstraction of classical political economy, why does he use that same technique? The answer is that Marx never considers his object as static, ahistorical, and consisting of autonomous parts which can be excised one from another and presented as universal categories. This would repeat the fallacy of political economy, which struck Marx as a discipline interested in hiding the history of capitalism behind timeless abstractions. His analysis of the complex concrete is not simply found by aggregating the simple abstractions in the thinking mind. Instead, as Stuart Hall (2003,

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133) argues, Marx's method was to rebuild complex concretes out of those abstractions by considering them within their historical epoch. Every abstraction, in this mode of analysis, bears within it elements of all the other abstractions, and moreover no abstraction can exist without the others, a mode of thinking best labeled "overdetermination." Moreover, every abstraction within this system has a corresponding personification: laborers labor, consumers consume, capitalists capture surplus value, but none of the actors involved are to be reduced to these roles (Resnick and Wolff 1987; Toscano 2008). These personifications are bound together in social relations – even if the predominant ideology of capitalism presents them as autonomous, rational individual actors. As Hall (2003, 140) explains, Marx's

> method depends on identifying two dialectically related but discontinuous levels: the contradictory, antagonistic 'real relations' which sustain the reproductive processes of capitalism, and the 'phenomenal forms' in which the contradictions appear as 'equalized'. It is the latter which inform the consciousness of the 'bearers' of the system, and generate the juridical and philosophic concepts which mediate its movements. A critical science must unmask the inverted forms of the metamorphosis of the structure of capital, and lay bare its antagonistic 'real relations'.

Rather than seeing labor as a universal human feature, as a "phenomenal form" which is ahistorical, Marx's method is to consider it among the ensemble of relations within a social formation which itself appears within an epoch. Marx begins with his contemporary historic organization of society and traces those abstractions through it, always referring back to concrete social relations. This historicization turns his attention towards the constantly mutating dialectical movements of abstractions; with this historical approach, abstractions are reconstituted as highly contingent.

4.2.3 What gets covered up by computer science abstractions?

How can the Marxian concept of abstraction, which considers abstractions part of large web of historically contingent determinations, illuminate and critique the computer science version, which merely sees abstractions as layers which are built one on another and enable human use of machines? First, it is clear that the computer science theory of abstraction explicitly elides the material conditions of production of computers. It is a *logical* mode of abstraction. By privileging "high-level" software such as the operating system, by considering this object completely autonomous of the machine on which it resides, the computer science vision of abstraction renders the machine banal, replaceable, and disposable, bracketed off just as one would do with unneeded variables. As long as highly abstracted software such as the operating system works, it does not matter what machine it is installed on.

In contrast, the Marxian tradition of abstraction eschews this logical mode of abstraction for a historical, contextual, and social one. A brief glance away from this fetishized operating system reveals that there is much more at stake here: labor, alienation, legal infrastructure, the exploitation of raw materials, and highly hazardous e-waste are essential parts of the computer. These are the basic ingredients of mass production of these commodities. Like the machine itself, software abstraction brackets these variables off in a logical attempt to comprehend and categorize the complexities of computers. The layers of software abstraction not only cover them up, but like other commodity fetishes, they distance everyday computer users from the other subjects involved in the production, distribution, and hazardous disposal of these machines. As Marx (Marx and

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Nicolaus 1993, 163) notes in the *Grundrisse*, "Individuals are now ruled by abstractions, whereas earlier they depended on one another." For example, the only interface between a young woman laboring over circuit boards in Shanghai and a coffeeshop habitué checking his email in London appears in a particular crystallization of exchange-value – a laptop with the latest operating system. The only interface between that same coffeeshop Web surfer and a small boy in Bangalore who will pick apart the Englishman's soon discarded laptop for valued metals is London's infrastructure of trash collection. This matrix of social relations is interfaced solely by abstractions rather than conscious personal contact.

However, given my focus on Web 2.0, what I want to explore in this chapter are the implications for the casual users of computers. Computers are highly generative machines which have the capacity to produce a nearly unimaginable array of digital objects. The only limitation is the imagination and coding ability of the user. This reveals an irony of computer science abstraction: the layers of software abstraction are presented by software developers as a means to make computer use easier or "user-friendly" and thus open up the creative potentials of computer users, but they create two deleterious epiphenomena. First, they carve out spaces in which powerful agents can hide their activities. Every layer of abstraction in computer science has a corresponding political economy. There are complex infrastructures, ranging from computer machinofacture to distribution circuits to retail to Internet service providers, each populated by powerful actors seeking to capture (or realize) surplus value. In Web 2.0, the powerful agents of this political economy are venture capitalists, media company owners, and the legal teams that help create artificial

scarcity of digital goods via copyright. Layers of abstraction are thus not simply lines of computer code; they are, as Lawrence Lessig (2006) argues, lines of powerful legal and economic code. They are also *social* abstractions.

Second, the technological choices made in computer science, particularly as it relates to personal computers, have resulted in a continuous shift away from computers as capital in the hands of individuals to computers as means of consumption. This is the grossest form of deskilling. The development of computer user subjectivity could easily have been marked by increasingly complex engagements with these remarkable "universal machines." Instead, an ideology has emerged which sees the computer as a means solely to further refine consumer preferences and monitor labor. For "soft masters," rather than being a means to create complex and creative simulations, Web 2.0 computer use is now largely a matter of playing with surface-level abstractions within the digital enclosure. For "hard masters," Web 2.0 computer software has enabled new forms of surveillance, data mining, and surplus value accumulation.

In short, I see computer science abstraction not only as that discipline's attempt to think through the organization of software-on-hardware, but also as a social force, a "real abstraction" or analytical category which is capable of producing hierarchical, subjective experiences of computer use (Finelli 1987; Rancier 1989; Toscano 2008). As Enzo Paci (qtd. in Toscano 2008, 273) argues, "The fundamental character of capitalism . . . is revealed in the tendency to make abstract categories live as though they were concrete." That is, capitalism functions to make each of us live out abstract categories (laborer, owner, lawyer, investor, computer user) as if they were concrete, embodied, and real. "In

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the final analysis," writes Alberto Toscano (2008, 279), "something really happens when abstraction takes place. Abstraction transforms (and the fact that what it transforms is itself abstract does not make it any less real)." One key consequence of this form of abstraction is the emergence of two personifications: on the one hand, the end user who skims the surface of the Web, and on the other hand the agents of media capital which survey the user's activities. Thus, I do not see abstraction as a force of "false consciousness" - the act of mistaking abstraction for reality - but rather as a rational attempt by particular, powerful actors to hide, obscure, or bracket off as external the inequalities and necessary social divisions of informational capitalism. If this act of hiding is successful, then users have a hard time imagining how their actions are surveyed by Web 2.0 site owners.

Returning to my childhood example, in the 1980s, when my father gave my brother and me those computers, we could have become "hard masters," but instead, perhaps due to the historical context, we became "soft masters" when we got computers with GUIs. While I initially learned BASIC and DOS, I quickly forgot them as I learned how to use Windows 3.1. I learned how to transport files from one computer to another, install and remove applications, upgrade the OS/GUI, and later how to browse the Web. I may have learned certain skills, but overall I moved farther away from the ability to *program* the physical machine, instead manipulating Microsoft-authored abstract representations such as icons, folders, and Web links. Two decades later, I remember very little of DOS 6.1, BASIC, or the fundamentals of programming. I became a "soft master."

4.3 Soft Mastery in Web 2.0

In the past decade, computer users have seen the slow migration of computer software from the desktop to the Web. Web 2.0 is now presented as a new operating system, located inside the Web browser. In this environment, a proper Web 2.0 site is built to be completely opaque: there should be no dead links, no delay between user input and site output, and no indication of any of the code running beneath the surface of the Web browser (Galloway 2004, chapter 2). They are, in fact, modeled after the previous highly developed abstraction: the operating system graphical user interface, which has its own design conventions. Similar to the OS GUI, Web 2.0 site designers strive to make intuitive interfaces which are self-explanatory to users. Hunt (2006) describes Web 2.0 aesthetic design as the triumph of simplicity, with fewer columns, stark content sitting in the center of the screen, and easily interpreted navigation. Similarly, MacManus and Porter (2005) argue that Web 2.0 design will be led by the user, rather than the site designer, since so many Web 2.0 sites allow users to "remix" content and presentation. Again, this has to be intuitive for the user. Of course, what is "intuitive" is most often a cultural construct; a decade and a half of Web design conventions such as underlining links and using banners have cemented many of these practices. However, regardless of conventions and past practices, Web 2.0 design is dedicated to hiding the codes and protocols of the Web behind a layer of GUIs.

This is made possible by increases in Internet connection speeds and by advances in programming techniques such as AJAX. Through the Web browser, users can now access a host of Web-based applications which duplicate the software found on their machines.
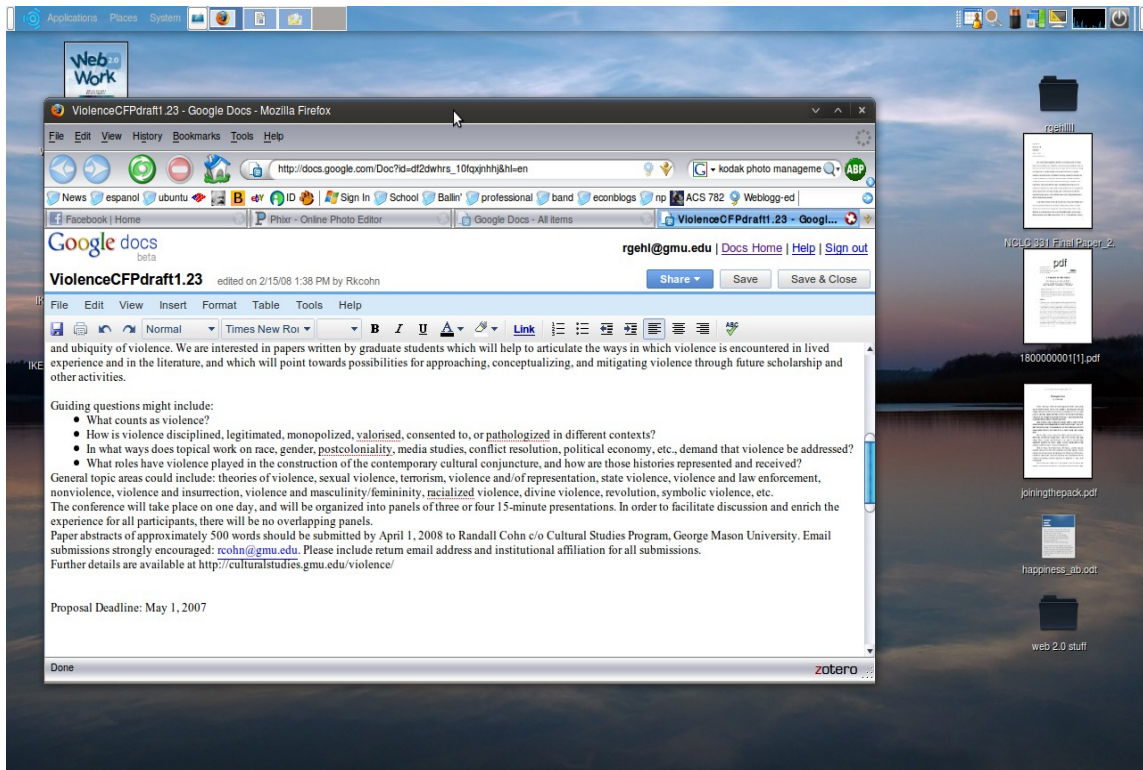
Figure 2: Google Docs, open to the word processor, as seen in Firefox on

a desktop.

An example of this is Google's suite of office software, available at docs.google.com. This suite replicates desktop-based software such as Microsoft Office, Sun's Open Office, and Apple's iWorks. As of this writing, Google offers document, spreadsheet, presentation, and Web form applications. All of these services are free of charge, as long as a user signs up for a Google account. In addition, other users with a Google account can collaborate on items; Google offers the ability to track changes. Advocates of Web 2.0 often point to Google Docs as a quintessential Web 2.0 application, since it uses the Web as a platform to deliver an application, users can collaborate on documents, and

Google allows developers to interface with Docs via an API. The success of Google Docs has inspired other Web-based applications: photo sharing in Facebook, photo-editing at Phixr.com, and academic citation management at citeULike.com, for example.

In this aesthetic environment, users are encouraged to work and play upon the surfaces provided them by Web 2.0 sites and applications. In fact, user involvement is the *raison d'etre* of Web 2.0. Consider this from the "About" page of Digg, a social bookmarking site:

> You won't find editors at Digg — we're here to provide a place where people can collectively determine the value of content and we're changing the way people consume information online. How do we do this? Everything on Digg — from news to videos to images — is submitted by our community (that would be you). Once something is submitted, other people see it and Digg what they like best. If your submission rocks and receives enough Diggs, it is promoted to the front page for the millions of our visitors to see.

In keeping with its mission, Digg provides a simple way for users to promote Web content they find as they browse. Equating value with "Diggs" or views, participating blogs and sites use a small button which users click on, and then users write a description of the sites they find. If in fact Digg is meant to circumvent traditional gatekeeping in the form of editors, it does so not by demanding users become editors (and therefore put in significant work in selecting sources) but rather by making the process easy and automatically aggregating the results of multiple users.

It is the goal of every Web 2.0 site to provide users with simplest abstractions to manipulate. This is Turkle's "culture of simulation" as imagined by new media capitalists. Unlike creating a homepage using HTML, users can avoid code altogether in Web 2.0.

Users do not need to analyze or understand how Web 2.0 sites work; instead, they "inhabit" them, to use Turkle's term. For example, Facebook allows users to rearrange the content that they encounter. As of this writing, on my Facebook homepage, I have several filters which allow me to select content in the "stream," the news items which are produced by the actions of my friends. On my Facebook profile page, I can rearrange applications such as Events, Notes, and Music by dragging and dropping them as I would icons on my computer's desktop.

This ease of interactivity extends to what users can do and are expected to do with Web 2.0 sites. The non-rival nature and ease of duplication of digital artifacts allows for what has been alternatively called "rip, mix, and burn" (MacManus 2004), produsage (Bruns 2008; Bruns 2007), and prosuming (Nicole S. Cohen 2008; Gray et al. 2008; Tapscott and Anthony D. Williams 2006; Yang 2009). The practices involve users uploading videos from their collections to YouTube, rearranging video clips, sharing links to audio objects, "mashing" together songs by mixing audio from one into another, manipulating photographs and images, and copying and pasting text from one source into another. Again, the sites and applications which allow for this activity are mimicking their desktop counterparts but existing solely on servers accessed through the Web. This has led to a flouting of copyright which has been largely the focus of scholars examining Web 2.0. But this is not my focus. Instead, what is germane here is that Web 2.0 is dedicated to attracting computer users who are comfortable with the postmodern aesthetic that Turkle so clearly describes and refining their soft mastery towards a particular end: the creation of exchange-value. In short, Web 2.0 is another layer of abstraction laid upon the

hardware of computers and the material aspects of networks. It is another layer which moves users farther away from the machine and the material, and it is popular precisely because users have come to expect this.

4.4 When Abstractions Fail

After distinguishing between the modernist and postmodernist modes of computer use, the remainder of Turkle's *Life on the Screen* focuses on postmodernity and computing, particularly on the themes I've discussed here: the culture of simulation, the triumph of tinkering and of playfulness, and the practice of bricolage. However, it is hard to imagine that the modernist culture of calculation and rationality has simply faded away in favor of the play and freedom of users. Instead, the "hard masters" who rely upon calculation and know every part of the objects they deal with are as much a part of Web 2.0 as the playful postmodern users are.

This becomes apparent when we consider a particular moment in the history of Web 2.0. In early 2009, Facebook changed its Terms of Service, the document which lays out the legal responsibilities of both the users of the service and the service itself. When the story broke in the Consumerist (Walters 2009), Facebook users were confronted with claims of perpetual ownership of the content they uploaded to the service. According to Walters (2009), Facebook's prior TOS included this statement:

> You hereby grant Facebook an irrevocable, perpetual, non-exclusive, transferable, fully paid, worldwide license (with the right to sublicense) to (a) 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), any User Content you (i) Post on or in connection with the Facebook Service or the

promotion thereof subject only to your privacy settings or (ii) enable a user to Post, including by offering a Share Link on your website and (b) to use your name, likeness and image for any purpose, including commercial or advertising, each of (a) and (b) on or in connection with the Facebook Service or the promotion thereof.

New lines were added in the amended changes:

You may remove your User Content from the Site at any time. If you choose to remove your User Content, the license granted above will automatically expire, however you acknowledge that the Company may retain archived copies of your User Content.

In essence, Facebook claimed the right to archive all user generated content even after the users who created it left the service.

As disconcerting as this TOS might sound, this is not unusual practice. For example, if I have a Hotmail account, send several emails, and then cancel my Hotmail account, I do not expect the emails I have sent to my contacts to be automatically deleted from my contacts' computers. In fact, if my contacts are also Hotmail users, then Hotmail will have copies of my emails even after I leave that service.

However, once the TOS changes were made public, Facebook users staged mass digital protests by forming groups and blogging. As of this writing (20 August 2009), over two million people joined a group called "MILLIONS AGAINST FACEBOOK's NEW LAYOUT AND TERMS OF SERVICE"[16] and nearly 150,000 joined "People Against the new Terms of Service (TOS)."[17] These protesters were claiming their rights to and ownership of the content they had uploaded to Facebook.

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[16] Available at http://www.facebook.com/group.php?gid=27233634858

[17] Available at http://www.facebook.com/group.php?gid=77069107432 . As the membership numbers indicate, it appears that there were significantly more people upset over Facebook's design change than over the TOS change.

I am not concerned with the issues of privacy or copyright, which are well covered elsewhere (boyd 2008b; Jabr 2008). Rather, I point to this example because it represents the "culture of calculation" bubbling to the surface where the users are encouraged to play in ignorance of the layers below. In computer programming, this phenomenon is called "the leaky abstraction" (Spolsky 2002). "Abstractions fail," argues Spolsky. That is, the layers programmers have built upon the hardware of computers are meant to simplify the use of computers. The OS GUI is an example. The abstractions usually function opaquely but often this opaqueness is pierced by malfunction: icons might not behave as they are expected to, screens go blank without warning or recourse, or (to use an example quite common in Windows 98 and XP in the late 1990s and early 2000s), the "Blue Screen of Death" appears, warning the user that "A fatal error has occurred. To continue, press Enter to return to Windows or Press CTRL+ALT+DELETE." In these cases, users are confronted with deeper, vestigial layers of the computer: faulty memory chips, failing hard drives, poorly written driver files, endless and unbroken loops in software. The problem is often at the level of the machine: electrons are out of their intended places. To put it another way, the machine (and hence the material) bubbles up through the layers of abstraction and confronts the user (Rosenberg 2007, 281).

Abstraction-failure means that users are thrust – momentarily and often against their will – backwards in time, to a time when PCs required users to know command-line coding or keyboard shortcuts to use the machine. Users – Turkle's "soft masters" – are thus confronted with the world of "hard masters" who are more comfortable diagnosing error messages and unusual hardware failures. Whereas a hard master might open up the box to

change the memory, replace the hard drive, or reflash the BIOS, for users a common resolution to these issues is not to manipulate more surface icons (since this might be impossible), but to engage in another, very material act – pressing the power button and holding it until the computer shuts down.

This is not, I want to emphasize, an attempt to privilege the knowledge of a computer repairperson over that of the computer user. I am not suggesting that the users need to go out and become certified computer repair technicians in order to fully evolve into ideal users who are both soft and hard masters. Rather, I argue that layers of abstraction can function to effectively deskill users by privileging particular uses of these machines over others. Software can be radically heterogeneous; the only limitation is the imagination of the programmer. Hardware, too, can be shaped to meet a wide range of needs. However, computers and software are currently being designed in a time of hegemonic, globalized capitalism. As such, they are now often designed to be black boxes, requiring particular skills to maintain their hardware and, more importantly, closing off uses that do not meet with the goals of software designers (Gillespie 2007). The most salient example of this can be seen in Microsoft Vista's Digital Rights Management software. This is a core feature of that OS which is designed to prevent users from installing stolen software. Another example can be seen in the region limitations built into DVD drives, which allow users to view videos only in predetermined areas of the world.

Returning to Web 2.0 sites, the Facebook TOS controversy is a Web 2.0 instance of a leaky abstraction. Facebook is a service dedicated to opacity; users are not required to (and are in fact discouraged from) knowing precisely how the service works. However,

Facebook is built upon several complex layers of abstractions. These include material, such as the labor involved in coding and administering the site and the hardware, and discursive, such as AJAX, Facebook Markup Language (FBML), CSS, and policy such as the privacy policy, terms of service, legal agreements, flows of investments, advertising revenues, and business deals. These layers exist beneath the surface upon which the tinkerers and soft masters interact and are largely invisible. Writing about Facebook's rival Myspace, Ryan Bigge (2006) notes that MySpace presents a "front-end" that is accessible, friendly, and invites participation, all the while hiding a "back-end" that contains the End User License Agreement, a EULA which is remarkable in the breadth of user content it claims ownership over (Scharman 2006). Facebook is built on the sort of surface apparatus to cover the legal apparatus.
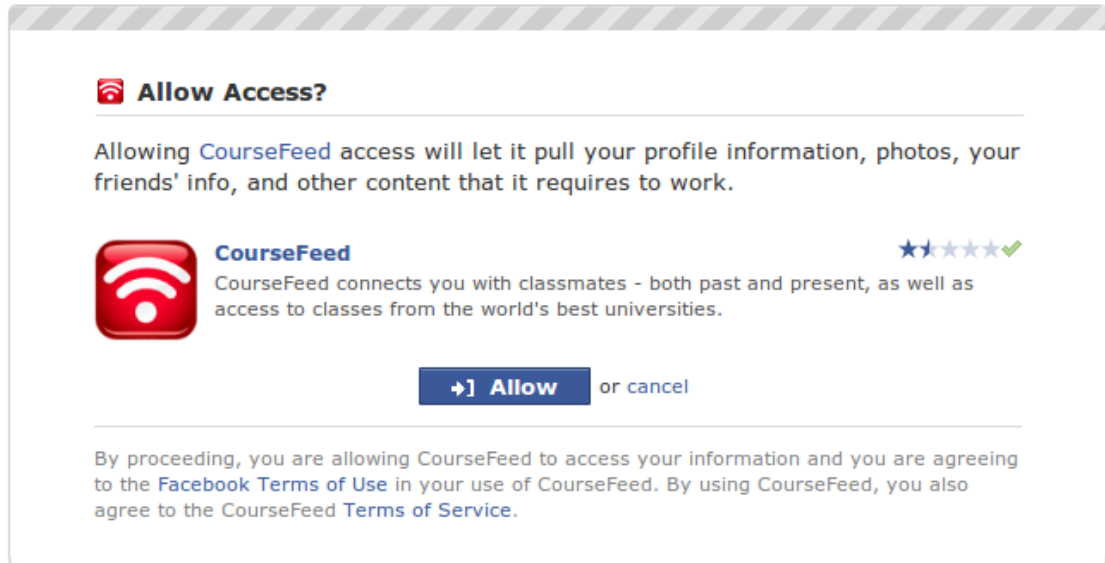
Figure 3: The "Allow Access" screen all Facebook applications use.

For example, consider this common user action in Facebook. Facebook allows third parties to create applications which can access user data (a practice I will further address in chapter 5). Any user who wants to interact with an application has to grant that application permission to access his or her data. The user is presented with a choice: "Allow or cancel." The user is informed that the application requires his or her data and the data of her friends in order to "work." Finally, the user is informed that he or she will adhere to the Terms of Service of Facebook and the application. Here, the user is presented with a quintessential abstraction. Far from the complex layers of material and discourse required to bring the service to the user, he or she is only required to click "Allow" and the application becomes a part of his or her Facebook experience.

In normal circumstances, users are not confronted with the layers beneath the abstraction. After pressing "Allow," the user only faces a new application and new modes of interaction with her friends who also play on the surface of the site. Once allowed, the application simply becomes a part of the surface experience of the user. However, the TOS controversy thrust one key layer to the surface. Suddenly, the legal agreements and the profit motive of the service confronted the casual user, and many users reacted negatively. By using Facebook or its third-party applications, users were providing personal information (likes and dislikes, photographs, writings) to the service which, as the TOS detailed, could become the property of Facebook in perpetuity. The TOS controversy, in short, brought back into focus – if only for a brief moment - the world of the hard master.

As seemingly banal as it is, this moment of rupture, where the legal and political economic layers just below the surface come to the fore, reveal the highly dissonant structure of Web 2.0. Web 2.0 advocates present it as a smooth interface between users and new media capital, where new media capital simply provides a "platform" upon which users can stand and produce their desired media content. In this ideology, the media companies step aside, allowing users to control content production. However, Web 2.0 is in actuality a site of ideological struggle between user-participants and media capital. In other words, Web 2.0 is where hard masters – those who engage in the modernist practice of complete control – seek to extract value from the labor of soft masters. These hard masters operate just below the surface of the "platform."

4.5 Hard Masters below the Surface

In Web 2.0, who precisely are these hard masters? Building upon Turkle's work, Paul

Edwards (1990) argues that

> the hard master of computers is someone whose major cognitive structures
> are preconceived plans, specific goals, formalisms, and abstractions,
> someone who has little use for spontaneity, trial and error, unplanned
> discovery, vaguely defined ends, or informality. This is also American
> culture's prevalent image of scientists, often portrayed as unusually
> disciplined thinkers who deploy long chains of logical and mathematical
> reasoning to arrive at a subtle, powerful understanding of nature's ways
> (104).

While this description bears little resemblance to the common picture we have of Web 2.0

users, it resembles another key set of actors involved in Web 2.0: site owners, venture

capitalists, lawyers, and marketers. Consider instead this description (Vise 2005) of

Google:

> To power its search and search-related services, Google runs patented,
> custom-designed programs on hundreds of thousands of machines that it
> also custom builds...the most important technological advantage
> distinguishing Google from would-be competitors is that its employees
> assemble and customize all of the personal computers the company uses to
> carry out searches... Experts generally regard personal computers as
> commodity products, akin to toasters, but Google assembles, deploys, and
> is constantly improving the performance capabilities of more than 100,000
> inexpensive PCs. It builds and stacks them atop one another in
> refrigerator-size racks, stringing them together with patented software and
> wiring. No enterprise has more computing power than Google with its
> network of garden-variety PCs on steroids (2-3).

While the soft master user of Web 2.0 is typically not concerned with the layers beneath

the surface, Web 2.0 company Google has built its business upon detailed, focused hard

mastery of its servers. Note the language: customize, assemble, deploy, stringing together

"garden-variety PCs on steroids." Unlike toasters – appliances that do not invite tinkering

and modification – Google takes full advantage of the computer's layers and material, shaping them to its needs, opening them up and reassembling them, activities borne out of the desire to profit from user activities.

Here, Vice's analysis is machine-centric. What about the people who string together those machines and rebuild them? What about computer scientists and engineers? As Edwards describes them:

> Today computer scientists enjoy a mystique of hard mastery comparable to the cult of physicists in the postwar years. Computers provide them with unblinking precision, calculative power, and the ability to synthesize massive amounts of data. At the same time computers symbolize the rigidities of pure logic and the impersonality of corporations and governments. By association with the miracles of its machinery, computer work is taken to require vast mental powers, a kind of genius with formalisms akin to that of the mathematician, and an otherworldliness connected with the ideology and iconography of the scientist. What makes computer scientists archetypal has to do partly with the nature of computers themselves (105).

Compare this to Vise's description of the Google founders and employees:

> Google's success depends on the continuing day-to-day involvement of cofounders [Sergey] Brin and [Larry] Page. Googleware and the lucrative Google ad system are a reflection of their genius and foresight. Going forward, it is the founders' focus, leadership, and grand ambition that are the most important ingredients in Google's long-term success... Together, Brin and Page power Google, breathing life into its interactions with hundreds of millions of users daily. They constantly motivate the collection of brilliant mathematicians, engineers, and technologists at the Googleplex to tackle larger and larger problems (5).

These large problems, Vice's narrative goes, can only be solved through the mythical coupling of genius and machine. "No other company has Google's combination of brains, immense computing resources, and focus on long-term results, vaulting it into a league of its own" (7). Vice's description of the "Google boys," Brin and Page, is similar to other

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biographies of them, focusing on their mathematical and computer prowess. As Vice notes, these two grew up with computers and were shaped, in part, by the design of that technology. As Edwards argues, the computer as it has been designed over the past century has given rise to the culture of hard mastery: its current, dual role as a logic machine and a business machine has partly shaped the actors who use it. And no other entity in the world has as many of these machines as Google.

Fast on Google's trail are Facebook and Amazon. Both companies have built powerful server farms. Both firms seek to accumulate as much computing power as possible. Facebook for example, seeks to become a social computing platform, banking on the power of its over 10,000 servers (Malik 2008). Likewise, Amazon leases its computing power to third parties, a service called Amazon Simple Storage Service. Like Google, these companies recognize the power of the computing machine and they seek to collect as many as possible. And, as I will discuss in chapter 6, these social networking services are also linking users together into super-processors, the power of which can be leased to companies needing human-based data processing.

But the culture of hard mastery does not end with the mathematicians and computer engineers who install and operate these servers. The very recent rise of venture capitalism has been marked by hard mastery techniques. For example, Fried and Hisrich (1994) surveyed eighteen venture capitalists and found that successful ones follow a process whereby they learn every aspect of their potential investment: from studies of the technology involved, market analysis, and management style to the personal lives and hygiene of the entrepreneurs they might offer their investment to. Similarly, Gompers and

Lee (2001) argue that venture capitalists mitigate the information asymmetry between investors and technology-savvy entrepreneurs by closely surveying the activities of the entrepreneur (either by close monitoring or by being members of the board of directors) and specializing in the same technical fields. It is no accident that venture capital firms are highly regionalized, with California having the majority (Florida and Donald F. Smith 1993). In order to master every aspect of potential start-ups, venture capitalists stay close to and closely observe the entrepreneurs they invest in.

As should be clear, the layers of abstraction below the Web 2.0 surface are comprised of machines and people who take hard mastery seriously, engaging in many disciplines which find their roots in Enlightenment rationalism and are extended through the logical control made possible by computing. This extends the longstanding history of the culture of computing which Ceruzi (2003) explores; he likens the computer engineer/programmer to a "priest" with ritualized knowledge shrouded in mystery, a winning formula for any class of people who want to gain social power and maintain control. Likewise, the networking of computers and the rise of the World Wide Web have created new avenues for hard masters in computer science, engineering, law, and economics to extend their influence and power.

4.5.1 Web 2.0: the Web as Platform

Recall the various Web-based applications described in section 4.4. These applications are built upon what O'Reilly (2005b) called "the Platform" of the Web. That is, rather than being housed in a user's local computer, they are served from centralized servers –

often for no charge – to users who sign up for accounts. This movement is now known as "cloud computing." As its name implies, the user is connected via broadband to an ethereal, unseen network of computers which handles the processing of data and returns the processed material to the user's computer. The selling points of this service are first, this reduces the demands upon a user's own computer – that is, a user with a low-powered "netbook" can still do productive work – and second it allows for more collaboration between users.

In contrast to these selling points, Andrejevic (2007a) argues that these Web applications which allow users to do desktop-style work online are a form of digital accumulation of computing power. "The creation of ubiquitous 'cloud' computing, which internet ideologist and conservative pundit George Gilder... has described as the manifestation of a 'newly recentralized computing architecture,' is less a spontaneous eruption of convenience than a business model based on separating users from information and communication resources in order to restructure the terms of access to these resources." That is, Google Docs, Facebook applications, or Amazon's S3 technology are not simply new playthings of soft master users, nor are they liberating users from the need to own powerful computers, but rather are efforts to bring computer users under surveillance and control. In this regime, user data will no longer be stored on the user's machine but upon distant servers. In addition, access to computing power shifts from simply booting up one's own machine to logging into corporate-owned servers. As Andrejevic adds, "When the devices we use to access content are networked, we may find not only that our consumption patterns can be digitally recorded, but that approved forms of access—such

as the type of geographic limitations built into my friend's DVD—can be enforced via computer code... rather than reliance on the goodwill of consumers" (297). In other words, in the hands of the hard masters, digital technologies are designed in such a way as to leave nothing to chance. Users may not access restricted areas. Users will be watched as they shop and surf online.

This movement confirms Vincent Mosco's (2004) argument that generative technologies such as electricity, radio, and the Internet go through stages of reception: first being celebrated, next becoming banal, finally being centralized as major economic forces accumulate these technologies. Computer use is now banal. The machine is no longer a knowable collection of interlocking parts and code, open to us, transparent. Rather, computers are black boxes; users are not invited to know what is inside them, and in some cases are prohibited from doing so. "Hacker" once meant a savvy computer user who could open up a machine and reconfigure its hardware and software. Now, it simply means criminal, one who breaks the artificial barriers of the machines and networks and runs the risk of being prosecuted. As for everyday computer users, they are abstracted from the material and code contained within their machines, and the layers of abstraction between them and their machines are now increasing populated by computer scientists, venture capitalists, and lawyers who monitor that space and preprogram all activity which takes place there. These layers and these actors invite the user to, as Turkle states, enjoy global complexity and forget all else. Writing about the ahistoricism of economics, Marx (Marx and Nicolaus 1993, 85) writes "The whole profundity of those modern economists who demonstrate the eternity and harmoniousness of the existing social relations lies in...

forgetting" the differences between historical epochs. Similar acts of forgetting animate Web 2.0. Soft masters are not only forgetting that computers are not just generative technologies but are also, as Ceruzzi (2003, 10) reminds us, "agents of control,"[18] under the command of a different class of computer users, a class which seeks to extract value from the activities of users. It is this dual logic of computing – the contradiction between machines which can be powerful productive capital and machines which can enable tight surveillance and control of various groups of actors – which underpins the short history of Web 2.0. Ultimately, the shift to online applications, the storage of user data on corporate servers, and the centralized accumulation of computing power are rational, logical efforts by the hard masters behind Web 2.0, who want to remain hidden beneath layers of social and logical abstractions.

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[18] Ceruzzi is drawing on a long tradition of historians and sociologists who consider computers to be control agents: see Noble 1984; Beniger 1986; Zuboff 1988; Edwards 1996; Dyer-Witheford 1999; Yates 1993; and Andrejevic 2007.

5 The contradictory protocols of Web 2.0

The symbol of what we might retronymically label "Web 1.0" was the portal. These sites were geared towards attracting as wide an audience as possible. Yahoo!'s start page was the best example of this. On the Yahoo! page in 2001, a user could shop for clothes, computers, and electronics, or the user could work her way through the Web by following Yahoo!'s categories, which include Arts and Humanities, Business and Finance, and Social Science. Yahoo! also offered news. On the October 10 2001 Archive.org cache, "Bush sends education plan to Congress" is a key US headline, a line of text frozen in the context of Yahoo! shopping, sports, and games.[19] In addition, users started at Yahoo! to log into mail and chat accounts, and to customize their Yahoo! start pages with content carefully selected by Yahoo!'s editorial staff. In short, the portal model sought to be all things to all users, to be all-encompassing and authoritative and yet personal and inviting. As the name implies, the Web portal was meant to be a window into the Web which users could gaze through without ever leaving the safe, expert-created confines of the portal site.

In Web 2.0, however, the social network is perhaps the most important symbol. Web 2.0 sites appear to be widely distributed and led by users who network with one another

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[19] Available at http://web.archive.org/web/20010124000500/http://www.yahoo.com/ ; last accessed 28 August 2009.

across a broad variety of platforms. This networking allows users to manage both their relationships and the content they encounter on the Web. A typical Web 2.0 user is imagined to command a highly customized array of content management streams: RSS feeds, social network streams, and social bookmarks, the technologies popularized by Google Reader, Facebook, and Digg respectively. The portal – which remains Yahoo!'s model to this day - as the site of first encounter between the user and Web has been declared dying, if not dead. As one blogger commented about Yahoo!'s latest incarnation, "it's about time Yahoo scrapped the whole cluttered portal approach and started thinking more like The Google" (Kleinschmidt 2009). That is, the Web portal's attempt to be all things to all users is largely seen as a failure; Web 2.0 users are proclaimed to want to completely customize their own experience from the "friends" they contact to the content they consume, and they want their information not from centralized editors who create portals, but socially from their friends and colleagues. In short, the way a user encounters the Web is seen as having undergone a radical transformation. As I explored in chapter two, the discourse about this transformation is nothing short of utopian.

And yet, a close examination of the structure of Web 2.0 reveals that it is not exceptionally different from "Web 1.0." While users are consistently offered new tools by which to customize their initial and sustained encounters with the Web, the old portal sites have given way not to a radical variety of smaller specialty or niche sites but rather to highly centralized media corporations such as Facebook, Myspace, and Twitter. But rather than encounter these centralized media companies, users experience them through widely distributed applications. This is a structure I call "distributed centralization." Web

users might not even type www.facebook.com into their browsers, but if their browsers remain logged in to Facebook or MySpace as they move from site to site, those social networks can track their paths across the Web, much as Yahoo! attempts to do with the portal model. In sum, the large-scale political economics of attention have not changed much since the early days of the Web.

Ultimately, this re-centralization of the Web can be explained by examining the structure of the Internet, which is based upon technical standards called protocols, developed in the 1960s and 1970s as ARPA and university researchers developed the Internet. These protocols structure the Internet (and thus the Web, which is built on top of the Internet), determining in large part economics and culture. In this chapter, I claim that Web 2.0 site builders have adopted and adapted the contradictory logic of the two dominant protocols of the Internet: Transfer Control Protocol/Internet Protocol (TCP/IP) and the Domain Name System (DNS). On the one hand, TCP/IP determines the radically decentralized structure of the Web, where it seems as though anyone with access can express himself. On the other hand, DNS allows for rigidly centralized control of the Web, making it possible for state or corporate actors to censor or dominate online discourse.

Web 2.0 site builders have taken inspiration from these bisecting protocols. I claim that new media capitalists have constructed social networking sites which are on the one hand similar to TCP/IP: they are open to all, do not predetermine user activity, and are radically distributed. This leads to the popular media perception that Web 2.0 is a liberating, anti-authoritarian, and even anonymous phenomenon. The Web appears so radically distributed that it is centerless. In this environment, the user is the building

block of the entire Web: his actions, expressions, and opinions create the content we all enjoy. Just like the metaphor of the surface/platform I explored in chapters two and four, the user could be seen as standing on the "platform" or the surface of the Web, enjoying all that it has to offer. And yet, as I will show in this chapter, the self-same social networks/platforms upon which the user triumphantly stands also draw inspiration from the DNS: these social networks are, in fact, rigidly centralized, with all information produced by users flowing to the site owners' servers, and the identity of users known to the site owners. This contradictory set of technical protocols animates Web 2.0 and elides Web 2.0's primary purpose: the capture of user-created content and the constant surveillance of users.

5.1 The contradictory protocols of the Internet

The Internet was built upon contradictions. Drawing on political philosophies of Gilles Deleuze, Michel Foucault, Michael Hardt, and Antonio Negri, Alexander Galloway (2004; 2001) argues that the Internet relies on a protocological form of power which is markedly different from power found in modern, liberal social structures. This structure appears at first to be almost impossibly contradictory. The Internet is built upon two key protocols: Transfer Control Protocol (TCP)/Internet Protocol (IP) and the Domain Name System. The first, TCP/IP is radically distributed, and the second is rigidly authoritarian.

First, TCP/IP are a pair of complementary protocols so intertwined they are often written of together, and Galloway's analysis is no exception. Developed in the 1970s as a backbone technology of the nascent Internet, TCP/IP are most notable for being

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completely distributed. TCP is used to connect any two devices which speak the proper language and to transfer data between them. It also is used to make sure that data arrives at a location intact. It does not discriminate against any device, nor any location.[20] Complimenting this, IP is used to shuttle packets of information from one node in the network to the next in the direction of the final destination.

Galloway argues that TCP/IP are anti-hierarchical and anti-authoritarian. They are horizontal, or as Galloway puts it (following Deleuze), rhizomatic. Thus, TCP/IP are "acentered, nonhierarchical, [and] nonsignifying" (34). There is no central controlling force which dictates what information can be sent via these protocols. Moreover, TCP/IP are not designed to check the content of data being sent, but rather only to ensure that data arrive at their destinations. This system is at the heart of many of the utopian ideas about the democratic nature of the Internet. Anyone with a device which participates in the protocol can get on the network. That is the only requirement. And in fact, it is a remarkable system which accepts everything from images of DaVinci paintings to pornography, from digitized symphonies to spam from Nigerian princes. It does not discriminate. In this sense, it adheres to the Shannon (1948) theory of information, where the content is not the focus, but rather interruptive forces such as "noise" and signal loss.

In contrast, Galloway argues that another protocol, DNS or the Domain Name System, counters this rhizomatic network with a protocol which is rigidly hierarchical and centrally controlled. The core function of DNS is to use these textual addresses and

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[20] Of course, here I am glossing over the digital divide. Anyone who cannot afford hardware or access to the Internet obviously cannot link into this protocol. Here, I am strictly discussing the nondiscriminatory aspects of this protocol as it relates to machines which speak its language.

resolve them to IP addresses. That is, each server connected to the Internet has an Internet Protocol address (the IP in TCP/IP). This address is either a 32 or 128 bit string of numerals. For example, one IP address of Google is 63.146.123.0. The DNS system was created to add a layer of human-friendly textual addresses on top of the IP address scheme. This is why we type www.google.com into our Web browsers instead of a string of numbers; it is much easier to remember.

Given the breadth of the Internet, some system had to be created to make sure there was no duplication of addresses (both numerical and textual). In the 1970s, this data was stored in one server in Stanford, California on a file called HOSTS.TXT. However, as the Internet grew, the demands upon the server where HOSTS.TXT became overwhelming, threatening either to crash the system or to render HOSTS.TXT consistently obsolete due to the exponential growth of new Internet Servers. In other words, if HOSTS.TXT became overwhelmed with client requests and no one was watching the system, a whole gaggle of google.coms would appear, thereby breaking the system by confusing TCP/IP as it routes data.

In order to maintain this system, the DNS was formed, distributing management of Internet addresses hierarchically. Whereas once stanford.edu and its corresponding IP address might have been stored in HOSTS.TXT, in the DNS system, EDUCAUSE now administers all EDU domain names, and delegates sub-domains such as STANFORD to other organizations. DNS is administered by a few institutions who license addresses to users. For example, the domain name www.myspace.com has three key elements: 1) its designation as a .com means that its name is assigned by the top-level .com registry

found at Verisign Global Registry, which oversees all .com addresses. COM, NET, EDU, TV, US, and UK are all examples of top-level domains. The "myspace" portion is a second-level domain overseen by Network Solutions, which leases the name "myspace" to Myspace. All registrars of domain names must be certified by ICANN, the Internet Corporation for Assigned Names and Numbers. This is the governing body which assigns the unique identifiers (IP addresses) which TCP/IP requires to find resources on the Internet.

It should be clear that in contrast to TCP/IP, the DNS system is not rhizomatic; it is an inverted tree, with a hierarchy, branches, and authority. Instead of allowing any device to send data to any location without discrimination, this system inscribes very human institutions of centralized control and surveillance into the network. In structure, it closely resembles a UNIX filesystem, with a root, folders, and subfolders. The root level has absolute authority over the levels below it.[21] The very root of the system – represented by the "." or "dot" – is the highest level, and whatever organization controls the root ultimately controls the DNS directory. While TCP/IP does not care what information is passed between nodes in the network, the DNS system has built-in restrictions. For example, I personally cannot get an EDU domain name since I am not an educational institution. I cannot get the domain name Robert.Gehl since GEHL does not

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[21] Here, the spatial metaphors deployed by computer scientists to think about these systems gets a bit confusing. The UNIX file structure has a "root" where the most essential files are kept. As its name implies, the "root" is the core of the system. The applications are built on top of this in a manner similar to what I described in chapter four. So, as in my argument about the platform, in the UNIX metaphor, authority resides at the lowest level. In fact, in order to make system changes, one "logs in as root" and plumbs the depths of this file system, often working one's way through files that contain within them those parts of UNIX which were developed earliest. And yet, from feudal states to modern day liberal democracies, we tend to think of authority as coming from on high. For clarity's sake, I will refer to the power of DNS as coming from above. In any case – below or above – I will argue that power is in fact coming from a definite *somewhere*.

exist as a top-level domain (not to mention that GEHL would certainly be claimed by an entity with deeper pockets than me, such as the Gehl Corporation, an entity I unfortunately have no claim upon). To get a website which ends in .CN, I would have to apply to the Chinese government's Ministry of Information Industry, which would be a prohibitively expensive and bureaucratic process. I would butt up against powerful institutions as I sought to stake my location on the Web.

This formalization of a naming system is done to prevent the sort of anti-authoritarian, ant-hierarchical chaos that TCP/IP might create. The administrators of DNS reduce the potential chaos of an infinite array of top-level domains by limiting them to a handful of options. The system is a distributed management system resulting in human-friendly addresses. It is thus a technical necessity and matter of convenience. But, as Tim Berners-Lee (2000) puts it, the DNS is also "an Achilles' heel..." with a weakness due to "social centralization" (126-127).

Berners-Lee does not elaborate much on this, but Galloway does. As Galloway argues, this rigidly hierarchical protocol bisects the rhizomatic structure of TCP/IP. For example, the DNS system allows authorities to block Web sites individually (such as google.com) or categorically (such as blocking the .CN top-level domain). Governments such as China and Bahrain have made much use of this ability. For example, Bahrain allows only one residential Internet Service Provider (ISP) to operate. This ISP, Batelco, is state-owned. It maintains lists of blocked DNSs; as of this reading, sites such as the Arabic Network for Human Rights Information, the Bahrain Center for Human Rights, as well as various blogs and news outlets are all blocked for expressing anti-government sentiment in

Bahrain. In addition, Batelco has blocked many proxy sites which allow users to circumvent these restrictions. This sort of control is enabled by the DNS. Corporations also engage in this practice, blocking pornographic sites, social networks, game sites, and entertainment (Anon. 2008). Again, this is enabled by the DNS.

But this use of DNS is not all regressive and authoritarian. A domain name is also now seen as incredibly valuable intellectual property, akin to real estate. With the right promotion and acknowledgement, a phrase like amazon.com can be imbued with tremendous social and economic capital. In addition, Galloway argues that DNS can be as inclusive as TCP/IP: the domain system does not care what text lies between the WWW and the COM (or other top-level domains), leading to a potentially infinite variety of domain names. In fact, in the final analysis, the Internet and the World Wide Web would not function without the DNS system. Packets of information could be sent to the wrong address, emails might not get through, and Web sites might be imposters. Without this hierarchical protocol the anarchic Web, so often praised for its libertarian possibilities, would not dominate our discussions of and experiences with network technologies; it would not exist.

Galloway's ultimate argument about protocol is that this contradiction between radical open distribution and rigid hierarchy results in a media system which is so seductive it cannot easily be undermined. It is seductive because it is so very inclusive; recall that TCP/IP accepts any information so long as it adheres to the protocol. But the DNS system allows for powerful actors to regulate online activity. Moreover, Internet protocol is an either-or proposition: either a machine speaks the protocols and thus can be connected

and therefore its operator can be connected, or it does not and therefore, for all purposes, does not exist as a node in the global network. Thus resistance to protocological power takes two shapes: resistance from within, or the resistance of refusal. The first form of resistance is incredibly weak: if a user creates a Web site which is critical of power, and that site is blocked via DNS, *that site does not exist.* Or, alternatively, resistance from within is weakened because often those who participate in protocol are co-opted by it. Resistance from without is weak, as well: if one is not participating in the network, again *one does not exist for that network.* As he argues,

> The contradiction at the heart of protocol is that it has to standardize in
> order to liberate. It has to be fascistic and unilateral in order to be utopian.
> It contains, as Jameson wrote of mass culture before it, both the ability to
> imagine an unalienated social life and a window into the dystopian
> realities of that life. (95)

That is, the standardization, centralization, and authority of DNS is *necessary* to the freedom, permissiveness, and inclusiveness of TCP/IP. The Internet's structure allows for the cultural ideologies of freedom and libertarianism to coexist with material principles of control and authoritarianism.

The most salient example of this is that action of a state such as Bahrain to create an ISP which claims in its marketing literature to offer "liberalised" access to the Internet while simultaneously adhering to the political whims of a ruling class.[22] Bahrain's Batelco must use TCP/IP to shuttle data around, and by its nature TCP/IP does not care if a user is writing a polemic against the ruling class in that state. But Batelco can utilize DNS to stem the flow of these speech acts. "Liberalisation" is bisected by power. The network

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[22] Available at http://www.batelco.com.bh/pr/about_us.asp

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allows for all speech acts, but the disciplinary power of the state seeks to inscribe in its subjects a predetermined set of discourse.

But in a more subtle form – a form Foucault recognized – the power of protocol lies in its ability to co-opt resistance from within. Since not participating in the protocological network means that one does not exist, one must participate in protocol in order to criticize it. But then, of course, one becomes a part of the very thing one opposes. Inclusion and cooptation are also the unique, contradictory powers of Web 2.0.

5.2 Web 2.0's contradictory structure

As I discussed in chapter two, according to Web 2.0 utopians, the sort of authoritarianism and elitism that Bahrain's Batelco represents is supposed to be dead and buried in the age of Web 2.0. Web 2.0 sites such as Facebook and Twitter are supposed to enable circumvention of political regimes (Clinton 2010). News reports of the political unrest in Moldova and Iran is replete with praise for social networks which allow protesters to circumvent state-sanctioned media outlets and communications channels in order to stage mass protests (Stone and Noam Cohen 2009; Anon. 2009c; Berman 2009).[23] As this argument goes, blogging and video sharing undermine the elite media conglomerates, thus undermining capitalist investment in media production. In short, Web 2.0 is about the masses rising up and being heard.

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[23] The influence of Twitter on Moldova's and Iran's political uprising has been in dispute, most notably by researchers at Harvard's Berkman Center for Internet and Society. In sum, these researchers argue that Twitter users made up only a tiny fraction of protest participants, and that most people Tweeting during the protests were not in those states at the time. Twitter was especially used by the Iranian diaspora in the West.

However, despite its perceived status as being a radical break with the previous iteration of the Web, Web 2.0 has a similar contradiction which grows directly out of the Internet protocol contradictions Galloway identifies. In other words, Web 2.0 is not a new technical standard for the Web (which is an application that runs on the older Internet). Rather, as I described in chapter two, it is simply a buzzword meant to describe a new business practice of harnessing the "collective intelligence" of a large mass of users. This business model takes inspiration from the contradictory protocological structure that Galloway describes.

First, the Web allows for a vast array of actors to contribute: amateurs to large media companies, skilled coders to push-button publishers. Setting aside the very real issue of the digital divide, the Web is imagined to be – and for good reason – a universal medium. As long as one has an Internet connection and a computer capable of serving HTML files, anyone can go online and publish her ideas and media. This ideology and practice of inclusive media production is made possible by the radical inclusiveness of protocols such as TCP/IP.

However, this rapid influx of amateur production has created two key problems for online commerce. On the one hand, a vast Web of amateur content dilutes the many-eyeballs model of advertising that traditional media companies deploy to realize the surplus value of their creative laborers. To put it in information theory terms, amateur content becomes noise which disrupts the desired signal flows of advertising and consumer preference surveillance. Second, the ethos of the amateur Web is that copyright does not matter;

nonrival, easily reproduced digital objects crop up everywhere, despite the best efforts of intellectual property defenders.

The portal model I described at the outset is one reaction to the vast fields of unregulated content on the Web, but the portal model is largely seen as a failure because it is stultifying and too redolent of mass media culture, the very institution that the Web has been proclaimed to surpass. Instead, Web 2.0 site owners have sought to bisect the radical inclusiveness of the distributed Web of amateur content production with centralized sites designed to hide their centralized structure. This is the structure I call "distributed centralization." Thus, much as the DNS was formed to bisect the anarchy of TCP/IP and impose order upon the Internet, amateur expression and content production has been slowly accumulated by Web 2.0 site owners. Sites such as the social networks Facebook, Myspace, and Twitter which provide many of the popularly celebrated and open functions also include means to bring amateur content production into the gaze of centralized authorities. And, through the use of third-party applications, these centralized sites can track user activity across the Web, further creating an illusion of decentralization while maintaining the surveillance necessary to accumulate user data.

5.2.1 The architecture of participation

The popular media coverage of user-generated content in the 2000s has primarily focused on blogs, podcasts, and wikis. These technologies have allowed for a mass of new, non-specialized participants in media creation and distribution. Unlike other media objects, scarcity of materials (space in a newspaper, or airtime on a television station) are not an

issue. With this cheap new form of media production, the number of bloggers has grown to an estimated 184 million, according to Technorati.[24]

Like TCP/IP, blogs, podcasts, and wikis are universalizing and inclusive. These technologies are not concerned with the data they contain; with the proper material, tomorrow I can publish a blog post entirely consisting of smiley faces. In fact, I did: it is available at thesupersmilefederation.blogspot.com. I could do the same with a wiki, or I could create podcasts of static, beeps, or animal noises. The content does not matter to the technological frames which hold it; these technologies are simply formalizations of protocols such as HTML and XML which, like TCP/IP, are not concerned with the data they contain.

Of course, most people who create blogs, wikis, or podcasts have some interest in creating human-readable content. The subjects covered by blogs, wikis, and podcasts are too various to accurately describe. There is certainly something analogous in the demassification movement in print and television media, but the depth of choice online far exceeds the number of magazines and television stations available. Pulling examples at random: Violet Blue's sex blog Tiny Nibbles; Dog Cast Radio, the podcast for dog lovers; Wikileaks, a wiki devoted to leaked government documents[25]. Suffice it to say that this variety arises because of the universal inclusiveness of the protocols involved. This *technological* inclusiveness has led to the *social* perception of inclusiveness; since

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[24] Available at http://technorati.com/blogging/state-of-the-blogosphere/
[25] Available at http://www.tinynibbles.com/, http://www.dogcastradio.com/, and http://wikileaks.org/, respectively.

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these sites are easy and cheap to make, people believe that everyone should have a blog, a wiki, or a podcast.

This rapid rise in amateur media production led neo-luddite detractors such as Andrew Keen (2007) to decry the "cult of the amateur." "Today," he writes

> hundreds of thousands of amateur radio broadcasters or podcasters –
> would-be Howard Sterns and Rush Limbaughs – are using their computers
> to produce and distribute podcast shows. The latest fad – the new new
> thing – is video blogs, transforming anyone with a webcam and a
> microphone into instant stars on amateur video networks like YouTube and
> Bebo... Broadcasting technology is becoming so pervasive that everything
> we do and say can, in a couple of clicks, be disseminated throughout the
> Internet. But is any of it worth watching? (60)

Keen's main argument in *The Cult of the Amateur* is that this amateur content is destroying culture by displacing elite mediators such as editors, record label executives, and academic experts. Again, much like TCP/IP, the technological structure of the Internet and Web has created a social structure which is anti-authoritarian and anti-hierarchical. But, as Keen argues, the sheer number of blogs, wikis, and podcasts has created so much noise it is hard for a Web user work to decipher what content is valuable and what content is not.

But another solution to the problems Keen describes is the rise of social networks, which are centralized sites of amateur content creation and distribution. This solved one key problem: how to keep track of friends, family, and colleagues as they actively create content. Instead of "wading through" page after page of amateur-created content, social networks have utilized the trust functionality used in email and joined it with the emphasis on novelty found in blogs, podcasts, and wikis. In a social network, users

"friend" one another, establishing connections, verifying identities, and essentially subscribing to each others' day-to-day updates. Like email, the information flows are typically based on relationships, rather than by search or browsing. Setting aside very generous offers from Nigerian princes, I typically only get emails from people I have given my address to – people I trust and have verified. Likewise, when I see my friends' updates in Facebook, I am looking at information produced by people I have selected and allowed to be my friends, rather than people I have found by searching for a subject or have stumbled upon. But unlike email, the primary function of which is to distribute text and documents, the feeds from friends are often not just text but also videos and pictures, and the text and videos distributed in social networks are often publicly visible, not private. In short, social networks largely replicate the functions of blogs, with one key exception: they replace an authority (the blog owner or the editorial staff) with the editorial services of the friend network.

The rise of social networks is akin to the development of DNS to organize the anarchic structure of TCP/IP. Social networks duplicate the structure of the DNS in two ways: First, the need for DNS arose in part because a map of the Internet, complete with unique addresses, was required in order to deliver data to the proper places. Likewise, the major innovation of social networks is to verify identities of users, a movement often labeled "Identity 2.0." This provides a trust system and a filtration system for the glut of sources of information on the Web, and it has helped reduce the Web's infamous anonymity. Second, the DNS is structured as an inverted tree; each level has absolute authority over the levels below. Likewise, social networks are structured in such a way as to accumulate

the most value produced by users. At the highest levels are the investors and owners of social networks; below them are third-party application developers (discussed in chapter four); and below them all are the users.

5.2.2 Identity 2.0

Facebook and Twitter are examples of the first principle. Facebook's origin as a social networking site on the campus of Harvard was the root of this process. Initially, the only people allowed to sign up for Facebook were students at Harvard. Their identities were verified by using their Harvard-provided email address; without an email address ending in @fas.harvard.edu, students could not log in to Facebook. Since these email addresses were issued to specific students and those students were the sole owners of those addresses, this proved to be an effective way to avoid the anonymity of other Web services. In addition, by linking Internet social networking to a specific location and demographic (that is, the Boston metropolitan area and the students who attend Harvard), Facebook was able to get its users to provide real-world information about themselves: specific locations, real pictures, and favorite hang-outs, distinguishing Facebook from prior social networks such as Myspace and Friendster, sites where fake profiles were rampant (boyd 2006). As Facebook spread from Harvard to Stanford, Columbia, and Yale, it repeated the formula of grounding user identities in their real world context of college campuses. This process eventually broadened to include high schools, workplaces, and now, anyone with an email address.

While anyone can now get a Facebook account, the culture and much of the structure of the service encourages users to use their real-world identities, an example of technological path dependency. However, other social networks which did not rely as Facebook did on university email accounts have also demonstrated a tendency towards real-world identities. As Donath and boyd (2004) argue, social networks strengthen online identity through the "friending" process, which publicly displays the links between one user and another. "A public display of connections is an implicit verification of identity" (73). As they argue,

> If I write a description of myself for strangers to read, it is easy to prevaricate. Yet if I take that description and ask a number of people who know me to link to it and implicitly vet it, this should increase the reliability of the description. In theory, the public display of connections found on networking sites should ensure honest self-presentation because one's connections are linked to one's profile; they have both seen it and, implicitly, sanctioned it (73-74).

Analogous to the Linux principle of "Many eyes make all bugs shallow," in this case many eyes make false identities far less likely. Couple this with Facebook's use of college emails and geography-based network and that social network has become "the most comprehensive database of self maintained user information" (Cuban 2007).

Twitter is also engaged in verification of identity, offering its high-profile users such as celebrities and athletes the ability to verify their accounts.[26] This is to combat the spate of counterfeit celebrity Twitter accounts. For example, basketball player-cum-reality television star Shaquille O'Neal dealt with a wide range of impersonators until the verification process began, but now any Twitter user knows @THE_REAL_SHAQ from

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[26] Information about this service is available at, http://twitter.com/help/verified. Last accessed 4 September 2009.

the impostors. As of this writing, the Twitter verification service is only available for celebrities, but Twitter has expressed plans to expand it to all users.[27]

What this does for users is provide a filter of content, reducing the time users spend searching for reliable content. Instead of wading through blogs, wikis, and podcasts as in Keen's complaint, users can simply watch the "streams" of data which flow through the social networks and click on those items, selected by their "friends," which interest them. This system helps mitigate what Clay Shirky (2008) calls "filter failure": the problems caused by a lack of authoritative filters of content. In short, as I watch what my friends and colleagues recommend, they increasingly replace professional editors and content curators. They do so because I trust them to provide content to me; it is not unlike word-of-mouth promotion of any cultural artifact.

As discussed above, DNS provided a system for network-wide asset identification and a means for authority to be asserted and centralized. This structure bisects the anarchy of TCP/IP. Likewise, social networks also now provide a counterweight to the infamous anonymity of the Web. This anonymity has given rise to much literature discussing the postmodern fragmentation of identity (Allison et al. 2006, vol. 163; Filiciak 2003; Hillier and Harrison 2007; Huffaker and Calvert 2005; Valkenburg and Peter 2008; Turkle 1984; Turkle 1995). This literature has imagined the Internet and the Web as sites where people have the ability to play with their identities in radical ways, including adopting different gender, sexuality, race, or political identities. While social networks have not completely

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[27] However, it seems as though anonymity and playfulness with identity are hard to eliminate. Since Facebook opened up to all users, it has seen a rise of false identities, particularly celebrity pages (Bunin 2008). This is a violation of Facebook policy.

eradicated anonymity online, nor have they eliminated the radical experimentation that postmodernists point to, as I argued in chapter 3, they have altered the processes by which people take pleasure in identity-play. Identity in social networks is more often linked to real-world facts than it is in anonymous Web sites. However, despite this shift, there is much anxiety among both users and legislators about anonymity.[28] This anxiety in part explains the success of social networks which verify identity. The question is, who benefits from identity verification? This question is answered by looking at the hierarchical structure of social networks.

5.2.3 Social network structure

Like the DNS, social networks are structured like an inverted tree. At the top are the large media companies: Facebook is privately owned but counts Microsoft as an investor, Myspace is owned by Newscorp. Twitter remains owned by its founders, but acquisition rumors abound (Chen 2009; Hasson 2009), and if it follows the pattern of past Web startups, someone will purchase it. The high valuations of these companies reveals their *raison d'etre*: they are new forms of media capitalism. They are intended to nurture an audience to be delivered to advertisers and merchants. The investors, owners, and administrators of social networks are the "hard masters" discussed in chapter four. This focuses our attention upon the traditional metrics and analytics of marketing, areas where social networks are truly exceptional. As the President of Fox Interactive Media Peter

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[28] The Obama administration has recently denounced anonymity online. In a policy speech, Secretary of State Hillary Clinton (2010) argued that anonymity online leads to theft and lawlessness. This statement caps a decade that saw civil lawsuits which centered on exposing anonymous blogging and (Anon. 2007a; Saltzman 2007; Del Signore 2009) attempts by legislators in Kentucky to outlaw anonymous blogging (Couch 2008). And, of course, regimes like China's seek to identify every user of the Web in order to prevent dissent.

Levinsohn claims, "[MySpace is] blessed with a phenomenal amount of information about the likes, dislikes and life's passions of our users... We have an opportunity to provide advertisers with a completely new paradigm" (qtd. in Stone 2007, C1). All other social networks attempt to gain this same granular user information; to date, there are no social networking sites which explicitly promise to *not* surveil users. Below the upper level of social network site administrators and owners is a layer of third-party application developers. And at the lowest level are the users. Unlike the traditional audiences of mass media products, users of social networks are expected to produce and content which appears in the networks, something I will explore further in chapter 6.

The authority in this structure lies at the top. The owners of Facebook, MySpace, and Twitter reserve the right to delete user accounts and third-party applications. While a precise legal analysis of each company's Terms of Service is outside the scope of this chapter, suffice it to say that each service retains the right to remove any user account, including those of application developers. Just as the DNS provides the technological capacity to exclude sites or even entire nations from the Internet, the centralization of social networks enables them to remove accounts which violate their terms. In addition, third-party application developers are also under the authority of the site owners; any who violate terms (say, for invading user privacy without user or network permission) can be removed. For example, Facebook has banned the Web 2.0 Suicide Machine, an application which allows users to delete their accounts (Scott 2010; Colker 2010). As in the case of DNS, this authority is exercised based upon the TOS and regional laws.

Some third-party developers have similar power to the owners of social networks, although they typically are unable completely remove user accounts. Instead, they can exclude users from applications (Knoop 2009). As these applications become more and more essential to the functionality of social networks, third-party developers have significant sway over users. In addition, due to the powerful query functions available in the various APIs, these developers can monitor user activity, gaining valuable market data which can be commodified, although their ability to survey user activity is not on the same scale as the owners of the social networks.

At the lowest level of the hierarchy are the users. Users obviously have the ability to open accounts and manage them, but they certainly do not have the exclusionary power of the levels above them. And yet, much like the Web in general, users add the most value to the network; they create sites or profiles that draw others in, amplifying the network effects of the Web.

5.3 The Social Network Application Programming Interface

In this structural centralization of power, social networks bear much similarity to the portals I described at the beginning of the chapter. Social networks often become a user's entry point into the wider Web. However, with the addition of the third-party API, social networks have a low-risk means to distribute their influence around the Web, extending the portal model into new contexts. Portals were based on gathering enough editor- or marketer-vetted content into one place and attracting audiences to it. Portals were thus

"silos" or "walled gardens"; if a user wanted the content that a portal provided, he would have to visit that site and that site alone.

The Web 2.0 business model eschews this centralization, allowing content to be broken out of silos. In the case of Facebook, third-party developers are now able to create applications which reside both within and without the main Facebook site, allowing users to be logged in to their Facebook profiles almost anywhere they are on the Web. For example, the Facebook "Stream API" allows developers access to users' activity on the Facebook homepage. At the homepage, the central feature is the "stream," which is the constantly flowing updates, likes, and comments of that user's friends. As Facebook founder and CEO Matt Zuckerman (2009) explains,

> As people share more, [the Stream] gets filled in more and more with what is happening with everything you're connected to. The pace of updates accelerates. This creates a continuous stream of information that delivers a deeper understanding for everyone participating in it. As this happens, people will no longer come to Facebook to consume a particular piece or type of content, but to consume and participate in the stream itself.

As more streams are joined together, Zuckerberg argues, a "Social Graph" of the now is made visible:

> The idea is that these connections—whether friendships, affiliations or interests—exist already in the real world, and all we're trying to do is map them out. We believe that connecting people to their friends is just the beginning, and we're working hard on making Facebook a place for people to connect with and keep track of all the interests in their lives.

Judging from this particular blog post, Zuckerman sees the "Social Graph" as dependent upon the day-to-day and minute-to-minute creation of affect among the users. With the

Stream API, this stream is available to third-party entrepreneurs (in addition to Facebook itself) to mine for valuable user data.

This might be called a "stream of affect" where the user encounters and engages with the opinions, day-to-day activities, photographs, and application use of his or her friends. Eva Illouz (2007) calls this sort of emotional exchange "emotional capitalism," where textual and digital representations of affect are publicly traded among friends, family, and colleagues. For example, when I first log into Facebook, I see that one friend of mine just played a game of Lexulous (a Scrabble clone) and another used an application which alters profile photographs to make them look like the iconic Obama "Hope" poster. I see another that "likes" the newly made photograph. In short, I see the activities of my many of my friends and I feel more connected to them, even though some are thousands of miles away and did these actions minutes, hours, or days ago. Moreover, Facebook is designed to allow me to easily evaluate these activities: I can "Like" them or comment on them. I can also send my friends digital gifts and links, validating their public displays with digital representations of my affection.

When Facebook was first constructed, this sort of data was visible by two groups: the administrators of Facebook and the users who encountered it. With the advent of the "Stream API," third-party developers now have access to this stream. As long as the user grants permission (which most do without much thought, a process I covered in chapter four), an application developer can both read the data in that user's stream, write content to that stream, and read posts the user's friends have created (Anon. 2009b) In addition, third party application developers can analyze the social networks that users are involved

in. For example, if I "allow" an application access to my personal data, it can see who my friends are and how they are related to me. Despite Facebook's repeated press releases about the power it gives users over their private data, as I argue in chapter four, it relies on users forgetting the layers of surveillance underneath the surface of the site.

In 2009, one of the most popular Facebook third-party application developers was Living Social. According to AppData, Living Social's ten major applications had over 32 million actively monthly users.[29] In May 2009, Living Social was the top ranked developer. These applications allow users to rate various products, including beer, books, music, and ski slopes. As they do so, their top five choices appear in the News Feed of their friends. This provides users with another opportunity to contribute to the stream, and of course the creators of Living Social also have access to users' streams.

In order to gain this access, third party applications such as Living Social utilize Facebook's standardizations of XML, including FBML (Facebook Markup Language), FQL (Facebook Query Language) as well as proprietary Javascript standard FJS (Facebook JavaScript). Through the Facebook-standardized XML protocols, application developers have startling flexibility over the data produced by users: for example, developers can use the same filters that users create to sort through their friends. This solves the problem of the "flattening" of friendship that can happen in social networks, where my best friend is equivalent to the friend-of-a-friend I had in high school, and where users can accumulate hundreds or thousands of friends without actually knowing those people (Maxine Park 2009). Users can customize these filters to distinguish

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[29] http://www.appdata.com/facebook/devs/index/id/58 – accessed 14 May 2009. AppData tracks the usage among various Facebook applications and provides daily rankings and metrics.

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between family, close friends, and work associates. And, with the "Stream API," developers have access to these distinctions, thus gaining valuable new metadata to sell to advertisers.

This data is now freed from being only visible within the confines of Facebook. The stream data can be ported into other contexts on other Web sites, desktops, or mobile devices. Users' data, such as their streams, profiles, friends, and tastes can be reproduced outside of Facebook, and users can contribute to the archive of affect anywhere they are on the Web as long as they log in to Facebook via the API. For example, the Living Social site (www.livingsocial.com) presents a constantly updated flow of tastes: "Al is now watching The Simpsons." "Kenna has marked Olive Garden (Greenwood) as a favorite." "Danny already listened to *Ava Adore* by the Smashing Pumpkins. Danny's record collection includes 26 albums." These are all Facebook users, but their activities are being reproduced outside Facebook.com. Thus, Facebook's API allows for the appearance of a vast, widely distributed range of autonomous Web sites where users can interact and express their affections. But despite its appearance, sites that participate in the Facebook API contribute to the further centralization of the Web. This is, for all purposes, a reproduction of the portal model.

In addition, these users can create profiles on Living Social, just so long as they have logged in to Facebook. On the Living Social site, users can view what music others are listening to, beers they are drinking, or restaurants they frequent. This is all relying on Facebook data such as user profiles and the "social graph," but Living Social has taken

this data and remixed it in ways not imagined by Zuckerberg and the rest of the Facebook administration. This remix of data has met with the approval of user Brian, who says

> Living Social: Albums' website is great for so many reasons. Their list of albums is vast from the new and popular music to the old and obscure. Personally, I listed [sic] to old and obscure music and it was fun to look back at the old albums I used to have and remember the music. Not only could I look back, but it shows that I am not the only one who used to rock out to the same bands. Its [sic] good for new music because you can see what your friends have listened to and what's popular with the people unlike Amazon or the radio where what's popular is because the record companies pay for the slot at top.

This is a quintessential example of a Web 2.0 application: one that relies on user-generated data to create a new organization of information (in this case, the popularity of music albums). User Brian has touched on a key ideological element of Web 2.0: users, not elites like "record companies," decide what is popular.

Thus, the Facebook API has engendered third-party applications such as Living Social, and these applications build upon the platform Facebook has provided in order to remix data. The closed silo of Facebook is now open, and, as Web 2.0 champions might say, the information is now free to traverse the Web. However, as I explored in my examination of the hierarchical structure of social networks, the data that Living Social or other applications gathers is also owned by Facebook.

5.4 Two forms of resistance: opting out, working within

For many users, the fact that they labor to produce nearly all the content in social networks is a fair exchange for access to a network comprised of their friends, family, and colleagues. However, those users who are concerned about their use of social

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networks – for whatever reason – two options are available to them: either opt out altogether, or work within the protocols of the social networks to make changes. Recall that, as Galloway argues, protocol only offers these options to those who wish to resist protocological control. The recent history of protest, usage, and migration in, among, and out of social networks bears this out.

5.4.1 Opting out

To tell the history of opting out of social networks, I will have to start with Facebook and Twitter, which are slightly newer than the other major social network in America, MySpace. Some users of Facebook and MySpace realize that the value that they receive from the networks is not matched by the contributions they make to them. These users see their social networking use as ultimately time-wasting and narcissistic. One reaction of these users is to simply opt out. Writing in *Newsweek*, Steven Tuttle (2009) describes his reasoning behind leaving Facebook:

> When I think about all the hours I wasted this past year on Facebook, and imagine the good I could have done instead, it depresses me. Instead of scouring my friends' friends' photos for other possible friends, I could have been raising money for Darfur relief, helping out at the local animal shelter or delivering food to the homeless. It depresses me even more to know that I would never have done any of those things, even with all those extra hours.

Tuttle ultimately argues that Facebook use is narcissistic and disconnects users from real social networks, like those found in local bars. *Adbusters* contributor Carmen King (2008) offers similar reasons for her cancellation of Facebook. Lev Grossman (2009) proudly describes being a Twitter quitter for similar reasons.

The narcissism and addiction that these authors describe is perceived to be such a problem that psychologists and therapists in Japan, South Korea, China, and United States have established Internet addiction clinics. In the United States, the reSTART clinic offers a 45-day detoxification program for $14,000. This sort of opting out is an extreme variety; users seeking rehabilitation go "off the grid," eschewing BlackBerries, Internet access, and email.

Thus, one possible reaction to those who dislike Facebook and Twitter is to simply opt out, essentially becoming nonexistent to those networks. This reveals the protocological dichotomy: either one is a part of the network or not. However, this history is ignoring another major social network in the American context. Prior to Facebook and Twitter, there was MySpace. When it comes to opting out of MySpace, accounts similar to those of Grossman, King, and Tuttle are hard to find. However, there are many accounts of users who quit MySpace for Facebook. In part, this might be explained by novelty and scarcity; Facebook started as a solely Harvard site, and its eventual spread to the general population occurred after MySpace was already three years old. Like Twitter in 2009, Facebook was the trendy site to participate in.

However, as danah boyd (2007; 2009; 2008a) argues, the migration of some users from MySpace to Facebook was not due to novelty but is rather a result in educational, income, and racial disparities:

> The goodie two shoes, jocks, athletes, or other "good" kids are now going
> to Facebook. These kids tend to come from families who emphasize
> education and going to college. They are part of what we'd call hegemonic
> society. They are primarily white, but not exclusively. They are in honors
> classes, looking forward to the prom, and live in a world dictated by after

school activities. MySpace is still home for Latino/Hispanic teens, immigrant teens, "burnouts," "alternative kids," "art fags," punks, emos, goths, gangstas, queer kids, and other kids who didn't play into the dominant high school popularity paradigm. These are kids whose parents didn't go to college, who are expected to get a job when they finish high school. These are the teens who plan to go into the military immediately after schools. Teens who are really into music or in a band are also on MySpace. MySpace has most of the kids who are socially ostracized at school because they are geeks, freaks, or queers (boyd 2007).

boyd's ethnographic work vividly illustrates the social stratification network researchers Nielson and Anderson Analytics have found.

In short, one might not opt out of social networks altogether; one might choose Facebook or MySpace or other networks because of homophily. In any case, due to their protocological incompatibilities, a user of Facebook cannot communicate with a user of MySpace. There is no interoperability. In short, a Facebook user not on MySpace *does not exist for users of MySpace.* These forms of resistance to one network or another do little to challenge the hierarchical organization of these networks; rather, as boyd forcefully argues, they simply reproduce offline social divisions online.

Thus, those who resist by opting out of the social network protocols paradoxically cease to exist for that network, simply because their efforts do not exist for the others who are networked. These accounts reveal one of the limitations of resistance to protocol which Galloway describes. Leaving the network is tantamount to becoming nonexistent, at least so far as the network is concerned.

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5.4.2 Resisting from within

The second mode of resistance, resistance from within, is most apparent on Facebook. As discussed in chapter four, Facebook has repeatedly faced controversy due to its Terms of Services changes, which are viewed as predatory by many its users. While some have no doubt left Facebook due to these controversies, many users have instead created groups which protest these changes. Recall that these groups, such as "MILLIONS AGAINST FACEBOOK's NEW LAYOUT AND TERMS OF SERVICE"[30] and "People Against the new Terms of Service (TOS),"[31] were able to attract millions of Facebook users during the controversy of February 2009, a population of users who remain active to this day. Despite their obvious anger about Facebook's TOS, this demographic did not opt out of the social network, but sought to change it from within. And, for the most part, these groups won. Facebook responded to these critiques by holding votes. These elections allowed users to choose which TOS they would prefer, and over 600,000 Facebook users participated, selecting a revised TOS which reflected input from users during a 30 day comment period. Opting in to the social network and participating in a democratic vote was a successful form of resistance.

Likewise, a brief look at both Andrew Keen's Web presence and at the social network created by the reSTART clinic reveals that these critics of Web 2.0 and/or addictive Internet use find it more fruitful to participate in the networks they are protesting than opting out. For his part, Keen's (2009) criticism of Web 2.0 includes an argument that "the only way to remain human in the age of the digital mob might be to stay silent" –

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[30] Available at http://www.facebook.com/group.php?gid=27233634858
[31] Available at http://www.facebook.com/group.php?gid=77069107432

that is, to opt out as King and Tuttle had. However, Keen is actually a high-profile user of Web 2.0 technologies: his blog, available at andrewkeen.typepad.com, dates back to 2006 and is constantly updated with his writings, videos, and podcasts. His Twitter account has over 9000 followers. In short, Keen is participating in the very technological protocols he claims to despise in *The Cult of the Amateur*. Likewise, a visit to reSTART's Web site reveals a strong Web presence, despite that organization's goal of weaning addicted Internet users off network technologies. reSTART even has its own social network, available at netaddictionrecovery.ning.com. I cannot tell if this is ironic or a legitimate therapeutic tool.

The Facebook vote, Andrew Keen's Web 2.0 sites, and reSTART's Web presence all reveal the most powerful aspect of social networks: their ability to co-opt resistance and criticism. Facebook's TOS controversy and subsequent democratic process (often dubbed "Facebook Democracy") has done little to slow the meteoric growth of that Web site. Keen's arguments against Web 2.0 – earning him the nickname the "AntiChrist of Web 2.0" – have most likely increased traffic on his blog and Twitter account. And reSTART's use of social networking among the putatively Internet-addicted is ironic to say the least. Like Galloway's (2004) ultimate argument about protocol, social networks are remarkably able to incorporate any internal resistance:

> Protocol is fundamentally a technology of inclusion... This fact makes it especially hard to speak about protocol in a negative sense, for its very success helps preclude outsider positions. Only the participants can connect, and therefor, by definition, there can be *no* resistance to protocol... *Opposing protocol is like opposing gravity – there is nothing that says it can't be done, but such a pursuit is surely misguided and in the end hasn't hurt gravity much.* While control used to be a law of society, not it is more like a law of nature (147, original emphasis).

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In sum, power in Web 2.0 – both in its radically distributed form of individual blogs, wikis and podcasts, and in its centralized form of social networks – is not an abstract feature, but is inscribed in the very material structure of this new organization of the Web. Once the network achieves ubiquity (and, as Vincent Mosco might argue, banality), resistance to power becomes an incredible challenge. It is either performed by going "off the grid" or by internalized dissent.

5.5 Conclusion: Distributed Centralization

The rise of the portal site in the late 1990s was predicated on anxieties about the anarchic World Wide Web, where with one click of the mouse, one could encounter anything from hate speech to child pornography to political viewpoints one found distasteful. Portal builders such as Yahoo! sought to address this anxiety by creating collections of vetted content with mass appeal. Once the portal constituted an audience, it was a simple matter to deliver them to advertisers and merchants. However, these portals soon came to be considered stultifying and paternalistic. The fall of the portal site of Web 1.0 promised a new distribution of access to a wider group of actors – a distribution of access that in fact had always been there (for those with the right equipment and knowledge). Web 2.0 is, in part, a manifestation of this change, and for most purposes, the rise in blogs, wikis, and podcasts demonstrates that media production has been somewhat democratized. However, in Web 2.0, the portal is being replaced with the social network – a new sort of filter to the glut of online content. This filter is constructed to take better advantage of the contradictory protocological structure of the Internet. As Marc Andrejevic (2003) might

say, the social network model of "distributed centralization" is an apparatus designed to hide the apparatus.

Moreover, as I have argued here, resistance to centralized power within this structure is exceptionally difficult. In my view, the most effective way for users to divest from distributed-centralized social networks and yet enjoy the affective connections they offer is to create networks arranged on a different architecture such as peer-to-peer computing. That is, instead of relying upon the centralized servers of MySpace and Facebook, users' hardware would serve as both storage and client. Of course, given the vilification of peer-to-peer infrastructure, this sort of resistance would in itself be challenging to undertake.

In the next chapter, I will explore how media companies outside the protocols of social networks are reacting to this new centralization. I argue that those media companies – particularly news media companies – are shifting their focus from production of media to creating Web 2.0 archives, allowing users to process data from these archives, and then storing the results of users activities in a never-ending loop of memory-processing-memory.

6 The archive and the processor

While advertisements for computers display a wide range of cultural tropes, there is one constant feature: a focus on memory and on processor speed. This is as true for advertisements for the mainframes which were so prevalent in computing's early history as it is for personal computers and laptops. This focus on memory and processing power is a direct result of the architecture of the computer post-1945. This architecture, the Von Neumman architecture, calls for computer designers to store data and programs in a memory core, and to process that data and execute those programs with the processor (Eckert 1945; Von Neuman 1945). Thus, the storage unit of the machine and its processing unit were separated, relating to one another in a linear hierarchy of "fetch-execute," where the processor fetches data from storage, manipulates it, and then moves on to the next line of data. The processor only "knows" the immediate data it is working with, whereas the storage unit contains an archive of all the computer's command code and data. Thus, the contemporary fixation upon processor speed and storage capacity is over a half century old, persisting to this day in the ways we compare computers.

To elaborate on this dichotomy, the focus on the processor is a focus on immediacy. Computer designers strove to make the computer feel as if it were reacting immediately to the whims of the user. Ceruzzi's (2003) history of modern computing singles out the

Digital Electronic Corporation's (DEC) PDP-1 and PDP-10 minicomputers as the earliest and most important exemplars of this design goal. The PDP-1 established a new architecture at a lower cost than large mainframes, thus allowing more people to interact with it. Its descendant, the PDP-10, "was the system that first created the illusion of personal computing," setting it in contrast with other machines which required users to queue up, load their punch cards, and receive the processed data, a mode called "batch processing" (286). The PDP-1 and 10 gave users the illusion of total control of the machine, as if the machine were reacting immediately to the user's whims. The older model of batch processing made users consider computers to be exotic machines, controlled by a priesthood of computer scientists who only allowed limited access. Ceruzzi argues that the immediacy of the PDP-1 and 10 created a "mental model" of computing which has influenced our contemporary computing culture. For example, Microsoft founder Bill Gates spent his formative years working with a PDP-10; his disk operating systems (such as DOS) and later Microsoft's GUI based OS Windows were in part attempts to recreate for users this immediacy and instant control.

Today, computer users have come to expect immediate processing and interaction; this is our contemporary "mental model" of computing. For example, as of this writing, Microsoft's newest operating system, Windows 7, is being subjected to performance tests by various computer magazines and Web sites. Popular perception of Microsoft's last operating system, Windows Vista, was that it was slow and demanded too much of hardware. Windows 7 is thus under scrutiny for one main reason: is it faster? *PC World*'s (Mediati 2009b) answer is, yes, slightly. *PC World*'s testing involved boot times,

processing speeds, shutdown speeds, and the load time of applications (such as word processors and spreadsheets) on various computers (Mediati 2009a). This focus on speed is a very common one, growing out of increases in processor speeds which have in turn generated an expectation of immediacy. The operating system is often judged on how well it utilizes the full power of the processor (and, as I argued in chapter four, how well it hides this and other material facets of the machine).

In contrast, the focus on memory is a focus on the archival potential of the computer. In the days of the mainframe, data was most often stored external to the machine on punch cards. This data was toted to the machine, loaded, and then after it was processed, the machine produced calculations. A major shift from large boxes of punched cards was the advent of tape reels and core memory. The former were data storage units which accessed data linearly; the latter was a form of memory where instructions for the processor could be stored and retrieved randomly, hence the name "Random Access Memory." With the advent of spinning disks, mass storage of and random access to data and instructions was possible. This feature was quickly adopted because it made computers much easier to modify for different tasks.

Memory is thus the long-term storage capacity of the computer. In contemporary operating systems, we often use the metaphor of the file system to understand how it works: folders and files arranged in hierarchies. Today, storage capacity is determined by the size of the hard drive; the larger the hard drive, the more files we can store. Given the tremendous demands of storing video and music files, computer users seek larger hard drives. Today, consumers can outfit their computers with multiple 500 gigabyte hard

drives, enough capacity to hold massive amounts of video data or the entire printed contents of an academic library. Terrabyte drives are also coming onto the market.

Thus, often when we talk about a computer, we discuss these two contrasting facets: how fast can it process? How much data can it store? These are the basic architectural facts of the technology, directly descended from Von Neumann's architecture and the result of design decisions made over a half century ago. The computer is therefore a unique synthesis of immediacy and archival capacity. Like the layers of abstraction and network protocols discussed in chapters four and five, this architectural logic has informed the design of Web 2.0, not just in terms of its technical facts, but in terms of its social structure. There is a social dichotomy at work based upon and reflecting (if not directly determined by) this architecture. In this chapter, I argue that Web 2.0 users are encouraged to focus on the new and on the immediate. In the Web 2.0 business model, users are expected to process digital ephemera by sharing content, making connections, ranking cultural artifacts, and producing digital content. In contrast, the archival possibilities of computers are typically commanded by Web 2.0 site owners. They seek to survey every action of users, store the resulting data, and mine that data for profit. Users are less likely to control these increasingly precise archives. If Derrida (1996), Foucault (1970; 1972), and Bowker (2005) are right in arguing that control of the archive leads to social power, then Web 2.0 site owners are becoming quite powerful, because they have the ability to pull data from their archives to produce knowledge.

6.1 The focus on the new: "What are you doing right now?"

As of this writing (December 2009), Facebook's users are confronted with a little text box and a prompt: "What's on your mind?" Currently, Twitter asks users "What's happening?" and MySpace asks "What are you doing right now?" These not-so-subtle prompts ask the user of these social media sites to react, to present his current "status": I'm happy, I'm going to the airport, I'm texting my friends, I'm listening to Radiohead.

This emphasis on the immediate is not limited to social networks, but is also seen in media sharing sites. Flickr's homepage presents visitors with a count of photos uploaded "in the last minute" (as of this writing, the last minute saw 4,528 photos uploaded). YouTube's homepage features "Videos being watched right now." Vimeo has a videos being shown "Right Now" tab on its main page. Hulu has a "Recently uploaded" page, featuring the latest video uploads. The video aggregation site Ovguide.com features "OVBuzz," a collection of keywords and searches that are constantly updated and reflect the current trends in Web video consumption.

Blogs and comment fields are also sites of the now and of immediacy. Blog posts typically read in reverse-chronological order; the newest post is on top, with older posts pushed down the page. Likewise, comments fields on newspaper sites such as the *New York Times* and the *Detroit Free Press* are organized in reverse-chronological order. The old is pushed down; the new is always on top. The new is valued; to follow the threads of discussion, one must click through pages of comments and attempt to reconstruct a conversation back through time.

Of course, these sites are augmented by the developments of mobile computing and smartphones, which allow users to update their status, comment on artifacts, and upload content from wherever they can get onto their networks. Telcom company Sprint offers "The Now Network." Verizon asks, "Can you hear me now?" Users seek out those networks that can keep them connected wherever they are so they can continue to engage with new information streams.

Finally, a new development in search is "real time search" such as SocialMention and Scoopler which promise to return search results based on the streams of the new in Twitter and Facebook. Google has responded with "Hot Trends," a list of the most popular recent searches. Much of this emphasis on the new is a result of Facebook and Twitter, two social networks which offer constantly updated streams of affect.

In sum, as Chris Gerben (2009) notes, Web 2.0's user interfaces heavily emphasis the new and the immediate, even at the cost of other modes of organization such as relevance or importance: "...digital texts not only privilege newness as a default design principle, but also rely on user- produced newness in order to maintain popularity. " Similarly, David Berry (2008, 367) argues that network theory – a mode of inquiry often deployed by architects of Web 2.0 - "privilege[s] a reading of reality that highlights the synchronic dispersal over the diachronic unfolding," and that "Networks, in a certain sense, abolish history and shift our focus to the event, the happening or the now." In their examination of MySpace, Coté and Pybus (2007, 101) argue that users of Web 2.0 sites are engaged in a "never-ending process of becoming... Each new device and resource expands the capacity of their 'digital body' and allows them to forge new compositions of relations."

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This dual reliance upon user-generated "newness" and the emphasis on always-becoming are built into the architecture of Web 2.0. It imagines subjects that are always connected, always updating, always searching, and never stopping their restless motion from one social network to the next.

However, this emphasis on the new is not, in fact, new. Rather, it is latest in the longstanding sociotechnological development of computer processing. As Adrian MacKenzie (1997) argued in the 1990s, the focus on the new was part of the two dialectical processes of the Internet: the emphasis on "real-time drives" and the archival impulse. Using the language of virtual culture, he writes that "The virtual... can be positioned at the interactive threshold between the processes of real-time and the processes of the archive" (60). He rightly sees this dialectic in the structure of the computer discussed above: the Von Neumann architecture of processor and memory. This dichotomy was built into the Internet from its earliest days; as Andrew Flanigan etl al (2010) note, "The defining characteristic of an end-to-end system [such as the Internet] is that network 'intelligence' (discrimination and processing functions) exists primarily at the periphery of the network, while the network pathways remain neutral, handling all data traffic identically." The emphasis on real-time is thus a product of the Internet's architecture which assumes an end-user who is interested in getting data fast; this emphasis is also based on the short-term goals of processing and the increasing speed of traffic on the Internet, while the emphasis on the archive is part of a longer historical process, one which I will discuss below.

This dual focus of the Internet is only accelerated today. Arising directly out of faster Internet connections and new suites of Web programming technology such as AJAX (Asynchronous Javascript And XML), one of Web 2.0's most salient features is that it is as responsive as desktop software, or in the case of cloud computing, it is a replacement for desktop software. AJAX is a codification of a new relationship between server and client computer, where only the most immediately needed data is served to the client. In this environment, As AJAX manual writer Holdener (2008) puts it, "The user will perceive everything about the web application as being self-contained. With this technology a savvy developer can make an application function in virtually the same way, whether on the Web or on the desktop." A well-designed Web site utilizing AJAX only requests from the server the information the user is currently interested in; the entire site does not have to reload. This enables Facebook to be so fluid, blogs to automatically present new comments, or Google to provide maps that can be manipulated right away. Thus, Web 2.0 sight designers seek to replicate the surface-level immediacy of the desktop OS (as I described in chapter four).

Web users are engaging with this immediacy and skimming along its surface by feeding updates into it and relying upon it to provide emotional contact instantaneously. As Turkle (2007) argues, "We live a contradiction: Insisting that our world is increasingly complex, we nevertheless have created a communications culture that has decreased the time available for us to sit and think, uninterrupted. We are primed to receive a quick message to which we are expected to give a rapid response." That is, the speed at which our electronic networks can connect us to others augurs in a new relationship to emotion:

"Emotional life can move from 'I have a feeling, I want to call a friend,' to 'I want to feel something, I need to make a call.'" The emphasis on the new in Web 2.0 leads to immediate affective exchanges; I message you, you chat with me. If you do not, I become anxious. Why aren't you emailing me back *right now*? If, as Clay Shirky (2008) argues, our mediascape is marked by "filter failure" - that is, if we are unable to filter all the possible content we might encounter – then perhaps this emphasis on the new is logical. A connection with a friend (however weak) *right now* might outweigh the value of terabytes of uncontextualized data which may or may not offer emotional or social value.

However, I argue that this is not just a structure determined by the technological architecture of the computer, or by the actions and desires of users; it is also determined and extended by the needs of late capitalism. When we consider this focus upon the new as another instance of the just-in-time demand for labor that marks late capitalism, particularly (but not limited to) affective immaterial labor, then this emphasis upon the new is clearly a case of media and Web corporations relying upon users to do the work of processing digital artifacts and personal data and to generate an emotional surplus. Users are relied upon contingently and intermittently, but relied upon nonetheless. In short, while users have become accustomed to instantaneous action from their networked devices and instantaneous connections to their friends, capitalists, investors, and media companies have become accustomed to the near-instantaneous processing of data by users and have positioned themselves to exploit and, as we will see, archive the results of this processing.

6.2 Crowdsourcing: From Mars to Digg to the Mechanical Turk

To illustrate this, I offer three examples which loom large in the mythology of Web 2.0. The first is a non-profit volunteer effort. In 2000, NASA began its Clickworkers project. This was a small, part-time project which allowed public volunteers to mark craters on photographs of Mars. Marking craters is a tedious and time-consuming task for an individual; According to Szpir (2002), "The task is usually undertaken by someone trained in the art and science of rating craters, but there are many thousands of craters on the planet and, well, most scientists (even graduate students) have better things to do." Seeking a more efficient way, the Clickworkers project was an experiment to see if the public volunteers could process those images as reliably and faster than the handful of scientists who would have done the work.[32] It was a resounding success. According to Benkler (2006, 69), more than 85,000 volunteers visited the site and made over 1.9 million entries. "An analysis of the quality of markings showed 'that the automatically computed consensus of a large number of clickworkers is virtually indistinguishable from the inputs of a geologist with years of experience in identifying Mars craters.'" These contributions were done by part-time volunteers, many of whom spent five minutes on the site before moving on. As a part-time experiment, the project was staffed by one engineer with two consulting scientists. As such, it created a tremendous savings in time and resources for NASA, and it continues to this day. But more importantly, it

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[32]At this point, a reader might be asking, "What about software?" Software, broadly speaking, is the set of instructions which controls what data is processed. In the following examples, the software are the very limited instructions provided by the sites. The NASA Clickworkers project offers instructions on how to trace circles around craters. Digg asks users to select articles which are interesting. Amazon's Mechanical Turk perhaps has the most complex software, but even the tasks in the Mechanical Turk are simple. In short, all of these sites rely on human judgment. We might call that judgment "software," but I want to point to the labor of completing these tasks as "processing."

demonstrated that the Internet provides a structure for massively distributed human processing; users from all over the world lent a few minutes of their visual acuity to the project, and these micro-moments of labor and attention aggregated into an incredible supercomputer.[33]

The Clickworkers project has a central, almost mythological place in the arguments of Web 2.0 enthusiasts like Benkler (2006; 2002; with Nissenbaum 2006) and Howe (2006; 2008) (who coined the term "crowdsourcing"). For Benkler and Howe, this development means that the production of knowledge has finally been "democratized," broken out of the confines of expertise and certification. The Clickworkers project proves that users will volunteer to help an institution (in this case, NASA) achieve a goal. Users' online activities are presented as "spare computing cycles" (Howe 2006), likened to the spare processing cycles of an idling computer. For Benkler and Howe, this also means that corporations must take advantage of users' free labor, since to choose otherwise would be to make an irrational business decision. Distributed, networked labor, they argue, is now much cheaper for capital to rely upon. This iteration of capitalism, dubbed by Benkler (2006, 3) the "networked information economy," involves "decentralized individual action – specifically, new and important cooperative and coordinate action carried out through radically distributed, nonmarket mechanisms that do not depend on proprietary

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[33] This project drew a lot of comparison and inspiration from a method of using the Internet to capture spare machine-computing cycles. SETI@home, a screensaver program for PCs, uses idle, networked personal computers to process the data from the Search for Extra-Terrestrial Intelligence. Started in 1999, per http://setiathome.berkeley.edu/, this project is the "largest distributed computing effort with over 3 million users."

However, it might also be noted that this massive aggregation of *human* computing/processing of data reminds us of the original meaning of the word "computer," which according to the Oxford English Dictionary goes back to 1613 and meant "A person who makes calculations or computations; a calculator, a reckoner; spec. a person employed to make calculations in an observatory, in surveying, etc." In this case, a super-computer is a coordinated collection of thousands or millions of such humans.

strategies." While this is "nonmarket," it is clear that Benkler and Howe see this development as, in fact, a new, cheap labor market.

And corporations have responded to this market. Social networks, video sharing sites, auction sites, and search engines rely upon the labor of users to create their content. Here, I want to focus on two examples of for-profit distributed human computing.

6.2.1 Digg

As discussed above, scholar Clay Shirky (2008) has argued that users of the Web (and other media) suffer from "filter failure"; consumers are simply drowning in media objects and are unable to discern what objects are relevant. Digg is presented as a response to filter failure. Given the vast amount of material being produced online, Digg offers users a means to sift through that material. This is accomplished by the work of users who do one or more of three tasks: submit material, rate it (a process called "Digging" or "Burying") and comment upon it. If an item gets enough positive "Diggs," it reaches the front page, where millions of visitors can see it, link to it, and comment upon it. Conversely, items can get buried by Digg users, either because they are irrelevant, not entertaining, or spam. In addition, the submissions are further sorted by users, who categorize them into subsections such as Technology,[34] World and Business, and Gaming, each with their own subsections. In this way, the vast material available on the Web can be sorted and rated, presenting a structured snapshot of what is popular online.

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[34] Digg began as strictly a technology news aggregator meant to compete with Slashdot.org. It has since expanded to include several other categories.

Digg co-founder Kevin Rose (MacManus 2006) argues that this system returns power to "the masses": "This was the first time that anyone experimented with allowing the general mass audience to decide what they believed to be the most important topic of the day." Indeed, in many descriptions of the site, it is as if there are no administrators, investors, or site owners at all; as *How Stuff Works* writer Layton (2006) presents it, the only agents involved in the site are varying grades of users, from casual to "dedicated." Even her description of the server-client structure of the site – a complex arrangement of hardware and software that requires IT labor to run it – elides any other persons laboring on the site. Users are ostensibly in control, and it shows: site traffic has gone up, and the number of stories in Digg has risen almost exponentially in the past few years.

"The masses" can confront this material anonymously at Digg.com, or they can sign up for accounts which promise to further refine what they see based upon their tastes. Account-holders can connect with friends and have stories automatically suggested to them. Of course, Digg surveys the activities of these users, a process I will expand on in section 6.4.

The results of this sorting, ranking, and surveillance are distributed across the Web in widgets which proclaim that the news items they contain are "Powered by Digg's Users," a direct homage to Intel's famous "Powered by Intel" stickers. Digg thus explicitly compares its user base to a microprocessor, no doubt implying that the millions of Diggers who sort and rank items are more powerful than any software algorithm. Judging the effectiveness of Digg versus a computer-algorithm based model (for example, news.Google.com) is beyond the scope of this chapter. However, what Digg does offer is

an easily understood numerical assessment of its highly rated items; each has a Digg count. Moreover, it offers speed and the new: as Digg co-founder Jay Adelson (Anon. 2005d),

> [Digg] attracted the attention of the news media immediately -- the fact that we had this incredible speed. Automated systems take time to crawl the net. Editorial systems have the human factor. They may decide they're not interested that day, or they'll do it tomorrow. In our case, there's no barrier, so the second a story would be interesting to this mass public, we can break it.

This emphasis on the new in news appeals to those Web users who seek immediate access to information. Without such a filter, this argument goes, users might miss out on news stories because they are navigating serendipitous content in sources such as newspapers.

Like many Web 2.0 sites, Digg has been described as democratic and anti-authoritarian, breaking down the distinction between editors, writers, and readers. However, it has also come under criticism because many media and marketing companies have paid for favorable publicity. For example, the Web site USocial.net attempted to sell Diggs (as well as votes in other social news sites) (Ostrow 2009). For a small fee, USocial offered 200 votes in these sites; this number of votes could easily promote items to Digg's much desired front page. In hindsight, it would seem obvious that payola-type schemes would begin to appear in Digg. In fact, Digg has the potential to be an unregulated labor market, where Diggers can be hired by media companies and advertisers who want to promote their products. This is against Digg policy but happens often. Digg's ownership prefers the purity of unpaid Diggers, and seeks to direct their attention to legitimated submissions. Moreover, Digg relies on users to find and ferret out spam; Kevin Rose (MacManus 2006) estimates that 95% of the spam on the site is removed by users.

Most likely, Digg's preference for pure, "organic" users arises from their ambitions to apply the Digg user-processed model to advertisements. Digg encourages users to rate the advertising on Digg pages, a feature called "Digg Ads." As the Digg FAQ page explains,

> The goal of Digg Ads is to encourage advertisers to create content that is as interesting as [sic] organic Digg content. By Digging or burying the Digg Ads, you are helping us determine which ads to show to more people, and which ads to show less frequently. Currently, when you Digg a Digg Ad, it does not show up in your Digg history, though this may be an option in the future. Digging or burying Digg Ads helps us continue to improve the overall Digg experience. We give each advertiser a content score based in part on the community's Diggs and buries. Advertisers with higher content scores will pay less and their ads will be shown to more people. Also, when you bury an ad you won't see the ad again (as long as you're logged in).

Obviously, a pool of users who are being paid by third parties disrupts this "organic content." Ultimately, Digg seeks to elide the nature of online marketing by integrating it into Digg's very fabric, a process not unlike product placement in movies and television.

In sum, Digg is built upon the model that the NASA Clickworkers project pioneered: a distributed computer comprised of users clicking their way through news stories. Much like the Clickworkers project, Diggers need not spend more than a brief moment "digging" a story; the aggregation of these micro-moments of labor adds up to the Digg front page, reduction of spam, and a robust collection of commentary.

6.2.2 Amazon Mechanical Turk

While Digg teeters on the edge of becoming a micro-labor market, where Diggers can potentially be hired to promote marketing materials and particular media objects, one Web 2.0 site has unabashedly and explicitly become such a labor market. The most

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salient iteration of crowdsourcing as a new labor market is the Amazon Mechanical Turk. The Mechanical Turk is a marketplace of tasks, which Amazon calls "Human Intelligence Tasks" or HITs. As the name implies, HITs emphasize those tasks which require human judgment such as image recognition or audio transcription. In essence, "Turkers" who complete HITs are marketed to employers as the world's best computer, combining the unparalleled capacity of humans who can read, recognize images, and make judgments, with the immediacy of computers. As Barr and Cabrera (2006) explain, Amazon envisioned the service as an answer to companies which need meta-data improvement, image selection, and translation to be done on increasingly large scales. Computers cannot handle these types of tasks with any accuracy.

In a similar fashion to the abstraction described in chapter four, the Amazon Mechanical Turk "abstracts" (in other words, conceals) the *human* processing which takes place during HITs. Amazon wryly calls this "artificial artificial intelligence," referencing the interface, which makes human work look mechanical. It is structured not unlike the server-client practice of networked computing: the employer sends a request to Amazon, and the humans' response to the request is served back via AJAX-style programming. The legendary marketplace, where labor meets capital in a personified negotiation, is replaced by a screen interface, where labor finally becomes completely mechanical. Human labor is (as it always seems to be in capitalism) reduced to cost, a mere input in the production process. In many cases HITs are worth a few cents (U.S.) a task. For example, as of this writing, one HIT asks Turkers to classify advertisements for $0.05 in three minutes. Another asks Turkers to "check if these websites work" for one penny a piece.

In sum, like Digg, the Mechanical Turk is built upon the Clickworker model, but takes that model further by emphasizing the processing of digital artifacts and de-emphasizing knowledge of what these tasks are for. In this way, Turkers are encouraged to ignore everything but the micro-labor task at hand. While humans-as-laborers are elided in the structure of Mechanical Turk, employers are also hidden behind layers of abstraction. As Zittrain (2009b) explains, Turkers do not have much knowledge of their employers. They simply have Amazon accounts and receive micro-payments for services rendered. Zittrain argues that this could potentially be put to nefarious use; he imagines the government of Iran creating HITs which sort images of Iranian citizens into two categories: protester or potential informant. This HIT could easily be structured to cover up the identity of the employer. The Turkers involved would blithely sort photographs for pennies apiece. While this is an extreme example, it points to the highly abstracted nature of this site; users here are imagined as processors, meant to do tasks quickly and accurately and return the results to unseen entities.

While the Web 2.0 emphasis on collective intelligence and the wisdom of crowds is compelling, the goal of commercial Web 2.0 sites is to capture the processing power of a critical mass of users, either directly (as in the case of Digg) or indirectly (as in the case of Amazon Mechanical Turk). Often, this processing is anethical; the owners of the sites do not particularly care *what* the users are processing, so long as their attention is fixed upon the site. In short, the development of Web 2.0 out of this history is a trajectory of increasing capitalization of the processing power of the masses of computer users. Whereas computer engineers might have dreamed of building truly universal machines,

ones that could fully replace humans, computers still do not compete with a mass of humans. This aspect of human labor is so far true; no computer can compete with us when we join together and tackle problems. The question is, what do we do with this capacity? In Web 2.0, what began as an ethic of nonprofit volunteering to a greater cause (NASA Clickworkers[35]) has been morphed to an individualistic emphasis on sharing and personal connection (Digg, Facebook, MySpace, Twitter, YouTube) and even to the ultimate just-in-time flexible labor market (Amazon Mechanical Turk). This emphasis is reinforced by the predominant focus on the new. The user has to update her status, check on her friends, make new friends, recheck for a new connection or emotion, while "Turkers" seek the latest HIT. In this milieu, computer users are imagined to be the processors computers never could be. However, computers do have humans trumped in another area: memory.

6.3 Archiving culture and affect

While computer scientists could not replicate human skills such as image recognition and subjective rankings with artificial intelligence, the other half of the computer's architecture has been much easier to construct, expand, and improve upon. Memory is as essential to modern, Von Neumann-inspired computers as is the processor. The processor works on data, but data (in the form of instructions and results) must be stored somewhere. Von Neumann's (1945) "First draft of a report on the EDVAC" argued

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[35] Here, I have excluded Wikipedia from the "nonprofit ethic" because the original intention of Wikipedia founders Jimmy Wales and Larry Sanger was to produce a for-profit encyclopedia based upon freely provided user contributions. Their hand was forced when the Spanish contingent of Wikipedia "forked" the site by setting up independent servers. This was in reaction to Wales and Sanger selling space on the Wikipedia to advertisers. After that, Wikipedia re-emerged as a non-profit site. This will be explored further in chapter 8.

successfully for the separation of memory from the processor, making for a more efficient computation system. By the 1950s, computers featured this separation, and they continue to do so today. It is a fundamental aspect of modern computer science.

While contemporary computers share the same architecture, the *connection* between memory and processing has become more and more complex. Busses, short-term caches of memory, and dedicating distinct pathways for instructions and data are some solutions to what has been called the "Von Neumann bottleneck" (Backus 1978) between memory and processor. A major focus of computer science has been to widen and improve the speed of these pathways (if not circumvent them altogether somehow) (Cantoni and Levialdi 1983; Backus 2007; DeBenedictis and Johnson 1993; Dickinson 1992; Hartenstein 2003; Hartenstein 2004; Naylor and Runciman 2008). Microprocessor developers such as Intel have seen their best efforts somewhat thwarted by the slower pace of development of memory speeds; memory technologies cannot keep up with processing speed.

And yet, this is not to say that memory is the ne'er-do-well little brother of computer architecture. While memory speeds are slow, and while the bottleneck remains a structural shortcoming, memory capacity has exploded in the past decade. According to UC-Berkeley's How Much Information? project (Lyman and Varian 2003), over 5 exabytes (10^{18} bytes) of print, film, magnetic, and optical information were produced in 2002, with 92% of them stored on magnetic drives. This is 37,000 times as much information as is stored in the Library of Congress's 17 million books. Even in the six years since the How Much Information? report, estimates now place the amount of

information stored worldwide at 500 exabytes, ten times the 2002 level (Wray 2009). This has been made possible by advances in computer memory hardware.

Thus, we have a basic architecture: processor, memory, and the path between the two. What is germane for this chapter is not computer scientists' efforts to overcome the Von Neumann bottleneck *inside* the computer, but instead to address a bottleneck between human processing and the vast pools of digital data in the world. Here, I want to answer these question: first, if there is a glut of digital data stored in the memory banks of servers worldwide, and if distributed human processing is a free (or cheap) and efficient way of processing this data, then how are humans and digital data interfaced?

The answer, of course, is the advent of widely distributed broadband Internet connections. Broadband connections are *sine qua non* of Web 2.0. Without them, AJAX-based applications which replicate desktop software would not be viable. With the speed of broadband, these applications are possible. In addition, users are increasingly engaging in constant connections to the Internet. Whereas dial-up connections had to be established by dialing a number and connecting, a process which can be unreliable and at the very least ties up phone lines in many people's homes, broadband connections such as DSL and cable can always be on. The connection becomes invisible, since it does not get in the way of the user's online experience. Moreover, this constant connection is far more reliable than dial-up, making it more akin to the busses installed between memory and processors within computers. With this more reliable connection, site creators can imagine masses of users who can sit for periods of time completing tasks. Thus, sites

such as Digg and the Mechanical Turk can rely on users who are not worried about connections and are instead focused upon completing tasks.

In addition, broadband not only enables the distributed human processing that the Clickworkers project, Digg, or Amazon requires, it also enables the *storage* of the results of human processing. The data that humans process must be stored somewhere. This is an often overlooked aspect of always-on broadband connections. While broadband is very often presented to consumers as a fast way to *download* material, every download also requires *uploads*. At the very least, a client must send a request, such as the XMLHttpRequest object,[36] to a server to receive data. In Web 2.0, these requests can easily be stored by the server, forming an archive of user activities which can be later analyzed and data-mined. Moreover, Web users rely on broadband connections to upload photos, movies, or blog posts. In short, just as data is necessarily and automatically migrated from memory to the processor and back in the Von Neumann architecture of computing, archiving the results of user activities in Web 2.0 is a built-in process. Capturing user activities in matrices of client-side request logs, XML meta-data, and IP address logs is a *necessary* aspect of the broadband/AJAX connection between client and server. In this way, as users surf the surface of Web 2.0, the online archive grows ever more precise.

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[36] For an explanation of this typical AJAX request, see the W3's tutorial at http://www.w3schools.com/XML/xml_http.asp .

6.3.1 A-P-A'

Ultimately, for the owners of social media sites, the goal is to archive as much user-generated content and data as possible, serve it to users who process it further, and then archive the results, creating an ever more precise and extensive archive. Facebook is a prime example of this. In order to grow, it requires more participants to attract other participants. This is the so-called "network effect," where a networked technology's value grows as more people use it. The network effect is apparent in any communications network; telephones, for example, are only useful if there's someone to call. Digg, Facebook, YouTube, and other social media take this a step further. They seek to expand possible uses. On these social sites, users do not simply email one another, but play games, chat, share virtual gifts, comment, post media object, and publicly display their statuses. These interactions are often (but not always) asynchronous. Users are often interacting not with one another in real-time but rather digital ephemera which stand in for users: avatars, status updates, images, quotes, videos. Thus, what social media site users are interacting with is an archive of affect, digital objects which have meaning in the context of social connections. They are processing this digital archive: sorting their contacts into lists, liking this status update, commenting on that photograph, sharing a virtual gift.

For example, consider Facebook. Facebook seeks to have a large archive (A) of these objects for users to interact with. Facebook was initially seeded with applications such as the Wall, photo sharing, and notes. These basic applications allowed users to post ideas and photos and others to comment on them and link to them. As users interact with these

objects, processing (P) them, Facebook watches their actions and collects data, archiving (A') this newly generated data. This is the information Facebook seeks to sell to advertisers. The process has been accelerated as Facebook has opened its Application Programming Interface (API) to third-party developers who create more applications inside which users interact. In sum, Facebook – and other social media sites - seek to grow the archive through the process A-P-A'. The larger the archive, and the more granular the data about the desires, habits, and needs of users, the more valuable the archive.

Each of these steps is highly necessary, but only one can cause the archive to grow. As in the Marxian formula that this formula echoes, the process that grows the archive is labor, in this case the labor of casual users. Whether they are Digging, Turking, or simply updating their statuses, users are explicitly imagined to be the labor/processor core that "powers" social media.

6.4 Conclusion: the power of archives

One of the major tropes of Web 2.0 is that Web sites organized with users making decisions eliminates authority. Web 2.0, this argument goes, removes gatekeepers, allowing average users to produce, evaluate, and distribute content. As in chapters four and five, I want to argue against this idea. While Web 2.0 may have, in fact, created new ways for users to manipulate digital content, I argue that the archival capacity of Web 2.0 allows for new centralizations of power.

Archives enable social actors to manufacture power/knowledge. As Sekula (1999, 184) argues, "clearly archives are not neutral; they embody the power inherent in accumulation, collection, and hoarding as well as the power inherent in the command of the lexicon and rules of language." The lexicon and rules of language appear in archives as decontextualized fragments. As Bowker (2005, 18) argues, "what is stored in the archive is not facts, but disaggregated classifications that can at will be reassembled to take the form of facts about the world." Thus, what is required is a curatorial authority to construct "facts" from the fragments which sit on the archive's shelves. Bowker has aptly named the current memory episteme "potential memory," whereby narratives are created *post hoc* from ordered, taxonomically organized objects which are scattered across many physical storage sites.

Web 2.0 lends itself to such *post hoc* constructions. In large part, Web 2.0 is an archive of affect; users are encouraged to expose their desires and tastes in public performances. These expressions are stored on servers, a sort of digital *wunderkammer* which awaits for powerful actors to curate the collection.

Emphasizing the cultural, juridical, and economic power of archives adds complexity to the insights of media scholars such as Andrejevic (2003; 2007a; Andrejevic 2007b; 2008) and Zittrain (2006; 2008; Zittrain 2009a) who argue that the most salient effect of Web 2.0 is a radical increase in surveillance in the digital enclosure. For Andrejevic (2003, 18), surveillance is presented by media companies as the "guarantor of individualism and self-expression and thereby as a means of overcoming the homogeneity of mass society." In exchange for this guarantee of individuality, users agree to be watched as they interact,

shop, and surf on the Web. Similarly, Zittrain (2008) argues that popular (or perhaps more likely hyped) fear of Internet viruses, identity theft, and cybercrime has driven consumers to embrace "closed" technologies such as TiVos, smart phones, and operating systems with heavy-handed Digital Rights Management (DRM) software. This "closed" architecture is easily surveyed by media companies and advertisers. Both scholars rely on the political economic language of enclosure to describe this metaphorical space in which users are being watched.

While Zittrain and Andrejevic rightfully examine surveillance, they tend to overlook the necessary archival aspects of the Web. While we might live in the synopticon, where each of us watches one another and where capital surveys all, this regime could not function without storing data and mining that data after the fact. To use an analogy, a surveillance camera does not just watch people, it records their activities. If a crime is committed, the recording becomes evidence, but only after an authority watches the recording and pulls that material out of the archive. Moreover, it must be carefully handled, prepared, and contextualized for presentation in court. Likewise, surveillance in the digital enclosure requires storage and retrieval. For example, while a site like Digg allows users to "friend" one another and thus watch what their friends are submitting and digging, Digg is reliant upon storing a record of users' activities. These activities become the basis for an archive of affect, from which Digg can pull data out, arrange them into digital images of users' desires, for sale to marketers. Power thus arises from the ability to a) close off this database from the rest of the Web and b) pull disaggregated data from it and reconstruct this data into "facts" about users. As those users continue to process digital objects, the

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resolution of the digital images of user desires increases, providing clearer, albeit cleverly cropped, pictures of users.

The "facts" being produced in Web 2.0 are largely concerned with consumer preferences. This is especially true of the facts of online identities. Whereas state-based interpolation of identities might arise from the metrics of security (date of birth, nationality, or criminal records), rationalized identities in Web 2.0 arise from the metrics of capital and consumption: credit card numbers, credit histories, purchase histories, media consumption preferences, demographics, and social contacts. As far as marketers and investors are concerned, these are the most salient digital fragments stored in the server-based archives of user activities. Of course, for state actors, other digital fragments might be more relevant.

All of this is not to say that users are not interested in storage and creating archives. As I argued in my study of YouTube (Gehl 2009), users are engaged in archiving as well as processing, but their archival activities are more akin to the pattern associated with free laborers in Marx's C-M-C' circuit. In that circuit, the free laborer (free in the sense that she owns nothing but her own labor) meets with capital in the market, sells her labor (C) in exchange for a wage (M), which she spends on consumable goods to sustain herself (C'). For the user of Web 2.0 sites, the process might be described as P-A-P. That is, the user processes digital objects in order to archive them for himself, then (given the attention paid to the new) seeks new objects to process. The archival impulse is personal, immediate, driven by a cultural equation of digitization to memory (what Landsberg (2004) might "prosthetic memory"). The archive for the user might contain lists of

friends, pictures at a party, videos stored in YouTube, blog posts. However, users are less able to *reconstruct* the material in the archive into new facts about the world, because the scale of their archives are much smaller than the massive, server farm-enabled archives of centralized media companies.

Moreover, when any user tries to divest from the social Web by downloading her personal digital artifacts, she is confronted by radical decontextualization. For example, consider Archive Facebook,[37] a Firefox add-on which "allows you to save content from your Facebook account directly to your hard drive. Archive your photos, messages, activity stream, friends list, notes, events and groups." However, users who install this add-on in the hopes that they will be able to download all of the data associated with their profiles will be disappointed: data produced by friends is not included. Legally, this is understandable; I should not be able to access my friends' data without their permission. But this limitation points to the gap between any personal archive and the massive archives maintained on Web 2.0 sites: without the context provided by her social network, a user's data is atomized, floating freely of the connections made within the network.

Thus, the gap between the owners of Web 2.0 sites and their users is clear: Web 2.0 site owners have access to all the data within their walls, and the user only has legal access to her own data. The questions of privacy which arise from this surveillance are nearly always resolved at the individual level, but the breadth of Web 2.0 archives demands that

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[37] Available at https://addons.mozilla.org/en-US/firefox/addon/13993 . Last accessed 1 January 2010.

we take a wider view of how Web 2.0 operates within the architecture of processor/memory.

7 Personal Branding and Web 2.0

There has been a longstanding debate about why the Advanced Research Projects Agency (ARPA) networked computers together. Abbate (1999), Galloway (2005) and Edwards (1996) argue that the network was a response to the threat of nuclear attack from the Soviet Union. On the other hand, Mowery and Simcoe (2002) and Roberts (1986) argue that ARPA simply allowed computer scientists to engage in basic research, and that ARPA gave computer scientists such leeway in their explorations that a network of computers was a technological and social inevitability.

In the end, the whys and wherefores of the ARPANet are perhaps not as important as the *results* of the network. One widely accepted result is that the network enabled for extensions of modernist surveillance and rational organization. That is, networked computers allowed for the extension of scientific management of resources, resulting in the "systems analysis" approach of management in the 1960s (Noble 1984, 54). The most salient example of this approach is the Semi-Automated Ground Environment defense system (SAGE), a project which ran from the 1950s through 1980s and was designed to control the American response to a Soviet nuclear bomber attack. By coordinating a vast array of military resources and by surveying the enemy's activities (as well as the activities of friendly forces), SAGE allowed for centralized control and surveillance of a

vast military force. The ARPANET was, in part, an extension of this logic, and the later Internet would reproduce many of techniques of systems analysis.

Beset by labor unions and nascent international competition, private industry took notice of the military's new techniques. As communications networks became faster and more far-flung, corporations sought ways to centralize their control of operations and to regain power from organized labor. As Noble argues, due to the extremely intertwined relationship between the U.S. military and civilian industrial sector, systems analysis began to be deployed by private companies to manage every aspect of their operations. Armed with computer-mediated communications and a growing ideology of modernist, rational management and control of every aspect of their operations, corporations accelerated their global expansion. Globalized capitalism now seeks two related objects: cheap labor and new markets. It finds the former either in the developing world, where years of structural readjustment have rendered laborers precarious, underemployed, and centralized in growing urban centers (Davis 2007), or in the developed world as new immigrants confront structural barriers to becoming full citizens. As for new markets, these are largely produced by the manipulation of signs; globalized companies rely on branding and marketing to carve out markets and attempt to control consumer preference (Klein 2000).

Admittedly, this is a brief outline, but this is the historical context in which we encounter Web 2.0. One of the results of ARPA's network of computers is an environment where powerful institutions seek to manage every element of daily life for the majority of the world's population. For those in the developed world, steady work has become a precious

commodity. Contrast this with the discourses about Web 2.0 explored in chapter one. If *précarité* and uncertainty are the economics of the day, it is quite clear why Web 2.0 has an appeal. By presenting Web 2.0 as a chance for anyone to seize the means of media and symbolic production, Web 2.0 advocates have touched upon a key anxiety in late capitalism. This chapter focuses on a very specific remedy to this anxiety. The personal branding literature, which began in the 1990s and has accelerated just as Web 2.0 has, has been offered as a means to alleviate *précarité* and to wrest back, if only in part, the control that globalized capital has consolidated with computer and communication networks. This chapter argues that personal branding is popular because is supplies an individualized approach to dealing with *précarité.* The personal branding literature essentially offers a technique for individuals to increase their social capital as a means to flexibly adapt to changing labor markets.

7.1 Personal Branding

Up until this point, this dissertation has mainly explored the ways in which traditional and emerging media companies have deployed the ideology of Web 2.0 and leveraged its technological aspects in order to maintain their dominant positions. In contrast, this chapter explores one logical reaction of *users* of Web 2.0. Whereas in chapter three I explored the pleasures of the Web and treated those pleasures as independent of Web 2.0, here I will claim that users are making affective exchanges and engaging in the synopticon in order to gain social capital from Web 2.0 technologies. Thus, in this chapter, I will look at how the ideology of individualism has shaped the success of

personal branding. A second, more communitarian user reaction will be explored in the next chapter.

Personal branding is one among many potential uses of Web 2.0. On its face, personal branding is very simple. It is a school of thought in marketing literature, and as its name implies, it is the metaphorical and practical expansion of the familiar practices of marketing of branded goods and services into the realm of individual workers, freelancers, and entrepreneurs. While its roots are in early twentieth century self-help literature, the first appearance of the term "personal branding" is in Tom Peters's (1997) *Fast Company* article. That article engendered a new generation of self-help literature, centered on the promotion of the self. As Lair et al (2005, 309) argue, "Although the use of such strategies for self-promotion in the business world is certainly nothing new, personal branding as a movement broadens their impact by turning branding from a simple business tactic into an ideological understanding of the corporate world capable of an embracing influence over workers' very sense of self." Lair et al argue that this process differs from prior self-help literature: "Rather than focusing on self-improvement as the means to achievement, personal branding seems to suggest that the road to success is found instead in explicit self-packaging: Here, success is not determined by individuals' internal sets of skills, motivations, and interests but, rather, by how effectively they are arranged, crystallized, and labeled—in other words, branded" (308). Thus, personal branding appears to be a matter of surface appearance.

Lair et al's analysis is insightful but lacks a clear explication of the relationship of personal branding to the overall history of the Web. Given the concurrent popularization

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of the Web as a means of liberal self-expression, it is not surprising that Peters's original argument in the *Fast Company* article has since been expanded by a host of writers who offer techniques to brand oneself online. For advocates of this practice, personal branding involves intense monitoring of one's own sense of self as it is represented in images and texts which circulate the Web and other forms of media. Many personal branding advocates ultimately suggest that the branded migrate a particular, carefully groomed image of the self onto the Web, a process made much simpler (and more extensive) by the advent of Web 2.0 social technologies. As such, personal branding is a microcosm of broader communicative practices made possible by the "Web as Platform." As I will argue in the conclusion, personal branding reflects one logical reaction to the cultural and political economics of Web 2.0.

7.1.1 The tripartite logic of personal branding

Despite its simple message – control of one's own image is the means to control one's social capital - personal branding is a very complex phenomenon, relying on a tripartite logic which emerges from the historical context explored above. First, personal branding deploys the longstanding scientific management technique which, following Deleuze (1992), is called "dividuation." In his "Postscript on societies of control," Deleuze contrasts the current milieu with Foucault's disciplinary societies. Whereas the disciplinary society moved discontinuously from space to space (school, home, work, prison) and therefore was inscribed both across individuals and masses as they formed and re-formed with these spaces, the current "society of control" is concerned with the "dividual," the infinitely divisible collections of data about subjects which can be

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extracted from subjects and manipulated across space and time. The most salient example of this extraction is Taylorism's obsession with quantifying and documenting rates of work among laborers (Braverman 1975). In this milieu, hospitals work not on the sick, but upon the data about the sick. Corporations are not concerned with discrete spaces of production such as the factory, but with markets, stocks, and floating currencies. All of this continuous control and data collection has fragmented the self into data, and this is only amplified on the Internet. As Robert Williams (2005) argues, when one is online one experiences new possibilities for subjectivity. "Because I am not physically present," Williams claims, "I am thus reduced to my documented interests and behavior. Complex processes of self formation are thereby reified by a few formulae and data points in some electronic storage facility." Likewise, as this chapter shows, personal branding is concerned with the migration of the individual's personal data to the Web. However, this is not *imposed upon* the personally branded from without, but rather is consciously *chosen* by them. In this sense, subjects who brand themselves are adopting control logic to their own ends, willfully dividuating themselves.

Second, personal branding advocates recognize and operate within the milieu which Eva Illouz (2007) calls "emotional capitalism." According to Illouz, emotional capitalism is

> a culture in which emotional and economic discourses and practices
> mutually shape each other, thus producing what I view as a broad,
> sweeping movement in which affect is made an essential aspect of
> economic behavior and in which emotional life - especially that of the
> middle classes - follows the logic of economic relations and exchange. (5)

To explore this, Illouz traces the rationalization of emotion in 20th century American thought. She argues that seemingly unquantifiable emotions are actually made

commensurable via the technologies and techniques of post-Freudian psychotherapy. Emotion, which she defines as "the inner energy that propels us towards an act" (2), has been marshaled by a "therapeutic discourse" to provide employers and businesses with new tools to manage workers. According to Illouz, "because corporate hierarchy began demanding an orientation to persons as well as to commodities and because the corporation demanded coordination and cooperation, the management of self in the workplace increasingly became a 'problem'" (17). Her ultimate claim is "that the making of capitalism went hand in hand with the making of an intensely specialized emotional culture" (4). Like Deleuze's society of control, Illouz's argument focuses upon corporate use of emotional exchange to regulate labor. However, what this chapter demonstrates is that personal branding is an individual reaction to this form of regulation; the personally branded willfully engage in emotional exchanges in order to profit and build their personal capital. The branded have adopted the "management of the self" as a discipline.

Finally, personal branding's proponents and adherents recognize, internalize, and seek to profit from what Andrejevic (2003; 2007a) calls our surveillance economy. Pointing to the recent trend of "reality TV," Andrejevic argues that we have begun a time of enclosed synopticism, where each of us watches the other within the confines of the digital enclosure. We do so in the hopes of gaining control over the production of media objects; ostensibly, if we are willing to have our private lives made public via the mechanism of surveillance, we can influence the course of mass media. Personal branding relies upon this logic, but modifies it, engaging in what might be called "autosurveillance" or auto-opticism redolent of the synoptic pleasures I explored in chapter three. That is, the

personally branded are especially attuned to their image and others' perception of that image; if we are all watching each other (and if marketers and corporations are watching all of us), then the personally branded have chosen to groom their images in an attempt to control how they are perceived.

Thus, whereas most of us are simply naively using the network to gather information, connect with acquaintances, and check our bank accounts – all the while under the scrutiny of capital and marketers - the personally branded have adopted the tripartite logics of scientific management (in the form of dividuation), emotional capitalism, and surveillance economics to forge a new relationship to the network. Ultimately, we might scoff at the language of personal branding advocates who look to Web 2.0 for new self-marketing and self-commodifying possibilities. But it would be unwise to easily dismiss this activity; personal branding advocates have demonstrated a savvy understanding of our current mediascape and are simply making a rational choice to fully incorporate themselves into the network. However, as I will argue, the individual imagined by this literature is in fact a self-dividuated subject, willfully plugged into the Web as such, willfully trading emotion for personal gain, willfully surveying him or herself. While the personally branded might gain social and economic capital from this activity, personal branding does little to address the architectural problems – and the power imbalances they engender – that I have explored in the previous chapters.

7.2 The goals of personal branding

As I explored in chapter two, Web 2.0 discourse has largely been utopian. Focusing on marketing literature about the potentials of Web 2.0 to aid in personal branding, it is immediately apparent that utopian language has been amplified by personal branding advocates such as Dan Schwabel, Susan Hodgkinson, Tom Peters, and Dave Saunders (the self-proclaimed "Personal Branding Samurai"). These authors have sold millions of books, maintain popular Web sites,[38] and conduct speaking seminars. What draws people to their works? As Illouz argues, discourses become popular precisely because they do something useful. That is, people who purchase self-help books do so because those books provide them with a language to make sense of a host of complex-concretes: the self, the family, work, community. Specifically, what the discourse of personal branding does is offer people a way to theorize and negotiate the changing employment landscape of globalized capitalism (Lair, Sullivan, and Cheney 2005), a point I will further explore in the conclusion of this chapter.

What does the personal branding discourse do? According to the literature, advocates of personal branding offer several key arguments about the nature and the potential benefits of personal branding: 1) personal branding is universally available to all people, not just the employed or the white-collar worker; 2) while it is universal, it also allows individuals to express their unique identities; 3) one's personal brand is an inalienable possession. It cannot be taken away, but it also imposes a responsibility upon all people;

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[38] For example, see the Web site of Dan Schwabel: http://personalbrandingbook.com/; Susan Hodgkinson: http://www.thepersonalbrandcompany.com/; Tom Peters: http://www.tompeters.com/; and Dave Saunders: http://www.davesaunders.net/blog/about-me/.

4) personal brands, if cultivated, lead to financial and personal success. Ultimately, I claim that personal branding is a discourse which offers the individual a means to control his or her destiny; as such, it is a reaction to globalized précarité and it is consistent with the ideology of liberal individualism.

7.2.1 Personal branding for all

First, personal branding advocates present it as universal and democratic; it is for all workers, from managers to executives to blue collar workers, from the retired to the laid-off to the "stay-at-home mom ready to reenter the job market" (Sherry Beck Paprocki and Ray Paprocki 2009, 4-5). In their descriptions, advocates draw a discursive continuum. On one end lies the practices of transnational corporations who seek to produce not things but immaterial values. This continuum runs from the corporation itself through executives, managers, down to lower-level employees and out the doors to entrepreneurs, contractors, and the self-employed. The practices of the corporation which seeks to imbue their brands with transcendent values becomes a universal, transparent practice available for all. As Tom Peters (2007) argues,

> That cross-trainer you're wearing -- one look at the distinctive swoosh on the side tells everyone who's got you branded. That coffee travel mug you're carrying - ah, you're a Starbucks woman! Your T-shirt with the distinctive Champion "C" on the sleeve, the blue jeans with the prominent Levi's rivets, the watch with the hey-this-certifies-I-made-it icon on the face, your fountain pen with the maker's symbol crafted into the end... You're branded, branded, branded, branded. It's time for me - and you - to take a lesson from the big brands, a lesson that's true for anyone who's interested in what it takes to stand out and prosper in the new world of work. Regardless of age, regardless of position, regardless of the business we happen to be in, all of us need to understand the importance of branding. We are CEOs of our own companies: Me Inc. To be in business today, our most important job is to be head marketer for the brand called You.

Here, Peters extends the logic of branding down to the atomic level. He invites readers to take this logic and literally absorb it into their persons – *incorporating* the corporate logic of branding into the body of Me. "All of us" is a universal appeal, and moreover it presents personal branding as an inevitability which individuals must perform since their competitors are doing it (Lair, Sullivan, and Cheney 2005, 322). As Rollett (2009) argues, this logic is not just for executives but is needed by blue collar workers in order for them to rise out of their social class: "The working class, entry level and blue color workers have the skills, experience and drive that can get them out of paycheck to paycheck by promoting [their personal brands] through new media outlets." Rollett even argues that homelessness can be addressed with personal branding. Personal branding is thus a skill available and necessary for everyone regardless of economic circumstance. Like Web 2.0 in general, it is presented as a panacea for a host of social ills, and like Web 2.0 it does so by ostensibly democratizing the practices and techniques of large corporations.

7.2.2 Personal branding makes one unique

Second, while this is freely available to everyone, it is also individualistic; personal branding advocates argue that anyone who uses this practice can (to use a common phrase in this literature) "stand out from the crowd." There is no tinge of communitarianism to be found in personal branding literature. Paradoxically, then, personal branding is a universal logic meant to make everyone unique. Each member of the classless masses who participates in this logic can become particular. As Owyang (2008) argues, "...you are a company of one. Even though your paycheck is being delivered through your employer, you are solely responsible for your direction, what you

learn, how you perform, and how much you're paid." Moreover, this universal language can be personalized and differentiated for each subject like any other custom-made commodity. Personal branding advocates offer their services as consultants to all who want it, and these advocates are able to customize their advice for particular people.

Ostensibly, by adhering to this logic, those who brand themselves maintain their autonomy and individuality even in the face of rampant layoffs, outsourcing and crowdsourcing, economic downturns, and intense competition for work, situations which effect masses of people (Goldsmith 2008). Workers faced with the choice between "becoming a statistic" (that is, being part of an undifferentiated mass of laid-off workers) or becoming a brand might see the appeal of personal branding. This explains the appeal of personal branding in late capitalism, where workers are referred to – depending upon one's point of view – either as "e-lancers" (Malone and Laubacher 1998) or precariats. Despite hard times and the tremendous dissolution of full-time work, "The good news ... is that everyone has a chance to stand out. Everyone has a chance to learn, improve, and build up their skills. Everyone has a chance to be a brand worthy of remark" (Tom Peters 2007).

7.2.3 The inalienable brand

Third, a personal brand is presented as an inalienable possession. A sense of ownership is stressed in these guides. Personal branding advocates argue that individuals need to control their images in the same manner that large corporations wield over their intellectual property. Our personal brands are the most important assets we own, more

valuable than possessions, family, or friends (Saunders 2009; Notestone 2009, 6). Even in the most dire economic situations, advocates of personal branding argue that we – and only we - own our brands. As such, it is microcosmic of Web 2.0 as whole; in the discourse of Web 2.0, users are argued to be in control over the sites they participate in, despite the fact that users do not own those sites (Nicole S. Cohen 2008, 13).

And yet, while this possession is inalienable, it is an asset which is open to the world to manipulate – unless, that is, the would-be branded actively assert their ownership. "If you don't take control of your own image, you essentially yield that to the world to decide for you – for better or for worse" (Singer 2009). Likewise, Roffer and Ober (2002, 2) simply state "If you don't brand yourself, someone else will." Put another way, very few of us might own businesses, but each of us owns an inherent personal brand and therefore have a responsibility to cultivate it ourselves. Here, personal branding advocates are using the language of human capital theorists. We all have human capital/personal brands, and it is our job to build them. We have an inalienable right to our personal brands, and we have an inalienable responsibility to build them.

7.2.4 Personal brands lead to success

Finally and unsurprisingly, personal branding advocates unabashedly promise that personal branding will lead to financial or personal gain. "...If you want to be rich and famous," writes Al Ries, "read [*The Brand Called You*]" (Montoya and Vandehey 2003, xi). Of course, it is not always that simple. For example, in Roffer and Ober's *Make a name for yourself,* financial gain arises from more than reading, it arises from "daring":

"Jillian [a client] would like to bring in $40,000 to $50,000 a year... We agreed she'd dare to think in terms of earning $60,000-$70,000 a year" (43). If you "dare," they argue, "you're very likely to get what you ask for, because when you finally uncover and get serious about your heart's desire, the universe starts listening" (48). Personal branding leads to value, because just as in the corporate world of branded goods and services, personal brands are perceived to have innate and powerful value, and those who brand themselves will be compensated for their efforts. This can take the form of pay, or if employers or clients do not offer higher pay, they might offer fringe benefits like increased personal publicity and credit (Singer 2008). As Griffin (2008) notes, "Return [on your investment] can mean more than just dollars in your pocket. Return can be about those people who continue to 'return' to see what you are up to because they appreciate what you do. Again, notoriety and identification can be this measure of success." In either case, money or social capital, personal branding advocates argue that the branded will undoubtedly realize their material and social goals.

In fact, these advocates do not just promise financial gain or professional acclaim, but argue that personal branding will lead to enhanced personal relationships. Recounting an interview with Will Powers on National Public Radio, Pettis (2006) notes

> Will theorized that "Branding works for our clients, why won't it work for me and help me 'sell' my 'product' (i.e., me) to my 'customer' (i.e., my wife)?" Through questioning, Will created a series of brand ladders, including one for picking up his clothes after a trip. (Brand ladders are a method for finding the higher-level benefits and emotional rewards of features, services, or values.) To do this, Will asked his wife, "What does picking up my clothes do for you? Why is that important?" She responded, "It makes me feel like we're a team. When you are helping me out, it makes me feel like we have a strong relationship." Ultimately, the brand ladder led to a feeling of greater love and reassurance.

A consistent theme in this literature is that skills and emotional competencies which can be valorized in the marketplace are easily transferred to the domestic sphere, belying what Illouz (2007) recognizes as the penetration of the language of economic exchange into the language of the family (29). Personal branding is thus a process for success not only in the work world but the domestic sphere.

7.3 How to brand oneself in Web 2.0

These promises – everyone can brand themselves, doing so leads to individuality even among masses of like-minded people, our brands are inalienable possessions, and the personal brand can be leveraged into personal and financial gain – are the hooks used by personal branding advocates. They draw people into the literature, promising a theory and practice to cope with technological, social, and economic change. These hooks are relatively easy to spot and their appeals are obvious. However, exactly how individuals can see these promises fulfilled is less clear. From the literature I have reviewed, the most common steps include: 1) self-examination resulting in differentiating oneself via textual and hypertextual representations; 2) adopting the language of transparency and authenticity; 3) making connections with others by offering quantifiable affective exchanges; 4) and most importantly, engaging in autosurveillance. These four common steps reflect the tripartite logic of dividuation, emotional capitalism, and surveillance economics which I outlined in section 5.1.1. The process typically begins with and ends with the individual, reinforcing the individualistic discourse of personal branding advocates and inscribing these logics at the subjective level.

7.3.1 Self-examination, differentiation, and hypertextualization

In order to be branded, the common first step the user is presented with is to undergo intense self-scrutiny (Lair, Sullivan, and Cheney 2005, 309; Tugend 2009; Goldsmith 2008; Roffer and Ober 2002; Montoya and Vandehey 2003; Sherry Beck Paprocki and Ray Paprocki 2009, 17-22). This involves articulating in text various qualities that the user might have. Rollett (2009) suggests that "Everyone that I encounter has a special intangible quality. You need to take this quality and put it on paper and work backwards to see how you can use that special quality and improve your career situation." Likewise, Owyang (2008) instructs readers to "reverse-engineer" the jobs they want by putting their desired career on paper and cataloging the skills needed. Then, "develop your own plan, both short term and long term plans, and set goals on how to reach them. Often, these goals don't have titles or companies in them, but they describe the environment, or the end outcomes of which you want to reach." All of this is to be in writing, crystallizing what are seen to be "intangible" qualities of the self.

Putting this step in its historical context, Illouz notes that the act of writing was seen among psychologists in the 20th century as an act of making emotions pure and ontologically autonomous, even alienable. While postmodernism has undermined the idea of textual utterances having a center of meaning, personal branding advocates hold that goals, skills, and personality need be made authentic and visible through the act of written self-evaluation. Illouz argues that "the locking of emotions into written language gives rise to the idea of 'pure emotion,' the idea that emotions are definite discrete entities and that they are somehow locked and trapped inside the self, and that they can be

inscribed in texts and apprehended as fixed entities, to be detached from the self, observed, manipulated, and controlled" (33). This is the emotional capitalist equivalent of Deleuze's process of dividuation; as Braverman (1975) noted, modern capitalism relies upon the immaterial aspects of conception and execution being abstracted from their corresponding work processes. Mental work has been separated from physical work, allowing for a new group of workers such as managers and engineers to gain control of the work process. Moreover, and more germane to this chapter, the *facts* about physical workers (rates of work, hours worked, skills and accomplishments) have been collected into files to be manipulated and exchanged by corporate bureaucrats and managers. Likewise, in the case of personal branding, textualizing personal attributes and emotions is a first step in making them commensurable, essentially quantifying aspects of ourselves which always appear qualitative. Once commensurable, emotional capital can be exchanged for other forms of capital. The personal branding literature draws on this tradition.

Thus, the first step of many personal branding how-to guides requires users to engage in a self-evaluation markedly different from cataloging work experience on a resume. On a resume, one puts work experience, education, and skills, aspects which are typically quantifiable: years on the job, degrees obtained, budgets managed. In contrast, personal branding advocates argue that their clients should not identify themselves with their job descriptions or the resume-derived facts of their work since many people can hold the same job title or degrees. Rather, their clients must search for their core values in order to "wield [their] truest selves" (Roffer and Ober 2002, 8). This involves intense self-

examination: what are my values? What is my passion? Why do I work? How do I approach problems? In the personal branding mode, emotional competencies, desires, personal tastes are all potential sources of textual self-differentiation, along with the traditional material used in resumes. As Pettis (2006) argues, "Your Personal Brand identity is the sensory, rational, emotional and cultural image that surrounds you." Like traditional brands geared towards consumers, then, personal brands involve mixing of the material (the actual person who can physically do a job) and the ideal (the personality, emotional competencies, and desires of the person) in order to create a purportedly unique and more authentic self. This process reflects what danah boyd (2008a, 121) calls "writing [oneself] into being;" social media demands conscious textual and media composition of identity in ways that are radically different from the day-to-day presentations of self we engage in in unmediated life.

Thus, those who complete this first step of branding create texts, typically short lists, of their emotional competencies. For example, both Roffer and Ober (2002) and Paprocki and Paprocki (2009) offer worksheets which ask the reader to list (among other things) core values, talents, a brand description, and a short "tagline" or "elevator pitch" (akin to the familiar slogans of major brands – think of the phrase "Nationwide is on your side"). The act of writing these things down is, in the personal branding literature, an act of making them "real."

In the context of Web 2.0, this material is easy to migrate to the Web. In writing down what makes a user unique, that user is creating a profile which will eventually become a sort of marketing bot on the Web which can perform for an unforeseeable audience.

Many social networking sites have ready-made fields to accept this data. Facebook, Myspace, and LinkedIn all provide space for personal taglines. LinkedIn is perhaps the most geared towards accepting this data; it asks for specialties and a summary. Since every member of LinkedIn must fill in these fields to make a complete profile, the personal branding technique of differentiating oneself through text is a necessity to stand out from the tens of millions of other members. Moreover, when this material is migrated to the Web, it becomes hypertext: easily linked to and ported via XML/RSS from one site to another, "freeing" the personal data to become an autonomous agent online. This is the dividuation Deleuze hinted at: our very selves are splintered, fragmented, and spread across the Web, especially if we brand ourselves.

7.3.2 Transparency and authenticity

The goal of personal branding is to create a highly marketable image, one that sets one apart from the competition. This might appear to be an invitation to pad one's resume, especially since the Web is often viewed as a potential site of anonymity. Yet personal branding literature relies upon the language of authenticity, arguing that the responsible self-brander is a person who is honest with herself and others. "...Branding is not about tricking people into buying your services or pretending to be someone you are not. It's about clearly establishing who you are, what you are good at, or even what you like to do, so you can stand above the competition" (Sherry Beck Paprocki and Ray Paprocki 2009, 6). Personal branding advocates suggest that the branded achieve this by using details from their personal lives. As Jenkins (2008) explains

> For example, over the last year, I used social media to show you my move
> from Maryland to North Carolina, including drama with the movers,

> picking the house, and getting it set up. I also pulled back the curtain to show what it takes to run a product launch. When I did my last product launch, I was Twittering every day what I was doing to get ready for this site. Most of the gurus out there would keep everything under lock and key, [but] I was being very clear, saying, "This is what I'm doing to get ready for this launch." It actually helped me have a better launch, even though I told everybody exactly what I was going to be doing... So be transparent. Let people know what you're doing and why you're doing It [sic], and they're going to learn how to trust you.

Thus, while Jenkins's goal is to launch a commercial product, his social media use includes not only details of the product, but also the daily trials and tribulations of an entrepreneur. To be transparent and authentic requires nothing less than the revelation of intimate personal details – the migration of offline lives onto the Web (O'Brien 2009). This strategic revelation of personal detail is argued to be a key indicator that the branded person is being honest. In fact, personal branding advocates suggest that the best method of being transparent and authentic is to write the story of one's self. This story obviously includes the written components I've described in section 7.5.1, but also includes family life, hobbies, and personal convictions.

This sort of radical, personal openness is part and parcel of the surveillance economy which Andrejevic (2007a; 2003) describes. Authenticity and transparency – or as Andrejevic calls it, "getting real" - are seen as antidotes to the homogeneity of mass culture. That is, the mass production of the Fordist and Taylorists modes onward is seen now not as a cornucopia of consumer goods but as the bland path to conformity. "Getting real," expressing one's personal beliefs and values, is offered as a means to individualize consumption. We see this in targeted advertising and personalized marketing. In the case of the personal branding literature, then, authenticity is presented as a way for the

branded to connect to consumers, instead of alienating them with cookie-cutter products and services. Ostensibly, if the consumer can connect with the branded at the personal level, he or she is more likely to buy. The personal branding literature thus calls for the would-be branded to expose their private lives to Web scrutiny.

7.3.3 Connections through Reciprocity

In making her argument, Illouz points to the explosion of self-help literature in the United States during the 20th century. She examines two key foci of self-help psychology: the workplace and the domestic sphere. In the workplace, 20th century management theory began to turn to psychology to solve intra-office conflicts, resulting in an intense focus on managers and employees being able to competently communicate their emotions. Managers and employees were advised about new methods to become more emotionally competent. Each individual member of the firm began to be evaluated for his ability to express his feelings and recognize others' feelings. As for the domestic sphere, Illouz examines quizzes such as those that appear in women's magazines such as *Redbook,* where women are asked to rate their mates on numerical scales, thus quantifying and making commensurable emotional exchanges. In both spheres, psychologists argued that intra-personal conflicts must be solved by recognition of the other and emotional exchange. After one recognizes the other, these psychologists argued, then one can demand to be recognized in turn. As Illouz argues, due to the influence of psychology, the putative division between private emotional lives and public economic lives is illusory; "The economic sphere, far from being devoid of emotions, has been on the contrary

saturated with affect, a kind of affect committed to and commanded by the imperative of cooperation and a mode of settling conflicts based on 'recognition'" (23).

Personal branding advocates also engage in this language, and their advice is remarkably similar to the advice offered in *Redbook*: give freely in order to receive. In Matt Peters's (2008) "The paradox of self-promotion with social media," this conflict between what might be called the "spontaneous emotionality" amplified in Web 2.0 and the instrumentality of personal branding is explored. On the one hand, Peters argues that Web 2.0 has allowed for the emotionality of asserting opinions and being a demagogue. That is, due to the self-publishing of blogs, people are able to publicly express all manner of emotional and confessional content. On the other hand, Peters argues that Web 2.0 has a "codex of etiquette" which prohibits self-promotion. That is, while we are free to express ourselves online, there is a cultural taboo against promoting our own work.

The solution that Peters and other personal branding advocates (Saunders 2009) offer is to be "giving." Like the manager who manages "by walking around" (Kendrick 2006, 173; Adams 1997, 153) and thus has emotional exchanges with each employee multiple times daily, or the housewife who seeks new potentials for emotional exchange with her husband in the pages of *Redbook* , the branded are advised to first offer their attentions to others in their social networks. Peters offers three steps:

> 1. If you want to contact a blogger about featuring you, make sure you subscribe to them first. Read their stuff so you get a feel for who they are. Comment intelligently on their posts over the weeks that you are getting to know them. Only after you have built a rapport can you then approach them. 2. Do not spam people. It will get you banned. 3. Always respond to people who comment on your blog posts. This helps foster a relationship and will help increase subscribers.

In short, do not expect to receive without giving. Jenkins (2008) makes a similar

argument:

> You have to be willing to be involved in the conversation, and you have to
> be willing to give as much or even more than what you're going to get in
> return. The people who do that are growing so fast it makes my head spin.
> I feel that I'm a pretty giving person but I see some other folks out there
> that just keep on giving, giving, giving and they just build up a huge
> following and that social capital is a real asset to your business.

This mode of quantifying exchanges of affect is nothing new; along with the literature

Illouz describes, there have been multiple instances of measuring personal interactions by

the number of exchanges (rather than the qualitative content of the exchanges) on the

Internet (boyd 2008b, 16).[39] However, in the cross-pollination of Web 2.0 practices and

personal branding, the object is to provide an easily measured quantity of emotional

content to others in order to receive emotional content in return. On blogs and in social

networks, connections and comments are counted in an accumulative logic: this blog post

has 53 comments; 10 people like this; this person has 148 connections. One provides

these comments and offers of friendship in order to receive them in return.

7.3.4 Autosurveillance

While the prior steps could exist independent of Web 2.0, this final step is directly

determined by the logic of Web 2.0 and the existence of the social networks associated

with Facebook, Twitter, YouTube, and MySpace. Many of the personal branding guides

written after 2005 include autosurveillance as a key step in the process of personal

branding. That is, once we upload our hypertextualized personalities, after we have

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[39] In particular, consider COBOT, a program used by researchers at AT&T who wanted to statistically analyze the interactions of users of LambdaMOO, an text-based Internet Multi User Domain. COBOT was programmed to count the number of interactions between various members; thus, it was not interested in qualitative differences in interactions, but rather the sheer number of them.

networked, and after we have contributed to others' projects, we must maintain a watchful eye over our brands as they begin to exist seemingly autonomously online on social networks. Social networks' *raison d'etre* is to monitor their users' activities and serve those users with context-appropriate advertising (Nicole S. Cohen 2008; Coté and Pybus 2007; Scharman 2006). Thus, users confront and learn about the rationalized techniques of surveillance when they sign up for and use a Web 2.0 site. By engaging in autosurveillance, they are merely adapting this logic to their own ends.

For example, a very common tactic suggested by personal branding advocates is the use of Google Alerts set to a user's name (Notestone 2009, 6). As Schawbel (Goldsmith 2008) argues,

> As you grow, mature, and accelerate in your career, everything you've created has to be updated and accurately represent the current "brand you." Also, you need to monitor your brand online to ensure all conversations about you are positive and factual. You can do this by using a combination of tools, including a Google Alert for your name.

Google is recognized as the cybersurveillance corporation *par excellence*. By adopting the logic of Google and using an alert system orginally intended for news, users who autosurveil create a feedback loop: they watch the watchers watching them. This automates the "vanity search" process, creating a search bot which watches the personal branding bot.

However, given what Turkle (1995) calls the "holding power" of computers and the Web, one Google Alert per day might not be enough. Web Search companies are beginning to cater their services to the demands of trend-watchers, a class of people which decidedly

includes the branded. The streams of affect flowing on sites such as Facebook and Twitter mean that someone with a large network of contacts will be discussed 24 hours a day. The branded are advised to use new "real-time" search engines such as SocialMention or Scoopler which are geared specifically to this sort of narcissistic monitoring (Solis 2009). These engines promise to search the streams of material flowing in sites such as Twitter which rely on short and constant updates of 140 characters or less. SocialMention attempts to categorize these real-time search results based on affective categories (see figure 1). The results are collected in the center column, and to the left are four measures: Strength, Sentiment, Passion, and Reach. Reach is a measure of the diversity of mentions of the topic, Strength is "the likelihood that your brand is being discussed in social media," Sentiment is a ratio of positive mentions to negative, and Passion is a measure of how often people are discussing the subject. SocialMention is thus based upon the commensurability of emotional content which is loaded onto the Web. That is, it relies on rationally quantifying textual sentiments which are subjective and qualitative. In short, it is specifically made to monitor branding, including personal brands.

Autosurveillance is by no means the final step in the personal branding process; as the literature reveals, personal branding is a recursive process. Thus, autosurveillance becomes the first step in a new process: the monitoring of one's online persona. This persona becomes a reflection of one's efforts to self-brand. As such, it becomes a semi-autonomous marketing bot, not unlike other bots which traverse the Web and interact with other entities. Consider the asynchrony of a Facebook profile: I might post an update to my profile, close my browser, and go to sleep. While I sleep, my friends interact with

my profile, commenting on it, adding images, linking it to other profiles and sites. With enough profiles and content, spread across myriad social networks, video sharing sites, virtual worlds, and blogs, I can create a personally branded, automated machine that can stand in for my real-world existence, operating and persisting for days or even years. The only responsibility I have at that point is to monitor it and the responses of users to it. While this is my sole responsibility, the demands of a 24/7, networked, autonomous personal marketing bot are such that I would need to spend increasing amounts of time monitoring my presence on the Web. This bot takes a life of its own, demanding constant upkeep.

This reveals a contradiction in personal branding. While the personal branding literature holds that one's personal brand is inalienable, personal branding advocates are ignorant of or do not consider the highly *alienated* status of the online persona. This is the contradiction described both by Deleuze and Andrejevic. Both argue that the fragmentation of the self and its exposure in surveillance economies is presented as the sole means to achieve freedom in late capitalism. In order to experience the fullness of unalienated social life, one must trade away one's personal data; only then can one enjoy precisely individualized goods and services. Similarly, in the personal branding literature, the only way to attract customers – the only way to "stand out from the crowd" - is to trade away all of one's personal life and create an alienated market bot on the Web. Couple this with social networks, which seek to collect personal data to improve their own branding and marketing bots, and we have a process as old as capitalism: the

meeting of the individual and capital and, after mutual negotiation, the capture of the individual's previously inherent value-laden content by capital.

7.4 Conclusion: A rational choice

As Illouz argues at the end of *Cold Intimacies*, "Critique is most forceful when it moves away from Olympian purity and is grounded in a deep understanding of the concrete cultural practices of ordinary actors" (93). She criticizes cultural studies and other disciplines for a sort of defeatism which grows out of being removed from the day-to-day knowledge of "ordinary" actors. Rather than repeat the mistake she accuses cultural studies of, in this conclusion I want to consider the use of personal branding by "ordinary actors."

Précarité in workplaces has increased dramatically in neoliberal globalization (Ross 2008; Davis 2006; Davis 2007; Harvey 2005; Harvey 2006; Aronowitz 2001; Aronowitz and DiFazio 1994). In the global North, adjunct instructors, part-time consultants, freelance writers, or any number of workers with uncertain futures can be thought of one of two ways: either as "free agents" capable of shifting jobs, tasks, and even personality depending upon pay conditions and the vagaries of employment markets, or as precarious employees adrift in a time of globalized capital. Likewise, in the global South, so-called "microentrepreneurs" work to eke a living in states which have, due to structural adjustment or the vestiges of colonialism, failed to create public, modern infrastructure such as waste treatment and water distribution systems.

The appeal of personal branding, like social networking in general, is that it offers a way for individuals to cope with this uncertainty; friends, colleagues, and family are always there, online. Our brands are always there, growing online, gaining comments, getting feedback. Even without statistical evidence (comments, visits, friendings, etc), we can imagine that our personal branding bots are reaching others throughout the world. Contact is a click away. Structurally, personal branding is one method of coping with the increasingly hierarchical structures of globalized capital. It is a discourse of democracy and ownership which is powerful, just as the discourses about Web 2.0 are powerful.

Lair et al (Lair, Sullivan, and Cheney 2005) argue that adoption of personal branding techniques results in the extension of the workweek. As Web 2.0 has continued to take hold, this extension of the workweek has increased dramatically, even beyond what Lair et al argue. However, I argue that personal branding self-help literature and seminars are popular precisely *because* of the extension of the workweek. In late capitalism, where flexibility is the watchword, laborers in many office and blue-collar settings are increasingly expected to play more and more roles and perform more and more tasks. These tasks are not accompanied by increased pay or security, but instead are wrapped in a discourse of the need for flexibility in a time of global competition. Moreover, these tasks are symptomatic of a workplace without clearly defined roles or job descriptions. As such, personal branding is not a cause of the extension of the workweek, but is instead epiphenomenal. Personal branding gives workers the tools to label themselves in positive ways, even against other descriptions of their work that are not as flattering.

In sum, personal branding is a reaction to the logic of the surveillance economy. It arises from the pleasures I outlined in chapter three; the personally branded enjoy connecting with one another, engaging in the synopticon, collaborating, and constructing their identities. They see the subjective possibilities of Web 2.0. But there is more involved than those pleasures; personal branding in Web 2.0 is an explicit attempt by users attempt to leverage social media to increase their economic capital. It the individualistic attempt to objectify the pleasures of the Web, much as the ideology and technology of Web 2.0 has been deployed by new media capital to objectify Web pleasures. Thus, the personal branding literature acknowledges the power of new media capital and recommends that users emulate – rather than confront or work around – that power.

8 An alternative architecture: Wikipedia

Wikipedia plays a major role in the Web 2.0 origin mythology. In the seminal Tim O'Reilly (2005b) blog post, the collaborative encyclopedia is presented as a "profound change in the dynamics of content creation," indicative of the soon to be dominant model of user-led creation and the wisdom of crowds. This is in contrast, in O'Reilly's teleology, to the Encyclopedia Britannica Online, which is created solely by authorities and centralized editors. writing in the *SF Gate* (the online version of the *San Francisco Chronicle*), Daniel Fost (2006) writes that Wikipedia is a prime example of "harnessing collective intelligence," one of seven facets of Web 2.0. In the iconic 2006 *TIME* "Person of the Year" issue (Grossman 2006), where the person is "You," Wikipedia is an example of "many wresting power from the few and helping one another for nothing and how that will not only change the world, but also change the way the world changes." Wikipedia's exponential growth and dominance in search engines has solidified the encyclopedia's place as a quintessential site for user-led content production.

And yet, as this dissertation has demonstrated, Web 2.0 sites typically do not deliver on the promises that Web 2.0 advocates make. In chapter four, I showed that Web 2.0 sites are built on a longstanding tradition of creating layers of abstraction between the user and her computer, and that they encourage users to remain on the surface of whatever site

they are using. Users play on surfaces, forgetting about the political economic, social, and cultural layers beneath that surface. In chapter five, I showed that Web 2.0 is built on the earlier Internet contradiction between radical, rhizomatic distributed participation and centralized authority, and that to resist authority is to either be absorbed by it or to disappear altogether from the network. In chapter six, I showed how the work of users is being collected and redistributed by media companies, some of whom, according to the logic of Web 2.0 advocates, should have been eradicated or marginalized in the new regime of democratized media. And in chapter seven, I showed one logical, individualized reaction of users to Web 2.0 sites' surveillance of users: personal branding, where the irony is that in order "to stand out from the crowd" one must participate in standardized practices of self-commodification and self-surveillance.

In short, this dissertation paints a very bleak picture of Web 2.0, a phenomenon that many have heralded to be positive, democratic, and progressive. But while Wikipedia is often called a quintessential Web 2.0 site and is central to the mythology of Web 2.0, here I want to argue that it does not have many of the problems that other Web 2.0 sites have. This is because the actors involved in the production of Wikipedia made two key design decisions which set the encyclopedia apart from the dominant Web 2.0 model. The first decision was to use wiki software to create the site. Wiki software structure is radically different from the typical Web 2.0 site, because it is not all surface. Unlike other Web 2.0 sites, Wikipedia is incredibly transparent because every action in the site is immediately visible to all who are interested. Moreover, those actions are archived; Wikipedia's history is fully visible to anyone who wants to examine it. Users engaged with the site

can see precisely how their contributions are being used, and if they disagree with those uses, they have multiple means to affect change in the site.

The second design decision has to do with the economics of the site. Wikipedia is constituted as a nonprofit governed by the most active users, rather than a centralized corporation controlled by executives and investors. Early in Wikipedia's existence, founders Jimmy Wales and Larry Sanger intended to monetize the site with advertising, but users protested loudly. The Spanish version of Wikipedia even "forked," breaking off and setting up its own servers (Lih 2009). Wales and Sanger listened, making Wikipedia into a nonprofit rather than for-profit entity as they originally had planned. Thus, unlike Facebook or Google, decision-making in Wikipedia is closer to an open-source firm than a publicly-traded one. In addition, Wikipedia's unique licensing of content spreads "copyleft" like a virus. Unlike sites such as YouTube, companies which mine Wikipedia for material must give credit to those users who created it; there is no ambiguity of ownership.

These two key design decisions have altered the politics of Wikipedia away from the dominant Web 2.0 model. Wikipedia is structured to be a collective effort. Whereas Web 2.0 has been used for individual personal branding (as I discussed in the last chapter), Wikipedia is not centered on individual affective exchanges, but rather on collaboration and consensus building geared towards the creation of articles. To be sure, research has shown that there is a core group of editors, a minority which do much of the administrative work (Beschastnikh, Kriplean, and McDonald 2008; A. Kittur et al. 2007; Lih 2009). They achieve this "admin" status after they have contributed a large number of

edits, are nominated by peers, and then are elected. Certainly, one could argue that these admins have increased social capital within Wikipedia. However, their social capital is not obtained by personal branding, but rather by constructive contributions to the overall Wikipedia project. Moreover, their efforts, and the efforts of all editors who contribute to Wikipedia, are used to build a dedicatedly *non*profit site with the stated goal of being a compendium of knowledge.

In this chapter, I explore Wikipedia, noting what features it shares with other Web 2.0 sites and pointing out the key differences which have allowed the site to solve many of the problems I describe in previous chapters. Whereas most other Web 2.0 sites are rigidly divided between surface and depth and only allow users access to limited areas, Wikipedia's depth allows users access to its archives. This has in large part allowed Wikipedia to flourish as a Habermasian democratic site, a space where users not only contribute content (as they do in all other Web 2.0 sites), but also control how that content is used. Simply put, users can see what they contribute to the collective project, and they can see how that content is used.

It is somewhat a cliché in Internet scholarship to declare a site or collection of sites as "Habermasian" public spheres (Dahlgren 2005; Froomkin 2003; Jankoswki and van Selm 2000; Negt, Kluge, and Labanyi 1993; S. M Schneider 1996). Cliché or no, here I want to argue that Wikipedia's emphasis on allowing critical analysis of not only its surface but its layers of abstractions is close to Jurgen Habermas's (1989) conceptualization of a public sphere. Habermas's definition of a public sphere is as a sight of uncoerced, critically reasoned discussion aimed at a pragmatic goal. He takes his inspiration from the

public spaces of the Enlightenment, such as cafes, where bourgeois men gathered to discuss the contents of newspapers and the politics of the day. This view has of course been modified by critical interlocutors such as Negt and Kluge (1993) and Rita Felski (1989) who have troubled Habermas's original vision by pointing to public spheres among workers and women, respectively. Moreover, the idea of a single public sphere has been attacked, most notably by Nancy Fraser (2003) and Mark Poster (2001). Still, Habermas's emphasis on rational, critical discourse to be conducted in a setting of mutual respect is a useful description of Wikipedia, particularly in light of the site's emphasis on objectively verifiable content, which I will explore below.

Not all is bleak in Web 2.0; Wikipedia is proof of that.

8.1 Wikipedia's depth

In chapter four, I described the deskilling that has occurred in Web 2.0. Web 2.0 utilizes complex simulacra in the forms of icons, avatars, and representations of networks, all of which elide the layers below the surface. Web 2.0 – the Web as platform – has been structured by site owners as a surface upon which users can interact with these simulacra. Complex layers of computer code, legal agreements, and surveillance technologies – all under the control of site owners – are attuned and prepared to capture user data and content. While users certainly require skills to use these sites, they are typically prohibited from manipulating any of the code beneath the highest layers of abstraction, a prohibition which is a vestige of the older process of deskilling associated with personal computer development. The users' only means of influencing the layers beneath the

surface comes in the form of "Facebook democracy," a process I described in chapter four. This process is typically ineffective because it can be easily co-opted by site owners.

At first glance, Wikipedia appears to replicate this structure. It appears to be all surface. Due to its massive scope (over 3 million articles in the English version alone), it consistently receives top ranking in Google searches. For example, a Google search for "Henry David Thoreau" returns the Wikipedia page as the top result. Thus, for anyone seeking information on a wide range of topics, Wikipedia is a quick reference. This is particularly salient in colleges, where students turn to it for their research papers and rely on it overmuch for their references, much to the chagrin of professors. In fact, the practice is so widespread that schools have experimented with banning students from consulting the site (Jaschik 2007; Waters 2007). The reaction of professors who ban it reveals that they believe students are not digging deeper than that site for their research needs. They believe that Wikipedia is all surface and has no depth, and that students are seduced by the surface and are unable to corroborate Wikipedia's assertions or understand the (presumably corrupt) production of knowledge within that site.

However, unlike other Web 2.0 sites, Wikipedia allows users – any users – to plumb its depths to find a vast archive dedicated to the production of knowledge. Unlike a social network which provides surfaces and tends to elide the process by which it produces content, Wikipedia provides complete access. As Yochai Benkler (2006, 289) explains, "Wikipedia makes the history of the evolution of the article entirely transparent." Even newspapers, magazines, and academic journals do not have this level of transparency. As Viegas, Wattenberg, and Kushal (2004, 582) put it, "When visiting a wiki, one is greeted

with what looks like a conventional static Web site. Yet this serene façade conceals a more agitated reality of constant communal editing. Hundreds, sometimes thousands of busy hands insert words, create new pages, delete paragraphs, manicure the contents of the site." This depth is easily accessed by anyone on the Web, making Wikipedia unique among the constellation of Web 2.0 sites.

This was made possible by the decision to use wiki software to create the site. Wiki software was developed in 1994 by Ward Cunningham as a means to allow people to easily collaborate on the Web. The software is unique in two ways: first, it allows anyone – registered or not, known or anonymous – to edit a page. In this way it is close to Tim Berners-Lee's (2000) original vision for the World Wide Web, which was meant to be a Read/Write Web. Second, the site allowed for users to quickly make connections between articles. Rather than stopping to find the exact URL of a resource, wiki editors simply had to type the name of the resource in "Camel Case," a mixture of upper- and lower-case letters which looks SomeThingLikeThis. These two choices allowed users to quickly become involved in the production of content on Cunningham's wiki site, the WorldWideWiki, which is still in existence at http://c2.com/cgi/wiki.

Larry Sanger and Jimmy Wales did not intend to use a wiki to create an encyclopedia. Rather, in 2000 they intended to create a for-profit, volunteer-driven encyclopedia called the Nupedia. They relied on the dominant model of encyclopedia building: use qualified authors, use a strong editorial policy, and strong copyright. The Nupedia used these elements, but was unique in that Sanger and Wales sought volunteers to write entries. Since Sanger was a newly-minted PhD in philosophy (with a dissertation on Ayn Rand's

Objectivist philosophy), he used his social network in academia to find volunteers. However, the project stalled due to the onerous editorial policy which prevented articles from being approved until they were reviewed multiple times. When the project was in danger of floundering, Wales and Sanger set up a wiki-based submission process, open to all, as a way to seed the Nupedia. Wikipedia was thus started as a side project.

Although it was created somewhat as an afterthought, Wikipedia (then Wikipedia.com) began to grow at a far faster pace than the Nupedia. Its openness led to a wider base of volunteers than Sanger could muster to undergo Nupedia's rigorous editorial policy. This wider base of volunteers were able to produce more content than the Nupedia. Sanger and Wales achieved their goal of having an online encyclopedia, but they did by surrendering their editorial control. However, while it did not have the editorial vigor that Nupedia had, Sanger and Wales used modified wiki software to create complete histories of user contributions, discussion pages (called "Talk" pages), and open administrative discussions on emails lists and eventually the site itself. The wiki software structure, which was designed to be open to all, an editorial emphasis on collecting data on contributors and contributions, and an emphasis on debate, discussion, and consensus building, all led to what we experience today at Wikipedia. Wiki software helped generate a site with incredible depth, a stark contrast to the surface-oriented sites of Web 2.0.

8.1.1 The Talk Page

For example, this depth can be seen on Wikipedia's "Talk" pages. The "Talk" pages[40] in Wikipedia are spaces for editors to resolve conflicts over what material should be included in articles. Editors use these spaces to propose changes, question other users about the changes that they made, ask about the reliability of sources, and engage in debate about the topic in question. This last use of the page – debate – is not officially allowed on these pages,[41] but in practice happens frequently. Much like the drafts of any Wikipedia article, these pages are archived; the debate that happens in them is stored for future examination. In fact, the amount of material (measured in bytes) in the Talk pages outweighs the material in the actual articles, revealing the importance of this forum to the coordination of editors (Viegas et al. 2007). The etiquette of the Talk pages calls for users to never delete anything, either their own material or others', in order to create a complete, accessible archive of the debate.

The fundamental rules in Wikipedia are "neutral point of view," "verifiability," and "no original research." In short, these rules mean that articles are meant to be objective, dealing with all major viewpoints on any given issue; articles are to be based upon reliable secondary sources which can be verified (usually with more sources); and articles cannot be syntheses of secondary sources into new opinions on a subject. These fundamental rules underpin most of the user interaction in "Talk" pages. They are part of

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[40] The label for this type of page is unclear. In any article, there is a tab labeled "discussion" which links to the "Talk" page. I will call these pages "Talk" pages.

[41] According to "Wikipedia:Talk page guidelines," (available at http://en.wikipedia.org/wiki/Wikipedia:Talk_page_guidelines), "Article talk pages should not be used by editors as platforms for their personal views on a subject, but for evaluating the use of information derived from secondary sources." Obviously, this is a blurry line, and in practice editors often engage in debate on the topic.

what Beschastnikh *et al* (2008) call "the policy environment" of Wikipedia, and they are often cited by Wikipedia editors to resolve disputes (Viegas et al. 2007). As Beschastnikh *et al* explain, "Such references help to socialize and discipline new and deviant participants by reinforcing standards of article content and user conduct " (28). Wikipedia editors cite these rules by either linking to the articles that describe them or mentioning them in arguments. They are codifications of the culture of Wikipedia and as such provide context for editors' decisions. Moreover, as Beschastnikh *et al* argue, since these policies are themselves editable by anyone in Wikipedia, their use in "Talk" debates creates a feedback loop whereby the very regulations cited by users in disputes can be quickly edited and changed based upon communal norms. And, of course, those changes to the "policy environment" can be discussed in other, associated "Talk" pages. Thus the rules are themselves under debate, slowly shifting as opinions on neutrality, original research, and verifiability shift among the Wikipedia editor community. Although this is outside the scope of this chapter, further research into the evolution of Wikipedia's policy environment is needed.

In practice, every post an editor makes to the "Talk" page is dated and signed. This way, other editors (and researchers like myself) can correlate an editor's comments to the actual revisions she made to the article. By cross-referencing time, data, IP address, user name, or strings of text, a researcher can gain a clear picture of what particular editors have contributed. In addition, many Wikipedia participants maintain their own homepages at Wikipedia.org, where they often provide their biographies and interests on these pages. With those pages, a researcher can quickly gain clues as to political views

and biases. For example, on a page such as "Barack Obama," relevant information such as individual editors political views can be used to determine why they might have made normatively positive or negative additions.

I will provide an example from another research project I'm conducting.[42] I have examined the evolution of the "Hurricane Katrina" article from its roots as a typical collection of facts about the 2005 storm into a massive constellation of articles containing social and cultural analysis, frank examinations of the role of neoliberal states in disaster recovery, and the role of the news media in reporting such disasters. The following is one excerpt from the lengthy debate that happened in the article's corresponding "Talk" page.

8.1.2 The "Hurricane Katrina" media debate in Wikipedia "Talk" pages

Days after landfall of Hurricane Katrina, the news media began to report that there was widespread looting and violence occurring in the streets of New Orleans. On September 1, CNN (Cafferty et al. 2005) reported "Armed and dangerous, authorities in New Orleans are trying to crack down on looting and lawlessness. And people with guns are opening fire, including on ambulances leaving hospitals." On FOX on the 3rd of September, Sean Hannity (Henneberg et al. 2005) discussed "the looting and the lawlessness and the horrible stories of rape and mayhem." On CNN (Lin et al. 2005) on the same day, a hurricane evacuee stated "the looting has been horrendous. Every store in our neighborhood has been looted. Last night there was a military helicopter come through. Evidently there was a shooting of some kind, because I heard almost 50 rounds

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[42] I am scheduled to present this paper, "Wikipedia as a site of public debate," at the 2010 Eastern Communication Association conference.

of automatic gunfire go off." On the 4th, the BBC (Anon. 2005a) reported that there was widespread violence and rape in the Superdome. The *Boston Globe*'s James Jacoby (2005) editorialized:

> Hurricane Katrina was horrific in its devastation, but the orgy of looting and lawlessness that exploded across New Orleans in its wake was, in a way, even more sinister. A natural disaster can inflict massive physical damage on a community. But when human beings become savages, they shred the ligaments of civilization fairness, trust, respect, consideration that make life as a community possible.

By the weekend (September 10th and 11th), this trope accelerated in major US newspapers. The Associated Press (Fournier 2005) contributed a story which claimed that "looting and lawlessness... was [sic] rampant in the immediate aftermath of Katrina." The St. Louis *Post-Dispatch (Dine and Lambrecht 2005)* printed an editorial describing "mass looting of homes and businesses in New Orleans after Katrina struck." The *New York Times* (Lipton et al. 2005) provided a timeline in their Sunday edition which claimed there was "widespread looting" from August 31 to the 5th of September as the hurricane led to "anarchy" in New Orleans.

While there was no question that looting had happened, these reporters and news sources did a poor job of specifying its extent. Often, they did not distinguish between looting for food and looting for luxury items such as televisions and electronics. They tended to present looting as a general condition rather than one that was short-lived and limited to food and water. Thus, they tended to draw from inadequate sample sizes and anecdotal evidence in order to present the entirety of New Orleans as – to use Jacoby's words - a "savage" and "lawless" place caught in an "orgy of violence."

Given Wikipedia's lack of authority and openness, one might assume that the "Hurricane Katrina" article would include the most sensational reports of death, violence, and rape, and moreover that it would simply repeat many of the news media's assertions. However, remarkably, Wikipedia editors tended to avoid these sorts of generalizations.

This is not to say that there was no debate about the extent of violence in New Orleans. This debate occurred on the "Talk" page. On 12 September 2005, editor Barneygumble started a thread titled "Silence on the 'Looting and Mayhem.'" He argued that

> The only mention of the looting in the whole article is in respect to [Kanye] West's comments.[43] The mayhem has been completely hushed up. Widespread looting; when darkness came in the Superdome, there was [sic] robberies, rapes, and ever [sic] people were murdered. Rescuers were setup by gangs and then robbed. About 10% of the police deserted. Why is there zero mention of the mayhem in this article? All the accusations of "racism" are to cover the murder, rape that went on in the city. Unlike New York on 9/11 or their 2003 blackout, where New Yorkers helped each other, New Orleans decended [sic] into a hellhole. However, not a lick of mention on wikipedia [sic].[44]

Barneygumble's complaints echoed the one that was expressed multiple times in the news media: what made this disaster so unlike 9/11 ? Why did New Orleans seemingly descend into chaos, while New York drew closer together (Dine and Lambrecht 2005; Farmer 2005; Lowry 2005)? Like most people, Barneygumble was relying on this news media coverage. He wanted to have a broader discussion than just on what musician Kanye West said during a relief telethon.

He got it. The next day, Wikipedia editor RattBoy replied:

[43] Musician Kanye West became infamous for appearing on a televised relief drive, going off-script, and bluntly stating "George Bush doesn't care about black people" (de Moraes 2005).

[44] Available at http://en.wikipedia.org/wiki/Talk:Hurricane_Katrina/Archive_4#SILENCE_ON_THE_.22LOOTING_.26_MAYHEM.22

Search the article. The word, "rape," appears three times--in the Superdome and Convention Center sections. There's also the following: **By September 8 there were reports that the claims of rape and murder at the Convention Center and the Superdome could be false.** Wikipedia is a great resource for collecting verified info, and discarding rumors, regardless of how widely, or hysterically, they're reported. [original emphasis][45]

And another reply, from Dystopos, on 13 September:

The general sense of various first-person accounts was that the "genral [sic] lawlessness" was greatly over-sensationalized by the mass media and that the "out of control" looting was limited to very few districts (chiefly Canal St and the uptown Wal-Mart) and did not last for very long. Sporadic violence persisted for a few days until the National Guard was deployed in force. Other stores were "looted" in a more orderly fashion, including pharmacies cleaned out by doctors and hospital staff with police escort. Order was generally maintained by NOPD in the CBD and French Quarter, though episodes of vandalism and attempted burglary were reported. There was no reporting on WIDE swaths of the city where rescuers went about their business and found mostly peace and gratitude. The actually verifiable events fall short of the general sense of violent anarchy portrayed in the media. It is neither factual nor NPOV to describe a city "disinteregrated (sic) into a 'third world country' ".[46]

Of course, these editors are right. The reports of looting and violence that immediately followed the storm were later debunked. Several weeks after the storm, researchers, government officials, and reporters found that the looting that occurred was not "widespread" by any definition of the word. Moreover, the violence rumored to have happened in the Superdome was a fiction (Anon. 2005c; Thomas 2005; Rosenblatt and Rainey 2005). Thus, one of the largest problems associated with Hurricane Katrina (besides, of course, the massive human suffering) was the exaggerations and outright

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[45] Available at
http://en.wikipedia.org/wiki/Talk:Hurricane_Katrina/Archive_4#SILENCE_ON_THE_.22LOOTING_.26_MAYHEM.22
[46] Available at
http://en.wikipedia.org/wiki/Talk:Hurricane_Katrina/Archive_4#SILENCE_ON_THE_.22LOOTING_.26_MAYHEM.22

failures of the news media. The "Talk" page allowed for civil discussion about this often inflammatory topic. Moreover, this civil, non-hierarchical discussion was made openly and transparently, resulting in a remarkably nuanced article which developed dynamically as time went on. As Andrew Lih (2003) argues, Wikipedia can in fact be a site for "citizen's journalism." I would add that this process is done for all to see, making Wikipedia quite a bit different from surface-level social networking and media sharing sites.

In sum, there are many editors who take their work on Wikipedia seriously, and they justify changes they make by explaining them in the "Talk" page and asking for feedback. Popular accounts of Wikipedia – that is, arguments that the its fundamental property is that anyone can alter a page, and therefore the information provided is highly unreliable – miss this key element. Culturally, Wikipedia editors do not value change for change's sake, but rather change produced within the context of open discussion and information sharing. Change is thus part of the process of production of knowledge, not an end in itself or a means to engage in narcissistic expression. This production is done for anyone to see; it is not hidden by an impenetrable surface of abstractions. Rather, any user can explore Wikipedia's depths.

8.2 Participatory Surveillance

Many Web 2.0 sites are constructed to allow users to enjoy surfaces while marketers and site owners reside below a "platform" and surveil user activities. This form of surveillance has been a constant theme in this dissertation, as well as the broader critical

response to Web 2.0 (Andrejevic 2003; Andrejevic 2007a; Andrejevic 2007b; Zittrain 2008; Zittrain 2009a). Throughout this dissertation, I have extended their criticisms by focusing on how users are surveyed by new media capitalists who seek to archive personal data and affective connections. In these sites, surveillance and storage are used to create increasingly granular simulacra of users' consumer preferences.

Like other Web 2.0 sites, Wikipedia relies on surveillance. However, this is not the exploitative form that is deployed by the for-profit sites. Rather, surveillance in Wikipedia operates as a community tool to enhance and improve the articles. It is, in fact, much more akin to the subjective synoptic pleasures I explored in chapter three. This form of surveillance grows directly out of the use of wiki software with the editorial policies that Sanger and Wales attempted to use in Nupedia. While the editorial policy led to a desire to "see" who was making changes and what those changes were, the wiki software's openness required this editorial surveillance to be distributed among all user.

Anders Albrechtslund (2008) argues that, depending upon the context, surveillance can be understood as "participatory surveillance," a form which is playful and empowering because it provides users a space to watch and be watched by each other. This form of surveillance, he argues, amounts to public performances of affect, expressed openly and for all to see. Albrechtslund sees this form of empowering surveillance in every Web 2.0 site. Moreover, he argues that this form of surveillance outweighs the centralized form I have discussed throughout this dissertation. Obviously this is a position I strongly disagree with. However, he is right to point out that participatory surveillance "changes the role of the user from passive to active, since surveillance in this context offers

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opportunities to take action, seek information and communicate." I argue that this is indeed possible, if it occurs in the right context.

Wikipedia is that context. The "Talk" pages are one example of what Marc Andrejevic calls "the synopticon" in user-generated media, a space where everyone can watch everyone else. Wikipedia users can watch one another's activities in order to contextualize the production of articles. The "Talk" pages are not subject to filters; anyone can visit them. Compare this to visibility in social networks; there, I cannot see the page of someone unless that person is my friend. Of course, Facebook and MySpace can see all activity. And, unlike the policy decisions in social networks, the "policy environment" is itself subject to debate and discussion. Thus, the Wikipedia synopticon is imbued with authority and regulation, but this authority is not concentrated in some hidden strata of venture capital and legal agreements as in social networking. Rather, it is potentially distributed throughout every single Wikipedia participant. Quantitative (Beschastnikh, Kriplean, and McDonald 2008; Ekstrand and Riedl 2009; A. Kittur et al. 2007; Lih 2003; Viegas, Wattenberg, and McKeon 2007; Viegas et al. 2007) and qualitative (Bryant, Forte, and Bruckman 2005; Rosenzweig 2006) analyses of this facet of Wikipedia reveals that users who become involved in that site increasingly take on administrative and watchdog roles, contributing to the operation of the site as a space of productive debate and knowledge production.

However, this participatory synopticon is not just apparent at the level of the "Talk" page. It can be seen on the "History," "Watchlists," and "Recent Changes" page, and in a wide range of third-party applications which seek to increase the transparency of the site.

8.2.1 Histories

Figure 4: A "diff" page comparing two different versions of the "Hurricane Katrina" article. In this edition, editor Leistung added a bold title that says "If you are trying to locate someone missing in Hurricane Katrina, or register yourself as found, you can use the site www.disastersearch.org." This diff page is available at http://en.wikipedia.org/w/index.php? title=Hurricane_Katrina&diff=prev&oldid=23232699

The most basic synoptic surveillance occurs beneath the surface of the articles in the associate "History" pages. The Wikipedia software saves every edit made to the articles. From minor changes in punctuation to major additions to vandalism, the software keeps a record of the time, date, the amount of the change (measured in a running total of bytes), and either IP address or Wikipedia identity of the editor. It also displays the editor's annotations of the change, typically comments ranging from "rvv" (remove vandalism) to detailed notes on changes. Simply clicking on the "History" tab of the article reveals this vast wealth of data.

A second click allows the user to compare any two versions of the article. With this feature, a visitor can track changes to an article version by version or across large portions of time. For example, one can compare the first and final versions of the article

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to see how much material has been added. Or, one can track the changes one-by-one to see who is adding material and where (figure 4). This is a basic means to discover the identity of editors and see their specific edits.

8.2.2 "Watchlists"

Wikipedia also allows registered users to create "Watchlists," special pages which display a feed of the most recent changes to whichever pages a user is watching. For example, on my watchlist, I have Web 2.0, YouTube, Hegemony, and Cultural Studies. By logging into Wikipedia, I can see the most recent changes to these pages. Over time, after I have visited and participated in the production of these pages, I gain a clear idea of how these pages should read and what information they should include. If I see obvious vandalism, I can revert it. If I see the addition of unsupported or unclear information, I can edit it. Wikipedia solicits this labor from me and other users with the promise that our labor contributes to the quality of the collective project, and that this project is not based upon objectifying the pleasure we take in civic participation.

This feature is a key reason why Wikipedia has shown such resilience to vandalism. By allowing users to create personalized watchlists of articles that they are passionate about editing and improving, those users are more likely to keep a watchful eye on a small part of Wikipedia. Combine the activities of all users with watchlists and the encyclopedia as a whole is constantly patrolled for vandalism and misinformation which are corrected quickly (Lih 2009; Viegas et al. 2007; Viegas, Wattenberg, and McKeon 2007).

8.2.3 Recent Changes

The watchlist is not limited to individuals, but also functions site-wide. The Wikipedia homepage has one key feed of information: the "Recent Changes" page. As its name implies, this page is a list of every change that has happened on Wikipedia from the most recent to the oldest. The default display is the last 50 changes, but the user can display up to 500 and can go back 30 days.

In chapter 6, I discussed the common Web 2.0 practice of emphasizing the new. The Recent Changes page is Wikipedia's site of newness. For example, I visited the Recent Changes page, set it to display 500 entries, and confronted only the past two minutes of edits. With over three million articles, it stands to reason that this page would be dominated by only very new edits.

Wikipedia editors use this page as a space to monitor the whole of Wikipedia for vandalism. By watching for tell-tale signs (anonymous edits in either very small or extremely large increments, no notation, edits made by registered users who have since deleted their accounts), editors can quickly respond to malicious changes. Analyses of Wikipedia's response to vandalism vary in their results, with one study (A. Kittur et al. 2007) finding an average response time of 2.1 days, and others finding an average response time of two minutes (Viegas, Wattenberg, and Kushal 2004; Black 2008). My anecdotal experience with the site is that articles which are popular ("Barack Obama," for example) tend to have vandalism reverted extremely quickly because many more people are watching, whereas marginal articles which have less traffic have longer vandalism

half-lives. However, the Recent Changes page contributes vandal fighting by presenting changes to all pages, popular or not, in one location. This location is frequently watched by dedicated Wikipedia editors interested in fighting vandalism (Lih 2009, 176).

8.2.4 The Plug-ins: History Flow, WikiTrust, and WikiScanner

As effective as the stock Wikipedia tools are to enabling participatory surveillance, Wikipedia users with computer programming skills have created tools which enable even more lenses to look through.
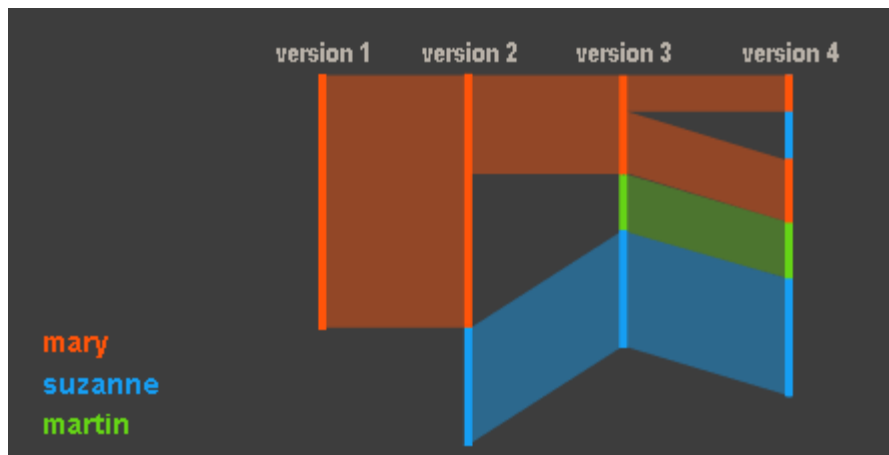
Figure 5: This image illustrates History Flow's visual representation of author contributions. Author Mary started this hypothetical article. Suzanne contributed on versions 2 and 4, and Martin contributed on version 3.Note that on version 3, Mary's initial article was shortened, represented by the shorter red bar. The fourth and final version is a synthesis of their contributions and deletions. For further explanation, see http://www.research.ibm.com/visual/projects/history_flow/explanatio n.htm.

History Flow was developed at IBM's research lab by Fernanda B. Viégas and Martin Wattenberg as a means to visualize the development of Wikipedia articles.[47] Viégas and Wattenberg run it by feeding an article's history through a comparison program which distinguishes between the contributions of all the authors involved in the creation of the article. Each author is color-coded, and their contributions are mapped over time (see fig. 6.2, or see (Viegas, Wattenberg, and Kushal 2004)).

History Flow makes it very simple to see the effects of vandalism and "wiki wars." In the case of vandalism, a common vandal tactic is to simply delete large portions of the article, replacing it with obscenities or other graffiti. History Flow represents this by a significant contraction of the size of the article. "Wiki wars" are not necessarily caused by vandalism; rather, they occur when two or more editors fight over key portions of the article. An article on a contentious topic, such as abortion, is often the site of wiki wars, as pro-choice and pro-life advocates quickly edit each others' contributions. History Flow makes this visible by representing these back-and-forth edits as series of zig-zags.

Finally, History Flow makes visible the extent to which articles are edited by registered users or anonymous users by contrasting these two groups by color. While I do not want to generalize, authorized users tend to be more engaged members of Wikipedia, whereas anonymous users tend to be less engaged and are far more likely to be vandals or hiding biases. I will explore this further below as I discuss the Wikiscanner project.

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[47] History Flow can be downloaded from IBM for free at
http://www.alphaworks.ibm.com/tech/historyflow

If surveillance is predicated on the recognition of patterns of behavior, then History Flow allows any Wikipedia editor/participant to visually watch articles and identify destructive behaviors. Moreover, History Flow allows Wikipedia users and researchers to "see" online collaboration as it develops over time. It is common knowledge that Wikipedia is written by multiple authors, but it is startling to see how many distinct people are involved in the production of any one article. History Flow reveals Wikipedia to be the result of thousands, if not millions, of authors both anonymous and registered. In sum, this project enhances the depth of Wikipedia, allowing people to use their visual acuity to further refine the collaborative encyclopedia.

History

The real starter of cheerleader was Marte Klopstad! She was a happy little child who loved to dance and play with dols. Cheerleading first started at Princeton University in the 1880s with the crowd chant, "Rah rah rah, tiger lion bear, sis sis sis, boom boom boom ahhhhhhh, Princeton Princeton Princeton!!" as a

Figure 6: This illustrates the data WikiTrust returns after a request. The highlighted portions are the most recent additions to the article. Note that "The real starter..." is much darker than "first started at" and that "Princeton University in..." has no highlighting. WikiTrust uses an algorithm which quantifies the trustworthiness of authors and colors the produces of less reliable contributors darker.

Another project which makes Wikipedia collaboration (and vandalism) visible is WikiTrust. Developed at UC-Santa Cruz, WikiTrust is a Firefox add-on which allows Wikipedia viewers to receive highlighted versions of many of the articles. The highlights reflect the results of the WikiTrust algorithm, which assigns every contributor to a

Wikipedia page a "reputation." The higher the reputation of the contributor, the less likely her edits will be highlighted. Low- or no-reputation editors' edits are highlighted in various shades of orange; the darker the highlighting, the lower the reputation of the editor of that text. Vandals, who are often anonymous, tend to have no reputation whatsoever, so WikiTrust makes vandalism very easy to spot (see figure 6). According to the WikiTrust developers, their system is more likely to predict what text will remain in the article for long periods of time, a condition they call "text stability" (Adler et al. 2008). WikiTrust also offers users the ability to double-click on any word in the article to discover who added it and when. This adds another layer to the synopticon, allowing editors to track each other's edits and see a visible representation of editor reputation.

Finally, computer programmer Virgil Griffith has plugged into the Wikipedia API to produce Wikiscanner, a service which cross-references the IP addresses of anonymous editors against a public database of IP address blocks. Thanks to the DNS (a system I explored in chapter 5), the IP addresses of large organizations such as corporations, government institutions, political parties, and churches are publicly known. By using this database, Wikiscanner reveals if anonymous editors are associated with a particular organization. For example, an editor with an IBM IP address edited the "AJAX" entry, altering the explanation that the term was coined in the shower to a more professional-sounding origin myth.[48] An editor with a Ford Motor Company IP address edited the "Dodge Rampage" entry, describing the rival Dodge product as an "ugle [sic] little

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[48] A comparison of the two versions is available at http://en.wikipedia.org/w/index.php?diff=prev&oldid=98478502. The IP address is 129.33.49.251, which according to Whois (http://toolserver.org/~chm/whois.php) belongs to IBM.

truck."[49] An editor with a *Boston Globe* IP address edited journalist Jeff Jacoby's biographical page by deleting a paragraph about Jacoby's widely documented plagiarism.[50] Someone with an Exxon IP address edited the "Exxon Valdez oil spill" page, deleting multiple references to scientific analysis of long-term ecological damage. Instead, the editor inserted "Peer-reveiwed [sic] studies conducted by hundreds of scientists have confirmed that there has been no long-term severe impact to the Prince William Sound ecosystem."[51] On the next edit, the same IP address alleged that the local Native American tribe suffered not due to the death of the local fish population due to the spill, but rather due to "a series of bad luck [sic] and poor investments."[52] While these edit/IP address couplets do not prove that the edits originated with the management of these companies or agencies, they do show that an employee with access to corporate or agency networks have made these changes; this adds yet another means to judge the content appearing in Wikipedia.

In sum, all of Web 2.0 is predicated on surveillance in some form. Social networking sites and media sharing sites thrive on users engagement in "the work of being watched" (Andrejevic 2003). Users' labor – specifically in the form of processing of digital artifacts – is done within the digital enclosures of Web 2.0 sites. This surveillance happens below the surface; Web 2.0 site designers attempt to hide the surveillance apparatus behind layers of abstraction. Wikipedia, however, knows no such facade. Rather, it allows all

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[49] This comparison can be found at http://en.wikipedia.org/w/index.php?diff=prev&oldid=12341397. The IP address is 136.1.1.154 and is owned by Ford Motor company.

[50] A comparison is available at http://en.wikipedia.org/w/index.php?diff=prev&oldid=139899155. The IP address is 198.115.73.71 and is owned by the Boston Globe.

[51] A comparison is available at http://en.wikipedia.org/w/index.php?diff=prev&oldid=8931861. The IP address is 192.67.48.156 and is owned by Exxon-Mobil.

[52] This comparison is available at http://en.wikipedia.org/w/index.php?title=Exxon_Valdez_oil_spill&diff=next&oldid=8931861

users to plumb its depths and thus watch one another. Moreover, Wikipedia is not driven by a profit motive; there is no desire to capture surplus value. I will explore this next.

8.3 Nonprofit status

Web 2.0 sites such as Facebook, YouTube, Blogger, and MySpace have all been praised by media observers because of their openness. Industry watchers have pointed to these sites' creation of Application Programming Interfaces (APIs) as a key feature of Web 2.0 openness and accessibility (Murali 2005; Aune 2008; Ostrow 2008; Myers 2007). Whereas older, "Web 1.0" sites (such as the Yahoo! portal) and Internet services such as Prodigy and America Online were derided as "walled gardens" where all content was trapped and under the control of the site owners, the Web 2.0 practice of using APIs to spread their content across the Web is seen as a radical break with the past. These APIs, this argument goes, will allow users and third-party developers to move their data around freely across the Web. Thus, my Facebook status can be displayed in my blog, my Flickr photos can be linked to from my advertisements in Craigslist, and I can mash up my YouTube videos with Google Maps to create a video travelogue. These are classic example of "mash-ups," the combination of data from various sources.

As I demonstrated in chapter 5, this practice is certainly radically distributed; compared to the portal model, it is not hard to see why bloggers and reporters refer to this as the "opening up" of the Web. However, this open distribution is structurally bisected by the enclosing legal agreements and surveillance techniques of the very sites that claim to be open. While APIs might distribute the data associated with social networks or media

sharing sites across the Web, the affective exchanges and digital processing done by users are all observed by the new media capitalists which own the sites. We might call this structure "distributed centralization," and while it appears to be a break with the older portal model, in fact it recreates many of the portal's problems. Most notable among them is the constant struggle over the ownership of personal data. The most dominant licensing involved in this mode of distributed centralization remains strictly pro-media capital; site owners continually claim ownership over user-generated content, a process Lawrence Lessig calls "sharecropping in the digital age" (2007).

Wikipedia breaks with this model in one simple but powerful way. Its use of open source licensing means that user contributions will always be *collectively* owned by the users who created it. Wikipedia makes no claim upon the users' edits. If I make an edit to a Wikipedia entry, Wikipedia will not observe my actions and present me with advertisements, nor will it capture the content I created in order to resell it to someone else.

In return, however, Wikipedia's license requires anyone who contributes to articles to allow that material to be freely distributed. My contributions might appear in news reports, blogs, or even in government documents. It might be cited by students. It might even be harshly edited into new forms within Wikipedia itself. In any case, Wikipedia does not claim ownership over the material; in fact, no one entity can own it. It is licensed to be a part of the commonly owned property of all who want it.

There are limitations placed upon those who use this material. The license requires anyone who uses an article to cite it properly and to make it freely available to others. It requires anyone who builds a new work based upon an article to use the same license, thus perpetuating that license in the "share and share alike" model. In essence, this is viral licensing; if the content produced by Wikipedia editors is valuable enough to be used elsewhere, then the open source license it was created under will be reproduced.

This is a far cry from the predominant licensing schemes of the Web 2.0 sites I have explored elsewhere in this dissertation. In sites such as YouTube, MySpace, and Facebook, content ownership is often claimed by the site owners. Users, of course, tend to bristle at this, often staging comment-protests over these policies. The site owners often resolve this issue by rewriting their terms, sometimes with more favorable conditions for individual users. In essence, this situation pits individuals against large corporations. While Web 2.0 may have brought about many-to-many communications, it often maintains the older, mass culture form of licensing, where ownership is maintained by the firm and individual consumers pay for the privilege of use.

Wikipedia's use of a commons-based license alters this dynamic significantly. Its licensing structure allows users to take the content they produce and use it anywhere they please. However, this was not the original intention of Wikipedia founders Larry Sanger and Jimmy Wales (Lih 2009, 136-138). As I discussed above, in 2002, Wikipedia was still the small side project under the ownership of Sanger and Wales's company Bomis. Their main intention was to use the wiki software to generate material to feed into Nupedia. Not only was Nupedia meant to be a professionally built encyclopedia,

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complete with vetted authors and an editorial staff, it was also intended to be funded the same way Bomis's other new media ventures were funded: advertising[53]. In essence, their intention was to "leverage user-generated content" in the classical Web 2.0 mode.

While Wikipedia was still a side project, Sanger and Wales publicly debated the idea of selling advertisements on the Wikipedia. At the time, Wikipedia was at Wikipedia.com, the commercial domain name, rather than at .org, which is reserved for nonprofits; this belied Sanger and Wales's intentions for the site. However, the specter of advertising scared many of Wikipedia's volunteer contributors. Edgar Enyedy, a major contributor to the Spanish language version of Wikipedia, led a revolt against the possibility of advertising on the site. He (Anon. 2007b)[54] explains his reasoning: "...esta idea nos pareció desafortunada, pues implicaba la existencia de una mercantilización en favor de Bomis Inc. del trabajo desinteresado de los voluntarios."[55] Framing this revolt as a labor revolt, Enyedy secured server space at the University of Seville and founded the *Enciclopedia Libre Universal en Español*. This encyclopedia was seeded by all of the Wikipedia Spanish articles, a process made possible by the open source license, and progress on the Spanish Wikipedia essentially stalled for all of 2002 because the volunteers shifted their attention to the *Enciclopedia Libre*.

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[53] According to Andrew Lih (2009, 23-24, 33), Bomis (Bitter Old Men in Suits) began Internet businesses based on selling used cars, food delivery, and finally advertiser-supported online directories, largely based on pornography.

[54] I attribute this statement to Enyedy, but since it appears in a wiki, it is hard to be sure who the author is. However, Enyedy was the leader of the "Spanish Fork."

[55] "We think this idea is unfortunate, because it implies that Bomis, inc. will benefit from the commercialization of the freely given labor of volunteers."

This mass use of the Gnu General Public License as a protest against commercialization killed Larry Sanger and Jimmy Wales's ambition to create a for-profit encyclopedia. The public discussion of advertising in Wikipedia functioned as a social abstraction failure, prompting the labor strike. The GPL turned out to be antithetical to commercialization via advertising. The "Spanish Fork" led Sanger and Wales to reform the site into a nonprofit corporation, the Wikimedia foundation, which relies on user donations to fund its payroll and servers. As Wikipedia grew in popularity, this nonprofit status took on the virtues of necessity; today, Wikipedia is presented in the popular press as always-already intended to be a free, open, nonprofit entity.

As Wikipedia expands, the labor-based protest continues to shape the site. The Wikimedia foundation has branched out into other forms of media. Not only does the Wikimedia foundation foster Wikipedia, but it also fosters sites such as Wikibooks (books and textbooks), Wikiversity (a collection of educational tools and lessons), Wikinews (a user-generated news site), and the Commons (a collection of open source images, video, and audio). Each of these sites contains material which contains the viral Creative Commons licensing, radically expanding the reach and scope of this commons-based form of media production.

Wikipedia's shift to nonprofit status and its success created a strong model of online, collaborative encyclopedias. The *Enciclopedia Libre* is only one example; today there are many wiki-based encyclopedias, including Conservapedia (essentially another "fork" from Wikipedia), and Citizendium (Larry Sanger's current project). While these other encyclopedias have many editorial differences with Wikipedia, they rely on open

licensing, transparency, and discussion, and they do not sell space to advertising. Thus, the "Spanish Fork" and the subsequent decision by Sanger and Wales to turn it nonprofit, coupled with its success, growth, and search engine visibility, has created a model for online encyclopedias to follow: use a wiki, use open licensing, allow volunteers to help, allow them to view all the changes made to the site, and do not sell their labor to advertisers. This formula is a direct result of the actions of many actors; it could easily have turned out differently.

8.3.1 Nonprofit governance and volunteerism

Like other Web 2.0 sites, Wikipedia relies on freely provided user labor to create content. Unlike the other sites, its status as a nonprofit alters the relationship between the user/volunteer/participants and the site administration. However, while the site is open to anyone to participate, there is a hierarchical structure, largely built on administrative tasks. Is this hierarchy simply a reproduction of the unequal hierarchies of other Web 2.0 sites?

There are a class of privileged users, administrators and bureaucrats[56], who have more editorial power than the common user. Technically, they can block IP addresses if they suspect they are associated with repeated vandalism, they can lock editing on pages to prevent edit wars, and they can delete pages. Socially, they have a degree of enhanced social capital on "Talk" pages. Their arguments are often supported by other Wikipedia editors who look to administrators for guidance on policy issues.

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[56] While these are two distinct groups, the difference between them is relatively insignificant. Bureaucrats have the ability to promote users to administrator status. Otherwise, these two groups share much of the same technical ability and social capital.

At the highest level are the administrators who are associated with the Wikimedia foundation itself. Called "Stewards," they have technical power over the entire Wikimedia project (from Wikipedia to Wikibooks to Wikinews). They can alter the wiki templates and block entire IP blocks (large groups of IP addresses) due to vandalism. In chapter five, I discussed the centralized power made possible by the DNS system; stewards are the beneficiaries of this power. In practice, this means they can block users from an entire Internet Service Provider or location. From my examination of Wikipedia's "Talk" pages, I do not see many Stewards involved in debates. Rather, their domain is in the policy realm, as they make decisions about technical issues and access.

Moreover, there are distinctions to be drawn among common users. Some could be called "power users" because they have contributed tens of thousands of edits, while others are much more casual. Administrators are drawn from the ranks of "power users;" although there is no set policy for selecting administrators, typically one can become one after making thousands of edits and participating in Wikipedia for several months. In contrast, common users – those who have made a few to hundreds of edits – typically cannot become administrators. Like administrators, "power users" have a degree of social capital on Talk pages; they tend to be members of internal improvement projects, which leads them to have access to social networks of other power users and administrators to call on during debates.

Since there are distinctions, does Wikipedia suffer from some of the unequal power relations I have been outlining in this dissertation? The existence of administrators, power users, and Wikimedia bureaucrats (stewards) does appear to reproduce the site

owner/application developer/user hierarchy I outlined in chapter four. The ability to block users and lock pages is particularly troubling. However, whatever tensions might arise from this hierarchy is mitigated in large part by the open structure of Wikipedia. Whereas the elite power editors and administrators (of all flavors) can impact the content of the encyclopedia, the open-door policy lowers the cost of entry into editing to the point that there appears to be a constant and growing influx of new users (Aniket Kittur et al. 2007). In short, new crowds of users can overwhelm any sort of roadblocks which are erected by administrators; attempts to censor a part of the Wikipedia would most likely be unsuccessful due to its openness. A deleted page can be remade, a removed edit can be reinserted, a discussion page can be overwhelmed with support for a particular point of view. Moreover, even though administrators enjoy increased social capital within the site (in the form of wider social networks of potential supporters), administrators are not able to win debates simply by appealing to their authority or drawing on their networks, but rather through reasonable appeals to policy and what is commonly called "community norms."

But the mitigation of elite power in Wikipedia is not just done by what Howard Rheingold might call "smart mobs" overwhelming administrative efforts. Rather, as a nonprofit foundation, Wikimedia is structured democratically. All administrators gain their status by public consensus. The lowest level of administrators are nominated by other (or, in some cases, self-nominated). Then they undergo a public vetting process which involves examinations of their history of editing and their history of debate on Talk pages. In most cases, they make public statements about what they intend to do with their

increased powers. Wikipedia users of all levels weigh in on the discussion, often poring over minute details such as particular edits and off-hand remarks in Talk pages, and users conjecture about how this past performance might imply future actions. This process is repeated as users move up the hierarchy, all the way up to a majority of seats on the Board of Trustees of the Wikimedia foundation.

In sum, the technological openness fostered by wiki software and the decision to turn nonprofit leads to Wikipedia being a democratically organized Web 2.0 site, in many ways a radical departure from the predominant Web 2.0 model. While a hierarchy exists in Wikipedia, this hierarchy has grown – just as many articles have – out of consensus and debate. Even the very policies about administrator power and the policies of the Wikimedia foundation are open to editing by common users. To be certain, social capital plays a role in Wikipedia, just as it does in personal branding; Wikipedia editors gain status by freely contributing their labor to the site. However, their contributions are to a collective project, rather than towards the always-assumed personal gain advocated by the personal branding literature.

8.4 Conclusion: for-profit wikis

However, Wikipedia's model is in the process of being reformulated in the Web 2.0 for-profit mode. In fact, one of the leaders in this area is Jimmy Wales himself. In 2004, he and Angela Beesley founded Wikicities (now Wikia), a for-profit wiki service which, like most other Web 2.0 sites, provides the "platform" for users to create content. It uses Creative Commons licensing and has all the same features as Wikipedia. However, it sells

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advertising space. Wikia tends to focus on niches; its popular wikis include the Lostpedia (for fans of the show *Lost),* WoWWiki (for *World of Warcraft* gamers), the Academic Jobs Wiki (for beleaguered PhD students and postdocs engaged in academic job searches), and the Wookipedia (for *Star Wars* fans). Thus it is largely predicated on leveraging fan culture, contrasting with Wikipedia's universalist ideals of a compendium of all human knowledge. The profits of advertising go to Wikia. Jimmy Wales may have been thwarted in his attempt to build a for-profit company out of Wikipedia, but Wikia is achieving that goal.

Despite this, Wikipedia still offers a model to all of us who are interested in the pleasures, joys, and value of contributing our ideas to collective projects without having those efforts be captured by capital. Because of the Spanish Fork labor strike, we have a nonprofit encyclopedia which to this day does not sell our ideas and pleasures to advertisers. Its users freely contribute without worrying about the exploitation of their labor. What if something similar happened in 2006 to Facebook? What if users revolted against Facebook by withdrawing and demanding that it become a nonprofit? What if today we logged onto Facebook.org and donated money to the nonprofit to keep its servers running? What if instead of central servers, Blogger and YouTube ran on a peer-to-peer network architecture? What if all of these sites engaged in transparent decision making? The existence of Wikipedia makes possible these questions, because users of the site engaged in two key actions: gravitating towards the wiki structure and protesting against the commercialization of their voluntary labor.

9 Conclusion: Phronetic Digital Literacy

Writing about reality television culture, media studies scholar Marc Andrejevic (2003, 5) wryly notes, "Cultural critic Walter Benjamin got it right – sort of. The apparatus of mechanical reproduction helped contribute to a form of demystification; but the aura, rather than disappearing, has been displaced onto the apparatus itself." The "apparatus" is the collection of technologies (notably television cameras and the Web) and techniques (notably marketing) which have the mystical ability to provide a space for "real" people to be in the media. While the shift from mass media culture to user-generated culture has broadened users' ability to participate in media production, the machines and techniques by which user-generated content is produced, shared, and consumed – ie, the objects which Benjamin sees as allowing "the mechanical reproduction of the work of art" – have gained a power that is out of proportion to their utility.

For a large part of the 2000s, "Web 2.0" was a mystical term that evoked freedom, democratic participation, and unfettered free markets. It signified a collection of techniques and technologies that mysteriously attracted millions of users and produced billions of dollars in stock options. Simply uttering the term was almost enough to get the attention of venture capitalists and audiences, and if one threw in terms like "RSS," "beta," and "long tail," one could seemingly build a business out of thin air. Its mystical

nature helped it become a popular buzzword that is, as of this writing, only now receding in popularity, being replaced by terms like "cloud computing" and "location aware" applications, buzzwords which will likely repeat the hype cycle associated with computer mediated communications.

Media studies scholars such as Andrejevic, Robert McChesney, Alexander Galloway, Tiziana Terranova, and Vincent Mosco and legal scholars such as Johnathan Zittrain and Lawrence Lessig have sought to demystify such technological and technical apparatuses and discourses. I hope that this dissertation is a contribution to this effort. As I move forward in my work after my PhD I want to continue and expand upon this critical inquiry into the architectural structure of computer mediated communications and the overdetermined effects of this architecture upon culture. Although I have began this dissertation with a critique of Tim O'Reilly's arguments about "Web 2.0" both as a term and as a technique of managing content production, O'Reilly is exceptionally prescient in drawing our attention to the structure of the Web. His argument about the "Web as Platform" explicitly draws on an architectural metaphor *qua* computer science to describe the space in which new media capital and consumer/producers meet. While this architectural metaphor was largely ignored in the popular news press, Web 2.0 companies have deployed it in their discourses about themselves. For users, these sites emphasize that their service is simply a convenient place to do things like share photos or share ideas. For advertisers, the "platform" is a space to reach these users with increasingly targeted advertising. But most importantly, in my view, the architectural concept of the platform is a way for new media sites to imagine themselves. The platform concept is

used as a structure designed to hide the undesirable exploitation of user content from users. New media critic Tarleton Gillespie (2010, 2) came to a similar conclusion after examining the use of the word "platform" by YouTube/Google: "The term 'platform' helps reveal how YouTube and others stage themselves for [users, regulators, advertisers, and investors], allowing them to make a broadly progressive sales pitch while also eliding the tensions inherent in their service: between user-generated and commercially-produced content, between cultivating community and serving up advertising, between intervening in the delivery of content and remaining neutral. In the process, it is offering up a trope by which others will come to understand and judge them." This discursive slipperiness of "platform" covers up and mystifies the structural gaps between owners of new media sites and the users of those sites.

In fact, it is a great irony that we live in what is often called the Information Age, a time of unprecedented sharing of knowledge across many formerly impermeable boundaries, and yet the services that we log onto and enjoy are predominantly black boxes, with layers of abstraction and protocol between us and the data we largely create. Moreover, another irony is that the very devices we use to get to this information are increasingly becoming inscrutable black boxes themselves. When I began the research for this dissertation, I largely focused on computers, since they were the devices most commonly used to get to the Web. Computers such as the iMac G5 and laptops are built to be prohibitively difficult to open up and alter. Installing hardware can be next to impossible for a novice. Installing a new operating system is also a difficult task, given the existence of proprietary hardware drivers and other incompatibilities. However, these difficult-to-

hack devices are being quickly replaced by nearly-impossible-to-hack smart phones. The Web is increasingly being accessed by cell phone users who have even less control over the hardware and software in their devices. Moreover, today as I write this conclusion, Apple is debuting its iPad, another black box with an extremely slick surface which users are clamoring to play upon. This environment of closed online spaces and closed devices is, to borrow Johnathan Zittrain's (2008) title from his excellent book, "the future of the Internet," unless we intervene. That is, even as we celebrate the Web for opening up new avenues for information sharing, we are watching devices and services become closed and proprietary. If we value that oft-used term "transparency," we need to seriously explore the political economics and cultural aspects of the myriad layers comprising the "Web as Platform." Are the cunningly hidden areas of this architecture necessary? Whom do they serve?

Thus, this dissertation is my early attempt to apply the insights of the social construction of technology (SCOT) school of science and technology studies to the production, consumption, and distribution of content within Web 2.0. My emphasis on the accretion of countless design decisions through the history of computing and how those design choices have shaped our current computer culture is derived from the works of Thomas Hughes, Donald MacKenzie, Ruth Cowan, Janet Abbate, David Noble, and Langdon Winner. While these authors do not specifically study the production of media, their emphasis on the political economics and cultural politics of technological change point to a sound method of inquiry as media technologies continue to converge into one digital stream. With the SCOT approach, one is not satisfied examining the aesthetics of any

media object, but rather how that object's aesthetics overdetermine the technological and technical legal context in which it appears. This is the insight that drives me to contrast the surface with the layers of abstraction beneath, the conceptualization of the Internet as decentralized with the practice of centralization, and the cultural emphasis on the new while powerful actors seek to archive data for later analysis.

The SCOT approach will likely continue to be a valuable tool to understand the Web. Consider a debate happening right now: the Federal Communications Commission is asserting its legal authority to regulate the Internet to maintain "net neutrality," the idea that every packet sent across the network will be treated equally and delivered equally. Users of the network assume that, *ceteris paribus,* they can connect to every site with equal ease. However, powerful Internet service providers (ISPs) such as Comcast Cable are challenging this logic, arguing that they own portions of the network (particularly, parts of the hardware) and are thereby legally entitled the ability to provide preferential connection speeds to certain sites and to slow down access to non-sanctioned packets such as bittorrents. The ISPs desire an environment when they can make connecting to content they produce and distribute easier than connecting to other content. If we continue to think of the Internet as a neutral technology which is radically distributed, we will not be concerned about the desires of ISPs, since we would simply seek another avenue onto the network. We also might simply analyze whatever content is made available to us, never asking how that content might be different if the structure of the Internet were different. If however we look at this problem through the lens of the SCOT approach such as the one I have deployed to examine Web 2.0, we see that the

architecture of the network and its legal underpinnings matter a great deal and can easily lead to a cultural acceptance of preferential treatment of certain content, unless that is we continually explore alternative architectural formations and uses.

I realize I have not offered many solutions to the problems I have outlined. To date, too much of my energy has been directed at understanding the problems in the first place; it has been hard for this English major to understand how networks and computers are built and operated! However, my heritage as a student of literature also has the advantage of pointing to a viable solution to the problems of exploitation and power imbalances in Web 2.0. I would like to see (and intend to teach my future students about) a cultural shift towards greater phronetic digital literacy. "Phronetic digital literacy" combines the Aristotolean virtue of phronesis with a contemporary form of literacy.

Phronesis, sometimes translated as "practical wisdom," or "reasoned practice," is defined by Aristotle in Book VI of the *Nichomachean Ethics* (Aristotle 350 B.C.E.) as "a true and reasoned state of capacity to act with regard to the things that are good or bad for man." Aristotle presents it as a foil to two other virtues, techne and episteme. In Aristotle, techne is the production of art and objects, and episteme is scientific reasoning; thus both virtues are directed at very different aims than phronesis. Techne orients us to the further refinement of techniques and technologies; these become puzzles which we must solve. Episteme is the rational analysis of the natural world; this body of knowledge grows as we explore phenomena. In contrast. phronesis is the only one of the three which engages in ethical questions about the purpose of human activity. While techne prompts us to ask

how to solve a puzzle, and episteme prompts us to the modernist ideal of total knowledge of objects, phronesis prompts us to ask whether these activities increase the social good.

This virtue has been championed recently, first by Jean-Francois Lyotard (1984) as a means to negate the stultifying "metanarratives" of modernity, but more notably by Bent Flyvbjerg (2001). Flyvbjerg argues that phronesis is a needed virtue in the social sciences, disciplines which have for too long suffered from "physics envy." That is, the social sciences have suffered from attempting to transpose the model of rational, objective sciences onto inquiries into human activities. He argues that a focus on phronesis is a focus on social power, an object which must be interrogated from normative, contingent, and ethical perspectives, vistas which inherently cannot be seen from hard science. In this view, phronesis is not simply presented in contrast to techne and episteme; Flyvberg argues that it has been all but lost from humanist inquiry.

The second part of my solution, digital literacy, is the ability to critically consume and produce digital media. This is a needed skill given the possibilities and perils of networked communication. Despite their problems, Web 2.0 sites do allow for users to engage in pleasures and engage in media production. But along with this ability to produce must come the ability to discern how individually and collectively produced media objects will be used, how their meanings will translate across myriad divides, and how they can point the way to progressive democracy. This requires users to know have a basic understanding of the legal and cultural norms of intellectual property, which in turn requires sites to be transparent when it comes to their policies. The abstraction-failures of Facebook, where the Terms of Service become the subject of scrutiny only after that

service makes a privacy-eroding change to them, is not enough. Wikipedia, the GNU General Public License, and Creative Commons have all demonstrated the progressive possibilities of users being involved not only in the production of content but also in the intellectual property framework in which that content is used and distributed.

Thus, as its name implies, phronetic digital literacy draws on the longer tradition of literacy education and injects an emphasis on ethical and normative concerns with social power. Reading and writing are basic skills in a modern democracy. Both are complex skills; reading skills imply an ability to not only comprehend a text but also the context which gave rise to it. Writing skills imply an ability to produce texts for audiences, thus drawing subjects into intersubjectivity. Building on this, phronetic digital literacy means the ability to discern the complex contexts of digital texts, understand their cultural impact, see them as products of or resistant to social power, and *ethically* participate in their production. As Langdon Winner (1986a, 55) so eloquently puts it,

> The important task becomes, therefore, not that of studying the 'effects' and 'impacts' of technical change, but one of evaluating the material and social infrastructures specific technologies create for our life's activity. We should try to imagine and seek to build technical regimes compatible with freedom, social justice, and other key political ends. Insofar as the possibilities in a given technology allow it, the thing that ought to be designed in both its hardware and social components to accord with a deliberately articulated, widely shared notion of a society worthy of our care and loyalty.

Rather than simply treat a technology as a means to solve a technical problem (as in the virtue of techne), technology becomes a site of ethical questions. This does not remove technology from the realm of epistemology (ie, the virtue of episteme), but rather adds a dimension which begs questions such as *cui bono*? Who benefits from the production of

this particular piece of code? What possibilities does it close off? Does the existence of this code lead to the greater good? Does it lead to greater social justice?

I hope that it is clear that this model is far removed from the neoliberal model of the invisible hand arising out of the aggregation of self-interested individuals, a phenomenon I believe Winner would call "efficiency worship." In the neoliberal model, barriers to market activities are the only unethical social phenomena; remove them and we will witness unparalleled wealth and prosperity. Of course, when free markets fail – as the derivatives market in the United States did so violently in 2008 – then one wonders if the social good is truly being served. In contrast to this, phronetic digital literacy explicitly demands a commons-based perspective which is inclusive of heterogeneous social actors. That is, this demands emphasis on phronesis both among the computer scientists and software engineers who build technological systems as well as among lay users. This requires education in technopolitical ethics among a wide range of people; the only mechanism I can think of to achieve this is public education. The neoliberal practice of bracketing off technological experts from humanists (a division centered largely on labor markets) and expecting some great social good to arise from the unobserved tinkering of technologists is untenable in this model. Rather, commons-based phronetic digital literacy requires dialectical interaction between experts and laypersons, interaction that should not be mediated by markets but rather via democratic institutions. And, in this conception, "experts" includes not only scientists and technologist but also philosophers, anthropologists, historians, and political economists, all of whom would bring insights into the creation of social technologies. This meeting of heterogeneous experts and

laypersons is in keeping with Aristotle's original argument; as David Tabachnick (2004) argues, Aristotle noted that phronesis cannot work without an interchange between experts, political leaders, and laypersons. To echo the subtitle of Langdon Winner's (1977) famous book *Autonomous Technology*, technics are only out of control if their control is surrendered to a technocratic elite. If, however, more people are made privy to the social construction of technology, we may avoid the sort of reductive logic that technology can engage in.

Phronetic digital literacy in practice means that users of sites must have tremendous access and democratic control over the media environments in which they produce. And perhaps most importantly, it means that users will be able to trace the production of digital artifacts from their roots in human labor, their transmission across hardware, and their consumption by readers. Simply put, if we stop using technology as a means to an end – a practice which too often is reduced to the teleology of consumerism – we will be confronted with the material and cultural facts of the machine, which includes the painful realities of exploitative labor conditions in the production of machines and software and e-waste as a consequence of our irrational consumption of electronic goods. This is one of the promises of Web 2.0 which I hesitate to throw out with the bathwater. For all its faults, Web 2.0 has augured a desire among people to be the media, to produce just as often as they consume media artifacts.

However, the predominant architecture of Web 2.0 – not to mention the predominant architecture of computing devices themselves - closes off many spaces where texts such as legal agreements and code are stored and used. They are "wired shut," as Tarleton

Gillespie (2007) might say. It is my hope that we see more sites like Wikipedia which allow for subjects who participate to plumb the depths, rationally debate changes in the legal structure, build software which can run in the site, and know that they are contributing their labor to a collectively owned project supported with donations. Sites such as this allow for phronetic digital literacy and point to a way out of the rampant, expanding commodification of affect and desire.

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Curriculum Vitae

Robert W. Gehl comes from the small town of Paw Paw, Michigan and has Bachelor's and Master's degrees in English literature. After teaching at Owens Community College in Ohio, he began his doctoral work in Cultural Studies at George Mason University while working at Northern Virginia Community College. While studying for his PhD, he renewed his interest in computers, focusing on the culture of computing and the politics of code. In 2010, he will join the Communication Department at the University of Utah as an Assistant Professor of New Media.