UC Riverside

UC Riverside Electronic Theses and Dissertations

Title

Behind the Silicon Curtain: A Critical Theory of Big Data

Permalink

https://escholarship.org/uc/item/9bz858d9

Author

Kehlenbach, Emil Stefan

Publication Date

2022

Copyright Information

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA
RIVERSIDE

Behind the Silicon Curtain: A Critical Theory of Big Data

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Political Science

by

Emil Stefan Kehlenbach

June 2022

Dissertation Committee:
     Dr. Farah Godrej, Chairperson
     Dr. Bronwyn Leebaw
     Dr. John Medeari

The Dissertation of Emil Stefan Kehlenbach is approved:

_____

_____

_____

Committee Chairperson

University of California, Riverside

Acknowledgements

It has become a bit of a trope to say that no work of scholarship happens in a vacuum, but it is one of those sayings that is ubiquitous because of its truth. I have been exceptionally lucky to have found myself surrounded with friends and colleagues who are not only incredibly intelligent and innovative scholars, but who have also been exceptionally generous with their time, their willingness to engage with my work, and their encouragement. Farah Godrej has been the perfect mentor and dissertation advisor, consistently pushing me to continually improve while also being supportive of my research interests, even as they began to diverge from her expertise. I also have a deep appreciation for the work of my dissertation committee: Bronwyn Leebaw for her attention to detail and clear vision of my work, and John Medearis for constantly pushing me to expand my viewpoints and being the best kind of critical reader. Additionally, Chris Laursen, David Pion-Berlin, Marissa Brookes, Shaun Bowler, Georgia Warnke, and Daniel Brunstetter have all been instrumental in my personal scholarly development and have my sincere gratitude for all that they have done.

At UC Riverside, I have been immensely fortunate to have developed a close camaraderie within the graduate student community. To that end, I would like to thank Andrew Ivey, Maricruz Osorio, Paul Teten, Dylan Rohr, Kevin Pham, Igor Acácio, Eric Mackey, Kurt Paczkowski, Hope Boyer, Heather Hilt, and Jesus Peña for their companionship and support through this process. Finally, without the support of my family, this academic journey would not have been possible. I would like to thank my

partner, Elaine Murphy, for reminding me that there is a world to explore outside of academia but also for always being willing to look over my writing and remove my excessive commas. My parents, Pam and Brian Kehlenbach, have been a source of unending support and encouragement without which my educational and scholarly journey would have never begun. My in-laws, Karen Parker and Denny Murphy, have been a source of constant encouragement and I am grateful for their curiosity, always wanting to know what I am working on (but never asking when it would be done!).

For Elaine. One more step on the journey.

ABSTRACT OF THE DISSERTATION

Behind the Silicon Curtain: A Critical Theory of Big Data

by

Emil Stefan Kehlenbach

Doctor of Philosophy, Graduate Program in Political Science
University of California, Riverside, June 2022
Dr. Farah Godrej, Chairperson

In recent years, the power of technology has increased dramatically. From tech
companies such as Google, Facebook, and Amazon expanding their control over the
online marketplace through their flagship products like Google Search, to their increasing
desire to conquer new markets, like Amazon's foray into brick-and-mortar shops and
Facebook's currency projects, their power over our lives has only gotten more complete.
Similarly, we see the power of the state growing in conjunction with its new
technological capacity. The revelations of Edward Snowden provide an account of the
burgeoning surveillance apparatus of the state, a mechanism that has only continued to
advance. In the academy too, the power of technology has become essential for research
within the social sciences, with ever more complicated forms of statistical and causal
interference becoming all but required for the completion of a graduate degree and
success as a scholar. The thread that ties all these elements together is the development of

a complex infrastructure of big data. Big data, colloquially understood as the presentation of datasets too large for conventional or consumer-oriented computing to handle, has become the backbone of the tech industry, the state, and cutting-edge scholarly research. However, the social and political implications of the collection, management, and usage of big data and its associated analytics have been understudied. To help address this problem, I propose a new critical theory of technology, focusing on the power of big data and aimed at understanding its political outcomes. I explore the power of big data as a new form of biopolitical control over our lives, trace the ontological impact of big data on the form of the Enlightenment-era person, and bring to light the epistemological commitments of big data. In this way, this dissertation addresses a growing problem in society—the usage of big data to increasingly manage our political and social lives—and adds to the existing critical theory literature on technology.

Table of Contents

List of Figures

Introduction: From the Mountaintop

Beginnings

In the summer of 2021, as the Covid-19 pandemic entered its Delta-variant fueled upswing, I, newly married, was dragged by my wife into an ambitious undertaking. We were to fight the lockdown blues by seeking the outdoors and taking on an increasingly ambitious series of hiking challenges, culminating in summitting Mt. Whitney, the highest point in the continental United States. Now, this may seem to be a strange way to begin a dissertation that aims to critically engage with a new technological form, big data, and ultimately conclude that big data is corrosive to our self-understandings as political beings. However, our attempt to escape the technological confines of our pandemic existence (ruled as they were by Netflix, Animal Crossing, and other distractions) only served to highlight how deeply embedded our lives are in these forms.

While we engaged in our training hikes, we relied on an app, Strava, which is billed as a social media network for outdoor activities, including running, biking, and hiking, to track our progress and ensure we were staying on track to reach our goals. This culminated in the main hike, when on August 16th, we woke up just after midnight to begin the 22-mile, 16-hour[1] round-trip trek to the top of the world. When we reached the peak, standing astride the Sierra Nevada mountain range, the true extent of our embeddedness in technology was made clear. I had full cell signal. I was able to text my mother and my mother-in-law that we had reached the summit, and even make a quick

---

[1] Experienced hikers or mountaineers will probably scoff at our sluggish time, but I maintain that we did quite well for our first summit of Whitney, and our first 14er.

phone call. When we finally made it down the mountain, I was able to review a whole set

of granular data about our hike, captured by Strava. Our lives are fully inundated by data.

Mile	Pace	Elev
1	27:29 /mi	454 ft
2	32:45 /mi	662 ft
3	29:22 /mi	550 ft
4	29:41 /mi	383 ft
5	34:08 /mi	541 ft
6	37:44 /mi	723 ft
7	32:20 /mi	463 ft
8	36:02 /mi	647 ft
9	34:50 /mi	722 ft
10	34:52 /mi	231 ft
11	33:50 /mi	507 ft
12	27:01 /mi	-81 ft
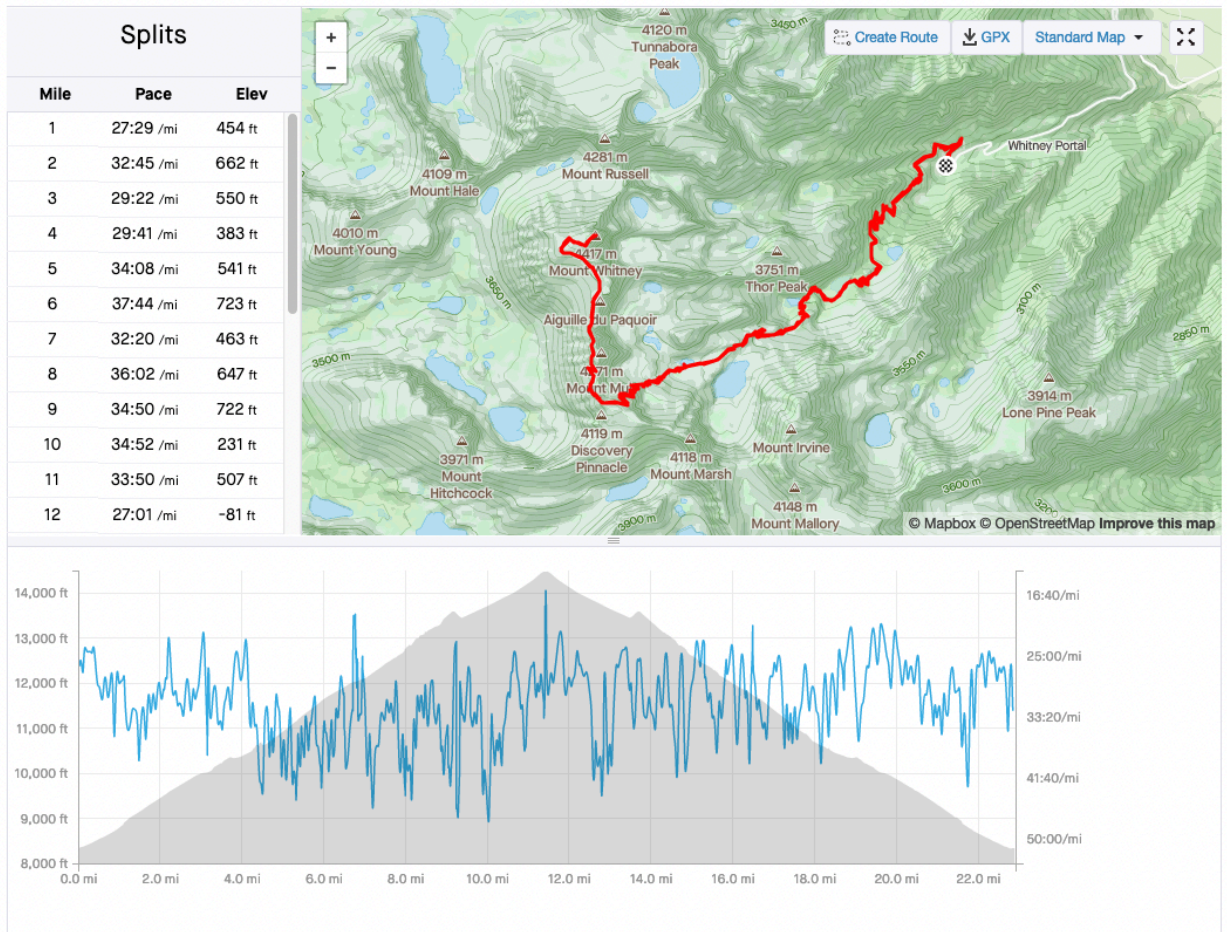
Figure 1: Strava Data, Provided by the Author

Upon reflection, I am struck by the connection between myself atop the Sierra Nevadas

texting loved ones and the painting "Wanderer Above the Sea of Fog" by Caspar David

Friedrich, made famous, to me at least, by its presence on the cover of Nietzsche's *Thus*

Spake Zarathustra. While the titular Wanderer stands contemplatively at the summit of

an unnamed mountain, gazing across the mist-covered landscape, I too stood at a peak.

The difference is that for me it was a dual peak: a physical peak, but also the peak of a

datapoint, categorized and identified by my technology as existing in a particular point in space and time. This is not a unique experience. In fact, it is very much the opposite. Technological development has prioritized the collection of data as a primary goal; nearly every interaction we have with a form of consumer technology has, just behind the curtain, a mechanism for data collection.

Figure 2: Wanderer Above the Sea of Fog. Caspar David Friedrich, Public domain, via Wikimedia Commons

The pervasiveness of this development is shocking. At the time of writing, and upon just a moment of self-reflection, there are dozens of places where I have provided my personal information to a corporation in exchange for services. I have a Facebook account, a Twitter handle, an Instagram page, Snapchat, two separate Gmail accounts— one through the university and a personal one with corresponding integration to Google Maps, Waze, Google Drive, and others—a LinkedIn account, an Academia.edu account,

a Reddit page, a Spotify account, a Steam account for purchasing and playing video games, Venmo, Slack, and two individual YouTube accounts—one for academic purposes and one for personal entertainment. All these accounts are free, with the only requirement being that they have access to my personal information. If the list is expanded to accounts that I pay for, it includes television replacement services such as Netflix, Hulu, Twitch, and the baseball streaming service MLB.TV; online merchants such as Amazon and its premium service, Amazon Prime (which I buy); and communications services such as Verizon and Comcast. In addition to this, my house is full of internet-connected devices that promise convenience through the collection and distribution of personal data including a Google Home, a Chromecast, a PlayStation 5, and an iPhone. We all live in a world surrounded by organizations, services, and devices that we allow to collect personal information about us and deploy that data in ways that, presumably, make our lives easier.

I believe there is reason to be skeptical about the ubiquity of such integration with our daily life. Something seems to have been lost in this rush to embrace this new technology, and this has been noticed by scholars and commenters alike. While we tend to view technological progress as an endless, positive march forward, this is not necessarily the case. As should be clear from this long list of personal technology, I do not approach this inquiry from a place of technophobia, or what might be popularly

called Luddism.[2] Instead, I look to the unfulfilled promise of technology—a promise of liberation, of democracy, of new interactions and new experiences. This is a promise left unfulfilled, undercut by corporate power and dominating influences. This is more evident when we realize that our interactions with big data are not a one-way street, and our participation in the regime of data reflects back upon ourselves. Through incredibly rapid advances in technologies, we have begun reshaping our world, inventing entirely new domains of action, citizenship, and identity through the technological innovations of the information age, especially the development of the internet. The creation and deployment of big data creates new forms of knowledge. These forms of knowledge then create new sites of power.

These new power/knowledge relationships impact our concepts of justice, human rights, and even the basic concept of the self as they develop a new digital, neoliberal society. These changes inevitably leave something behind. What is lost can be loosely classified as the political, following the composite definition provided by Wendy Brown, who claims that "the political identifies a theater of deliberations, powers, actions, and values where common existence is thought, shaped, and governed."[3] Therefore, my main thesis for this dissertation is the claim that big data has depoliticized many existing realms of action and contestation. This depoliticization has several important effects. It

---

[2] The popular usage of the label "Luddite" is a misrepresentation of the views of the historical Luddites who smashed industrial equipment not out of an aversion of technology itself, but as a protest against technology replacing them and their livelihoods.

[3] Wendy Brown, *In the Ruins of Neoliberalism: The Rise of Antidemocratic Politics in the West* (New York: Columbia University Press, 2019).

masks emerging power relations, making obtuse the new regimes of power that impact our lives. This includes developing new forms of biopolitics that merge state control and corporate technocracy. It also develops new ontologies through a reformation of the individual, utilizing ever smaller aspects of individuals to identify, classify, and render individuals useful. It also creates new epistemologies, making data into a preferred source of knowledge and giving priority to a specific form of data and information, such as the search result, and its status as a mechanism for truth.

Critical Theory

These problems surrounding technology require a systematic methodology to provide a useful explanation. Critical theory can provide this method. For Max Horkheimer, critical theory is useful as "its subject is rather a definite individual in his real relation to other individuals and groups, in his conflict with a particular class, and, finally, in the resultant web of relationships with the social totality and with nature," while for Robin Marasco it is simply developing a "relentless critique of everything," a view drawn from Marx.[4] This viewpoint is framed around identifying issues and advancing normative solutions, claiming that any argument toward an objective or positivist view of society is limited by the individual who is making the claim and that any concrete argumentation is suspect. This approach is useful for any systematic investigation of the power of modern

---

[4] Max Horkheimer, *Critical Theory: Selected Essays* (New York: Continuum Pub. Corp, 1982); Robyn Marasco, *The Highway of Despair: Critical Theory After Hegel* (Columbia University Press, 2015).

technology, as our lives are surrounded by webs of technological connection that makes up our new social totality.

A focus on technology is not a stretch for established critical theory. Within the early critical theory of the Frankfurt School, which include both societal critiques and their fixation on art and aesthetics as a mechanism for liberation, there is a subcurrent of technological criticism. This is perhaps most famously associated with Herbert Marcuse's *One-Dimensional Man* and its critique of industrial technology in the 1960s.[5] But this line of thinking has a long but not necessarily progressive tradition. Martin Heidegger's *Question Concerning Technology* argues not for the liberational qualities of refusing technology, nor of the question surrounding the common man's interaction with technology in the workplace or, increasingly, in the home (as is the case for Marcuse) but instead focuses on the forms of control offered to those who manage the technology.[6] Beyond this we see other authors working in the later years of the 20th century attempting to understand the structural role of technology in the modern, American context.[7]

All these developments are useful, but on the whole they may be too old to be relevant on their own. Our basic facts—our core understanding of technology—have changed. We are unable to fully grapple with these new changes without a new language

---

[5] Herbert Marcuse, *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society*, 2nd edition (Beacon Press, 2012).

[6] Martin Heidegger, *The Question Concerning Technology, and Other Essays* (HarperCollins, 2013).

[7] Andrew Feenberg, *Questioning Technology*, 1st edition (London; New York: Routledge, 1999).

to help guide our understanding. We need to redefine our basic concepts before we can develop a fully new critique of big data or of contemporary technology. Primarily, we need to update our definition of technology for this new form of critical theory. At this point it may seem obvious, but a close reading of much of the critical theory of technology shows us that we are dealing with different categories of things. It is obvious that Marcuse is working with a different form of technology when he develops his critique in *One-Dimensional Man*. The technological rationality that he describes results from the use of complex machinery in industrial contexts. These are designed to increase productivity within the formulations of classical production. This is why his critique of Marx is so pointed. Both he and Marx define technology in a similar way: as a mechanism for increasing the efficiency of proletariat labor, as Andrew Feenberg points out.[8] For Marx, this increase in efficiency will expose the proletariat to the folly of their own labor and the extent of the exploitation, while for Marcuse the advancement of industrial technology, specifically in the realm of automation, has created a form of technological rationality that creates a one-dimensional society that denies class conflict, even to the proletariat class, and therefore undercuts any form of rebellion.

The problem for Marcuse is that he is grappling with a particular form of technology that is tied to the middle of the 20th century. Automation continues, to be sure, but the definition of technology has changed; we no longer view the modern automobile

---

[8] Andrew Feenberg, *Transforming Technology: A Critical Theory Revisited* (Oxford University Press, 2002).

factory as the preeminent form of technology in the modern world. This redefinition of technology also applies to other thinkers. Jacques Derrida investigates the power of modern television in his *Echographies of Television*, setting the stage for a form of structural media critique that takes as the point of investigation the new forms of media.[9] But in this framework, too, the definitions fall short. Derrida restricts his discussion to this media technology, and the television hardly encompasses our definition of society. As we get closer to our modern period, the definitions become more recognizable, but still insufficient. Feenberg develops a late 20th-century critique of technology but is still limited by the time period he is critiquing. The established societal definition of technology of the late 20th century does not apply in the middle of the 21st.

To solve these problems, and to bring the definition of technology in line with not only my developed critiques, but also with those of other authors who are working on these incredibly important issues, it is worth investigating this and developing a more modern understanding. With this in mind, I define technology as a digital form of interaction. Technology is the physical or empirical objects that make digital life possible. In this way, we can see technology as a particular form of computer, but not the programming software itself. This seems to match up with our modern usage of the term, both as colloquially used and as the dominant form of consumer hegemony at work. This form is the moment of transfer between the physical and the digital world. Technology is

---

[9] Jacques Derrida, *Echographies of Television: Filmed Interviews* (Cambridge UK; Malden MA: Polity Press;Blackwell Publishers, 2002).

the thing that facilitates this transfer. This is why it is such an interesting form for investigation. In our modern society, this blurring of the distinction between the physical and the digital has become commonplace and has allowed for forms of power and domination to cross between the two mediums, using insights gained from the digital realm to impact forms of power at work in the physical. This is the definition that seems useful for the development of a critical theory of technology.

Importantly, this definition reveals a new puzzle about our contemporary moment. This is the observation that the common thread through digital technology, and one thing that ties much of the technological features of our modern society together, is the collection and management of data. What sets our era apart from the early digital era, emerging in the mid-1990s and continuing through until the mid- to late 2000s, is the collection and management of vast stores of data. This is rise of "big data," and it makes up the dominant technological form of the last 15 years. A more precise definition of big data will be developed in the next chapter, but initially, big data is the backbone of nearly all modern digital technology and, as such, reaches beyond just the collection of data to the power structures and mythologies that surround its technological usages. Tech companies design their entire business models around collecting and using as much data as possible, even for corporations and applications that seem to have nothing to do with data itself. This ranges from Google and Facebook, which collect vast amounts of information to sell advertising to the highest bidder, to credit card and insurance companies that collect and analyze data to develop more specific risk profiles of

consumers. This also includes transportation apps, such as Lyft and Uber, which rely on

big data to drive their business models, as well as international manufacturing and

production companies that rely on vast amounts of data to supply just-in-time logistics.[10]

It is nearly impossible to operate in the modern technology sphere without engaging with

big data. However, the usage of big data raises important questions that are relevant for

critical theory. Just as Marcuse worried about the pacifying effects of the technological

rationality of the 1960s, so too should we be worried about the deleterious effects of big

data on our modern social and political lives. These worries come in several forms, from

wondering who is collecting personal information about us, how and why it is being

utilized, and then how this data collection and development reflects back on ourselves

and the very concept of what it means to be a modern person. There is a defined political

dimension to those crucial questions surrounding big data, and a number of authors have

pointed out the utility of political theory for investigating the impact of big data.[11]

<u>Outline of Chapters</u>

To answer these questions, this dissertation is broken up in to four substantive chapters.

The first, "Toward a New Critical Theory of Technology," sets the groundwork for the

---

[10] Just-in-time logistics is a complex logistic strategy that aims to predict when a specific element will be needed, so that it arrives exactly at that time. Imagine a computer arriving at an Amazon warehouse, exactly as a consumer orders it from the website. This minimizes the amount of time products are passively stored in warehouses and streamlines the logistical process. To accomplish this effectively, vast amounts of data collection, and predictive analytics must be used.

[11] Lucia M. Rafanelli, "Justice, Injustice, and Artificial Intelligence: Lessons from Political Theory and Philosophy," *Big Data & Society* 9, no. 1 (January 2022): 205395172210806, https://doi.org/10.1177/20539517221080676.

rest of the dissertation. In this chapter, I engage with the existing literature on technology and politics, tracing its modern origins from the critical theory that emerged in the postwar era, which was concerned with the challenges that new technologies of destruction and social organization posed for the Enlightenment project. These early authors recognized a fatal flaw in these developments: the tendency to gleefully march into the dominating hands of technological progress, all the while loudly decrying what was perceived as a form of political domination. This then sets up a pattern of waves of interest in the political aspects of technology, which ebbed and flowed over the next 70 years. Recently, we have found ourselves on rising tide of technological criticism, investigating the mechanisms for harm, bias, and domination at work in our modern digital existences.

The second chapter, "The Biopolitics of Big Data," develops the first critique of big data. In this chapter, I argue that we should be understanding the corporatist project of big data as a work of biopolitics that aims to define, control, and manage specific populations of users. This argument requires us to reframe both our understanding of big data and the corporations that utilize it, as well as our understanding of biopolitics. As our existences have left the corporeal realm and increasingly moved into the digital, the biopolitical power that managed this bodily existence have adapted and embraced their own digital forms. Understanding this as a form of biopolitics opens the analysis up to the insights provided by the decades of scholarship in the wake of Foucault's development of the term. This requires both an investigation into the component parts of biopolitics, what

I term *capacity* and *acceptance*, to show how big data is suited to take advantage of biopolitical power structures. I then proceed to develop a clear definition of the biopolitics of big data, drawing on more modern interpretations of biopolitics. I conclude by arguing that understanding big data's power as a form of biopolitics allows us to more accurately understand the specific problems associated with this power. To do this I draw on Albert Hirschman's classic work *Exit, Voice, and Loyalty* to show how the biopolitics of big data limits the political options available to us, rendering us pacified under the power of big data.

The third chapter, "The Subatomic Person: A New Ontology of Big Data," argues that the big data creates a new form of personhood, a smaller and more reductive form that breaks the contested Enlightenment-era atomic individual into subatomic parts, analyzes them as aspects, and then uses the aggregate to enact pacifying control over elements of society. This new form of personhood, which I label the "subatomic person," is an aggregated subperson made up of the collected aspects of data that are present in a large data set. The subatomic person is a person characterized by alienation, specifically alienation from the self, and is subject to the dominating power of big data, especially as the characteristics that make up this subatomic form are not chosen or guided by any empirical reality. To help clarify this concept, I engage with Derrida's concept of the specter, from *Specters of Marx,* as a guiding structure to help understand the noncorporeal, yet real, form of the subatomic person. Ultimately, the subatomic person is disconnected physically, emotionally, and temporally from the empirical person we

13

identify as in the world. The form of the subatomic person is the object of inquiry for big data, thereby alienating the empirical individual from any chance of contesting their prescribed identity.

The fourth chapter, "Technoplatonism: The Epistemology of Big Data," concludes the three substantive critiques by tracing the epistemological aspects of big data. Drawing on Plato's metaphysics as a guiding metaphor, I critique the epistemological commitments of big data, specifically the requirement that there is truth in data. This idea parallel's Plato's concept of the forms, representing an epistemology that is immaterial, requires specific skills, and contains a governing mandate. Both the knowledge (claimed to be) found within big data and Plato's concept of the forms are immaterial truths, inaccessible to ordinary human perception. Instead, special skills must be developed, either by the Platonic philosopher or by the enlightened programmer, computer hacker, or tech bro to access these forms of truth. Then, as these forms of truth are less accessible than other forms, they gain a privileged status, granting the unique ability to solve problems to those with access. This becomes a governing mandate, found in Plato's philosopher-kings and replicated in the hubris of tech companies and individuals who take their technical skill as an example of their capacity to govern, resulting in a flippant disregard for the actions of states. Ultimately, these epistemological commitments at the heart of big data represent significant challenges to the stability of democratic society. The legitimation of elite control through an appeal to an exclusive

epistemology undercuts democratic institutions and the idea of self-governance through representation.

Returning to the vision of the mountaintop, I recognize that the Wanderer is both enabled and restricted by his reflective journey. His long trek to the vista allows a clarity of vision that would be impossible for someone left standing in the valley. Yet at the same time, while he is able to contemplate the horizon and take in the vastness of the surrounding peaks, the fog and mist obscures the depths of the valleys below. I recognize this limitation of my vantage point as well. As I have climbed to the heights, aiming to see the broad scope of the impact that these technological forms have on our society and our political structure, I also must admit that the mist obscures my vision. I am unable to engage in the depth of study of texts that might be expected in a more exegetical project. My usage of such work is necessarily instrumental, taking from them what I need or find most useful in furthering my own vision. Similarly, my engagement with the primary source material falls far short of those who work fruitfully in the deep valleys carved by the technological forms. These ethnographic works are immeasurably valuable but are not a form I aim to replicate. I hope to see widely, rather than deeply, and draw connections between the mountaintops, aiming to, if not chart a way forward, see the potential dangers and crevasses ahead. It is my sincere belief that a critical theory of technology can help us see the dominating, depoliticizing forms of power at work within our society, and by setting out the scope of the problems, begin to fix it. The goal of this work is not to advocate for a destruction of all technology or a return to some mythical,

pretechnologic Golden Age, but to instead advocate for a more open, democratic society that isn't defined by the structural forms of power that are currently the hallmarks of our modern technological form. The goal should not be to abolish technology, but to seek a form of technological society that is free from domination, exploitation, and depoliticization and to reclaim the use of technology for social and democratic good. Ultimately this work of critical theory, critical as it is oriented at problems rather than solutions, which seems to be the necessary first step in working to create such a society.

Chapter 1: Toward a New Critical Theory of Technology

<u>Theoretical Foundations</u>

As my aim is to understand the political power of big data and its impact on ourselves and our society, it makes sense to begin with the concept itself. A brief historical approach sheds light on how the concept developed and reveals how the move from "data" to "big data" represents more than just a change in terminology, but also a whole new technological form. This new form requires a new criticism; a new critical theory of technology. Big data is a transformative technology that creates new understandings and forms of existence. These are unimaginable for earlier scholars and, as such, require a new critical theory to understand the social and political impacts of their mass adoption within society. Nevertheless, this new critical theory draws on a lineage of thought. At its core, this project leans on Foucault's view of political rationality, a concept he developed to describe how neoliberalism impacts our understandings as well as both the work on technology done by members of the Frankfurt School and the more modern research in the field of critical algorithm studies.

To fully elaborate the claim that a new critical theory is needed, a clearing of the ground is initially required. I need to develop an account of the older forms of technological criticism and explain how they are insufficient for the present purpose. Therefore, I present first a brief account of the existing critical work on data and technology. I then draw on several historical and interpretive works to briefly outline the

history of the term, *data*. I show how this idea began to shape our understanding and act as a fundamentally interpretive construct, rejecting the notion of an objective data. From there, I turn to the development of the term *big data*, aiming to show how it moved from a basic term to describe specific datasets to a broader concept that shapes society. I then show how a new critical theory of technology is necessary and why it should focus on big data. I take big data as my focus of interest because it allows me to get at the heart of the structural problems caused by digital technology. By taking a broad definition of big data, one that encompasses not only its technical elements but also its hold over society, I can develop a critical theory of technology that moves beyond questions of bias and ethics to a discussion of structural power. Big data causes harm by developing forms of power that are insulated from democratic politics, thus depoliticizing the individuals subject to its forces. In short, big data impacts our lives in profound ways, shaping how we understand the society we inhabit and even how we understand ourselves, but is not subject to the forms of political contestation that political rationalities are subject to. Understanding the scope and structure of this problem is the first step toward understanding a solution or remedy.

The State of Critique

Discussions of technology have been a part of the project of critical theory from the beginning. Max Horkheimer and Theodor Adorno's *Dialectic of Enlightenment* centers technology as the core focus of a science that has become fixated on the mastery of

nature, and thus allows for atrocities and totalitarian tenancies to emerge.[1] Within this

structure they describe a theory of technology synonymous with an ideology of progress,

critiquing the use of technology to solve problems that were created by the application of

technology. This marks a pattern within the early history of technology, both in

developing a particular understanding of technology and then pairing it with a specific

critique. Even earlier in this tradition, Heidegger developed his famous *Question*

Concerning Technology where he asserted the ontological character of technology as a

confluence of "enframing" and a standing reserve, exploring the tendency of technology

to act as a defining focus of existence. This narrows our understanding of ourselves and

the world around us to only the things that technology itself can understand and define.[2]

Through engagement with this argument, Marcuse develops what is perhaps the first

clear critical theory of technology (as Heidegger's work is one of ontological philosophy,

not critical theory) in *One-Dimensional Man*.[3] Within *One-Dimensional Man,* Marcuse

argues that technological rationality is a form of totalitarianism, flattening society to

encompass all forms of thought, art, and society within the sphere of technological

rationality. This is an explicit critique of Marxist materialism as it argues that Marx's

claim that technological advancement will necessarily lead to revolution drastically

underestimates the pacifying power of technological rationality. These texts are

---

[1] Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment*, ed. Gunzelin Schmid Noerr, trans. Edmund Jephcott, 1st edition (Stanford, Calif: Stanford University Press, 2007).

[2] Heidegger, *The Question Concerning Technology, and Other Essays*.

[3] Marcuse, *One-Dimensional Man*.

representative of the "early" form or the "first wave" of technological inquiry. While one could plausibly look further back in this history of thought to find the origin point of critical discussions of technology, beginning with the development of critical theory is a good of a starting point as any.[4] Centered in the aftermath of the Second World War, these thinkers are characterized by an immaterial definition of technology. The central problem of technology for this wave is not the specific mechanics of technology; in fact, they often describe technology in broad, abstract terms, referencing technological advancements in industrial automation or in the general structure of the firm. Instead, they focus on the rationality developed by the societal adoption or enthrallment with this technology. Overall, this first wave of critical technological thought is marked by a pessimism that is not found in later work. One gets the impression that, despite the validity and resonance of some of their critiques, there is a defined sense of Luddism[5] running throughout their works.

After the initial works of critical theory, the next wave of critical theory of technology comes in the mid- to late 1990s. Responding to the rise of digital technology and the beginnings of an interconnected internet, many of these authors are marked by a profound skepticism of digital technology in general. Langdon Winner's *The Whale and*

---

[4] One might plausibly go back as far as Plato for both positive and critical discussions, as his discussion in *The Republic* of the need for a ruler to displace the *techné* to rule exists alongside the (in)famous discussion of the technology of writing as corrupting the minds of youth in the *Phaedrus*.

[5] Luddism as popularly defined, Colin Koopman makes a convincing that the historical Luddites were pushing back against a specific form of technological alienation, and were not as blanketly antitechnology as the popular view suggest.

the Reactor acts as a presaging work for this wave of critical thought.[6] Originally

published in 1986, Winner sets the stage for much of this second wave. Similar to the

early works of critical theory, he draws from Marx to help explain how technology can be

seen as a form of life, rather than a rationality or an ontology. He directly engages with

the political questions of technology, asking if "artifacts have politics." His answer to this

is a resounding yes, showing how technological artifacts either allow for a certain pattern

of power and politics to take use of the technological form, or more directly, if the

technology itself requires a particular political formation. He asks if a battleship or a

nuclear reactor could work without a specific form of hierarchy and authority to govern

it. Since they cannot, Winner concludes that they must contain a specific form of politics,

baked into the technology itself. The work of Neil Postman continues this attitude, but

with an overtly critical bent. Postman's attitude can be summarized in his thesis of

Technopoly, an investigation of "the submission of all forms of cultural life to the

sovereignty of technique in and technology."[7] His work forshadows my own arguments

about technoplatonism in Chapter 4, especially his discussion of how elite control of

technology bleeds over into elite control of politics. However, his work is tied quite

strongly to his own time, lacking the technological touchstones that we have today. He

especially does not have the idea of digital technology that motivates my current work.

The second wave of technological criticism crests at the end of the 1990s, with works that

explicitly take up the mantle of a critical theory of technology. Andrew Feenberg, a direct

---

[6] Langdon Winner, *The Whale and the Reactor: A Search for Limits in an Age of High Technology, Second Edition* (University of Chicago Press, 2020).

[7] Neil Postman, *Technopoly: The Surrender of Culture to Technology* (Vintage Books, 1993), 52.

student of Marcuse, takes up the mantle presenting a more grounded but no less critical

view of technology. Working throughout the 1990s and into the 2000s, but peaking in

1999 with *Questioning Technology*, Feenberg argues for technology as ontology and the

fundamentally political character of technology, as it reflects the society in which it was

created.[8] Feenberg ultimately calls for a democratizing of technological development,

arguing that the main problem is that technological development is controlled by elites

yet impacts the many, who do not have control over the design.

Feenberg is not alone in developing a critical theory of technology in the late

1990s. Kevin Robins and Frank Webster also develop a political economic approach to

technology in their *Times of the Technoculture*, published in the late 1990s.[9] In this, they

argue that existing discussions of technology lack a critical edge and that these

discussions need to be situated in a broader historical context of the global information

economy and its roots in the capitalist information revolution of the early 19th century.

Also appearing in this wave is Geoffroy Bowker and Susan Star's seminal *Sorting Things

Out*.[10] While not strictly a work of technological criticism, it focuses on how the

development and application of classification mechanisms make the discussion

indispensable for scholars who work within technological forms such as big data that

---

[8] Feenberg, *Questioning Technology*.

[9] Kevin Robins and Frank Webster, *Times of the Technoculture: From the Information Society to the Virtual Life* (Routledge, 2003).

[10] Geoffrey C. Bowker and Susan Leigh Star, *Sorting Things Out: Classification and Its Consequences* (MIT Press, 2000).

fundamentally engage in the classification of individuals. This wave of scholarship ends

in the early 2000s, as 9/11 changed the priorities for scholars interested in technology.

In the early 2000s, there was a burst of interest in the surveillance state that

emerged in the post-9/11 world. However, this work was limited by its time frame and,

puzzlingly, took a noncritical view of these developments, restricting itself to either

descriptive accounts or defenses of surveillance as the logical outgrowth of normal social

mechanisms.[11] However, in the decade and a half since the publication of much of this

work, the landscape of inquiry has fundamentally changed. We are facing a new world of

technological development and data ownership. As the focus on surveillance waned by

the end of the 2000s, and a new form of technological embeddedness began to take hold,

the current wave of scholarship began, and now there seems to be a growing interest in

the power that technology has over society.[12]

By 2010 the uncritical view of the post-9/11 surveillance state began to wane and

a new, third wave of technology criticism began to emerge and take on the rise of the

digital age. The early work in this wave comes in the form of Alexander Gallowy and

---

[11] David Lyon, ed., *Surveillance as Social Sorting: Privacy, Risk and Automated Discrimination*, 1st edition (London; New York: Routledge, 2002); Elia Zureik, Lynda Harling Stalker, and Emily Smith, *Surveillance, Privacy, and the Globalization of Personal Information: International Comparisons* (Montréal Québec; Ithaca [N.Y.]: McGill-Queen's University Press, 2010); Kirstie Ball and Frank Webster, eds., *The Intensification of Surveillance: Crime, Terrorism and Warfare in the Information Age* (London; Sterling, VA: Pluto Press, 2003).

[12] To emphasize the newness of the scholarship, the majority of the texts I will present at this point were not published when I began the dissertation process in 2018.

Eugene Thacker's *The Exploit*, where they introduce the concept of the network as an organic force in contemporary political society.[13] They draw on Deleuze, Hardt and Negri, Foucault, and other biopolitical thinkers in their deliberately disjointed and disconnected study. This work goes on to influence other important work that relies on this conception of the network, like Tung-Hui Hu's exploration of the idea of the "cloud" through a mostly materialist lens in *A Prehistory of the Cloud*.[14] Half historian and half political theorist, Hu looks at the ways in which the imaginary of "the cloud" is designed to make us ignore and forget the ways in which the cloud is impacting our lives and our environment directly. Also inspired by Galloway and Thacker is Sun-Ha Hong's *Technologies of Speculation*, where Hong argues that knowledge claims driven by technology are fabrications, or things based on data, assumptions, and human processes.[15] This work intersects with my argument in Chapter 3, as Hong looks at how the structures of data impact our existences.

Another early contribution to this third wave of scholarship is Siva Vaidhanathan's *The Googlization of Everything*, which sounded the early alarm about the power and influence of Google.[16] Vaidhanathan has gone on to follow up this study of

---

[13] Alexander R. Galloway and Eugene Thacker, *The Exploit: A Theory of Networks* (U of Minnesota Press, 2013).

[14] Tung-Hui Hu, *A Prehistory of the Cloud* (MIT Press, 2016).

[15] Sun-Ha Hong, *Technologies of Speculation: The Limits of Knowledge in a Data-Driven Society* (NYU Press, 2020).

[16] Siva Vaidhyanathan, *The Googlization of Everything: (And Why We Should Worry)* (University of California Press, 2012).

Google with a similar study of Facebook and social media.[17] This begins a pattern of studies within this third wave that are more focused on specific cases or harms, taking an ethnographic approach, rather than the approach rooted in critical theory characteristic of the earlier waves. This has also encouraged a burgeoning interest in algorithms and algorithmic studies, mostly in the humanities. Tiana Bucher presents a useful account of algorithmic power, arguing that "life is not merely infused with media but increasingly takes place in and through and algorithmic media landscape."[18] This work is indicative of the ontological pattern of work within this wave, looking at the power of technology as something fully integrated into our daily lives. This also includes work that investigates how algorithms that predict our actions online impact our identity by John Cheney-Lippold.[19] This is also when work in political science beings to enter the third wave, when Colin Koopman explores how data, as a concept, contains politics, in *How We Became Our Data,* a work reminiscent of Winner's.[20]

This third wave also contains an increased interest by legal and cultural scholars in the idea of the algorithm and the problems posed by developing predictive metrics

---

[17] Siva Vaidhyanathan, *Antisocial Media: How Facebook Disconnects Us and Undermines Democracy* (New York, NY, United States of America: Oxford University Press, 2018).

[18] Taina Bucher, *If … Then: Algorithmic Power and Politics*, Oxford Studies in Digital Politics (New York: Oxford University Press, 2018).

[19] John Cheney-Lippold, *We Are Data: Algorithms and the Making of Our Digital Selves* (New York: NYU Press, 2017).

[20] Colin Koopman, *How We Became Our Data: A Genealogy of the Informational Person* (Chicago: The University of Chicago Press, 2019).

based on big data.[21] Most of this work problematizes the usage of data for marketing purposes and its impact on questions of privacy and social justice, focusing on how algorithms allow corporations to keep elements of their data collection and use from public view, as Frank Pasquale does in *The Black Box Society*.[22]

Adding to this legal work, there has also been a robust discussion about how the application of these technologies harms marginalized communities.[23] Virginia Eubanks undertakes an ambitious ethnography of data and shows how the usage of algorithms, in place of older decision-making mechanisms in the fields of healthcare, homeless relief, and welfare distribution, create new complications and hurdles for the very communities they intend to serve.[24] Safiya Noble seeks to understand how search engine technology, specifically Google Search, is presented as an objective site of knowledge, when in fact, the algorithms and individuals that design and maintain this system contain systemic biases that harm marginalized, specifically Black feminist, communities by reinforcing racism.[25] Ruha Benjamin continues this argument by investigating what she calls "the

---

[21] Ryan Calo, "Robotics and the Lessons of Cyberlaw," *California Law Review* 103, no. 3 (2015): 513–63.

[22] Frank Pasquale, *The Black Box Society: The Secret Algorithms That Control Money and Information*, Reprint edition (Cambridge, Massachusetts; London, England: Harvard University Press, 2016).

[23] Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (New York, NY: St. Martin's Press, 2018); Safiya Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism*, 1st edition (New York: NYU Press, 2018); Ruha Benjamin, *Race After Technology: Abolitionist Tools for the New Jim Code* (John Wiley & Sons, 2019); Catherine D'Ignazio and Lauren F. Klein, *Data Feminism* (MIT Press, 2020); Sarah T. Roberts, *Behind the Screen: Content Moderation in the Shadows of Social Media* (Yale University Press, 2019).

[24] Eubanks, *Automating Inequality*.

[25] Noble, *Algorithms of Oppression*, 2018.

new Jim Code," which she describes as "the employment of new technologies that reflect and reproduce existing inequities," but are seen as objective or even progressive by those who create and publicize them.[26] This investigative work also contains the practical implications presented by Catherine D'Ignazio and Lauren Klein as they present a model of feminist data for quantitative researchers, rooted in deep considerations of social justice and equity.[27] This work on social justice also continues into the sociology sphere, as investigations of how data impacts policing reveal new inequities within old power structures.[28]

Overall, this third wave of technology scholarship is characterized by a narrower focus of inquiry than the previous waves. Technology has gotten more complex and more subtle in its forms and effects, and so more nuanced discussions are fundamentally necessary. As the power of individual tech moguls rises, there is a growing need to understand how they think.[29] Similarly, as online infrastructure relies nearly completely on serving individualized advertising, viewing this as a potential economic "bubble" becomes critical.[30] There seems to be an emergent role for political theory here, as Kate

---

[26] Benjamin, *Race After Technology*, 5–6.

[27] D'Ignazio and Klein, *Data Feminism*.

[28] Brian Jordan Jefferson, *Digitize and Punish: Racial Criminalization in the Digital Age* (University of Minnesota Press, 2020); Sarah Brayne, *Predict and Surveil: Data, Discretion, and the Future of Policing* (Oxford University Press, 2020).

[29] Adrian Daub, *What Tech Calls Thinking: An Inquiry into the Intellectual Bedrock of Silicon Valley* (Farrar, Straus and Giroux, 2020).

[30] Tim Hwang, *Subprime Attention Crisis: Advertising and the Time Bomb at the Heart of the Internet* (Farrar, Straus and Giroux, 2020).

Crawford argues when she claims political theory may be of use in mapping how algorithms map and modify political concepts, a thought echoed by Lucia Rafanelli.[31] But what has become clear is that the existing canon of critical theory, even the critical theory of technology is insufficient for the task of understanding our contemporary predicament with data. The reason for this is the definitional problem of technology. In both the first and second waves, the scholarship is grappling with a definition of technology that is fundamentally different from how we understand technology today. We cannot blame these older thinkers for this definitional problem. Marcuse had no way to predict the development of the personal computer, much less the internet. His critical theory is understandably tied to his own conception of technology, one based on advancing machine technology tied to factory automation, as well as a new media landscape defined by the advent of television.

The definitional problem is also present in the second wave of scholarship. In his early work Feenberg presents a compelling account of early computing and the ways that these technological advancements impact the way we understand the world, but he is still grappling with an understanding of technology that is closer to Marcuse's view than ours today.[32] The primary reason for this is the expansion of digital technology. For Marcuse,

---

[31] Kate Crawford, "Can an Algorithm Be Agonistic? Ten Scenes from Life in Calculated Publics," *Science, Technology, & Human Values* 41, no. 1 (January 2016): 77–92, https://doi.org/10.1177/0162243915589635; Rafanelli, "Justice, Injustice, and Artificial Intelligence."

[32] Feenberg's later work does take up the question of the internet, but it generally follows a similar argumentative path, looking for a "third way" of criticism, between Marxist thought and capitalist hegemony.

technology is a structural element of society, encompassing the modern factory and the development of the firm, among other things. For Feenberg, too, technology takes a larger structural form. Although he recognizes the power of the computer, he still thinks of technology in a Marcusean way. This is not particularly surprising, but it is worth noting, as our colloquial definition of technology has diverged in significant ways. In contemporary society, our colloquial definition of technology is nearly exclusively a commentary on digital technology. To put it another way, for Marcuse and Feenberg, a car would be a form of technology. For us today we are more likely to say that a car *contains* technology and claim that the GPS system or the car's semiautonomous driving or parking feature is the technology, rather than the car itself. This is the main distinction between the current state of scholarly inquiry surrounding technology and the older approaches. We think of technology almost exclusively as digital technology, a form that did not exist for these earlier thinkers. This new form of technology, one that I will argue is fundamentally focused on the collection and analysis of data, requires a new form of critical theory.

A Brief History of Data

Surprisingly, theoretical questions of data have been under conceptualized by political theorists and political scientists. In fact, there is much debate even about the term itself. What should be classified as "big data" is itself a contentious development. Is big data something truly new or is it just a fancy buzzword for something that has existed in a similar form for hundreds of years? In grappling with this question, we begin to see the

problem in developing an adequate definition of big data. Yet before we even define big data, we should start with the minimal definition of data, as even that is fraught with contention.

Daniel Rosenberg gives a useful account of the history of data. He traces the origin of the term from the original Latin, as a plural of *datum*, through its move to English in 1646, up through its evolution into the modern usage in the late 18th or early 19th century.[33] "Data" as defined by the Oxford English Dictionary has two primary meanings: first as a singular "item of information," and second as a collective, "related items of (chiefly numerical) information considered collectively, typically obtained by scientific work and used for reference, analysis, or calculation."[34] But as Rosenberg points out, the original Latin usage of the term is less specific and less tied to what we might understand as a "fact," instead being defined as "that what is given prior to argument."[35] By this definition, data is to be understood as the prerequisite or initial understandings that are developed before argumentation. If we take this definition of data as our starting point we can then begin to move away from a limited definition of data as facts in the world and instead see data as an interpretation of the world, simplified for easier argumentation.

[33] Daniel Rosenberg, "Data Before The Fact," in *"Raw Data" Is an Oxymoron* (Cambridge, Mass: The MIT Press, 2012), 15–40.

[34] "Data, n.," in *OED Online* (Oxford University Press), accessed September 23, 2019, https://www.oed.com/view/Entry/296948.

[35] Rosenberg, "Data Before The Fact."

The history of data is useful for a number of reasons. First, it shows us that when we are discussing data, or big data, we are discussing a concept with a long linguistic legacy that can provide context for modern understandings. It also means that data are interpretations of the world, as Jacqueline Wernimont argues. Her work on plague death sheets, slave ship manifests, and other archival documents shows that the basic purpose of data is to reduce the available information to allow individuals to make abstractions about the world.[36] She traces the move from narrative accounts of deaths in the Middle Ages to the collective, tabularized, and widely circulated data of the plague registers. Similarly, Koopman's work on the "Informational Person" explains how data and identity have been interrelated for a surprisingly long period, tracing back beyond the obvious links like Social Security numbers to the development of consistent family names.[37]

For both Koopman and Wernimont, the history of data is a history of the power to deindividualize. This has several outcomes. First, it provides distance from the event itself; a death with all its emotional, psychological, and physical impact becomes not a story of a person's life, but an easily digestible number on a table. This allows for the consumption of a large amount of emotionally charged information without engaging with its emotional weight. It is a way of abstracting the emotional response away from the information. It also allows us to make particular distinctions about which deaths are

[36] Jacqueline Wernimont, *Numbered Lives: Life and Death in Quantum Media* (MIT Press, 2019).

[37] Koopman, *How We Became Our Data*, 2019.

worth categorizing. As Wernimont shows, deaths of women, transients, and other lower members of society may be present in the narrative accounts of deaths, but are deemed unimportant for data.[38] Her account of the slave registers shows us how the emotional distance and power relationship involved allows for vast numbers of human beings to be transported and literally commodified, their entire human existence reduced to economically analyzable numbers in a table. Big data has enabled people to avoid the ethical concerns raised by their actions by creating an emotional distance between themselves and the objects of influence. Individuals get literally objectified, turned into statistical objects, and broken down into component elements of their identity. I address the ontological implications of this development in Chapter 3.

Data, understood in its full historical context, is not and cannot be objective or even classified as an existent "thing of the world." It must always be an abstraction and an interpretation of what and who matters.[39] Who is or is not worthwhile to be counted? What kind of information is deemed relevant, and how is this information used? These questions are the fundamental background of any conception of data, even in its earliest form. Data is always created to serve an interpretive purpose. It is a form of technology, and technology has politics.[40] This background remains true with the modern usages of data. Human interpretation is a fundamental part of the collection and analysis of data,

---

[38] Wernimont, *Numbered Lives*.

[39] Lisa Gitelman, *"Raw Data" Is an Oxymoron*, Infrastructures Series (Cambridge, Massachusetts: The MIT Press, 2013); D'Ignazio and Klein, *Data Feminism*.

[40] Winner, *The Whale and the Reactor*.

from academic survey research, where the choice and wording of survey items (questions) represent human decisions, to collections of big data, which have to be "cleaned" by human analysts to be usable.[41]

As my focus turns towards the question of big data, it, once again makes sense to begin with the term itself. Francis Diebold, who has some claim to the invention of the term "big data," which he calls "apt and resonant and intriguingly Orwellian," defines it in a standard way, as a descriptor of file size. A data set that stretches beyond the hundreds of gigabytes and into the petabytes[42] is labeled "big data."[43] Following this trend, a common definition of big data is a data set that is too large to be handled by commonly used tools.[44] However, a definition this simplistic poses a number of problems. If we define big data as a particular file size or based on specific computing strengths, we are faced with a moving target. What is considered big data today, may not be tomorrow, given advances in computing technology. It also proves problematic when we realize that archival data from the precomputer era might also be considered big data.

---

[41] Roger Tourangeau, Lance J. Rips, and Kenneth Rasinski, *The Psychology of Survey Response* (Cambridge University Press, 2000); Hong, *Technologies of Speculation*.

[42] One petabyte is equivalent to 1 million gigabytes, or if envisioned as a single audio file at standard fidelity, one petabyte would contain enough audio to play continuously for 2,000 years.

[43] Francis X. Diebold, "A Personal Perspective on the Origin(s) and Development of 'Big Data': The Phenomenon, the Term, and the Discipline, Second Version," *SSRN Electronic Journal*, 2012, https://doi.org/10.2139/ssrn.2202843.

[44] Lev Manovitch, "Trending: The Promises and the Challenges of Big Social Data," in *Debates in the Digital Humanities*, 2012 Print Edition (Minnesota Press, 2012), http://dhdebates.gc.cuny.edu/debates/text/2.

Census data taken throughout the 19th and 20th century can easily be considered big data, but the definition seems to fit uneasily on a data set that came into existence before the invention of the computer.[45] This development is also recognized by Diebold, who discusses the transformation of big data into a "discipline," pointing to corporations that have executives with titles such as "Vice President of Big Data."[46]

It is clear that we need a broader, more fluid definition of big data that recognizes the similarities between big data and data but also incorporates more than simple file size as a definitional construct, as danah boyd and Kate Crawford point out. However, the existing definitions are lacking. The authors aim to partially remedy this situation by presenting one of the more robust understandings of the "Big Data" as:

> "A cultural, technological, and scholarly phenomenon that rests on the interplay of
> 1)   Technology: maximizing computation power and algorithmic accuracy to gather, analyze, link, and compare large data sets
> 2)   Analysis: drawing on large data sets to identify patterns in order to make economic, social, technical, and legal claims
> 3)   Mythology: the widespread belief that large data sets offer a higher form of intelligence and knowledges that can generate insights that were previously impossible, with the aura of truth, objectivity, and accuracy." [47]

---

[45] And even prompted the creation of the computer, as IBM was tasked with developing a computational device to count census records, leading to the first computers.

[46] Diebold, "A Personal Perspective on the Origin(s) and Development of 'Big Data'"; Steve Lohr, "How Big Data Became So Big - Unboxed," *The New York Times*, August 11, 2012, sec. Business Day, https://www.nytimes.com/2012/08/12/business/how-big-data-became-so-big-unboxed.html.

[47] danah boyd and Kate Crawford, "Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon," *Information, Communication & Society* 15, no. 5 (June 2012): 662–79, https://doi.org/10.1080/1369118X.2012.678878.

We predicate so much about our social world on a specific type of information and the interpretation provided by the analysis of big data as though it had the status of some sort of objective knowledge. This is what boyd and Crawford refer to as the mythology of big data; viewing it as a higher form of intelligence and knowledge that seems to provide a black and white view of the world. Using big data is seen as opening up a new form of knowledge or revealing a previously disguised or unobtainable truth to us. However, research has shown that these situations are not as black and white as we might imagine. Much work has gone into showing how the analysis provided by big data or actions that rely on big data are directly influenced by human biases and prejudices and the mechanisms that are used.[48] The important thing to know about this is that the usage of this data is impacting the ways that we view the world itself. There is an epistemology embedded in the mythology of big data. One of the purposes of this dissertation is to unmask this epistemology, which changes the way that we see the world. By relying on the mythology of big data we begin to see the world through its lens, discounting other forms of knowledge and disguising the forms of power that come about because of it.[49] This dissertation is partially a dissertation of unmasking wherein I seek to both reveal and analyze the various assumptions and changes that happened to society when we embrace the mythology of big data. This comes in the forms of new types of power exerted on individuals subject to big data; the analysis of the user. But it also involves the ontological development of big data; how it changes the way we

---

[48] Hong, *Technologies of Speculation*.

[49] Which may not be a mythology in the strictest sense. In many ways big data resembles what Horkheimer and Adorno term an epic; a structural attempt to define the world for its own purpose.

understand ourselves. In this way, this dissertation seeks to build upon the work of

Foucault, Marcuse, Feenberg, and other critical theorists by reaching beyond the merely

technological world that the logic of big data would wish to keep us in. Discourse

surrounding big data, algorithms, and most forms of digital technology is generally

focused on empirics—what we know about the data that is collected, who the data is

targeting, and the cost/benefit analysis regarding their implementation. I seek to look

beyond this, at the power relations that are created as a result of its use.

Despite a number of very keen insights, especially the inclusion of the category of

mythology, politics or any consideration of power are surprisingly missing from boyd

and Crawford's initial definition of big data. I wish to be more specific about our

understanding. What is the analysis specifically about? What are the consequences of

mythologizing data in this way? What kind of power does this knowledge create, and

who wields it? I see our modern understanding of data and big data as a collection of

attributes about individuals, leveraged to make predictions about them. This data then

gets analyzed, subjected to an algorithmic interpretation, and applied to the world.

We also need to understand how the subversive nature of big data works in

tandem with other major forces in society such as neoliberalism or even far-right post-

neoliberal nationalism. Big data supplements and provides a different form of power that

works alongside these other forces in society. It is an additive form of power that, while

substantive on its own, is also able to work in tandem with other major mechanisms in

society. In a neoliberal society, big data allows for the management of the economy to happen at a more granular level. Corporations, academic institutions, and the government can all harness big data to further their aims. The ranking systems that publications such as U.S. News and World Report use to rank colleges is driven by the forces of big data. Colleges then use these rankings to make spending decisions to make themselves appear more valuable or appealing to potential students.[50] The usage of analysis metrics to rank colleges leads to a feedback loop where colleges seek to improve their rankings by manipulating specific elements of the algorithmic analysis. Schools might choose to spend more money on fancy gyms and recreation centers or upgrade their dorm accommodations to boost their ratings. The result of this is an intensely neoliberal university system where students are viewed as consumers of products, and universities attempt to game the ranking system by appealing to the superficial desires of student-consumers.[51] Without the data collection ability of a publication like U.S. News and World Report and the quantification of educational outcomes, these neoliberal developments would not be possible.

The important element of all of this is how big data supports these additional forms of power. Without the technological capacities of big data, these ranking systems

---

[50] Cathy O'Neil, *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*, Reprint edition (New York: Broadway Books, 2017).

[51] Wendy Brown, *Undoing the Demos: Neoliberalism's Stealth Revolution* (New York: Zone Books, 2015); D. Franklin Ayers, "Neoliberal Ideology in Community College Mission Statements: A Critical Discourse Analysis," *The Review of Higher Education* 28, no. 4 (2005): 527–49, https://doi.org/10.1353/rhe.2005.0033.

would be much more abstract and would not have the veneer of objectivity that lends them their explanatory power. It is only through the mythology of big data that this neoliberal college ranking system can flourish to the extent that it does.

In addition, we see big data and the technological forms of big data playing a major role in the rise of far-right nationalism. Facebook and other social media enterprises have allowed far-right propaganda to flourish on their networks and even, in the case of YouTube, encouraged its development.[52] The specific recommendation algorithm that YouTube uses is curated by the management of large data sets of user interaction on the website. This algorithm is then fine-tuned to maximize user engagement. The goal of the analytics utilized by YouTube is to keep individuals on the website for as long as possible. More users watching videos means more ad revenue for YouTube, thus increasing its profit margins. However, the secondary outcome of this is that to keep individuals more engaged, the content that YouTube provides must become more and more extreme. Following the recommended videos algorithm that YouTube uses for just a short amount of time leads to a space dominated by far-right, racist, xenophobic, nationalistic content. These algorithms would not be possible without big data. The collection of vast amounts of granular data points about user action makes this algorithm, and the resulting radicalization, possible. In this way, the utilization of big

---

[52] Zeynep Tufekci, "YouTube's Recommendation Algorithm Has a Dark Side," Scientific American, April 1, 2019, https://doi.org/10.1038/scientificamerican0419-77; Manoel Horta Ribeiro et al., "Auditing Radicalization Pathways on YouTube," *ArXiv:1908.08313 [Cs]*, December 4, 2019, http://arxiv.org/abs/1908.08313.

data helps push extreme far-right viewpoints, thus increasing their power and undermining democratic norms and ideals.

This is big data's unique contribution to society as a whole. It is not merely a rationality that influences the way we think about politics, democracy, or rights, but also contains a more subversive mechanism that undermines our attachment to these very ideals, replacing democratic forms of self-determination with the convenience of algorithmic governance. This form of convenience reflects back on the usage of big data itself, further entrenching its grip on society. Big data amplifies the power of other major elements in society while at the same time increasing its own power and control. We can see this in the example with the college ranking system provided by the U.S. News and World Report.[53] Big data has contributed to the neoliberal hold over the university, while at the same time further entrenching itself in education, making itself more valuable or necessary while it props up other power structures. Without the mythology of big data, or the idea that the analysis provided by this data is somehow better or more objective than other forms of evaluation, the neoliberal goals of both the magazine and the university would go unfulfilled. The same is true with YouTube's usage of big data. Without the recommendation algorithm YouTube's profits would diminish, as they rely on big data for the sale of advertisements; further, the content creators that push far-right, racist, xenophobic, nationalistic messages would have their reach and their audience diminished. At the same time, relying on a recommendation algorithm also proves that the data

---

[53] O'Neil, *Weapons of Math Destruction*.

collection that powers the algorithm is itself necessary. The ideology of big data serves as recursive proof of its own necessity.

It may seem like there is a space on the internet for everybody, but it has been shown that major platforms drive huge amounts of traffic and are able to manipulate this traffic to maximize economic gains, directly monetizing our attention through psychological tricks. Additionally, when dangerous or extreme figures are removed from those platforms, their audience dwindles, showing that the neoliberal economic mechanisms are used as ways of legitimating extremist content. Hateful content is a profit-making mechanism for platforms that use big data to drive advertising.[54] Facebook is a particularly potent example of this. Part of Facebook's "Newsfeed" algorithm, which determines what an individual user sees when they open Facebook, is a metric called "N.E.Q." or News Ecosystem Quality. This metric usually does not play a large role in determining what individuals see on their Facebook feeds.[55] However, in the run-up to the 2020 U.S. presidential election, Facebook increased the importance of this metric as a way to combat disinformation. However, the consequence of this, from Facebook's perspective, is that it diminished the amount of time people remained on the site. Increasing the quality of news available to the user seemed to decrease the amount of

[54] Eshwar Chandrasekharan et al., "You Can't Stay Here: The Efficacy of Reddit's 2015 Ban Examined Through Hate Speech," *Proceedings of the ACM on Human-Computer Interaction* 1, no. CSCW (December 6, 2017): 1–22, https://doi.org/10.1145/3134666.

[55] Kevin Roose, Mike Isaac, and Sheera Frenkel, "Roiled by Election, Facebook Struggles to Balance Civility and Growth," *The New York Times*, November 24, 2020, sec. Technology, https://www.nytimes.com/2020/11/24/technology/facebook-election-misinformation.html.

engagement. After the election, Facebook reduced the importance of the N.E.Q. metric, prioritizing user engagement over accurate information. Facebook's power is in determining what vast swaths of society see and consume as news. It is, in a very real way, in control of the information ecosystem for millions of people. By controlling and modifying the quality of news information that people have access to, Facebook can prioritize its own profitability over an accurately informed public. Big data is a force that underlies other societal issues, and it has an impact on the formation and makeup of society itself. Big data is at once broader than neoliberalism, in that it interfaces with other major forms of power, but is also narrower in that the power of big data is collected within a relatively small cohort of individuals or individual companies. Big data is not as entrenched in the formation of political governance as neoliberalism is. However, it remains alongside neoliberalism as a supplementary force to the political rationality of neoliberalism.

A Critical Theory of Big Data

A critical theory of big data involves the triangulation of several ideas. From Michel Foucault's and Wendy Brown's conception of neoliberalism comes the idea of big data as a political rationality, a governing mechanism that shapes the *episteme* of society. It also borrows the idea of technological rationality from the Frankfurt School, specifically Marcuse, which shapes our view of the possible.[56] For Marcuse, the development of technology necessarily creates new forms of rationality, causing us to view the world in

---

[56] Marcuse, *One-Dimensional Man*.

increasingly limited and "one-dimensional" ways. It also declares that technological

developments, when viewed as direct instruments of progress and production, are able to

develop rationalities in addition to ideologies and governmental developments. It borrows

from the literature on biopolitics, which helps explain the governmentality of big data and

its creation of populations. From Koopman comes the idea of infopower, or the

recognition of the fact that the way we create and classify data, what he calls "format"

and "fastening," impacts the power of this information.[57] Collectively, a critical theory of

big data is the study of a technological power to govern outside of government.

Technology is diffuse, spread across state borders and transcendent among disciplines. It

is also a power of governance, understood as a way to solve problems and develop

governmentality. It does all these things in obscurity. Through copyright and other formal

obfuscations, as well as the masking power of technocracy, big data develops an obtuse

governing power that in its dispersed ubiquity creates a new technological *episteme* that

develops out of, but remains distant from, earlier mechanisms for defining and

understanding society.

Foucault's contributions are useful for understanding how the power of data

works, even as it moves from the physical realm of the military examination to the digital

realm of the Amazon shopping cart, the Facebook page, and the candidate's online voter

roll. Foucault understands the development of data as something institutional, tied to

---

[57] Koopman, *How We Became Our Data*, 2019.

either the government or some strict hierarchical institution with a specific social good as its outcome.[58] The data collection, normalization, and hierarchy present in the army camp are physical manifestations of information that create and manage a defense force. Foucault could not have anticipated the technological development that began in the 1990s and that has continued through our modern era, which transformed the collection and utilization of data. The rise of the online corporation and the concept of social media has changed the landscape of truth, knowledge, and power. Despite Foucault's admonition that we need "a political philosophy that isn't erected around the problem of sovereignty," or in other words "to cut off the kings head," we have not freed ourselves from the idea of the sovereign or single individual with the power to reshape society.[59] We have merely replaced the king with the CEO or tech visionary, and the objective rank with the subjective, deconstructed rank of social approval. Scholars and journalists alike focus their investigations on Mark Zuckerberg, Eric Schmidt,[60] or their individual creations, and not the web of power and knowledge that results. We should again heed Foucault's advice and turn our attention to these sites of truth and mechanisms of power.

Yet, in the third decade of the 21st century, more than 40 years since Foucault's writings, much has changed. The power of normalization and pacification has moved beyond the exclusive purview of the state. Oher actors are not just participating in this

---

[58] Michel Foucault, *Discipline & Punish: The Birth of the Prison*, trans. Alan Sheridan, 2nd edition (New York: Vintage Books, 1995).
[59] Michel Foucault, *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*, ed. Colin Gordon, 1st American Ed edition (New York: Vintage, 1980), 121.

[60] The current CEO of Facebook and former CEO of Google, respectively.

rationality, as they have always done, but are also participating in the project of governmentality (as I detail in the next chapter). We need to update our conceptual understandings to meet these new challenges.

It appears that at every point during the 20th century where there was a major technological development, there was a corresponding period of intense criticism. This begins in earnest after the Second World War, in what I have termed the first wave of technological investigation. The early critical theorists, specifically Marcuse, Horkheimer, and Adorno, engaged in a form of technological criticism in the seemingly placid postwar decades. These scholars sought to contest the feelings of calm and normalization that occurred after the major upheaval of the Second World War and ultimately understand how the conclusions of the Enlightenment could lead to the barbarity of the Nazi regime.[61] This question led them to investigate the technological innovations and engage in a specific form of technological and media criticism, reflecting on the conformity seen in the media landscape of the 1960s. This complacency is driven both by the assumed ideological victory of liberal capitalism over other forms of ideology and by the string of technological developments that seem to make life easier, but in fact position man for complacency. Marcuse laments the development of technology that intentionally pacifies individuals rather than empowers them to change their position in the world. This pacification project is encouraged by the existing form of capitalist

---

[61] Horkheimer and Adorno, *Dialectic of Enlightenment*.

consumption that constantly changing technology enables. In this view, technology is not

mere a thing that has become fetishized but should be understood "rather as a system

which determines *a priori* the product of the apparatus as well as the operations of

servicing and extending it."[62] The system of technology makes up Marcuse's concept of a

technological rationality. Technological rationality comes out of a Marxist materialism,

in some ways necessarily transcending it while also undermining its goals. The

materialist origins of Marcuse's view of technology are evident in his claim that "the way

in which a society organizes the life of its members involves an initial choice between

historical alternatives which are determined by the inherited level of the material and

intellectual culture."[63] This materially oriented existence is influenced by the necessary

but problematic level of technological "progress."

As the 20th century continues, Derrida continues this line of criticism, taking aim

at one specific form of technology, television, late in his career.[64] Television, for Derrida,

provides a mechanism for seeming to simulate political participation while actually

fostering depoliticization. This is because the immediacy and intemperance of television

brings the viewer into a live debate, fooling the viewer into thinking they are

participating in the debate and are therefore experiencing a form of political efficacy. For

Derrida, the opposite is true, however: television only serves to distance the viewer from

---

[62] Marcuse, *One-Dimensional Man*, xlvii.

[63] Marcuse, xlviii.

[64] Derrida, *Echographies of Television*.

the debate and remove them from politics, diminishing their control over their own political situation. This is a temporal distinction, a result of the differences between "the domain of 'live' communications, or communication in the so-called real-time," and the way in which we perceive the event.[65] We perceive the liveness of television but cannot participate in its event. The televised event occurs in a medial space, between action and response. It invites debate but cannot accept responses. In this way, it undercuts political efficacy, implicitly inviting response, dissent, and further conversation, but actually rendering such response meaningless. The television invites us to respond but, of course, it cannot engage us in discussion. Because of this, the new form of technology continues the pacification project identified by Marcuse and requires us to "develop a critical culture," as Derrida recommends.[66] Derrida and Marcuse both worry that technology has the potential to modify our relationships with ourselves and our society in unseen ways. It is clear in these texts that each major technological revolution requires a specific critique. The consumer culture of the immediate postwar era required the critique provided by critical theory. Similarly, the television era of the late 20th century requires the depoliticizing critique of Derrida and other poststructuralists. Similarly, the new technological era that results from the expanding scope of the internet, and big data, requires critique.

---

[65] Derrida, 5.

[66] Derrida, 4.

Big Data Is Contentious—What We Lose

There is no doubt that big data has impacted our world in positive ways. The use of data in medical technology has paved the way for new research that has saved many lives. In addition to this, the ability to monitor many elements of health allows researchers and clinicians to track and predict potential disease outbreaks.[67] On the consumer side, while there is some skepticism regarding the use of this expanding technology, it is clear that data technology has made our lives easier, richer, and more productive. For scholars, big data, specifically exemplified in search algorithms, has made the task of academic research much easier. On a more basic front, the ubiquity of entertainment options and consumer convenience have, if not enriched our lives, at least allowed for a greater diversity of entertainment to reach us ever faster. [68]

This optimism is echoed by former Google CEO Eric Schmidt who, when confronted with the potential problems that technology may play for democracy and society, claimed that "these problems will solve themselves."[69] It is worth noting the specific syntax of this quote. Schmidt clearly believes technology will end up solving all the problems it has created. I think it is worth being skeptical about such tautological

---

[67] Sharona Hoffman and Andy Podgurski, "Big Bad Data: Law, Public Health, and Biomedical Databases," *The Journal of Law, Medicine & Ethics* 41, no. 1_suppl (April 2013): 56–60, https://doi.org/10.1111/jlme.12040.

[68] Receiving any book I want in less than two days from Amazon has a great and terrible impact on my life and financial well-being.

[69] Alexis C. Madrigal, "The Radical Optimism of Eric Schmidt," The Atlantic, June 29, 2012, https://www.theatlantic.com/technology/archive/2012/06/the-radical-optimism-of-eric-schmidt/259235/.

optimism. Cathy O'Neil takes a more technical approach to such skepticism, showing how the development of the algorithms and models can be used to harm groups of people both large, in the case of the economic crash of 2008, and small, in the case of teachers subjected to a new evaluation algorithm.[70] Overall, we know that the use of data to make policy decisions harms impoverished individuals;[71] that search algorithms are biased and reinforce stereotypes;[72] that algorithmic identities challenge our established concept of identity;[73] that big data means big surveillance;[74] and that the models and mechanisms themselves are cause for concern.[75] It is clear that big data is contentious, and we should be cautious of the type of unbridled optimism that Schmidt presents. The existing scholarship mirrors these questions and leads us to raise further questions about the nature of big data. Observers, both journalistic and scholarly, lament the problems and issues that the individual aspects of big data and the technological revolution cause.

However, the overarching question remains undertheorized. What changes about our society when we embrace big data as its defining aspect? What do we lose? My ultimate claim is that we lose politics and sites of political contestation. What does it

---

[70] O'Neil, *Weapons of Math Destruction*.

[71] Eubanks, *Automating Inequality*.

[72] Noble, *Algorithms of Oppression*, 2018.

[73] Cheney-Lippold, *We Are Data*.

[74] Zureik, Stalker, and Smith, *Surveillance, Privacy, and the Globalization of Personal Information*.

[75] O'Neil, *Weapons of Math Destruction*.

mean to lose politics? If we define politics as Brown does—as "a theater of deliberations, power, actions, and values where common existence is thought, shaped and governed"— then, to lose this is to lose control over our very existences.[76] While Brown argues that neoliberalism begins to undercut our control over the political, big data too has a role to play. The expansion of big data, through both the empowering of corporations that seek to shape society to their advantage and the larger social and epistemological implications of big data leads to an increasingly decentered political existence. This decentering of the political means our ability to determine our common existence is being outsourced to institutions and processes outside of the reach of democratic modes of governance. If an element of popular sovereignty is required for a democratic existence (broadly conceived), then the move toward big data undermines this existence. Implicit in this is the broad scope of democracy and democratic government that might run at odds with current understandings of Western democracies. Big data needs a new critical theory because its usage has deleterious effects on democratic norms and policy. The expansion of big data and the specific outcomes that result from its usage in both corporations and in governmental operations means that more and more of society is managed through a technocratic lens. When Facebook can control our access to our social circle or Amazon toys with the idea of developing a health care marketplace, we see big data encroaching upon our political existences. The mythology of big data as demonstrated by boyd and Crawford centers big data as a privileged site of knowledge and truth.[77] However, this

---

[76] Brown, *In the Ruins of Neoliberalism*.

[77] boyd and Crawford, "Critical Questions for Big Data."

site of knowledge and truth is accessible only to those with the technological knowledge and implicit power to grapple with the apparatus of big data. This removes the process of big data from any democratic site of contestation. How are we to contest the outcomes of big data when the data collection procedures are obscured from view? The analytical calculations are performed inside of a black box protected by copyright law and corporate security and the outcomes are often imposed upon us without our consent or even our knowledge.[78] In a democratic decision-making process, the arguments and proposals for society are transparently discussed and are accountable to the body politic. None of this occurs in a society managed by the rationality of big data. What results is a technocratic society managed by those who are able to understand and control these new forms of technology. Occasionally called platform governance this understanding sees us cede democratic power and control over our democratic norms and institutional protections to corporations and institutions that are not invested in a proper democratic project and instead are focused on maximizing outcomes under the guide of neoliberal capitalism.

This occurs in a number of ways. Through the increasingly biopolitical nature of big tech companies such as Google and Facebook, which in turn leads to more subtle forms of de-democratizing power, like the reshaping of our basic ontologies and epistemologies, the emerging hegemony of big data undermines our political existence, leaving us in a realm of "mere life." This move toward mere life reduces individual agency through the development of the subatomic person required for big data

---

[78] Pasquale, *The Black Box Society*.

categorization. This new categorization then technologizes the creation of truths, further allowing corporations and other institutions to reshape our ontologies and epistemologies. Big data is a technological "black box" that obscures power structures and makes us reliant on a totalizing infrastructure that requires conformity to the "facts on the ground."

Overall, I argue that we need to develop a critical theory of big data to understand how it is shaping our society through the control and management of knowledge. Big data defines the limits of the possible, defining our social interactions, interpersonal relations, and relations with private enterprise and public governance. This new form of rationality means that we increasingly view political or philosophical contestation over rights, freedoms, fairness, and the role of the individual as technocratic problems that are solvable through the "proper" implementation of data. This then reduces the public, democratic elements of society into puzzles with definitive solutions. The result of this is a depoliticization of society, removing the ability of a collective demos to decide what kind of society they would like to create. However, this depoliticization does not remove politics. Instead, it recenters politics, moving the questions of the political away from the realm of the public square and into realm of the technocratic. When data and algorithms are seen as the source of societal truth, when the goal is to reframe our questions of rights and justice into questions of application and categorization, we then cede the ability to make these decisions to the individuals who control and understand the data that we see as necessary for creating the solutions.

Chapter 2: Big Data Biopolitics

To develop a clear critical theory of big data and explore its depoliticizing effects, it makes sense to begin with the structures that are most evident in its usage: corporations. Corporations that utilize the collection, analysis, and deployment of big data have an increasing amount of control over our social and political lives. Facebook (or Meta), Google (or Alphabet), Amazon, Uber, and others have spent vast amounts of resources to enshrine their positions as major players in society. These corporations operate by using their platforms to collect massive amounts of data about individuals, analyze that data, and then deploy it to modify the behavior of consumers through targeted advertising; through the direct manipulation of attention, keeping users on the apps longer; or by ensuring other options are more limited and less tailored to an individual experience. By beginning with the power of these corporate actors and analyzing them through a Foucauldian lens of biopolitics,[1] we can see how the major power structures at work play out in the private realm, before exploring how this power impacts individuals.

---

[1] The form of power associated with corporations has been critically analyzed using a wide range of concepts of power, from Marxist materialist frameworks, looking at the power to create and manage capital, to institutional discussion of the firm popular in the mid-20th century. Here I take a Foucauldian perspective, in keeping with my general analytic lens of this entire project, as it provides the most useful framework for understanding the particular form of control that this technology has over us. Foucault's concept of biopolitics allows us to move beyond considerations of capital, or of institutional forms, and engage with the mechanisms of power that make this technology more similar to state power, rather than more different.

This power has been recognized by state governments that have occasionally taken action to attempt to rein in the power of these data collection mechanisms. In the EU the passage of the General Data Protection Regulation (GDPR) has targeted the actions of these corporations from the horizon of privacy protection, looking to ensure the data collected by these corporations is kept private and not used for harmful purposes. Taking a different approach, the U.S. Congress and Federal Trade Commission (FTC) have engaged in several legislative actions aimed at bringing antitrust laws to bear on the power of these corporations.

In addition to the actions of states, there has been significant scholarly disagreement about what to make of these corporate and technological developments. A wide range of analytical tools has been deployed to attempt to understand the forms of power wielded by the contemporary forms of digital technology. These approaches have taken two general forms: first, broad-scope investigations typified by Shoshana Zuboff's *Age of Surveillance Capitalism,*[2] and second, more detailed investigations of specific forms algorithmic bias or technological harm, as is seen in Safiya Noble's *Algorithms of Oppression.*[3] However, despite the many strengths of these forms of investigation, neither fully grapples with the structures of power that occurs because of these technologies. This

---

[2] *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*, 1st edition (New York: PublicAffairs, 2019).

[3] *Algorithms of Oppression: How Search Engines Reinforce Racism*, 1st edition (New York: NYU Press, 2018).

has led to what Koopman derides as a persistent avant-gardism, as scholars seek to

redefine the scope of power at work within these new forms.[4]

Both the governmental and scholarly approaches have significant limitations. The

governmental approach risks misinterpreting the power of big data, either

conceptualizing it as a problem of monopoly, as the United States government does, or

focusing its efforts exclusively on the question of privacy. This risks allowing other

forms of power to operate in society unchecked or miss the goal of regulatory action. As

an example, it is unclear how governmental claims that Facebook is a monopoly and

should be broken up allow us to grapple with the problem of misinformation. Scholarship

on digital technology either focuses too narrowly on the problem of algorithmic harm or

treats the question of data as an issue of privacy and the reclamation of rights. A more

comprehensive understanding of the form of power at work within big data is needed. To

this end, I want to reclaim biopolitics as the analytic lens that guides our understanding of

modern digital technology. Initially derived from the first volume of Michel Foucault's

History of Sexuality, and later elaborated in his published lectures, today biopolitics has

emerged as a rich explanatory form used to examine everything from educational policy

to the development of smart cities.[5] Many scholars have also pointed to the utility of

---

[4] Colin Koopman, *How We Became Our Data: A Genealogy of the Informational Person*, First edition (Chicago: University of Chicago Press, 2019).

[5] Michel Foucault, *The History of Sexuality, Vol. 1: An Introduction*, Reissue edition (New York: Vintage, 1990); Michel Foucault, *The Birth of Biopolitics: Lectures at the Collège de France, 1978--1979*, Reprint edition (Basingstoke England; New York: Picador, 2010); Tyson Lewis, "Biopolitical Utopianism in Educational Theory," *Educational Philosophy and Theory* 39, no. 7 (January 2007): 683–702,

biopolitics as a frame for the study of modern technology.[6] However, there is an increasing gulf between those who study biopolitics through the works of Foucault and others, and those interested in the impacts of the growing power of digital technology—what I shorthand as big data. Here I aim to bridge this gulf and argue that the long legacy of biopolitics is resurgent within the technological form of big data. Biopolitics is, and has always been, integral to the ongoing process of big data and, by paying attention to its effects, we can more clearly see how it is at work within the corporate forms of big data and how it is continuing to impact our politics.

To do this, I first proceed with a conceptualization of biopolitics. Then, through the elaboration of the specific definition of a biopolitics of big data, I show how the actions of major corporations that engage in big data projects are participating in biopolitical regimes of control. I conclude by looking at the veiled impacts of this power, examining the loss of political self-determination that comes from such an application of biopolitical power. Overall, I argue that the power obtained by these corporations through the usage of big data represents a challenge to our existing democratic institutions and, if not properly understood, only hampers future efforts at regulation or management of this power.

https://doi.org/10.1111/j.1469-5812.2007.00316.x; Orit Halpern, *Beautiful Data: A History of Vision and Reason since 1945* (Duke University Press, 2015).

[6] John Cheney-Lippold, "A New Algorithmic Identity: Soft Biopolitics and the Modulation of Control," *Theory, Culture & Society* 28, no. 6 (November 2011): 164–81, https://doi.org/10.1177/0263276411424420; Vernon W. Cisney and Nicolae Morar, *Biopower: Foucault and Beyond* (University of Chicago Press, 2015).

Biopolitical Background

Biopolitics is a notoriously fraught concept spanning a multitude of contexts and interpretations including direct discussions of health policy, pushes for new forms of democratic decision making, and exclusionary, racist forms of eugenics. Beginning as the simple portmanteau of biology and politics, an easy understanding might situate a study of biopolitics exclusively in the realm of public health or ecology. Thomas Lemke pushes beyond this, situating biopolitics at the intersection of life and politics, and not the result of ones power over the other.[7] This follows from a Foucauldian perspective, looking at the ever-changing, expanding view of the limits of power and politics and at how "power is situated and exercised at the level of life, the species, the race, and the large-scale phenomenon of population."[8] This form of biopolitics is not strictly concerned with health policy or the direct application of biology but with the larger aggregation of individuals at the level of the population. This can intersect with health policy but also can diverge from it, as Gordon Hull argues.[9] Importantly, it can be applied outside of the structures of the state apparatus.[10]

---

[7] Thomas Lemke, *Biopolitics: An Advanced Introduction*, trans. Eric Frederick Trump, 1st edition (New York: NYU Press, 2011).

[8] Foucault, *The History of Sexuality, Vol. 1*, 137.

[9] Gordon Hull, "Biopolitics Is Not (Primarily) About Life: On Biopolitics, Neoliberalism, and Families," *The Journal of Speculative Philosophy* 27, no. 3 (2013): 322–35, https://doi.org/10.5325/jspecphil.27.3.0322.

[10] Frédéric Gros, "The Fourth Age of Security," in *The Government of Life: Foucault, Biopolitics, and Neoliberalism* (Fordham Univ Press, 2014), 17–28.

Foucault understands biopolitics as the result of the Enlightenment, whose

philosophical, technological, and cultural developments challenged existing monarchic

governmental forms and delegitimized the direct, coercive form of power that he calls

sovereignty. European states were forced to retreat into a more discursive mechanism of

power, utilizing the power of normalization that resulted from the new understanding of

law and justice as mechanisms of discipline.[11] The use of this new power required a new

understanding of the people. Thus, the development of biopolitics began, or "the entry of

phenomena peculiar to the life of the human species into the order of knowledge and

power, into the sphere of political techniques."[12] Biopolitics emerged from a need to

understand and exercise control over a new conception of society, giving rise to the idea

of the population. A quantified, classified body of individuals, the population could be

individually measured and marked but could also be understood as having a collective

health and vitality. Therefore, one could speak of the health of a population, comparing

statistical measures such as birth and death rates that treated the population as a singular

whole. However, this understanding could also view members of the population as

individuals with specific qualities, so that one could also speak of the characteristics of

individuals that make up the population. This duality is the mechanism of power that

Foucault claims is the primary characteristic of the modern state.

---

[11] Foucault, *Discipline & Punish*.

[12] Foucault, *The History of Sexuality, Vol. 1*, 141.

Major theoretic developments of biopolitics are traced from Gregorio Agamben, Thomas Lemke, and Achille Mbembe.[13] While all three have useful insights and add productively to the discussions surrounding biopolitics, only Lemke sees the analytic advantage of decoupling biopolitics from the state, allowing it to explain nonstate action, a position taken up by later scholars as well.[14] On the other hand, Agamben notably frames his conceptions of biopolitics around a sovereign's ability to create the "state of exception," or a place beyond the bounds of the agreed-upon norms of society. In such a state, the power of the sovereign is at its zenith. The sovereign in the state of exception becomes the law embodied; able to become the very expression of law and therefore free to do anything and take any action. This state is contrasted with the idea of the sacred man, or *homo sacer*, the man who may be killed but not sacrificed.

For Mbembe, biopolitics becomes a defining power of death, characterized in the much more Foucauldian sense as "who is able to live, and who must die."[15] Mbembe, impressively, is able to cover much more theoretic ground with his view of necropolitics and its biopolitical corollary. He centers his discussion in the postcolonial world, inspired by the work of Fanon. Thus, race is a central concept to his biopolitics. Because of this larger scope, he can begin to move beyond Agamben and allow for alternative forms of

---

[13] Giorgio Agamben, *State of Exception*, trans. Kevin Attell, 1st edition (Chicago: University of Chicago Press, 2005); Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life*, trans. Daniel Heller-Roazen, 1st edition (Stanford, Calif: Stanford University Press, 1998); Lemke, *Biopolitics*; Achille Mbembe, *Necropolitics* (Durham: Duke University Press Books, 2019).

[14] Gros, "The Fourth Age of Security."

[15] Mbembe, *Necropolitics*.

sovereignty to be developed. He conceptualized a form of self-sovereignty, embodied by the suicide bomber, who in the moment of suicide exerts a direct sovereign power over themselves that cannot be violated.

There are a number of surprising similarities between the works of Agamben and Mbembe. Both spend a large amount of time theorizing about the Nazi regime and Nazi-adjacent philosophers like Schmidt and Heidegger. In a way, this makes sense. For both authors, sovereignty is defined as the state control of death, and the Nazi regime is the most readily available regime to use as an illustration. It also helps that the theoretic underpinnings of the regime were discussed and advocated by such familiar names as Schmidt and Heidegger. Because both Agamben and Mbembe tie their definitions of sovereignty to the state, and specifically state violence, neither is able to follow Foucault when he begins to turn away from biopolitics as the manifestation of a racist, eugenics-driven doctrine and explores the reconceptualization of biopolitics into a neoliberal economic form.[16]

Foucault and other scholars conceptualize biopolitical power as the primary purview of the state. Even given the turn to the discussion of neoliberalism, biopolitics remains, for Foucault, as part of a "series" that exists on a continuum of "the population–

---

[16] Miguel Vatter, "Foucault and Hayek: Republican Law and Civil Society," in *The Government of Life: Foucault, Biopolitics, and Neoliberalism* (Fordham Univ Press, 2014), 163–84.

biological processes–regulatory mechanisms–State."[17] For Agamben, the state seems to

simply exist and impose its will on society. Any conception of a politics of contestation,

or the idea that individuals or groups may contest the role of the state or work to augment

its application of violence, is lost. The state is treated as an autonomous actor that is

simply able to impose its own will upon its population. This is perhaps less true for

Mbembe; his postcolonial perspective leaves less room for individual action. But the

issue remains. Despite his appeals to Fanon, there is little political action in his

biopolitics. However, that can and should be challenged in light of new technological

developments.

Michael Hardt and Antonio Negri on the other hand have attempted to move

beyond the state in their conception of empire, but in this case, they are moving toward a

broad international hegemony, instead of the individualized biopolitics of technology.[18]

They conceive of a new international empire based on a biopolitical, capitalistic

framework that renders traditional modes of sovereignty and state boundaries

increasingly irrelevant. Hardt and Negri theorize a biopolitics of force, understanding a

new-world biopolitical project as a hegemonic enterprise that has the power to force other

actors to its will.

---

[17] Michel Foucault, *"Society Must Be Defended": Lectures at the Collège de France, 1975-1976*, trans. David Macey, First edition (New York: Picador, 2003), 250.

[18] Michael Hardt and Antonio Negri, *Empire* (Cambridge, Mass.: Harvard University Press, 2001).

Foucault, however, continues his account of biopolitics beyond the friend/enemy

distinction that characterizes the Schmidttian view analyzed by Agamben and Mbembe.

By understanding the "other" as an economic competitor and not an existential rival, this

"other" population may be engaged with fruitfully without overt warfare or the reduction

to *homo sacer*. As a result, we get the (indirect) assertion from Foucault that, "politics

becomes warfare by other means."[19] But the fundamental power of the state as a

biopolitical enterprise remains, except the state is unmoored from its foundation, rooted

only in the management of the economy. This allows not just the capture of the state by

economic forces, but also the replacement of the state. Today, this continues its

development into the biopolitics of big data. The classification capabilities (with the

correlative analytical and useful faculties) of private enterprise surpass those of the state

(at least in its Western, liberal form) and private enterprise can duplicate the role of the

state, unseating it as the exclusive purveyor of biopolitical power. Savvy corporations,

which leverage their own classificatory capabilities, then attempt to develop their own

populations of users, their own ecosystems, and their own governmentality to manage

and pacify these new groupings.

The biopolitical control offered by big data is frictionless; a governmentality so

well defined that we don't feel its grip over our lives. However, the proof of this

frictionless control is seen in how jarring it is when the actuality of big data biopolitics

falls short of the ideal. Facebook's Cambridge Analytica scandal in 2018 was contentious

---

[19] Foucault, *Power/Knowledge*, 123. This specific quote is attributed to Foucault by the interviewer, but he agrees that it is an accurate representation of his view.

because it created a tension with Facebook's ideal.[20] This is evidenced by Mark

Zuckerberg's description of the scandal as a "breach of trust."[21] Zuckerberg framed the

problem as not a concern with the collection or utilization of the data by Facebook, but

rather as a breach of trust between Facebook, its users, and Cambridge Analytica, a

source of friction that makes Facebook's brand of biopolitics less seductive to its users.

This biopolitical control manifests itself as the depoliticizing "conduct of conduct," the

Foucauldian term that Wendy Brown uses to describe elements of neoliberalism.[22] This is

also a central feature of the management of the scope of possibility found in Marcuse.[23]

While governmentality as a depoliticizing "conduct of conduct" is a mechanic of

neoliberal governance, it is also a central form of big data biopolitics, at once reflecting

how biopolitical control exists in parallel with neoliberalism while also surpassing it.

Neoliberal governmentality relies on this "conduct of conduct" to responsibilitize

individuals, making them individually responsible for systemic political decisions. This

depoliticizes them through the ineffectuality of individual decision-making. However, big

data utilizes a "conduct of conduct" to depoliticize through exclusion. This frictionless

control creates a depoliticized citizenry that does not even recognize the political action

they are excluded from, we don't realize the political decisions that are made about us,

[20] Ivan Manokha, "Surveillance: The DNA of Platform Capital—The Case of Cambridge Analytica Put into Perspective," *Theory & Event* 21, no. 4 (October 2018): 24.

[21] Mark Zuckerberg, "CNN Interview after Cambridge Analytica," *Zuckerberg Transcripts*, March 21, 2018, 10.

[22] Brown, *Undoing the Demos*.

[23] Marcuse, *One-Dimensional Man*.

without our control, as the Facebook scandal exemplifies. Understanding biopolitics as consisting of both capacity and acceptance is crucial for recognizing the new depoliticizing tendencies of the biopolitics of big data.

The development of the new technological apparatus of big data allows for a new governing capacity to be exercised not by government but by private corporations. What happens when biopolitics becomes decoupled from the state apparatus to which it has traditionally been associated? This is not to say that the state no longer has recourse to biopolitical capacity, but to ask, what happens when other corporate enterprises also utilize this form of power? To fully understand this, I wish to break biopolitics into its specific components: a capacity for biopolitical governance, originally rooted in the state's power to surveil and categorize its population; and the acceptance of the population itself, which had traditionally been associated with the legitimacy of the state, but has, due to the encroachments of neoliberal logic, increasingly become decoupled from the state and taken up by private corporations. Following this deconstruction, I will then put forward a new definition of a biopolitics of big data, focusing on how the concept can be reconstructed to be useful for our technological existences.

Biopolitics as Capacity

If we are going to define biopolitics as something that can be decoupled from exclusive use by the state and instead understand it as a form of power that can also be used by tech companies, we must reframe our basic understanding of biopolitics itself. To that end, I

conceive of biopolitics as having two essential aspects: *capacity* and *acceptance.*

Capacity is the direct power associated with the practice of biopolitics; the development

of the capacity to engage in the required management and classification of individuals. In

short, if you want to engage in biopolitics, you must develop a knowledge of the

population you wish to analyze. Traditionally, and for practical reasons, this capacity has

been developed and held by the state apparatus; the state exclusively held the power and

resources to engage in this type of mass biopolitics. However, the computational

processes of big data have expanded this biopolitical capacity to private corporations in

new ways.

The depoliticizing outcome of capacity is to create a population that is separate

from politics. This is a population inhabited solely by users who do not have recourse to

individual political contestation or reformation regardless of how biopolitics may impact

their lives. For example, Facebook's vacillating on the status of political ads in its

ecosystem may have had a large impact on the 2020 election cycle, and yet this overtly

political decision that impacts the population of the Facebook user-citizenry was made

entirely without any discussion of democratic norms or individual political action.[24] In

fact, it seems almost unthinkable for this decision to be subject to the rigors of democratic

discourse. Yet, it remains an immensely political decision, entirely removed from the

political rights of individuals. This is made possible by Facebook's capacity to collect

---

[24] Mike Isaac and Nick Corasaniti, "Facebook Said to Consider Banning Political Ads," *The New York Times*, July 10, 2020, sec. Technology, https://www.nytimes.com/2020/07/10/technology/facebook-politcal-ads-ban.html.

vast amounts of user data and then deploy it as a form a biopolitical control. The nondemocratic element of this decision leads into the second element of biopolitics: acceptance.

Biopolitics as Acceptance

The second element of biopolitics is *acceptance*. It is not enough for a state or a corporation to have the ability to engage in a form of biopolitics; a population must, in some way, accept its own subjugation either through direct, conscious acceptance or through a more subtle pacification. Without acceptance, effective biopolitics cannot achieve the required normalization. This important element of biopolitics is made easier in the West by the development of neoliberalism.[25] Neoliberalism can be defined as having three aspects. The first is a push toward the privatization of public goods, coupled with widescale deregulation.[26] The second is the development of a political rationality; an individual-level view that the market is a privileged source for truth and that individuals should organize their lives according to market logic.[27] Third is the paradoxical notion that the role of the state is to be simultaneously dethroned through privatization and deregulated but also empowered, as it is necessary to act as a referee for the free market,

---

[25] As will be shown later, there are alternatives to neoliberalism. China's authoritarian governmental structure and the integration of the state with corporations provides another route to obtain this biopolitical acceptance.

[26] Lemke, *Biopolitics*.

[27] Brown, *Undoing the Demos*; Foucault, *The Birth of Biopolitics*.

preventing monopoly and setting up the conditions for a free market to exist.[28] The first two aspects are crucial for the development of a corporate biopolitics. The third is crucial for its management and continued existence.

Neoliberalism, then, accomplishes two things that enable the population to accept a corporate biopolitics. First, neoliberalism hollows out the state, defining the market as the primary mechanism for delivering public goods and even creating markets where none existed before.[29] Without this, corporate biopolitics could not exist. Neoliberal policy undercuts the state, leading to privatization and deregulation. This has a number of effects. One of them is the delegitimization of the state as primary actor, providing an opening for the biopolitical aspirations of large corporations that have access to big data. Corporate governmentality becomes acceptable to a society accustomed to understanding its government as only the shepherd of the economy. A corporation engaging in the classification and management of a population does not seem especially egregious to a society used to neoliberal developments.

Neoliberalism's development of a particular political rationality puts this type of market-centered understanding at the fore.[30] The political rationality of neoliberalism

---

[28] Thomas Biebricher, *The Political Theory of Neoliberalism*, 1st edition (Stanford, California: Stanford University Press, 2019).

[29] David Harvey, *A Brief History of Neoliberalism* (Oxford: Oxford University Press, 2007); Dag Einar Thorsen, "Neoliberal Challenge-What Is Neoliberalism, The," *Contemp. Readings L. & Soc. Just.* 2 (2010): 188.

[30] Brown, *Undoing the Demos*.

makes these economic aspects desirable to a general population. The development of neoliberal rationality means individuals begin to view neoliberalism as the basic mechanism for existence and view themselves as subject to neoliberal market logic. This then makes the project of corporate biopolitics acceptable, especially when it takes on the language of neoliberal responsibilitization. After the hollowing out of the state, and the enshrining of the market as the privileged site for understanding the world, the individual becomes the primary mechanism for political action. Individual action, mediated through the market, is the essence of neoliberal political action. The neoliberal individual is said to perform their politics through targeted market participation. If they want to promote organic food or green energy they should do so, not through advocating for governmental action, but by controlling their own actions. They are thus responsibilitized for the consequences of their own actions, regardless of the larger systemic pressures upon them. The depoliticizing that occurs here is ineffectual. The political action remains but is rendered useless in the scope of the larger economic form. More subversively, the poor individual is poor not because of structural economic issues, or any other historical or structural cause, but due to a lack of personal responsibility, thus removing systemic or structural change from the realm of political action.

Neoliberalism's political rationality makes this new form of biopolitics acceptable because it has both undercut the role of the state through its market-focused understanding and elevated corporate actors. The focus on the market means that corporations now have a larger claim to truth than the state, as the market is viewed as the

site of truth under neoliberal market rationality. Brown sets the stage for this discussion by developing an idea of "the properly interpellated neoliberal citizen" as one who "makes no claim for protection" against the intermittent and necessary crashes of the market and indeed "accepts neoliberalism's intensification of inequalities as basic to capitalism's health."[31] Implicit in this definition is the idea that the neoliberal citizen is based on the assumption of citizen participation in the market. You are a neoliberal citizen because you participate in this market; you are subject to it; you derive your citizenry from your position within it. Big data biopolitics, emerging alongside these neoliberal regimes, develops the user as an individual who is not simply a consumer in this market, but also a piece of data to be commodified. This develops a new form of depoliticization: the exclusion from the new political realm and managing individual conduct without input or democratic deliberation.

But if corporations have been engaged in biopolitical projects since at least the founding of the Ford Motor Company, why should we care now? In answering this question, we see the role our neoliberal society plays in this development. Bringing together the developments of neoliberalism and biopolitics, we can show that big data biopolitics has moved beyond governmental control of employees to a broader form biopolitics, involving whole new populations and including new, corporate actors. The biopolitical projects of big data corporations stretch beyond the bounds of the older corporations and create something new.

---

[31] Brown, 218.

This move to a biopolitical corporate project can be seen in Facebook's decision to create a new, private currency. In 2019, Facebook announced its plans to create a new currency service called Libra as an alternative to currencies managed by individual states. The goal of this new currency, as dictated by the Libra mission statement, was to "Reinvent money. Transform the global economy. So people everywhere can live better lives."[32] Again, we see the neoliberal goals of associating a better life with a new understanding of the global market. To do this, Facebook planned to create an organization called the Libra Association, where Facebook would partner with 29 other members, including corporations like Visa, Master Card, PayPal, Lyft, and more to form a governing body that would deploy this new currency.[33] Facebook itself would participate through a new subsidiary called Calibre. To develop a pool of financial power to back the currency, each prospective member of the Libra Association was expected to contribute $10 million to the project. However, the endeavor was troubled from the start. As the project was aimed at the Global South, specifically countries with corrupt or nonexistent banking sectors,[34] critics raised concerns of technocolonialism, as they did when Facebook attempted to provide free but limited internet access to similar

---

[32] "An Introduction to Libra," White Paper (Libra, July 23, 2019), https://libra.org/en-US/white-paper/.

[33] Nick Statt, "Facebook Confirms It Will Launch a Cryptocurrency Called Libra in 2020," The Verge, June 18, 2019, https://www.theverge.com/2019/6/18/18682290/facebook-libra-cryptocurrency-visa-mastercard-digital-currency-calibra-wallet-announce.

[34] "An Introduction to Libra."

locations.[35] Numerous policymakers questioned Facebook's motivation, resulting in a

congressional hearing where Mark Zuckerberg was grilled over his intentions for this

new currency.[36] In the wake of the hearing, many of the major corporations that initially

pledged support for this new currency pulled out of the association ahead of its first

scheduled meeting in Switzerland.[37] In July 2019, Democratic members of the U.S.

House of Representatives requested that Facebook put this project on hold; Facebook

complied.[38]

The interesting thing about this project is not the fact that Facebook ran into

trouble with sovereign governments, but that they represent Facebook's desire to push the

[35] Olivia Solon, "'It's Digital Colonialism': How Facebook's Free Internet Service Has Failed Its Users," *The Guardian*, July 27, 2017, sec. Technology, https://www.theguardian.com/technology/2017/jul/27/facebook-free-basics-developing-markets.

[36] Makena Kelly, "Top Democrat Calls for Facebook to Halt Cryptocurrency Plans until Congress Investigates," The Verge, June 18, 2019, https://www.theverge.com/2019/6/18/18684268/facebook-libra-cryptocurrency-stop-congress-house-democrat-maxine-waters-regulation; Nick Douglas, "What Happened at the Congressional Hearing on Facebook and Libra?," Lifehacker, October 14, 2019, https://lifehacker.com/what-happened-at-the-congressional-hearing-on-facebook-1839307832; Makena Kelly, "Watch Mark Zuckerberg's Libra Congressional Testimony Here," The Verge, October 23, 2019, https://www.theverge.com/2019/10/23/20928558/zuckerbergs-hearings-watch-live-stream-how-to-libra-congressional-testimony-facebook.

[37] Russell Brandom, "Why so Many Companies Bailed on Facebook's Libra Project at Once," The Verge, October 11, 2019, https://www.theverge.com/2019/10/11/20910453/libra-association-facebook-visa-mastercard-stripe-leaving; Brandom; Erin Griffith and Nathaniel Popper, "Facebook's Libra Cryptocurrency Faces Exodus of Partners," *The New York Times*, October 11, 2019, sec. Technology, https://www.nytimes.com/2019/10/11/technology/facebook-libra-partners.html; Colin Lecher, "Facebook's Libra Association Has Now Lost a Quarter of Its Original Members," The Verge, October 14, 2019, https://www.theverge.com/2019/10/14/20914269/facebook-libra-association-founders-paypal-visa-mastercard-stripe-ebay; Timothy B. Lee, "Visa, Mastercard, Stripe, and EBay All Quit Facebook's Libra in One Day," Ars Technica, October 12, 2019, https://arstechnica.com/tech-policy/2019/10/visa-mastercard-stripe-and-ebay-all-quit-facebooks-libra-in-one-day/.

[38] Makena Kelly, "House Lawmakers Officially Ask Facebook to Put Libra Cryptocurrency Project on Hold," The Verge, July 2, 2019, https://www.theverge.com/2019/7/2/20680230/facebook-libra-calibra-crypto-maxine-waters-congress-regulation-investigation-halt.

biopolitical envelope and attempt to extend the boundaries of their power. This is a demonstration of the duplicated biopolitical power. These biopolitical enterprises are shared with the state, and we should understand the biopolitics of big data as existing alongside traditional state operations. Now, the ideological space carved out by neoliberalism means that for the most part these corporations are allowed to operate on their own. Governmental regulations tend to take the form of antitrust lawsuits; even then, they are heavily partisan. The state generally does not interfere in these corporate biopolitical projects as long as these projects are not seen as the purview of the new neoliberal state.

However, when these corporate biopolitical projects cross over into realms of control traditionally inhabited by the state, made easier by new technological forms, we see the conflict between the state and the tech company become realized. The lesson to take away from the Facebook Libra project and Google Sidewalk Labs is not that the frame of corporate biopolitics has been defeated or overcome by state biopolitics but that there are two parallel threads of biopolitical power at work in modern society, both engaging what is roughly the same population base but using and motivating them in different ways. It is only when the aims of the state and the goals of the tech companies intersect that we really see conflict between the two of them. The development of the neoliberal state means that the state biopolitical apparatus is more than happy to cede power to tech corporations in the name of a functioning economy.

The Facebook Libra project was directly challenged by the United States

Congress and was placed on indefinite hold as a result of direct threats from regulators.[39]

Through these conflicts with government, we can also see how the degree of conflict and

the location of the conflict impacts the response from the state. Facebook's currency

experiment represents a direct challenge to a fundamental power of the state. Creating a

separate currency challenges state power at the national level; therefore, the response by

the United States government was intriguingly both swift and bipartisan. In a

hyperpolarized American congressional environment, members of Congress from both

sides of the aisle equally criticized and condemned Facebook for its entry into currency

development.[40]

While the technological capacity provided by big data has allowed for biopolitical

projects to become separate from the state, as the example of Facebook shows us, this

need not be the case. The examples of TikTok and WeChat show how these biopolitical

projects allowed for by big data can be used by the state and how the development of

both capacity and acceptance are not necessarily tied to a neoliberal context. TikTok is an

application founded by a Chinese company that allows users to create and share short-

[39] Kelly; Kelly, "Top Democrat Calls for Facebook to Halt Cryptocurrency Plans until Congress Investigates"; Pete Schroeder Johnson Katanga, "Facebook Vows Libra Currency Will Wait for Approval as U.S. Airs Worries," *Reuters*, July 16, 2019, https://www.reuters.com/article/us-usa-facebook-libra-idUSKCN1UA1PF.

[40] A. House Democratic Aide, "Inside the Congressional Staff Meeting About Libra," The American Prospect, July 2, 2019, https://prospect.org/api/content/4e27bc4e-d0f4-5500-bb2e-d780b0cad137/.

form videos and has more than 1.1 billion global monthly users outside of China.[41] WeChat is an instant messaging platform primarily used in China and by Chinese diaspora that is estimated to have more than 1.2 billion users.[42] Both applications are run by companies based in mainland China. This means they are integrated with the Chinese state, as the Chinese state requires a regulatory presence inside of all corporate structures. This allows for an authoritarian government to take advantage of the biopolitical mechanisms provided by big data.

The acceptance of biopolitics need not be tied to a neoliberal social construct but instead can be utilized by an authoritarian government to enact the biopolitics of the state on a population of users who may be living outside of the state's geographic reach. This is most evident in the case of TikTok, where specific hashtags or search terms are directly censored or "shadowbanned" in particular localities. To be "shadowbanned" means that specific searches display no results despite the fact that there may be content that matches that result; thus, the content is banned, but without notifying anyone that the content is directly censored. For example, specific search terms or hashtags relating to the LGBTQ community are banned or display no results in specific Middle Eastern locations. Users are not prohibited from using these hashtags or search terms on their own posts, but they

---

[41] Jessica Bursztynsky, "TikTok Says 1 Billion People Use the App Each Month," CNBC, September 27, 2021, https://www.cnbc.com/2021/09/27/tiktok-reaches-1-billion-monthly-users.html. TikTok is the name of the application, owned by the parent company ByteDance, which is distributed outside of China. A similar application named Douyin also owned by ByteDance is distributed only within China.

[42] "WeChat: Active Users Worldwide," Statista, accessed February 9, 2022, https://www.statista.com/statistics/255778/number-of-active-wechat-messenger-accounts/.

do not link to the larger network, giving the illusion that no censorship is present. In addition to this, researchers from the Australian Strategic Policy Institute investigated the data collection and permissions that users grant TikTok and concluded that vast amounts of data are captured and easily accessible by the Chinese government.[43] The recommendation algorithm used by TikTok to show users new and recommended videos is similarly managed by the Chinese Communist Party and is specifically designed to favor pro-Chinese content. In some extreme circumstances this may result in direct censorship, specifically regarding the genocide of the Uyghur Muslim population in China or protests in Hong Kong. However, it is impossible to identify the more subtle manipulations that may be going on for a wide base of users. The Australian researchers concluded that the "meteoric growth of TikTok has now put the CCP in a position from which it can shape the information environment on a largely non-Chinese-speaking platform with the help of the highest-valued startup in the world and its opaque advanced AI powered algorithm."[44]

Big data is a mechanism to develop biopolitical control regardless of who or what is utilizing it. Google and Facebook may be utilizing big data biopolitics to sell advertising or increase their own market valuation, but China and the Chinese

---

[43] While the U.S. version of TikTok has no formal ties to the Chinese government, it uses a Chinese umbrella corporation for data processing and analytics, which does have ties to the Chinese government. In addition, CCP officers are directly embedded in Chinese corporations, which allows them to observe and collect data extrajudicially.

[44] Fergus Ryan, Audrey Fritz, and Daria Impiombato, "TikTok and WeChat: Curating and Controlling Global Information Flows," TikTok and WeChat (Australian Strategic Policy Institute, September 2020).

Communist Party are using these biopolitical mechanisms to influence and increase their own political power. The difference in these mechanisms is based on the background societal effects rather than any specific aspect of the big data mechanism itself. The neoliberal context in which Facebook operates allows it to have an expansive amount of biopolitical control over its population of users, while the one-party authoritarian system in which the Chinese government operates allows it to exert direct control over corporations and force them to align their algorithmic politics with state politics.

The Trump administration's conflict with TikTok and the Chinese government and the attempts to force the sale of the company to U.S. corporate managers show the stakes at which this biopolitical enterprise can operate.[45] The development of big data biopolitics can allow not only biopolitical control at the nonstate level, but also state-based biopolitics that is no longer limited to the geographic boundaries of the state itself. Chinese biopolitics can be played on user populations in the Middle East or in South Asia or even in the United States without any direct governmental control. The technological apparatus of these applications like TikTok and WeChat allow for a diffuse form of biopolitical control made possible by the capacity of the Chinese state and its technological apparatus, as well as the acceptance granted by users who willingly download the app and the authoritarian nature of the Chinese government that allows them to exert their influence over these corporate projects.

---

[45] Helen Davidson, "TikTok: Why It Is Being Sold and Who Will Own It," *The Guardian*, September 22, 2020, sec. Technology, https://www.theguardian.com/technology/2020/sep/22/tiktok-sale-the-reasons-behind-it-and-the-new-deal.

The Biopolitics of Big Data: A New Definition

This intersection of technology and older forms of power shows us that we need a new way of understanding the biopolitical forms of power at work within big data. By taking inspiration from other operationalized definitions, we can work toward a full definition of the biopolitical power of big data. Paul Rabinow and Nikolas Rose develop a more empirical definition, looking to how biopolitics can be used as an explanatory force to help understand society. Their biopolitics consists of three elements:

> "a form of truth discourse about living beings and an array of authorities considered competent to speak that truth; strategies for intervention on collective existence in the name of life and health; and modes of subjectification in which individuals can be brought to work on themselves under certain forms of authority, in relation to truth discourses, by means of practices of the self, in the name of individual or collective life or health."[46]

This definition has utility, reining in what they see as the too broad application of term especially in the works of Hardt and Negri, and Agamben. But this approach has itself been criticized for swinging the other way and being overly limiting, narrowing the use to exclusively biomedical circumstances.[47] By broadening this definition and finding a middle ground, focusing on a broader definition of life, or bios, this form holds utility for our discussion of technology. If we extend the conceptual framework beyond the biomedical, then it can be useful for our examination of big data.

---

[46] Paul Rabinow and Nikolas Rose, "Biopower Today," in *Biopower: Foucault and Beyond* (University of Chicago Press, 2015), 307.

[47] Catherine Mills, "Biopolitics and the Concept of Life," in *Biopower: Foucault and Beyond* (University of Chicago Press, 2015), 82–101.

Elaborating on the empirical framework of Rabinow and Rose, I propose a biopolitics of big data consisting of three forms: 1) A form of truth discourse about how life is conceptualized and modified by data, and the actions of elites who are empowered by this truth discourse; 2) the strategies that the analysis and deployment of big data use as an intervention on our collective existence both in the digital realm and in the empirical realm; and 3) the subjectification of individuals under this framework of big data, often through the description of "users."

This definition of the biopolitics of big data allows me to synthesize the many different strands of thought about big data and our new algorithmic society under this larger, historically situated umbrella of biopolitics. Many scholars studying digital technology or big data have too quickly discarded the idea of biopolitics as a framing mechanism. Out of a desire for novelty these scholars embrace a too-narrow understanding of biopolitics and aim to define something new. Bernard Harcourt disposes of biopolitics, arguing that it is insufficient for describing the exposure and exhibition that is the hallmark of our digital existence.[48] But for Foucault, the development of sexuality and the form of the self under the biopolitical regime is rooted in the Christian idea of confession.[49] The expository society that Harcourt defines is a necessary aspect of

---

[48] Bernard E. Harcourt, *Exposed: Desire and Disobedience in the Digital Age* (Harvard University Press, 2015).

[49] Foucault, *The History of Sexuality, Vol. 1*; Mitchell Dean and Daniel Zamora, *The Last Man Takes LSD: Foucault and the End of Revolution* (Verso Books, 2021).

Foucault's biopolitical regime. Additionally, those scholars who do engage with biopolitics do not make it the core of their argument, as is the case with Orit Halpern, who identifies the biopolitical mechanisms at the heart of "smart cities" but does not develop a full engagement with the term.[50] Tung-Hui Hu engages with the process of identity and subjectification that falls under of a biopolitics of big data but is more focused on the precise technical mechanism of the "cloud," his object of inquiry.[51] This also applies to both Cheney-Lippold's "soft biopolitics" and Koopman's "infopower." While they productively engage with specific elements, they do not make the connection to a broader definition of biopolitics.[52] Koopman, specifically, identifies that his concept of infopower is focused on the development of "data technology," or the specific act of fabricating categories, and not the broader structures of "digital technology," thus opening the conceptual space for looking at the biopolitics at work within the digital technology of big data.[53] To complete this analysis, I now turn to a discussion of each of the aspects of my definition of a biopolitics of big data.

#1: A Discourse of Truth

The first aspect of a biopolitics of big data is a form of truth discourse about how life is conceptualized and modified by data and the actions of elites who are empowered by this

---

[50] Halpern, *Beautiful Data*.

[51] Hu, *A Prehistory of the Cloud*.

[52] Cheney-Lippold, "A New Algorithmic Identity"; Cheney-Lippold, *We Are Data*.

[53] Koopman, *How We Became Our Data*, 2019.

truth discourse. These new truth forms come as a reconceptualization of the world, positing a specific interpretation of either how things are or how they should be, and then mobilizing elites as a way of putting this conceptualization into reality.

Foucault understands truth as "a system of ordered procedures for the production, regulation, distribution, circulation and operation of statements" that is "linked in a circular relation with systems of power which produce and sustain it."[54] Collected, this creates a regime of truth, which makes up the politics of what is considered truth and the ideological commitments that are in use to maintain them. This is the "ensemble of rules according to which the true and the false are separated and specific effects of power attached to the true."[55] When combined with the current discussion of the truth discourse within the biopolitics of big data, we can expect to see the elite actors at work within corporations that rely on big data using their technical and corporate expertise to exert control over the create of a regime of truth. They also support this development with an "ensemble of rules" designed to create and perpetuate a particular version of truth that serves their own agenda. This form of truth is a claim about how data can be leveraged to create new forms of truth, creating a more advanced "truth" within data that can then attach to a specific effect of power. Alternatively, it may develop into a way of defining what is taken as truth to further the data collection and management goals of the corporation; elites redefining truth to better fit their own agenda.

---

[54] Foucault, *Power/Knowledge*, 132.

[55] Foucault, 132–33.

We can find examples of the first form when we look at Google's development of Sidewalk Labs, which shows the desire to create a new truth of data and leverage this claim into an empirical understanding, through the development of a "smart city." This new "smart city" claims to access the hidden truths of big data to better serve the population of individuals living within. An example of the second form can be found in Uber's campaign to pass a 2020 ballot initiative in California that classified individuals who drive for Uber as "independent contractors" rather than employees.[56] In doing so, Uber attempted to exploit the mechanisms of democratic governance to create a regime of truth, defining the status of its workers contrarily to the way that the state government had previously classified them. This represents a contestation between different regimes of truth, where elite control over data is used to create a new regime of truth that would solidify control over workers and their corresponding data.

Aaron Shapiro's argument about how corporations reframe "smart cities" along a mode of logistical governance sets the stage for this first form. He traces the development of this thinking; how the "smart city" "reconstructs urban worlds in the image of the supply chain."[57] This reconstruction represents a discourse of truth, an implicit argument

---

[56] Besides Uber, Lyft, Instacart, Postmates (owned by Uber) and others also participated in this effort. I focus my analysis on Uber because, as will become evident, the provide ample evidence for both their approach and their status as a corporation focused on big data.

[57] Aaron Shapiro, *Design, Control, Predict: Logistical Governance in the Smart City* (University of Minnesota Press, 2020), 4.

made by Google, Cisco, and others, that the urban environment of a city is really a set of logistical problems rather than a lived environment inhabited by persons. As logistical problems, they are solvable only through the epistemology of big data, an understanding that truth exists as a needle in the big data haystack, and only a powerful computer can find and understand it.[58]

The flagship Google-developed "smart city" was formed by Sidewalk Labs in the Quayside neighborhood of Toronto and represents a potent example of Shapiro's logistical governance. Initially, Sidewalk Labs was an ambitious project developed by Google with the aim of "reimagining cities from the internet up."[59] Starting with the installation of free Wi-Fi terminals in New York City, Sidewalk Labs looked to incorporate technology into city landscapes.[60]

The development of this project was conceptualized from the ground up to use data to solve the "problems" of the modern city. Daniel Doctoroff, the CEO of Sidewalk Labs, frames the goal of the project as a way of creating new innovative solutions to the

---

[58] I explore this idea in more depth in Chapter 4.

[59] Daniel Doctoroff, "Sidewalk Labs | Reimagining Cities from the Internet Up," *Sidewalk Labs* (blog), November 30, 2016, https://www.sidewalklabs.com/blog/reimagining-cities-from-the-internet-up/. Daniel Doctoroff, the author of this blog is the CEO of Sidewalk Labs.

[60] Adele Peters, "Google's New Urban Innovation Incubator Just Made Its First Investment, To Bring Public Wi-Fi To Cities," Fast Company, June 23, 2015, https://www.fastcompany.com/3047773/googles-new-urban-innovation-incubator-just-made-its-first-investment-to-bring-public-wi-fi-.

problems faced by modern cites.[61] However, it becomes clear that the mechanism for

accomplishing this is deeply embedded in the collection and analysis of large amounts of

data. Sidewalk Labs created and utilized Flow, a "data and analytics platform" designed

to capture real-world data, such as traffic flows, parking spaces, and even curb space, to

design algorithmic solutions to problems of parking and nonoptimized traffic flows. The

implicit argument is that the problem of the modern city is a lack of data analytics.

According to this logic, Google's massive data collection apparatus can, and

should, be turned toward this problem, sidestepping any potential political solution and

focusing on a technocratic solution based on the truth of data. This is the regime of truth

at the core of Sidewalk Labs. Google views all problems as data-centric logistical

problems, the ubiquitous nail that their well-tuned data collection hammer is primed to

drive into the superstructure of our everyday lives.

This is a regime of truth because of how it makes critical assumptions about both

the desirability of this outcome and the mechanisms needed to attain it. Life in the smart

city is conceptualized and modified by data, rendering the fundamental question of how

to live together into a logistical question to be solved by creating a new neighborhood

with "smart" technology built in—from the electric grid to heated sidewalks and

---

[61] Doctoroff, "Sidewalk Labs | Reimagining Cities from the Internet Up." This blog is pure tech-speculation and optimistic futurism, as one might expect from the CEO.

advanced wastewater management, manipulating traffic patterns and embedding fiber-

optic cables in sidewalks.

All of this "reimagining" was pitched via elite actors and aimed at reinforcing this

new truth discourse. This new conceptualization of life in the smart city is taken as a

given by Doctoroff and other elite actors who wielded their political and economic power

to make such a vision come about. Google executives held public meetings with

Canadian Prime Minister Justin Trudeau, announcing how Google's investment would

revitalize the city.[62] However, as the details of this ambitious project became clear,

citizens and advocacy groups pushed back, arguing that the project was antidemocratic

and represented a misguided form of techno-optimism that failed to take into account the

needs and wants of the people living in the neighborhood.[63] By 2020, Sidewalk Labs,

blaming "economic uncertainty," officially shut the Toronto project down.[64] The failure

of the Toronto project shows how the contestation of a truth regime can backfire. Despite

its failure, Google's attempt and ongoing developments shows how deeply entrenched

[62] Jared Lindzon, "How Toronto Locals Soured on Alphabet's Neighborhood of the Future," Fast Company, September 6, 2019, https://www.fastcompany.com/90390377/alphabet-wants-to-turn-toronto-into-a-digital-city-locals-arent-so-sure.

[63] Laura Bliss, "Meet the Jane Jacobs of the 21st Century," CityLab, December 21, 2018, https://www.citylab.com/life/2018/12/bianca-wylie-interview-toronto-quayside-protest-criticism/574477/.

[64] Aarian Marshall, "Alphabet's Sidewalk Labs Scraps Its Ambitious Toronto Project," *Wired*, May 7, 2020, https://www.wired.com/story/alphabets-sidewalk-labs-scraps-ambitious-toronto-project/.

this idea is within elite tech culture. Toyota and Cisco also have their own designs for smart cities, although they remain stalled due to the Covid-19 pandemic.[65]

In addition to Google's development of the smart city, Uber's actions during the 2020 election season in California represents another form of truth discourse at work within big data: the desire to actively manipulate what is counted as truth to smooth the way for a more complete capture of society. Uber's fight for California Proposition 22 begins with AB5, a California law passed in late 2019 that sought to define "independent contractor" for the state of California. Under this law as initially written, all California workers are, by default, considered employees and the employer would have to pay payroll taxes and provide other benefits to workers classified as "employees." There was an exception protocol, called the "ABC test," that was used to determine if the worker was granted an exception and could then be classified as an "independent contractor," and would not require the payment of payroll taxes or provided benefits.[66] The passage of this law and the controversies surrounding it can be understood as the establishment of a regime of truth. The state of California sought to use its political mandate to define the "truth" of employment, defining who is an employee and who is an independent contractor.

[65] Halpern, *Beautiful Data*; Brian Comiskey, "Toyota Is Weaving a Future of Smart City Living - CES 2022," *Consumer Entertainment Expo* (blog), March 15, 2021, https://www.ces.tech/Articles/2021/March/Toyota-Is-Weaving-a-Future-of-Smart-City-Living.aspx.

[66] "California State Payroll Taxes – AB 5 – Employment Status | California EDD," December 28, 2021, https://edd.ca.gov/Payroll_Taxes/ab-5.htm.

A major fallout of this law would require that "gig workers" who drove for Uber, delivered food for Postmates, or engaged in any number of other forms of gig work, would have to be classified as full employees and not independent contractors. This means that they would fall under the protections of California employment law and would be eligible for healthcare benefits, worker's compensation, and a number of other workplace protections. The corporations that actively employed and managed gig workers saw this law an existential threat. In response, they filed a proposition to be placed on the 2020 ballot and funneled more than $200 million into a campaign encouraging its passage, making it the most expensive proposition campaign in California history.[67] One way of viewing this is as a cynical political move by a corporation seeking to deceive a population into siding with a corporation instead of a democratically elected government. While this viewpoint may be fruitful, this also represents a biopolitical claim on a regime of truth. We should understand Uber's developments here as a deliberate action to contest a legitimately established regime of truth and replace it with one of its own making. At stake in this contestation was the very nature of labor itself; the "truth" of a worker. Who could truly be called an employee, and who was a mere "gig worker" or independent contractor?

It is at this point that an incongruity may be noticed. We generally do not consider Uber (and indeed Lyft and a host of other gig work corporations) as corporations

[67] Faiz Siddiqui, "Uber, Other Gig Companies Spend Nearly $200 Million to Knock down an Employment Law They Don't like — and It Might Work," *Washington Post*, October 26, 2021, sec. Technology, https://www.washingtonpost.com/technology/2020/10/09/prop22-uber-doordash/.

primarily concerned with big data. Uber is interested in on-demand transportation, or so the story goes. But a close analysis into how Uber sees itself reveals that it is only partially a transportation service. Uber understands its own operation as optimizing logistical patterns through data collection.[68] In this way, it is much like Sidewalk Labs. Uber's own Engineering Blog talks about the data collection metrics at work at Uber and how the collection and management of big data is utilized to predict areas of heavy traffic, entice users to stay on the app longer to purchase premium services, manage ride pricing, and entice drivers to extend their shifts.[69] Uber software engineers say that "data is crucial for [their] products," and that "the impact of data analysis can be seen in every screen of our app: what is displayed on the home screen, the order in which products are shown, what relevant messages are shown to users, what is stopping users from taking rides or signing up, and so on."[70] Uber is a corporation that would not be able to exist without the ability to collect, analyze, and deploy big data. Uber is a transportation company in the same way that Google is a search company. Both transportation and search are the public-facing benefits that entice users to give up their data to the corporation. The debate that came to a climax during the 2020 California election was a debate over the nature of the company. Uber argued that it was not a transportation

---

[68] Divya Babu Ravichandran and Varun Verma, "How Data Shapes the Uber Rider App," *Uber Engineering* (blog), August 21, 2021, https://eng.uber.com/how-data-shapes-the-uber-rider-app/.

[69] Franziska Bell and Slawek Smyl, "Forecasting at Uber: An Introduction," *Uber Engineering Blog* (blog), September 6, 2018, https://eng.uber.com/forecasting-introduction/; Reza Shiftehfar, "Uber's Big Data Platform: 100+ Petabytes with Minute Latency - Uber Engineering Blog," *Uber Engineering Blog* (blog), October 17, 2018, https://eng.uber.com/uber-big-data-platform/.

[70] Ravichandran and Verma, "How Data Shapes the Uber Rider App."

company but was instead a technology (and thus a data) company. This classification

would allow it to avoid labor laws that would restrict its power and control.[71]

The expensive and contested debate over spending during the 2020 California

election shows the lengths to which Uber (and others) were willing to go to enshrine their

own discourse of truth. As Foucault reminds us, these discourses of truth are used to

separate statements into the true and the false or, in Uber's case, to separate labor into gig

work and employment, manipulating the categories for its own corporate gain. In

addition, Uber worked to ensure the passage of the proposition by utilizing its access to

users and user data. Users, both riders and drivers, were inundated with messages

warning them that without the passage of Prop 22, Uber's future in California was in

jeopardy (a dubious claim). Individuals also reported receiving direct text messages and

other direct communication from Uber, which utilized the data it collected from

customers and drivers alike to push its political agenda.[72]

The interesting thing about these projects is not merely that they ran into trouble

with sovereign governments, but also that they represent Uber's and Google's desire to

push the biopolitical envelope and attempt to extend the boundaries of their power by

---

[71] The proper outcome here is to, of course, avoid this totalizing pressure and see Uber as both a tech company and as a transportation company that should be subject to the legal and social controls present in both industries. The discourse of truth presented by the election campaign should be seen as a "category game" played to avoid regulation.

[72] Siddiqui, "Uber, Other Gig Companies Spend Nearly $200 Million to Knock down an Employment Law They Don't like — and It Might Work."

reconceptualizing or developing new forms of truth discourse about existing structures. What makes these examples particularly interesting is that these biopolitical enterprises are shared with the state, and represent a direct conflict with state interests.

Sidewalk Labs ran into regulatory trouble when the city of Toronto and the Canadian government at large responded to a large amount of pushback by citizens and essentially made the project too costly to continue.[73] In the case of Google Sidewalk Labs, the conflict with the state was held at a local level. Google was not trying to take over the entire city of Toronto—merely a small undeveloped area—and therefore only ran into conflict with state governments and activists in the direct local area. This can help explain why Sidewalk Labs lasted as long as it did. It was only when the regulatory hurdles were too great that Google decided that the project was not worth the continual cost.

Similarly, Uber's reclassification of the truth of employment ran afoul of California's court system, which ruled the proposition unconstitutional.[74] Uber's redefinition of labor represents a direct challenge to a fundamental power of the state

---

[73] Andrew J. Hawkins, "Alphabet's Sidewalk Labs Shuts down Toronto Smart City Project," The Verge, May 7, 2020, https://www.theverge.com/2020/5/7/21250594/alphabet-sidewalk-labs-toronto-quayside-shutting-down; Donovan Vincent, "Sidewalk Labs' Urban Data Trust Is 'Problematic,' Says Ontario Privacy Commissioner | The Star," thestar.com, September 26, 2019, https://www.thestar.com/news/gta/2019/09/26/sidewalk-labs-urban-data-trust-is-problematic-says-ontario-privacy-commissioner.html.

[74] Margot Roosevelt and Suhauna Hussain, "Prop. 22 Is Ruled Unconstitutional, a Blow to California Gig Economy Law," *Los Angeles Times*, August 21, 2021, sec. Business, https://www.latimes.com/business/story/2021-08-20/prop-22-unconstitutional.

looking to override democratic lawmaking through the power of excessive spending and leveraging its own power over data. These both represented attempts at creating new regimes of truth, but regimes that are in direct conflict to existing regimes.

From this observation we can see that the major problem with these biopolitical projects was not the amount of impact that they would have over an individual's life. Certainly, living in a Google-managed and -controlled section of Toronto would be a much more invasive and all-encompassing involvement with the company than the reclassification of workers in California, as Google would have access to all elements of your life. With Uber there is at least the potential for opt-out or refusal. You can choose to use the app at specific times or for specific purposes. Living in a Google-run smart city does not allow for any form of refusal.[75] From these two major projects, we can see that big data biopolitics is not intended to be a replacement for state biopolitics but instead a parallel structure. Because of this, it only runs into trouble when the corporate directly conflicts with the state. The contested element of big data biopolitics is not the fact that they exist or even the existence of biopolitics at all. This is a clash of discourses. The state establishes its own discourse of truth, outlining the legitimate limits of its power. These tech companies attempted to contest this discourse of truth with their own and ran into direct conflict with the state.

---

[75] Ultimately, the major political problem with this form of big data biopolitics is that the option of exit is removed. In this way, the difference between Uber and a smart city may only be one of degree. Uber simply has not perfected a way to prevent exit as effectively as Google has.

The major difference between big data biopolitics and the biopolitics of the state is that we recognize some marginally democratic limitations on the biopolitical power of the state. The development of big data's discourses of truth is nearly entirely driven by the actions of technocratic elites. We conform to an idealistic belief that the biopolitical power utilized by, at minimum, Euro-American states should have some form of democratic decision making at its core. Technology companies engaging in big data biopolitical projects have no such requirements. Their decision-making power is not beholden to any form of democratic norm and therefore exists at the whim of a technocratic elite. When Google, Uber, Facebook, or Amazon collects data, there is no pretext to democratic norms. They collect data and use it to impact decision making in our lives without any form of democratic control. The main depoliticizing problem with a big data biopolitics is the fact that these tech companies are seizing on the neoliberal retreat of the state to take up forms of power managed by a technocratic elite.

#2: The Analysis and Deployment of Big Data

The second aspect of biopolitics of big data involves the strategies that the analysis and deployment of big data use as an intervention on our collective existence both in the digital realm and in the empirical realm. Beyond the formation of truth or elite discourses, this aspect occurs when the biopolitical mechanisms of big data begin acting on individuals, shaping our existences in the world.

This form of biopolitical power is distinct from the more direct forms of

biopolitics described by Agamben or Mbembe, as it is not driven by force, but by

seduction and desire, as Harcourt argues.[76] Seduced by the promise of progress, we

accept the mantra that technological developments are aimed at making the world a

better, more convenient place. We, at least generally, view Facebook as a convenient

mechanism that makes our social lives easier, willingly joining the population of users

without being coerced (or at least we may, until a cascade of scandals erodes public

trust). But, having been seduced by the promise of Facebook (or Google, Amazon, or any

other big data corporation) we have unwittingly entered into a new ecosystem where our

data is managed without our knowledge and is used to influence our behavior through

advertisements, randomized experimentation, and procedures designed to capture our

attention and keep us on their websites and in their ecosystems.[77]

This form of seductive biopolitics was exemplified when Google purchased the

gaming corporation Niantic and began developing the popular mobile game *Pokémon Go*

---

[76] Agamben, *Homo Sacer*; Mbembe, *Necropolitics*; Harcourt, *Exposed*.

[77] Zuboff, *The Age of Surveillance Capitalism*; Robert M. Bond et al., "A 61-Million-Person Experiment in Social Influence and Political Mobilization," *Nature* 489, no. 7415 (September 2012): 295–98, https://doi.org/10.1038/nature11421; Vaidhyanathan, *Antisocial Media*. The Bond et al. study was a experimental study run by Facebook to see if they could manipulate the Facebook Newsfeed to get users to vote in American elections. They did this by allowing a percentage of users to register that they had voted and directly encourage others to do the same. This study was roundly criticized for unethically engaging users in experimental research without their explicit consent. Facebook has not published any other large-scale studies, but reporting suggests that they continue to do this sort of experimentation and just keep the results internal.

to add to the ever-growing store of data on the "Google-citizen."[78] *Pokémon Go* is a

mobile game that was incredibly popular at its 2017 launch, with more than 750 million

players during the first months. Players would physically traverse their surroundings

looking for digital monsters that could be captured, trained, and eventually used to battle

one another in gyms. One of the hallmarks of the game was the ubiquity of "pokéstops"

or locations where players could go to refuel on in-game items. It was not disclosed to

players that the company that developed and managed the game, Niantic, was wholly

owned by Google, which collected detailed location data on individuals playing the

game, using it to develop detailed maps of how individuals traversed physical space.[79]

The game also used the "pokéstop" mechanic to serve advertising. Local businesses

could pay to have their location designated a "pokéstop" and thereby drive foot traffic.

The development of this game shows how Google is interested in not only monitoring

and analyzing individuals' actions in virtual space, but in physical space as well,

manufacturing data to sell advertisements and manipulate human actions. *Pokémon Go* is

an exercise in Google's biopolitics as Google is not only developing a select population

of users (i.e., individuals who play the game) but is also collecting discrete data points on

them and then using this data to impact their behavior. Unlike a state-centered form of

biopolitical control, Google was able to attract a population of users through the promise

of entertainment, and then capture and control the biological mechanisms of individuals

by impacting how they traversed through the world. These forms of control were all

---

[78] Cecilia D'Anastasio, "The Creators Of Pokémon Go Mapped The World. Now They're Mapping You,"
Kotaku, October 16, 2019, https://kotaku.com/the-creators-of-pokemon-go-mapped-the-world-now-theyre-
1838974714; Zuboff, *The Age of Surveillance Capitalism*.
[79] D'Anastasio, "The Creators Of Pokémon Go Mapped The World. Now They're Mapping You."

hidden from the individual user. It was not made obvious to the user that Google was collecting detailed tracking data on them, or that the "pokéstop" they checked into was actually a paid advertisement. Unwittingly, their physical, biological selves were manipulated into driving foot traffic into a Starbucks or other business. *Pokémon Go* shapes our collective existence in the world by manipulating our passage through it when it subjectifies users within its gamified power.

An additional element that sets this new biopolitical enterprise apart is its scope. Corporate biopolitics is not a unique feature of our technologic age. Corporations and employers have long attempted to control all aspects of their employee's lives. This is perhaps most exemplified by the development of "company towns." Henry Ford and George Pullman sought complete control over their employees' lives, developing a form of biopolitical control. However, the scope of these projects was always limited, and problems arose when these small communities began to run afoul of the government, which believed its own state capacity was being threatened. Recently, advances in technology have leveled this playing field. The development of big data and the rise of online infrastructures means corporations like Google and Facebook can develop a new capacity, in both methods and scale, that was unfathomable to earlier corporate biopolitical projects. In fact, this capacity is so advanced that engaging in a corporate biopolitics is not just restricted to multibillion-dollar technology companies. Smaller corporations or corporations that aren't traditionally thought of as technology companies can take advantage of this development, capturing existing populations and subjecting

them to biopolitical control for a relatively low entry price. This is evident when New Balance develops an app called Dayzz to track its employees' sleeping patterns.[80] Or when colleges deploy apps to both automate attendance in class and monitor students' on-campus activities.[81] Or when insurance companies use health apps or driving data to manage their risk pool.[82] But as Hong points out in his discussion of the Quantified Self movement, these forms of quantifications and classification are not limited to employers seeking additional information on their employees. Apps and physical devices, like sleep trackers or the Fitbit, cultivate populations of users as well.[83] These capacities allow corporations to engage in biopolitical control at a more subtle and more granular level than any previous corporation could manage. On the surface these might seem unobtrusive, or even beneficial, but each activity represents an additional capacity for corporations to manage populations of employees, customers, and users. The biopolitics of big data is taking the desire for biopolitical control that was present in the Pullman company town and using technology to extend it to a wider population.

[80] Jena McGregor, "Employers Are Adding High-Tech Solutions to Solve a Low-Tech Problem: Getting More Sleep," Washington Post, February 14, 2020, https://www.washingtonpost.com/business/2020/02/14/sleep-wellness-employer-oura/.

[81] Drew Hartwell, "Colleges Are Turning Students' Phones into Surveillance Machines, Tracking the Locations of Hundreds of Thousands," Washington Post, accessed February 13, 2020, https://www.washingtonpost.com/technology/2019/12/24/colleges-are-turning-students-phones-into-surveillance-machines-tracking-locations-hundreds-thousands/.

[82] Pasquale, *The Black Box Society*.

[83] Hong, *Technologies of Speculation*.

The outcome of this new capacity is to create a population removed from politics. This is a population solely of users who do not have recourse to individual political contestation or reformation. We can return to the example of Facebook's meddling in the 2020 US Presidential election, for proof of this action. Facebook manipulated voters, who had no political recourse for this action. Creating and managing our own political structures is a core element of political contestation. This is a prime example in how understanding the problem properly can help frame the appropriate solution. Lawmakers and tech CEOs clash over the question of content moderation, and the responsibility of these corporations to account for misinformation, hate speech and direct threats.[84] The problem with these questions is that the framing is insufficient. The question that is at the core of this conflict is not whether Facebook, Twitter, and Google should be forced to regulate content on their platforms to prevent these misanthropic actions. Instead, we need to recognize the loss of individual political control that has occurred and the degradation of the public sphere, what Hannah Arendt claims is essential to the development of the advanced human condition. The public sphere itself has been removed from political contestation and placed in the hands of profit-motivated corporations.[85] Recognizing that at its core, what we are dealing with is a form of

---

[84] Gerrit De Vynck et al., "Big Tech CEOs Face Lawmakers in House Hearing on Social Media's Role in Extremism, Misinformation," *Washington Post*, March 25, 2021, https://www.washingtonpost.com/technology/2021/03/25/facebook-google-twitter-house-hearing-live-updates/.

[85] Hannah Arendt, Margaret Canovan, and Danielle Allen, *The Human Condition: Second Edition*, Second Edition, Enlarged edition (Chicago ; London: University of Chicago Press, 2018); Jennifer Forestal, "Constructing Digital Democracies: Facebook, Arendt, and the Politics of Design," *Political Studies* 69, no. 1 (February 1, 2021): 26–44, https://doi.org/10.1177/0032321719890807.

biopolitical power that is decreasing our ability to meaningfully engage with politics is crucial for working to reclaim our political self-determination.

#3: Subjectification of Users

The third aspect of biopolitics of big data is the subjectification of individuals under this framework of big data, often through the description of users. If you want to engage in biopolitics, you must develop a knowledge of the population you wish to analyze. Traditionally, and for practical reasons, this capacity has been developed and held by the state apparatus; the state exclusively developed and held the power and resources to engage in this type of mass biopolitics. However, the computational processes of big data have expanded this capacity to private corporations in new ways, opening up this older form of power to new players. This has led to the creation of new forms of subjectification, typified in the development of the user.

Corporations engaging in sovereignty projects and using biopower to control individuals is not a new concept, as we have seen. Many companies have engaged in small-scale forms of biopolitical control for a long time. Elizabeth Anderson points out that this type of direct control over life was common under the Ford Motor Company in the 1920s, noting that "workers were eligible for Ford's famous $5 daily wage only if they kept their homes clean, ate diets deemed healthy […] and were assimilated to

American cultural norms."[86] Corporations have engaged in biopolitical projects from the age of the company town aiming to control and manage the lives of their employees to create a docile and manageable population of workers from whom to extract capital. However, this new technological biopolitics is extended in important ways that sets it apart from the corporate biopolitical projects of the past.

In Anderson's account of company towns and analysis of modern corporations, the focus is on the employee who is to be surveilled, managed, and analyzed. With big data corporations, the focus is no longer exclusively on the employee but on a new class of individual: the user. We, as individual users, are not citizens in Google's or Facebook's new sovereignty. Instead, when big data corporations engage in biopolitics, they are also developing a sovereignty project that sees people not as citizens with rights nor as consumers to be wooed, but as resources to be extracted, processed, and sold, framed as the "user."[87] Users explicitly give up protections upon opting in to free services provided by Google, Facebook, and others. Users sign new "social contracts" in the form of end-user liability agreements (EULAs) that represent a formal ceding of rights to the corporation.

---

[86] Elizabeth Anderson, *Private Government: How Employers Rule Our Lives*, Reprint edition (Princeton University Press, 2019).

[87] Zuboff, *The Age of Surveillance Capitalism*.

The "user" is a new form of subjectification, separate from the older distinctions of employee and citizen, that distinguishes this new form of biopolitical power. It is a multifaced form, propped up as a sovereign. The user has the illusion of freedom, of the ability to go anywhere and do anything, but as Hu points out, this is an illusion of choice.[88] The user is a pacified individual, limited in their actions and decisions. Drawing on Deleuze and Guattari's work on the subjectification of fascism, Harcourt investigates the logic this subjectification, arguing that these companies "shape our digital selves. They constitute our distinctive 'looking glass.'"[89] This metaphor of the looking glass emphasizes the lack of an authentic self and highlights the need for desire, creating the seductive biopolitical form.

This leads to a number of other questions about how these corporations are able to leverage this biopolitical power to create tertiary effects of power on the populations they have created. The stake of this development is nothing less than the reformulation and reduction of the individual to the specific characteristics in which big data is primarily interested. This is depoliticizing; it keeps them inside the technological ecosystem created for the new user. The depoliticized user does not recognize that the decision-making power wielded by big data biopolitics is, in fact, a political power, determining the scope of their lives, but without their input or control. The user is put in a unique position in the subjectivity of a big data biopolitics. The result of this subjectivity is that they are under

---

[88] Hu, *A Prehistory of the Cloud*.

[89] Harcourt, *Exposed*.

the illusion that they have a form of digital "citizenship" when in fact they are merely a "user" subject to a power designed just for them.

Google's Biopolitics

Google and its umbrella corporation, Alphabet, are ideal cases for describing the biopolitical governmentality practiced by technology companies and proving the utility of this definition.[90] They have an immensely biopolitical corporate culture, and work to project their corporate culture outward, turning a technological employee-focused biopolitics into a mass biopolitical experiment. What makes Google such an interesting case study is that, besides desiring to manage and control many elements of their employee's lives, few companies have made this sort of control the fundamental motivation for all their commercial enterprises. The founders of Google, Larry Page and Sergey Brin, have always discussed their vision for the corporation in broad, world-changing terms. "I really wanted to change the world," Page said to journalist Steven Levy.[91] This change would involve a total reorganization of the way individuals understand and process information and would result in Google becoming the universal mediator for all the world's information. Brin said, "If you've Googled it, you've

---

[90]In 2015 Google created an umbrella corporation called Alphabet to streamline the numerous projects that were happening under the label of Google. However, it would be a mistake to fully dissociate the work of Alphabet from the historical understandings of Google. Eric Schmidt left his position as CEO of Google to become the executive chairman of Alphabet, and under his tenure, the corporation has continued to pursue the same goals that were traditionally associated with Google. I use "Google" as a generic term to refer to multiple elements of the Google and Alphabet corporate structure for convenience.

[91] Steven Levy, *In The Plex: How Google Thinks, Works, and Shapes Our Lives*, 1st Edition edition (New York: Simon & Schuster, 2011).

researched it, and otherwise you haven't."[92] This reshaping of the world reflects the first

element of my definition of a biopolitics of big data. Creating a new regime of truth and

enforcing it through technological mechanisms is the entire goal of Google Search.

Claiming that researching a topic or coming to any understanding of the world is reliant

on participation with the Google ecosystem is a biopolitical claim on the truth. This

attitude sets Google up as the primary mediator of truth and falsehood. This truth

discourse also applies to the management of life through the collection and management

of data. Google seeks to develop a corporate culture that is explicitly set up to manage the

lives of its employees, and then exports that culture to its users.

Achieving such an ambitious dream—reshaping the world in its own image—

requires a similar reshaping of its business landscape. The model for this internal

structure was found in the academic life that Page and Brin left to found Google. They

repeatedly discuss how their initial vision for Google mirrored collegiate life. Google

provides everything an employee would need, from free food prepared by in-house chefs

to recreation and eventually housing.[93] A fleet of Google buses pick up employees from

their Google-subsidized housing and bring them to the corporate campus that they never

have to leave.[94] This is so emphasized that ex-CEO and current Executive Chairman of

---

[92] Levy.

[93] Levy; Eric Schmidt and Jonathan Rosenberg, *How Google Works* (New York: Grand Central Publishing, 2014).

[94] Miguel Helft, "Google's Buses Help Its Workers Beat the Rush," *The New York Times*, March 10, 2007, sec. Technology, https://www.nytimes.com/2007/03/10/technology/10google.html.

Alphabet Eric Schmidt describes the phrase "work-life balance" as "part of the problem," arguing that "the best cultures invite and enable people to be overworked in a good way."[95] Google employees are expected to be part of a culture and buy into the particular brand of freedom that allows them to work on projects they are interested in. (Google is famous for allowing employees to take one day a week to work on personal passion projects, with the stipulation that Google itself owns the results.)[96] But this view of work does not envision a life outside of Google. To work at Google is to be part of a lifestyle, not simply to be an employee content with meeting the requirements of the employment contract.

Overall, attempting to digest the early history of Google makes apparent the intense focus on not only hiring the right type of people—those who match the founders' expansive worldview—but also individuals who will submit to the particular form of governing rationality that Google advocates for. Much is said by these founders about the leveling of hierarchies. Schmidt, in his business book that outlines his management practices at Google, describes how a flexible, efficient technology corporation should remove middle management and allow engineers and technical experts to be creative in small-group environments.[97] It is clear that Page and Brin too, advocate for a certain type of egalitarianism; yet, this is limited to those individuals who have already distinguished

---

[95] Schmidt and Rosenberg, *How Google Works*.

[96] Levy, *In The Plex*.

[97] Schmidt and Rosenberg, *How Google Works*.

themselves by specific formal performance metrics such as GPA or SAT scores.[98] There is indeed a hierarchy—one specifically delineated by the numerical markers of these test scores—though there is freedom at the top. Upon entry into the echelons of the Google engineer class, you are free to pursue creative intellectual pursuits (as long as they fit Google's general ideological vision). But this is only available by becoming a Google employee-citizen, giving up a clear separation between work life and home life, allowing Google to be your landlord, drive you to work, and cater to your needs so that any thought of exit becomes untenable. The continuing metaphor of the college campus remains apt. Google views its employees as college students; individual quasicitizens who can and should be specifically provided for. The hierarchical hiring process reflects the company's commitment to collect, analyze, and deploy big data to intervene in the existence of both its employees and its users. Initially, the usage of such discrete data points as GPA and SAT scores to inform its hiring process reflects the desire to shape the world through the collection of data. This desire is then reflected in Google AdSense, where this usage of data points to make judgements about individuals is monetized through personalized advertising.

This development would be unremarkable if not for the nature of Google's business. A company mining town raises a number of problems and questions, but it is a very clear form of coercive oppression.[99] The threat of starvation or ruin upon exit exerts

---

[98] Madrigal, "The Radical Optimism of Eric Schmidt."

[99] Anderson, *Private Government*.

a specific coercive force over employees who are paid in company scrip and forced to adhere to the moral beliefs of a George Pullman or Henry Ford. However, the outcome of these corporations is not to, through their services, make the world into Pullman, Illinois. Pullman sold railcars and Ford sold automobiles, both products to be consumed by others. Google, however, is different. What Google presents to the public (and indeed it is very different from how Google makes its money) is a lifestyle. This relationship between the public-facing image of Google as a lifestyle brand and the behind-the-curtain reality of Google as a corporation utilizing data to sell access to targeted consumers through advertising, sets the company apart from the earlier forms of employer biopolitics. At its core, Google is interested in the analysis and deployment of big data to shape its users and how they exist in the world.

Google's biopolitics are directed outward, toward the unwary user. Stay with us, Google says, and we can arrange all the information in your life. We can know what you want and what you are thinking before you have a chance to vocalize it—something Page and Brin explicitly cite as a motivation for Google's existence.[100] Notice how the logic of this arrangement precludes any sort of political contestation about the status of information in our lives, or the content of our wants and thoughts. Google embraced the neoliberal ideology of consumption and market logic to justify its control of the world's information and the depoliticization of its user population. If the company was bad at this, or if its service was unwanted, it claims, individuals would go elsewhere and its

---

[100] Levy, *In The Plex.*

business model (i.e., selling directly targeted ads) would fail. Yet what we miss is the development, undoubtably noticed by Google itself, that the more it holds a monopoly on the distribution of information, the more individuals view its service as being an unbiased, simple way to view information and the more indispensable it becomes to the normal functioning of society. These developments lead into the next aspect of the Google biopolitical saga: the exportation of the internal corporate values to the world as a governing rationality.

The clear conclusion here is that Google's business model always been one steeped in governmentality and the development of "conduct of conduct." Google's business model requires remaking the entire world in its own self-image. It must create a citizenry of users who engage with Google to create the extractive resources that make surveillance capital possible. It is the platonic ideal of a frictionless, depoliticizing, biopolitical control. The very information needed to analyze and criticize this system is filtered through Google. Confronted with this fact, the founders of Google have pushed back, saying that individuals would go to an alternative service if Google stopped providing the "best" results. This understanding poses two specific problems. The first is the simple ubiquity. Sure, other search engines exist, but the ubiquity of Google has turned the very corporate name into an all-pervasive verb, "to Google." The second is that, through their Ad-Sense program, Google is no longer dependent on search for its revenue. This program ensures that Google is embedded throughout the internet, so even

if you get to a website through an alternative search engine like Bing, or the privacy-focused DuckDuckGo, Google still collects the data it needs to sell advertising.

These two problems are exemplified in the controversy surrounding StreetView. When Google decided it was going to create an augmented reality experience embedded in its mapping architecture and announced that it was going to photograph every street, house, and business in the United States, there was an immediate furor.[101] A number of states sued Google to prevent the development of such technology. The strategy Google took to combat such accusations says much about the way it views the world and our place within. Instead of fighting the charge of privacy violation overtly, Google embarked on a process of normalization, thus depoliticizing the event. Google aimed to normalize its new product before the governing bodies were able to mobilize regulation. Its strategy was to prolong the legal fight long enough for the public to not only see the utility of the StreetView software but also to come to rely upon it so much that any suggestion of governmental regulation to restrict its grasp would be seen as ridiculous.[102] In this way, Google put itself into a challenge of governmentality with the United States government. They would each race to see who could complete the necessary formation of

---

[101] Alastair Jamieson, "Google Will Carry on with Camera Cars despite Privacy Complaints over Street Views," April 9, 2009, sec. Technology, https://www.telegraph.co.uk/technology/google/5130068/Google-will-carry-on-with-camera-cars-despite-privacy-complaints-over-street-views.html; Luis F Alvarez León, "Property Regimes and the Commodification of Geographic Information: An Examination of Google Street View," *Big Data & Society* 3, no. 2 (December 2016): 205395171663788, https://doi.org/10.1177/2053951716637885.

[102] Zuboff, *The Age of Surveillance Capitalism*.

a citizenry, pitting the formal, nominally democratic procedures of the U.S. Congress against the normalizing powers of new technology. Congress would prove sluggish and Google would prevail, paying a pittance but not retracting any information or ceasing its mapping efforts.[103] The clash of governmentality was resolved in Google's favor and the mapping project was effectively removed from political control, depoliticized. From then on, Google learned that its ubiquity and control over information allowed it to develop such constituencies and symbolically mobilize them in favor of its new products. From this we can see how Google finally completes the definition of a biopolitics of big data to subjectify users. As we have seen, if you want to engage in biopolitical control, you must develop a form of knowledge about the population, and the entire Google Maps enterprise, StreetView included, is designed to obtain knowledge about the way that a user population exists both spacially and temporally.

Depoliticization

When Google, Facebook, TikTok, or other tech companies aim to define users as a specific population that can be analyzed and managed for the purpose of commercial gain, we end up with a manifestation of politics that is undemocratic and depoliticizing for those whom it affects. If politics is a management of our lived experiences, we can easily see that Google and others are in a position to control and shape the form of our experiences through both the provision of free services as well as the influence of our

---

[103] David Streitfeld, "Google Admits Street View Project Violated Privacy - The New York Times," New York Times, March 12, 2013, https://www.nytimes.com/2013/03/13/technology/google-pays-fine-over-street-view-privacy-breach.html.

tastes and desires through advertising. The issue with this space of politics is that it abandons any concern for popular sovereignty. The people no longer rule these tech companies, both in a direct way through their escape from formal regulatory control and in the more metaphoric way of determining the scope of our own existences. When corporations that aim to profit from not just the collection of big data, but also its management and deployment, as predictive metrics, then this statistical inference also serves to depoliticize individuals.

It is no secret that Google, Facebook, and others seek to shape our world. In fact, it is at the very core of the Silicon Valley ethos to "disrupt" the established order and create a new form of existence. However, this new form of existence is driven not by a democratic desire for self-rule, or a reflective deliberation, or even a minimally democratic electoral institution. It is dictated to us by the technophile class, whose position of power over society is shaped not by any appeal to democratic values but through its technologic prowess and technical expertise. This is the essence of what Foucault called the rise of the expert.[104] The expert, embodied for Foucault by J. Robert Oppenheimer, is the quintessential "tech bro," whose mastery of technology grants him political power that he does not understand, that is removed from any semblance of the demos, and that is stripped of any illusion of popular sovereignty.

---

[104] Foucault, *Power/Knowledge*.

Google has changed our lives. This reshaping was not a result of any democratic contestation but was dictated from on high by the ones who will profit most from it. This enterprise is not new: Societies have been upended before due to technological creations outside of their control or imagination. The innovations created by Ford were not tied to any democratic or electoral system. But the difference is that while these innovations indeed shaped the structure of society, none of them took society itself as its primary source. This is the innovation of the new tech companies that ultimately engage in biopolitics. The focus is on society itself as the primary mechanism of capitalistic growth. Big data makes this move inevitable. The development of big data is co-constitutive with the desire to use it and the biopolitical necessity to apply its teachings to a developed population. Politics is left behind because it has to be. The algorithm, the data collection, the deployment of analyzed data—these all have no place for the messy, slow politics of contestation; the self-shaping of the world. The world created by the technology of big data already exists, it must continue to exist, and the political machinations of the demos are being left behind.

No Exit or Voice

The depoliticizing form of big data emerges in a number of ways. We have discussed the problem of elite control over data, and the ways in which this ideological form of epistemology necessarily leads to undemocratic forms of politics. We also see how biopolitical developments work to remove agency from individuals, rendering them as users and subjecting them to the governing whims of big data.

However, there is another crucial form for the critique of big data: the lack of exit. In his landmark 1970 book, *Exit, Voice and Loyalty*, Albert Hirschman examines the various ways that individuals within a regime, or within the confines of a firm, interact with that form. He breaks these options down into three specific forms used by consumers and citizens to advocate for change or pursue their own interests. These options—exit, voice, and loyalty—are crucial aspects of the modern state, allowing individuals to express their protest in a direct and legal way. It also provides policy makers and decision makers with the tools they need to understand what types of actions individuals are taking. It is within this framework that the concept of exit can come into play.

For Hirschman, both exit and voice are used as consumer correctives, aimed at modifying the behavior of a firm or organization when it "lapses from efficient, rational, law abiding, virtuous or otherwise functional behavior."[105] Hirschman argues that when faced with these lapses, consumers can either "stop buying the firm's products or some members leave the organization," exercising their exit option or "express their dissatisfaction directly to management," utilizing their voice.[106] In both cases, consumer action acts as a corrective to market inefficiencies. Hirschman's contribution to the field of political economy is to introduce these important terms, elaborating on existing market

---

[105] Albert O. Hirschman, *Exit, Voice, and Loyalty: Responses to Decline in Firms, Organizations, and States* (Harvard University Press, 1970).

[106] Hirschman, 4.

and political forces. Exit allows a consumer to seek better options, a situation that can only exist when there is sufficient competition and when the alternatives are superior either in price or quality, while voice allows consumers to make their displeasure known, directly advocating for change. Exit and voice are overlapping concepts, but Hirschman identifies them as having distinct ideological lineages. Exit is primarily an economic action, as it is difficult, if not treasonous, to exit a state or political organization (more recent work in political science has contested this development).[107] Alternatively, voice is a political action, taking the classic form of political contestation, citizens advocating for change from within, and applying it to the economic realm.

When taken as a general concept or guiding metaphor, Hirschman's ideas can be useful in helping us identify the depoliticizing forms within big data. In short, the hegemony of big data cuts off our capacity for exit and renders our voice counterproductive. These two elements work in tandem to undercut our ability to effectively contest the power of big data, depoliticizing our relationship. Big data embraces forms of power that is either statelike or state-inspired. Nevertheless, this exerts managerial control over our lives, impacting how we act, how we view ourselves, and the scope of our choices in the world. Traditionally, we, as subjects to this managerial, biopolitical control, would seek out political remedies, using democratic elements to recapture what we might consider our democratic rights, and work to rearrange structures

[107] William Roberts Clark, Matt Golder, and Sona N. Golder, "The British Academy Brian Barry Prize Essay: An Exit, Voice and Loyalty Model of Politics," *British Journal of Political Science* 47, no. 4 (October 2017): 719–48, https://doi.org/10.1017/S0007123416000442.

and systems to our liking. Now, the long-term efficacy of this within an existing democratic system, like the United States is contestable. But regardless of the real-world application, our democratic commitments emphasize that we should be able to form our own political existences. This is, in fact, the major point of contestation for a long history of democratic theorists, reaching back to, at least, Hannah Arendt.

At this point we can recognize that large tech corporations hold political power aimed at biopolitically managing our actions, shaping the fundamental building block of political society, or even redefining what counts as knowledge. These are major forms of power that impact our existences. However, we are denied the mechanisms to exert control or correctives over these forms of power. This is why the power structures of big data are biopolitical, and why this distinction is important. When we see the biopolitical power of big data, we can understand the actions of these corporations as denying us a necessary part of our political existences. We are denied the political tools to shape our own world. This comes in the form of denying us exit and managing our voice. This mechanism works because, as Zuboff observes and I have elaborated, big data does not see us as consumers who would have access to Hirschman's economic correctives.[108]

Big data, in fact, does not even see us as full individuals. By instead treating us as material to be extracted, big data has reformulated the calculation. Hirschman's views of exit works only because the consumer has a form of coercive or political power over the

---

[108] Zuboff, *The Age of Surveillance Capitalism*.

corporation. The firm sees diminishing sales as consumers exit, or receives a barrage of complaints, and then modifies its behavior to mollify the unhappy customers. This is because the alternative is bankruptcy. Taken in the aggregate, consumer action holds power over firms. This logic does not hold true for big data. When we cease being customers or consumers of big data and instead become its raw material, merely the vessel for extracted data, and the tertiary target of advertising dollars collected by big data, we don't have the same forms of remedy that Hirschman claims are necessary for the operation of modern society.

There is no exit from Google because there is nothing to exit from. There is a distinct lack of meaningful competition. A user could choose to use an alternative search mechanism like DuckDuckGo instead of the ubiquitous Google search bar. This alternative would be a valid use of exit if the relationship between each user and the product were an economic relationship identifiable by classical economic thought. But this is not the case. Instead, in using search, Google extracts advertising information from you, the user, and then uses this information to fuel a shadow economy that we are all part of but don't see any benefit from. (Many might claim that the modern worker does not get any intrinsic benefits from their labor, but at minimum the unfulfilled promise of labor and exchange exists.) As the individual user of Google is not, in fact, the customer for Google, but instead the product, there is no reasonable mechanism of exit. One cannot exercise the option of exit when that exit has no coercive power. We remember that for Hirschman the purpose of both exit and voice is to create pressure on firms so that they

have a chance to respond to consumer demand and continue to exist in a flexible market economy. This ability to adapt when faced with consumer dissatisfaction is what Hirschman identifies as "slack" in the economic model. But this "slack" does not exist within this structure, with Google or any other company that makes the core of its enterprise the collection and deployment of big data. When we are not consumers but resources, the recourse to exit becomes meaningless. This is true in both a conceptual and a practical sense. Conceptually, exit (and voice) only operates when we are understood as consumers whose aggregate choices have a meaningful impact on the firm. This is not true for a company like Google, because of the practical limitations. Google's monopolistic tendencies means that there is no exit in any practical, meaningful sense. Try as we might, we cannot exit from the Google ecosystem.

The biopolitical language of ecosystem references the totality of our interactions with the form. Google does not need us to willfully consume its products or services for it to be useful and profitable. The monopolistic ubiquity of Google's AdWords means that all we need to do to interact and interface with Google is exist on the internet, something which is all but impossible to avoid in the modern era. Even the ongoing governmental discussions about closing the broadband gap and providing access to internet and internet-related structures to poor, intentionally underdeveloped areas is also seen as an economic boon for Google as it allows the company access to another subset of consumers who cannot fail to consent to its intrusion on their lives. In this very real way, we can see loss of autonomy and personal efficacy as a necessary requirement for

existing in today's modern digital landscape. As politicians extol the virtues of an infrastructural project that works to bring greater access to the internet to more impoverished, minority communities, it is impossible not to see these moves as the real, tangible outcomes of what some have called digital redlining, or perhaps its inversion. If we view digital redlining as a redlining of access, where specific geographic areas are coded as underdeveloped, minoritized, and then denied access to quality internet services, then we can see how the intrusion of new technological forms are pushing back against that narrative. However, in another way, we should see these projects of developing infrastructure and expanding access to the internet as a contemporary project of subjectivity and visibility. This move subjects these communities and these residents to a technological power they might have otherwise avoided. However, a meditation on these different disciplinary forms and their usage is beyond my scope currently, so this will have to be left to future work.

By making these communities of color visible to large tech corporations like Google, Facebook, and Twitter, the discussion must be understood as a project of subjectification. Drawing these communities into being subjects, at once integrated and disassociated with themselves, Google acts to capture these populations by understanding data inputs and then making reasonable predictions about them. But there is no escape from this system. The invasive nature of Google's integration with the very backbone of the internet means that one cannot escape the clutches of Google. There is no viable exit to take. This pattern is repeated across multiple forms as well. Facebook, too, with its

creation of "shadow profiles" for individuals who have not yet created a Facebook account, undercuts the notion of exit.[109] Our embeddedness within the regime of big data does not even end at the end of our lives. After our natural deaths, our data lives on, either as "in memory of" Facebook profiles or as the echo of our existence, continuing to shape and form the prediction algorithms of the future. When facial recognition data is based on the mugshots of deceased individuals or uses illicitly captured surveillance footage as its initial training data, the long arm of big data's control becomes clear.[110] There is no reasonable form of exit. This essential form of political and social control cannot be practiced on tech companies.

The political alternative to exit—voice—is also undercut by the regime of big data, leading us to again lack any form of political or economic recourse. Coupled with the lack of economic recourse provided by an account of exit, voice leaves us at the mercy of these corporations. The idea of voice is that in situations where exit is not feasible or desirable, individuals may turn to voice, directly making their complaints known to elites to elicit change. Hirschman argues that voice is fundamentally a political act, as its exemplary use is with states. As one cannot properly exercise exit within a state without significant hardship, and the competitive mechanism that fuels relations between firms is not a salient lever between states, individuals must turn to other means to express displeasure. It is also worth noting that Hirshman views the usage of voice as a higher-

---

[109] Luis Aguiar et al., "Facebook Shadow Profiles," SSRN Scholarly Paper (Rochester, NY: Social Science Research Network, February 1, 2022), https://doi.org/10.2139/ssrn.4032514.

[110] Kate Crawford, *The Atlas of AI* (Yale University Press, 2021).

cost alternative to exit, as it requires consumers to forego some benefit, like lower prices or higher quality, that they would have obtained through exit. When a price rises too high, or the quality of a product decreases, the option of exit allows a consumer to act in the most rational manner, or at minimum seek out the greatest material benefit. In this light, voice seems to be an irrational or less-than-optimal option, as to exercise voice means to tolerate, at least temporarily, the higher price or worse-quality good. Therefore, there must be a restrictive form that prevents individuals from using their power of exit to enact change. This may be a situation of virtual monopoly, or another overarching reason for exit to not be seen as a viable option. This is why voice is fundamentally political. It is the democratic option. Now, of course there are situations described by scholars where exit is a viable and noneconomic option, as is the case with migration events or even interstate moving.[111] We might also theorize that political apathy is a form of exit. However, regardless of the political or economic consequences of exit, voice remains the alternative for those who do not have the option or do not wish to exit. However, in the case of big data, voice is lost as well.

This is a paradoxical understanding, as on the surface, voice seems to be the quintessential feature of modern technology. We are constantly inundated with mechanisms for expressing our voice, from sending tweets to recording videos for TikTok to the endless sets of rating metrics, asking us to use our voice to review and rank all that we see and do. It seems therefore that we are surrounded with voice; that we,

---

[111] Clark, Golder, and Golder, "The British Academy Brian Barry Prize Essay."

more than perhaps any other collection of individuals in history, have our voice both requested and heard. But the view of big data as a structure of power, as has been developed in this dissertation, belies the insufficiency of this. In a move reminiscent of the management of dissent found in Marcuse and the early Frankfurt school, voice is used not as a true mechanism of change but as a captured form of data collection and use. When we seem to exercise our voice by writing a one-star review or by complaining loudly on Twitter, we are not actually exercising our voice in the way that Hirschman imagines it. This becomes all the more useless speech. Despite the research that has shown and contested the role of things like social media in the rise of the Arab Spring movement, or in promoting democracy across the world, voice remains fundamentally conditional.[112] One must work within the structures of the experience itself, and these structures reformulate voice into something else—the aspects that are the building blocks of the subatomic person. The usage of voice or the intrusion of voice is distracted or rerouted into creating data, rendering voice inert. When you leave a negative Yelp review or complain loudly on Twitter, the corporations do not need to worry about voice escalating to exit, which is the coercive relationship at the core of voice. However, when exit has been so fully undercut by the processes of big data, voice becomes meaningless. Even more insidiously, these attempts at voice only create more data points that are collected and used by the system. One can leave a nearly infinite number of reviews on nearly anything using Google's own rating platform, but all these reviews are aggregated

---

[112] Eva Bellin, "Reconsidering the Robustness of Authoritarianism in the Middle East: Lessons from the Arab Spring," *Comparative Politics* 44, no. 2 (2012): 127–49.

into the comprehensive tracking system Google has. The one thing you cannot criticize, at least not in the way that is required by voice, is Google itself. There is no way to rate Google or Yelp itself.

This lack of both exit and voice operates as another way in which the power of big data is removed from any form of democratic or popular control. Even if we take the neoliberal impulse that the market is governed by rational actors, and individual economic actions are the primary mechanism for controlling or determining the market, we see that the hegemony of big data undercuts these mechanisms. Individuals are not able to exert the type of control or influence over the market of big data and are therefore rendered as mere subjects. When we recognize that we are not customers or consumers but resources for big data, we must also recognize that with that transformation we lose any limited amount of control or influence that consumers have over corporations.

Google does not pander to us and does not worry about the loss of our continual usage of its product. Instead, Google worries about advertising dollars, looking to corporations that want to sell ads as their primary consumer base. This proves to be tricky, as we might then reasonably expand our understandings or definitions to see that the advertising market is the true market for Google's actions and therefore these advertisers, as consumers or customers of Google's products, have the right to exert the powers of exit or voice. This would be a correct assumption, but the important distinction is this: While advertisers may use the traditional economic and political mechanisms that

118

we identify as a way of attempting to exert control or signal accord with Google, their actions impact us directly, but without any control. The power of exit or voice is not granted to those most affected by the products and services provided by the corporations.

The harms of big data come in the form of removing our very political efficacy from the equation. The general population, what might be alternatively called the body politic, the public, or even the multitude (if we are to take a term from Hardt and Negri) is immensely impacted in a real and tangible way by the actions of big data corporations like Google or Facebook. However, because we are not understood as consumers, and instead seen as mere resources, our rights are undercut and we are left subject to the effects of big data. Yet these companies still exert massive amounts of political and coercive control over our lives.

Perhaps it might be more useful to understand the particular role and influence these major corporations have in terms that are more familiar to those who study political regimes. We can profitably understand the role of big data corporations by drawing the connecting line between them and forms of dictatorships. The literature in comparative politics identifies a number of different types of dictatorships, all with differing features and outcomes, but all connected by a complete subjectification of their peoples, rending them nearly inanimate subjects coerced into following the will of the country and cowed

into submission.[113] These forms are perhaps a bit dramatic to undertake when thinking about the role of big data in our everyday lives, but the idea of understanding our interactions with big data as akin to existing under a particular form of dictatorship has humbling, if useful, implications. By this model we can see the power structure of Google as similar to that of a single-party dictatorship, like Mexico under the PRI. In this formulation, the dictatorship acts like an all-consuming force, developing and creating submission through assimilation and forced reunderstanding. This seems to accurately describe the ideas and power structures surrounding Google and its actions. Google is a many-headed monster, consuming much of what is in its own path. Like the PRI, which was famous for a flexible party ideology that emphasized continuity over ideological purity, we have seen Google transform from its early "don't be evil" mindset to one fully expecting to capture the information of anyone online at any given moment. Alternatively, we can view Facebook's structure as a loose analogue to the personalistic dictatorships previously found in Haiti or Venezuela. Facebook is run at the whim of one man, Mark Zuckerberg, who has both ideological and institutional control over the corporation.

However, the open question remains, what happens to individuals subject to this form of power? We have seen how corporations turn to a biopolitical form of power to exert managerial control over user populations. However, what does this look like from

---

[113] Steven Levitsky and Lucan Way, "The Rise of Competitive Authoritarianism," *Journal of Democracy* 13, no. 2 (2002): 51–65, https://doi.org/10.1353/jod.2002.0026; Rod Hague and Martin Harrop, *Comparative Government and Politics: An Introduction* (Palgrave Macmillan, 2013).

the perspective of the user? The user is subjected to a new mechanism of biopolitical

power that impacts the way they might understand themselves and their relationship to

their data. This is an ontological shift, reflecting how the biopolitical power of big data

not only acts upon a population, but also determine them. This new ontology of big data

is reflected in the creation of a new form of the individual, one conceived as a cog in the

wheel of big data, one that is primarily defined through data sets and bears little

resembles to the Enlightenment ideal of the individual.

Chapter 3: The Subatomic Person

So far, I have aimed to make it clear that the power of big data is a biopolitical power, aiming to control our lives through the management of our existences. But this power impacts us in a multitude of ways. The biopolitical power of big data has carry-on effects that impact the way that we understand the world around us, and ourselves. In the previous chapter I aimed to understand the power of big data from the perspective of that power, looking at how it is developed and used, including what the possible outcomes of this power might be. Now, I turn to the ontological effects of this power and investigate how this impacts our understanding of self and the internal complications that arise from the implementation of this biopolitical power structure. I do this by tracing the development of the subatomic person, a hyperindividualized evolution of the Enlightenment-era atomic individual created by the hegemony of big data. This new subatomic person is created by the *aspect*, a singular piece of data extracted from an atomic individual and collected in a data set. This aspect is then aggregated to form the subatomic person, conceptually separated from the original form of the atomic individual, existing as what Jacques Derrida describes as a "specter"—noncorporeal, yet real. This new subatomic person is the building block of the prediction metrics at the core of big data. By redefining the individual, the hegemony of big data establishes what Robert Lake terms a "calculative ontology" that shapes the structures of society.[1] The ontological elements of big data, typified in the subatomic person, provide a new view of

---

[1] Robert W Lake, "Big Data, Urban Governance, and the Ontological Politics of Hyperindividualism," *Big Data & Society* 4, no. 1 (June 2017): 205395171668253, https://doi.org/10.1177/2053951716682537.

society—one stripped of all contextual elements, historical and cultural. While these elements may still be important to us in our lived existences, they are no longer relevant to the digital form of the subatomic individual. This creates a new class of subatomic subindividuals who are subject to the whims of these technological mechanisms.

The subatomic person is both real and a useful model for understanding the ontological impacts of big data on society. These impacts include the decentering of time—what Derrida, referencing Hamlet, describes as "being out of joint," or losing historical context and the possibility of a transformative future, thus leaving us in a mere perpetual present.[2] I aim to make this argument by first undertaking a short genealogy of the atomic individual as developed by the Western philosophical tradition. I then show how, through the development of the aspect, atomic personhood has evolved into subatomic personhood. After establishing the existence of the subatomic person, I then investigate the impact that this new form of individualization has, exploring the creation of the perpetual present as the outcome of this form of individualization. I thus prove that big data creates a new ontological form that serves to depoliticize. I follow Wendy Brown in defining the political as "a theater of deliberations, power, actions and values where common existence is thought, shaped and governed."[3] The creation of the subatomic person undermines our ability to shape and conceptualize this common existence. In making this argument, I draw on the work of Derrida to see how this new

---

[2] Jacques Derrida, *Specters of Marx: The State of the Debt, The Work of Mourning & the New International*, 1st edition (New York: Routledge, 2006).

[3] Brown, *In the Ruins of Neoliberalism*, 56.

ontology can be understood as a deconstruction of the atomic person as well as on

Foucault's notion of power and categorization, the Frankfurt School, and specifically

Marcuse's grappling with the problems of technological rationality.

Atomic Personhood

The idea of the autonomous, rights-bearing individual was the crucial mechanism of the

Enlightenment. Epitomized in the Cartesian *cogito*, the singular atomic individual

provided the foil against the Aristotelian scholastics for the new Enlightenment project.[4]

The development of the atomic or atomized individual is a formation of the individual as

the smallest unit of social analysis, developed by classic contractarian thinkers like John

Locke and Thomas Hobbes. This is exemplified in Locke's formulation of man's position

in the state of nature as "a *state of perfect freedom* to order their action and dispose of

their possessions, and persons as they think fit within the bounds of the law of nature,

without asking leave, or depending upon the will of any other man."[5] For these

Enlightenment thinkers, the individual is the smallest unit of analysis—thus the

comparison to the idea of the material atom. This new atomic individual would trace its

origin back through the state of nature, obtain political rights through consent-based

contract formation, and develop its moral character through the discovery of categorical

imperatives or the use of a pure reason. While this formation was both contested and

---

[4] Rene Descartes, *The Philosophical Writings of Descartes*, trans. John Cottingham (Cambridge Cambridgeshire ; New York: Cambridge University Press, 1985).

[5] John Locke, *Locke: Two Treatises of Government Student Edition*, ed. Peter Laslett, Student edition (Cambridge England ; New York: Cambridge University Press, 1988), 269.

reframed by thinkers from Karl Marx to Charles Taylor, the form of the individual

remains the fundamental building block of early modern and modern political life.[6] Just

as the reformation of the individual in the early modern period reshaped the political

status of these new individuals, so too does the subatomic person reshape contemporary

political life.

The entire form of contractarianism as a guiding principle of political action

revolves around the individual as an autonomous actor able to willfully consent to enter

into or create civil society. Even the contestations of these developments, as famously

argued by Carole Pateman and Charles Mills, structure the critiques around who is

counted as an individual.[7] Even if Pateman ultimately rejects the form of the contract, she

does so through the framework of the individual. The question then becomes, what

happens when the building block of contemporary democratic liberal society gets

undermined from below? What does the new subatomic person, created by big data, do to

our political structures? The development of the subatomic person involves a

deconstruction of the standard democratic or political norms and undermines our ability

to create a shared existence.

Subatomic Personhood

---

[6] Karl Marx and Friedrich Engels, *German Ideology, Part 1 and Selections from Parts 2 and 3*, ed. Christopher John Arthur (New York: International Publishers, 2004); Charles Taylor, *Philosophical Arguments*, n Second printing edition (Cambridge, Mass.: Harvard University Press, 1997).

[7] Carole Pateman and Charles Mills, *The Contract and Domination*, 1st edition (Cambridge: Polity, 2007).

The contemporary discussion surrounding the atomic individual, from the Rawlsian

conception of the individual to the communitarian debates of the late 1990s, has pushed

the limits of the concept of the individual.[8] More recently, the debate has turned on the

issue of culture as discussions surrounding multiculturalism have been brought to the

fore. These debates analyze the role of culture and the balance between individual rights

and the needs of minority cultural recognition.[9] These arguments have generally

contested the individualistic nature of the atomic individual. In short, the contemporary

discussion of the proper definition and relation of the individual can be seen as pushing

"upward," away from the Enlightenment-era atomic individual and toward the idea of a

holistic collective.

Big data drives the discussion in the opposite direction. Instead of

conceptualizing individuals in society as either atomic individuals or part of a

community, big data pushes to make individuals smaller and smaller. Holistic,

autonomous individuals are not represented by the collection of data; instead, individuals

are broken up into component parts and their identities are more and more determined by

small pieces of data. This new form of identity represented by the collected data creates a

---

[8] John Rawls, *A Theory of Justice* (Oxford University Press, 1999); Taylor, *Philosophical Arguments*.

[9] Will Kymlicka, "Liberal Multiculturalism as a Political Theory of State–Minority Relations," *Political Theory* 46, no. 1 (February 1, 2018): 81–91, https://doi.org/10.1177/0090591717696021; Will Kymlicka, *Multicultural Citizenship: A Liberal Theory of Minority Rights* (Clarendon Press, 1996); Alan Patten, "Liberalism, Culture, and Recognition: A Reply to Critics," *Political Theory* 46, no. 1 (February 1, 2018): 131–41, https://doi.org/10.1177/0090591717696025; Anne Phillips, "What Makes Culture Special?," *Political Theory* 46, no. 1 (February 1, 2018): 92–98, https://doi.org/10.1177/0090591717696023; Jonathan Seglow, "Reassessing Recognition," *Political Theory* 46, no. 1 (February 1, 2018): 123–30, https://doi.org/10.1177/0090591717696024.

new form of individual existence, a ghostly duplicated form made up of only data.[10] This

new form of individual existence goes by many names, from Deleuze's "dividual" to

what Kevin Haggerty and Richard Erickson point to as our "data double," or the "data

bodies" that Rita Raley identifies.[11] This new form is a deliberate deconstruction of the

Enlightenment-era atomic individual. This is why I have termed this new form the

subatomic person. Subatomic because, like the particles from which it gets its name, it is

a new form, breaking up what was once thought of as the most basic form of the

individual into smaller parts, which can be studied and understood on their own. In this

way, it reminds us of what Hong identifies as the "imagined legacy of the

Enlightenment" at work within big data, even as the subatomic seeks to move beyond it.[12]

The development of this new subatomic person is the logical endpoint of a

historical form of quantification that traces its lineages back centuries through

increasingly elaborate mechanisms of counting and classifying individuals.[13] It follows

classification regimes that Foucault develops throughout his works, specifically in

Discipline and Punish, where new forms of institutional power exert control through

---

[10] Cheney-Lippold, *We Are Data*.

[11] Gilles Deleuze, "Postscript on the Societies of Control," *October* 59, no. Winter (1992): 3–7, https://doi.org/10.4324/9781315242002; Richard V. Ericson and Kevin D. Haggerty, *The New Politics of Surveillance and Visibility* (University of Toronto Press, 2006); Rita Raley, "Dataveillance and Countervailance," in *"Raw Data" Is an Oxymoron*, Infrastructures Series (Cambridge, Massachusetts: The MIT Press, 2013), 134–45.

[12] *Technologies of Speculation*, 16.

[13] Wernimont, *Numbered Lives*; Koopman, *How We Became Our Data*, 2019; Dan Bouk, *How Our Days Became Numbered: Risk and the Rise of the Statistical Individual* (University of Chicago Press, 2018).

developing new forms of knowledge about individuals. In this account, the soul, like the

subatomic person, is the real, noncorporeal existence created by the exercise of power on

the body.[14] This discussion is continued by Jacqueline Wernimont and Dan Bouk, who

both trace the rise of quantification within modernity, first with Wernimont's discussion

of plague death sheets quantifying death and mechanical pedometers quantifying life.

Bouk continues this scholarship by examining the rise of statistical risk projection in the

insurance industry at the end of the 19th and beginning of the 20th centuries. Today, this

form of classification is taken up by big data, expanded to a scope and sophistication that

would be unimaginable for earlier theorists, reflecting a full reconceptualization of the

form of the individual based on the collected forms of data. The individual subject to

quantification by the plague death sheet or the insurance industry remained an individual.

Any contestation over their classification reflects a debate about who was an individual

worth counting. The inclusion or exclusion of an individual from a plague death sheet or

the deliberate dehumanizing of slave registers reflect intentional, hegemonic decisions

about who counts as a whole, atomic person. Quantifying and categorizing persons in

specific ways certainly subjects them to a mechanism of power, as Foucault clearly

shows, but the modern usage of big data reflects a change in the way that this

classification mechanism understands its subjects of interest. Instead of classifying

individuals based on specific characteristics to pass judgement on the individual, big data

picks out the individual characteristics, aggregates them, and subjects this aggregate to a

statistical methodology aimed at predicting actions. These individuals are no longer

---

[14] Foucault, *Discipline & Punish*.

whole and atomistic to the new mechanism, but made up of smaller and smaller pieces, rendered subatomic.

This subatomic person might be seen as something akin to what Derrida terms a "specter," a ghostly apparition, made more real by its imperceptibility, that nevertheless accompanies us throughout our lives as an invisible representation of a trail of data and information that we leave in our wake as we make our way through both virtual and empirical worlds.[15] This trail of data is made up of a number of unconnected particles, specific actions, demographic information, choices, and decisions that compose the form of the subatomic person. Facebook follows you around the internet using embedded cookies and other forms of technology to track you, whether or not you have a Facebook account or are logged in.[16] Raley describes the use of "Flash cookies," or Locally Stored Objects (LSOs), which are attached to an individual's computer and allow an individual to be tracked even when they are logged out or after they have deleted their Facebook account. The decline of Adobe Flash means that currently Facebook has moved away from Flash cookies as a specific mechanism, but the persistence of Facebook's tracking efforts remain.[17] Physical devices like the Fitbit bring this cataloging and tracing into the

---

[15] Derrida, *Specters of Marx*.

[16] Güneş Acar et al., "Facebook Tracking Through Social Plug-Ins" (Belgian Privacy Commission, June 24, 2015); Raley, "Dataveillance and Countervailance."

[17] David Nield, "All the Ways Facebook Tracks You—and How to Limit It," *Wired*, January 12, 2021, https://www.wired.com/story/ways-facebook-tracks-you-limit-it/.

physical world, logging steps and location data that is then sent back to a central server.[18]

Supermarkets track your every purchase through the use of loyalty cards that tie every

individual purchase to a unique account, using this information to drive marketing but

also making it available to law enforcement to track "suspicious activity."[19] These bits of

information are commonly referred to as "digital breadcrumbs" left scattered across both

the real world and the digital one. These breadcrumbs are not visual images of

individuals that are captured, processed, and even ogled by traditional forms of

surveillance like CCTV, where a person is viewed as their atomic self by another

individual through the mechanism of surveilling cameras.[20] Instead, they are captured in a

new form that Matthew Fuller calls "flecks of identity," no longer focusing the gaze on

an individual but instead capturing these flecks or aspects and mechanically sorting,

classifying, and using them.[21]

Problematically, the imagery of breadcrumbs brings to mind detritus; trash

scattered about that needs to be swept up. This encourages us to view this form of data as

meaningless to us and irrelevant if collected by corporations. Instead, we should think of

this data as an impression of ourselves left at each point of contact with the corporate

[18] Jiska Classen et al., "Anatomy of a Vulnerable Fitness Tracking System: Dissecting the Fitbit Cloud, App, and Firmware," *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 2, no. 1 (March 26, 2018): 5:1-5:24, https://doi.org/10.1145/3191737; Hong, *Technologies of Speculation*.

[19] Katherine Albrecht, "Supremarket Cards: The Tip of the Retail Surveillance Iceberg," *Denver University Law Review* 79, no. 4 (2002 2001): 534–39.

[20] Ericson and Haggerty, *The New Politics of Surveillance and Visibility*.

[21] Raley, "Dataveillance and Countervailance."

surveillance regime. Each impression is then collected into the constituent parts of big

data and reassembled into a specter. We might imagine a ghostly visage following us as

we click from website to website, log our daily walks in our Fitbit, view or like a post on

Facebook or Instagram, and even as we shop in brick-and-mortar supermarkets, reporting

back to Google, Facebook, Amazon, and others a clear record of everything we've done

in that day. Even if we opt in to these forms of surveillance, participating in a form of the

"Quantified Self" movement, we still find our information reappropriated, scraped by

credit card or insurance companies to create customer profiles that are then used to

determine health or credit risk and modify credit scores or insurance premiums

accordingly.[22] It is these individual elements, what I call aspects, that are the subatomic

particles that are aggregated into the subatomic person. As a ghostly specter, the

subatomic person has no intention or autonomy and is unconnected to any form of

political contestation or formation. It relies on the specific character of "the aspect" to

entrench this form.

The Aspect

What is an aspect? An aspect is any specific feature of an individual that can be collected

and categorized as part of a larger data set. An aspect may be simple demographic

information like age, race, or sex, or it may be a more complicated self-conception like

sexual orientation or gender identity. It may be traditionally political in political party

---

[22] Deborah Lupton, *The Quantified Self* (John Wiley & Sons, 2016).

affiliation, a political action like voting, or another form of political participation.[23] The

aspect may be any specific or general information, including information that we do not

ordinarily think about as a part of our identity: the first app you open on your phone in

the morning, your favorite coffee brand, what you listened to on Spotify,[24] and even the

speed at which you hiked over the weekend. The aspect may not even be information that

you know about yourself or something that you self-identify as. Anything that becomes

part of a data set that can be traced back to an individual is an aspect. This does not mean

that the aspect is the totality of data sets.[25] The aspect is only the elements of data that

can be traced back to an individual. Other information may be easily included in data sets

without being an aspect; large economic metrics like GDP are not aspects.

The aspect is the building block of the subatomic person. The aspect by itself has

no specific context or character. It has no history or future. It is a mere data point to be

used in a predictive mechanism. It becomes the smallest unit of analysis. To know an

individual at the level of the aspect is to know them intimately, to predict them, to

analyze them, to aggregate and disaggregate them. Through this new form of knowledge,

---

[23] This is not to deny that many of the other aspects remain political as well. Race, gender, income, and many other things may be justifiably considered to be political. However, as will become clear, the specific nature of the aspect strips off these political elements, rendering these aspects apolitical.

[24] Spotify's annual "Wrapped" feature, where it displays an aggregate of your listening habits over the past year, is a near-perfect example of what it means to be a subatomic person.

[25] We can think of a data set as a collection of information arranged in a spreadsheet. So, if you imagine an incredibly large spreadsheet containing millions of rows, each representing an individual or an individual entry, and thousands of columns, each representing a particular aspect of an individual, we might be able to approximate a data set utilized by big data. The challenge for individuals interested in big data analytics or statistical projection is determining which aspect of an individual is relevant for a particular outcome. What is the most important aspect to predict an individual's vote choice, for example?

a form of power is created—a predictive power based on the anonymous categorization of the individualized aspects. The disciplined, managed, pacified individual in *Discipline and Punish* no longer represents the ideal form of power in society. The subatomic individual, anonymized and deconstructed to the level of the aspect, emerges as the most necessary constructive form.

The aspect allows for predictive technology to trace the individual and determine their lives at a granular level, yet without the historical or structural awareness required when treating a full individual. This is because the aspect is a mere data point inside a larger data set. A predictive algorithm or other form of analysis is only connected with the correlative metrics associated with a particular aspect. If a subatomic person has the aspect of being, say, a Black woman in America, then the algorithm only "knows" a subatomic person with collected aspects of "Black woman" and "American." This leads to a prediction about wealth, spending habits, political association, location, or anything else. It is not relevant for a predictive mechanism to know why any of these specific connections may be relevant. It needs no concept of history; no knowledge of structural injustice. The aspect and its statistical correlation are the only relevant detail for the algorithm or predictive metric, and the subatomic person means that big data, which bases its predictive power on these aspects, can practice a distanced neutrality.

The common misconception is that the algorithms that drive the analytic capacity of big data can never be understood as structurally unjust.[26] These algorithms are only ever mistaken when their outputs do not correlate to the norms of society, or so the standard story goes. By this logic, because the subatomic person is a person only in the most abstract sense, and because they are a collection of aspects, they can have no normative values. This means that the aspect, too, is necessarily value neutral. The question of why someone is associated with a particular aspect then becomes an irrelevant question.

The disconnect between the individual and the specter of the subatomic person is one of the core reasons why systemic oppression at the hands of big data is understood as a "mistake" and not as a systemic issue, despite the long history of racialized surveillance.[27] The reframing of this subatomic person as one outside of both history and power structures is a necessary part of the use of big data. Any understanding that removes the individual from a categorizable, predictable context renders them

---

[26] An algorithm is merely a set of instructions to a computer. In its most basic form, an algorithm uses formal logic (e.g., *and, or,* and *if/then* statements) to provide a branching set of instructions for a computer to complete a specific task. The development of machine learning and AI has allowed some sophisticated algorithms to use iterative processes to create new sets of instructions or modify existing instruction in search of a particular goal. These are sometimes described as "learning" algorithms, as they can use past results to inform the future set of instructions. These can be used in tandem with statistical predictions to create very sophisticated mechanisms, like the Google Search algorithm, which both catalogs information on the internet and predicts what information will be relevant for a given search term while also interfacing with a similarly complicated instant-bidding algorithm, selling on-demand advertisements based on the individual searches. See: Hal R Varian, "Online Ad Auctions," *American Economic Review* 99, no. 2 (April 2009): 430–34, https://doi.org/10.1257/aer.99.2.430.

[27] Simone Browne, *Dark Matters: On the Surveillance of Blackness* (Duke University Press, 2015).

fundamentally unknowable, a privilege granted only to the most powerful in modern

society. As Foucault points out, to be unknowable in society is to be powerful:

"Traditionally, power was what was seen, what was shown and what was manifested […]

Disciplinary power, on the other hand, is exercised through its invisibility; at the same

time it imposes on those whom it subjects a principle of compulsory visibility."[28] Like

the tech executives who brag about how their children are prohibited from using social

media, the ability to disengage from the system is a reflection of your power over it. The

rationality of big data requires that all individuals who are not powerful enough to escape

its clutches be rendered as perpetual aspects. Thus, the emphasis on anonymized data.

Aspects are easily removed of their individual context and rendered as large databases of

anonymous data. The anonymization of aspects is often cited as a panacea for the social

problems of big data, and yet anonymization remains both incomplete and irrelevant. Not

only is deanonymizing data easy to do with only a few discrete data points, but it also

disguises the larger issues.[29] The focus on anonymized data as a solution to the problems

of predictive algorithms and the subatomic person puts the analytical focus on only one

aspect of the issue: data collection and surveillance.

There also is a form of alienation at work in the realm of big data that we should

turn our attention to. Davide Panagia even goes so far as to claim that "algorithms are

---

[28] Foucault, *Discipline & Punish*, 187.

[29] Schneier points out that it only takes three discrete data points, like a location, website purchase, phone call or text, to effectively identify individuals.

technologies of alienation."[30] According to John Medearis, alienation is "the condition

that exists when their common action returns to people in the form of social forces,

relations, or institutions that dominate some or all of them and enable some people to

oppress or exploit others."[31] This definition works well for our understanding of big data

and can set up the specific form of alienation that these technological systems engender.

For Medearis, alienation is the result of a confluence of a number of components:

domination, oppression, and exploitation. In this way, we can understand subatomic

personhood as a form of domination, defined as "a profoundly disproportionate relation

of power, not necessarily an exercise of power" embodied in a spectral form within

contemporary digital technology.[32] Importantly, alienation can be understood as a

productive force. The oppositional quality of democracy that Medearis describes is driven

by alienation. However, as Marcuse identifies, alienation can also be flattened into

complacency, and this pacifying alienation is also at work in big data. When people

engage in common actions, such as using Facebook or Google, they are subconsciously

participating in the regime of big data and, therefore, a form of social relations that

alienates them.[33]

---

[30] "On the Possibilities of a Political Theory of Algorithms," *Political Theory* 49, no. 1 (February 2021): 116, https://doi.org/10.1177/0090591720959853.

[31] *Why Democracy Is Oppositional* (Cambridge, Massachusetts: Harvard University Press, 2015), 102.

[32] Medearis, 103.

[33] Importantly, for Medearis, individual action or agency is not external to structural forces and instead exists as "her experience of confronting patterned aspects of the social world that she has not, on her own, created" 89. This is the experience of using Google.

While Medearis discusses how alienation affects elite politics, big data alienates the self from the self. The outcome of this type of algorithmic data analysis is that we are faced with a situation where it seems like big data knows us better than we know ourselves. This is a form of domination, if we understand domination as a way to "affect many people, limit or shape their conduct, for long periods of time without specific acts or exercises of power being directed towards them."[34] This is evidenced by the now-infamous Target example when the advertising algorithm knew a customer was pregnant before she did, sending her targeted ads for baby supplies based only on the analysis of her particular aspects.[35] In this example, the customer was not acted upon by a specific exercise of power. No advertising executive made the decision to advertise baby supplies directly at her. Instead, the algorithm itself exercised domination by attempting to shape the conduct of the customer (as indeed all advertisement does) through alienation. This becomes alienation not from one's own labor or from political participation, but from the self. When big data knows you better than you know yourself, the form of domination practiced represents an alienation from the self.

The alienation of the self is the fullest inversion of the Cartesian *cogito* where one no longer has to think to know they exist. The thinking has been outsourced to big data. The algorithm thinks for you, determining your existence. Say you are interested in finding a new yoga teacher. You might go onto a service like Yelp to see your options

---

[34] Medearis, 103.

[35] Pasquale, *The Black Box Society*.

and read user reviews to help inform your decision. However, Yelp only masquerades as a rating and review site and app. The real core of its business is advertising, as is the case with nearly all tech companies.[36] Businesses pay to increase their visibility on the app, and Yelp has been accused of extortion, harassing business owners, and removing reviews when businesses cease advertising on their platform.[37] What might be initially seen as a free choice—selecting a local yoga teacher—may actually be a specifically curated list aimed not at getting you to make the best choice, but rewarding the businesses that pay the most. Your choice is being determined by outside influences aimed at modifying your actions. When the subatomic person becomes the primary focus of action, the atomic individual, understood as the location of the self, becomes alienated from action. The inner search after self is rendered meaningless when the self is determined by outside mechanisms, totally defining it according to the laws of the subatomic person.

The ubiquitous category of "other" in racial categorization demonstrates this phenomenon all too well.[38] How better to seem to recognize claims of individuals seeking an existence outside of the categories but by making this a category itself, turning it into an aspect? The option of "other" exists as the category of resisting categorization.

---

[36] Hwang, *Subprime Attention Crisis*.

[37] Stephen Harrison, "A New Documentary Highlights Why Yelp Feels Unfair," Slate Magazine, June 6, 2019, https://slate.com/technology/2019/06/billion-dollar-bully-documentary-yelp.html.

[38] This is particularly true for the categorization of race but may also be applied to any form of categorization that requires self-otherizing.

"Other" remains an option in surveys, but it is not freedom from the structure. It is an attempt to put oneself in nonconformity with the structure while still being within the structure. The alienating form remains, dominating individuals by forcing them into a category they do not identify with. Defining race, sexuality, or any other information as an "other" turns the individual into merely an other. This deliberate self-otherizing exists in the present to classify that which resists classification. The category of "other" exists alongside all the additional categories. It is a perpetual determinant of the classification regime of big data. The category of "other" is an entirely fictitious aspect; no atomic individual self-identifies as being a member of the "other" race. Its very existence reminds us that the categories themselves are fictitious, set up to enforce a regime of classification that relies on using these fictitious categories to achieve particular ends, be they measurements for representation, as is the case with the U.S. census, or the selling of advertisements, as is the case for Google.[39]

It must be recognized, of course, that this development of categorization is not a new mechanism. Categorizing the individual traces its Western lineages back to the era of the Roman census.[40] What is new is the totalizing of the subatomic person, alienating them from true self-determination and rendering them a mere object of algorithmic

---

[39] All this assumes, of course, that all of the information is being inputted into a database in a way that is accurate or seems accurate. D'Ignazio and Klein, *Data Feminism*. This is compounded by the fact that Google, and other corporations may intentionally categorize individuals incorrectly, as a reflection of their spending habits. Cheney-Lippold, *We Are Data*.

[40] W Graham Claytor and Roger S Bagnall, "The Beginnings of the Roman Provincial Census: A New Declaration from 3 BCE," 2015, 17.

prediction. Geoffrey Bowker traces this new move to the rise of object-oriented and

object-related databases, "in which each data object lives in a Tardean paradise"

determined by the interactions between data objects, rather than on specific qualities.[41]

Bowker argues that as a result of this technological move, we now have an instrumental

relationship to technology, as our interactions with each other are rendered irrelevant for

data collection and analysis. This is an alienated subindividual, abstracted from all social,

historical, or institutional contexts, rendered "anonymous" and broken down into smaller

constituent parts for analysis. In this way, the mechanisms of big data act as forms of

domination derived from the forms of alienation at work. These mechanisms are used to

assign you an identity, outside of your control, and associate you with aspects that you

might not identify with or even know about and then leveraged to impact your existence

in the world. Once the subatomic person becomes a mechanism to impact the ways in

which we operate in the world, it becomes dominating. It creates a form of power over

you and your self-conception. The dominating power occurs when entities that collect

this data act on this assigned identity to impact your behavior and actions. In the most

straightforward sense, this assigned subatomic identity might be used to target you for

advertisements, encouraging you to purchase things. However, more subversively, this

can also affect things like insurance rates and risk assessment, and even have a coercive

---

[41] An object-oriented database is a way of programming where each instruction or task is self-contained, holds all of its elements within itself, and can be called upon to perform the required action. This is contrasted with a relational database where individual elements must be associated with each other in rows and columns. Object-oriented databases are more anarchic, without overarching rules, but also persist across use "sessions" so make for much quicker search functions. "Data Flakes: An Afterword to 'Raw Data' Is an Oxymoron," in *"Raw Data" Is an Oxymoron*, Infrastructures Series (Cambridge, Massachusetts: The MIT Press, 2013), 169.

impact on your life. Taken to its most extreme, these patterns and assigned forms of

identity are regularly used by the U.S. government to authorize drone strikes, with

information about individuals fed into a "kill cloud."[42]

It is perhaps most useful, if not fully accurate, to use a direct statistical metaphor

to see how these forms of identity are decontextualized and alienating. The aspect only

has meaning if it has a variable to be associated with—an exact location in the data set,

located in a precise row and column. For example, race must be conceptualized as an

option in comparison to other defined options. The same is true for political action. The

most basic political action, voting, is rendered not as an expression of democratic choice

undertaken by the atomic individual, but as a variable in a data set. The entire political act

of voting is reduced to a single aspect. Is this subatomic person a voter or not? Any

additional context or political utility is lost. The aspect is only useful insofar as it is

categorizable, and therefore everything must be categorizable. It is in this continuous,

direct categorization that the idea of politics is lost. If one is defined by the collection of

aspects in the data set, then to exceed the data is to not exist. The knowability of the

aspect creates the prerequisites for existence itself, undercutting any political contestation

or transcendence. By this I mean the sort of utopian thinking that Marcuse defends in *An*

---

[42] David Cole, "'We Kill People Based on Metadata,'" *The New York Review of Books* (blog), May 10, 2014, https://www.nybooks.com/daily/2014/05/10/we-kill-people-based-metadata/; Anna Coren et al., "US Military Admits It Killed 10 Civilians and Targeted Wrong Vehicle in Kabul Airstrike," CNN, September 17, 2021, https://www.cnn.com/2021/09/17/politics/kabul-drone-strike-us-military-intl-hnk/index.html; Lisa Ling and Cian Westmoreland, "The Kill Cloud: Real World Implications of Network Centric Warfare," in *Whistleblowing for Change: Exposing Systems of Power and Injustice* (transcript publishing, 2021), 300 Pages.

Essay on Liberation, where the idea of a utopia or, in my terms, a transcendent future, is a radical departure from the politics and problems of the present but solved with the tools available to us. As Marcuse puts it, "What is denounced as 'utopian' is no longer that which has 'no place' and cannot have any place in the historical universe, but rather that which is blocked from coming about by the power of the established societies."[43]

These futures that have been blocked from "coming about" have been rendered irrelevant for data collection, creating a new ontological form of existence. The subatomic individual has become a subindividual who has no capacity for independent existence. Their very being is derived from the aspects created by an empirical person, but political and economic power is only targeted at this subindividual. This new class of person is subject to the whims of the predictive technology; they are the targets of the advertising mechanisms created by Facebook or Google. When these forms target only the subindividual level, the atomic individual that is left behind finds themselves excluded from the conversation and unable to act in a political way to modify or control this form of existence, leading to the alienation of the self.

Now, the subatomic person is not a specific psychological self, defined by data— to attempt a psychological investigation of the subatomic person is to understand the subatomic from the horizon of the atomic. Only in the atomic individual does true individualism matter. The subatomic is a constantly updating and fluctuating series of

---

[43] Herbert Marcuse, *An Essay on Liberation* (Beacon Press, 1971), 28.

aspects, all generally associated with one physical body or form, stretched as it may be across many data sets controlled and managed by many different entities. The subatomic person exists in the world but is also determined by the world in ways that may be entirely different from one's self-identity.[44] Google assigns individuals' identities based on actions, irrespective of their "real-world" existence. So, an individual may be categorized, subatomically, as a middle-aged Black woman based only on online activity, even though they are, atomically, a 20-something white male. This means that we, as atomic individuals, may not agree with or identify as the aspects that make up our subatomic person. In fact, we may even recognize this partiality of the subatomic person and how it is necessarily an incomplete picture of a person.[45] This form of subatomic identity necessarily removes all historical and cultural context, assigning identity merely based on patterns of action. This subatomic person is a decentralized self, both known and unknown, stretching out, decentering, depoliticizing, and individualizing. It is a ghostly specter trailing behind us, featureless but data rich.

Temporal Problems: Present, Past, and Future

The specter of the subatomic person exists in a perpetual present, disassociated with any relevant past and lacking a transformative future. This perpetual present is formed as a result of data itself and its necessary reliance on the aspect. The aspect exists only in the present. As a singular data point, the aspect is necessarily a description of how things are.

---

44 Cheney-Lippold, *We Are Data*.

45 Deborah Lupton, "'Not the Real Me': Social Imaginaries of Personal Data Profiling," *Cultural Sociology* 15, no. 1 (March 1, 2021): 3–21, https://doi.org/10.1177/1749975520939779.

The aspect remains in the present tense as an "is." Every aspect associated with an

individual that feeds into the computational, classification, and predictive modalities of

big data must "be" or exist in the present. The individual must "be" a particular age, race,

or gender. Demographic information, with its focus on exclusive, immutable

characteristics, is the ultimate representation of how the aspect exists immutably in the

present. Age, for example, must always change. However, the aspect itself is unchanged

and ever in the present. The aspect of being 31 is always there regardless of who is

associated with that aspect, and it always remains as an "is." In this way, predictions

remain as an "is" rather than a future; statistics cannot comprehend a utopian or

transcendent future. One of the most vivid examples of how big data strips all context

from the aspect, so that it remains in the present, is race.

This single aspect must always exist as an "is." Because the aspect represents a

single point of data that is in reference to a single atomic individual, it must always exist

in the present. The subatomic individual that emerges as a specter from the aggregation

of aspects holds all its aspects collectively and simultaneously. An aspect can only

describe this individual as they are at the very moment of data collection; they are

captured as a snapshot of a moment in time and brought into the present for analysis. This

is why the subatomic person can be seen as existing in a sort of perpetual present. For the

specterlike aggregation of aspects that is the subatomic person, there is no past and no

future. There are only continual, singular existences as an aggregate of this snapshot of

aspects. This existence is a corrupted inversion of the Heideggerian *dasein*, without the

form of action that he ascribes to this existence. For Heidegger, *dasein* is a being-in-the-world that allows us to interact with the world and develop particular relationships with actions in the world. The subatomic person, with their collected aspects, is a being-in-the-world, but locked into a particular existence, where the sort of interactions made possible by *dasein* are rendered impossible. For the aspect, there is no contextual existence, there is only the singular existence, as a datapoint that exists as a singular thing-in-the-world, always in the present, even if presented in the past tense. Therefore, the aspect and thus the subatomic person exists in a perpetual present.

The aspect must always remain in the present because its primary formulation and purpose is to be used as part of a predictive algorithm or machine learning mechanism. This is the core of why the aspect itself comes into existence, it is the data upon which an algorithm or model rests its predictive capacity. This means that the aspect cannot exist in the past as if it were to do so, its utility as a tool of prediction would be lost. To locate an aspect in the past is to acknowledge that something may have changed between the collection or definition of the aspect and the deployment of the predictive capacity. The relevant nature, or generalizability of a predictive metric, regardless of its statistical sophistication would always be in question. To admit that an aspect was only relevant in the past is to admit its uselessness for its intended purpose. In this way, even the aspects that seem to be undeniably tied to the past are regarded in the present tense and can be seen to exist in this perpetual present. Past actions are always coded in this way. The individual who has engaged in the act of voting in the past is alternatively described as a

voter or as someone who "has voted." In this way, a previous action, once relegated to the past, gets dragged into the present as an aspect. The subatomic individual is someone who "has voted." "Has voted" becomes the aspect that the person currently is. Thus, the aspect remains in the present, satisfying requirements for prediction.

Race, when categorized as an aspect, exists as a perpetual constant, resisting any temporal or historical fluidity. We may be aware of the contestation of the construct of race or understand its fluidity, yet the aspect remains, categorically immutable and resistant, even dismissive of any contestation. Race is an evolving, changing category, one shaped by slavery, settler colonialism, *defacto* and *dejure* inequality, "scientific" inquiry, and more.[46] However, despite all this complex, painful history, in the aspect and according to big data, race is merely an immutable category. The U.S. Census provides a vivid example of how the usage of race as a category serves only to distill the complex, messy set of power relations and interactions that come to form the full idea of race into a single checkbox. The long, path-dependent options on the U.S. Census show how the goals of categorization, and the subsequent creation of data can become disconnected from the lived experiences of atomic individuals. What options are present or not present, and the ever-present discussion about how to categorize the idea of being "multiracial," all demonstrate how the need to categorize individuals as aggregates of aspects and

---

[46] Michael Omi and Howard Winant, *Racial Formation in the United States*, Third edition (New York: Routledge/Taylor & Francis Group, 2015).

render them as subatomic persons necessarily entails the stripping of context.[47] The

aspect simply is. Any ambiguity, hybridization, or other contestation is contained within

the aspect itself.

The ubiquitous category of "other" in racial categorization demonstrates this

phenomenon all too well. How better to seem to recognize claims of individuals seeking

an existence outside of the categories but by recognizing this as a category itself, making

it into an aspect? The "other" option in surveys remains an option but it isn't freedom

from the structure. To choose "other" is to attempt to put oneself in nonconformity with

the structure while still being in the structure itself. Defining race, sexuality, or any other

demographic information as an "other" is to turn the individual themselves into merely an

"other." This deliberate self-otherizing exists in the present to classify that which resists

classification. The category of "other" is an entirely fictitious aspect, no atomic

individual self-identifies as being a member of the "other" race, sexuality, or indeed any

category. Its very existence reminds us that the categories themselves are fictitious, set up

to enforce a regime of classification that relies on using these fictitious categories to

achieve particular ends, be they measurements for representation, as is the case with the

U.S. Census, or the selling of advertisements, as is the case for Google.[48]

---

[47] Randa Kayyali, "US Census Classifications and Arab Americans: Contestations and Definitions of Identity Markers," *Journal of Ethnic and Migration Studies* 39, no. 8 (September 2013): 1299–1318, https://doi.org/10.1080/1369183X.2013.778150.

[48] All of this assumes, of course, that all the information is being inputted into a database in a way that is accurate or seems accurate. This is compounded by the fact that Google and other corporations may intentionally categorize individuals incorrectly, as a reflection of their spending habits. Cheney-Lippold, *We Are Data*.

The predictive elements associated with the aspect of race mean that the complicated history of race and power becomes decontextualized. The outcomes of this decontextualization can be seen when a particular neighborhood is correlated with a lower level of income, and results in a particular set of outcomes. Now, a sophisticated algorithm may know an additional data point, that the neighborhood was "subject to redlining." However, this does not mean that the algorithm considers this history. Instead, it turns the history into an "is," dragging the historical into the present. Within big data, this is a neighborhood that merely has a positive value for the variable "subject to redlining." All the history, the hopes and dreams of people, the pains of lived discrimination, the contextual histories are removed from their moorings and turned into an aspect, only existing in the perpetual present of the data set. The meaningful elements of race become removed from the equation, replaced with a single variable or datapoint.

Prediction too remains in the perpetual present. While it is true, obviously so, that prediction aims forward in time this does not mean that it aims at a truly "transformative" future. Predictive mechanisms, the lifeblood of big data, aims only at a "predictive" future, the predictive model shows only that, given a specific set of aspects and circumstances, or data, an outcome may be expected. Yet this expectation has nothing to do with the idea of a transformative future. It can only state that, given a particular set of aspects, an outcome is likely. However, these aspects remain only in the present and, therefore, so too must the outcome. For a predictive mechanism to be accurate, a

148

predictable set of conditions must also be accurate. In this way, the future dictated by big data must be predictable in both context and in action. This requirement makes a true future, one defined as having a transformative effect on our existences, impossible.

The stability of the aspect in the present is the crucial assumption on which the entire predictive mechanism of big data rests. Yet it must be remembered that due to the development of the subatomic person, the aspect is isolated from the individual, existing only as this ghostly specter. The particular aspects associated with an individual may change, either in the form of the capture of new data or as a quality of the individual themselves. An individual may be recategorized or assigned new aspects as the data set seeks to update its predictive modeling. This may include updating a racial category to be more specific, such as the U.S. Census including an option for Middle Eastern origin, or this may be a function of the aspect itself.[49]

The perpetual present means the destruction of the past. For big data, and the hegemonic political rationality that it brings about, the past is meaningless. The past as a shared history developing cultural, political, and institutional legacies must be thrown aside as it is not reducible to the level of the aspect. Cultural histories are amorphous; they are not actionable, so they are irrelevant. The important aspect for big data is a singular data point; something that can be utilized, analyzed, and fed into a form of

---

[49] Kayyali, "US Census Classifications and Arab Americans."

predictive measurement. This requires bringing it into the present. Doing this erases the lived memories, emotions, and concerns of the past.

The Destruction of the Past

The use of statistical calculation in history helps show us that prediction itself has no direct temporal necessity. Prediction does not need to be about the future; we can make statistical predictions about the past as well. It only requires a set of aspects, with the crucial assumption that these aspects cannot change and therefore reside in the perpetual present, even if they are obviously in the past. Statistics can only show the probability of a past event; all we can know about something that has happened historically is rendered in present uncertainty, this is the role of statistics for historians.[50] And yet, the temporal characteristics of this type of statistical analysis remain in a perpetual present, even if the subject matter is in the past. In fact, the use of historical examples makes this clearer, despite what we might think. The use of statistics to examine and interpret historical situations means we are making predictions about existent facts. These statistics are no longer speculative, guessing about things that we do not yet know or cannot know. Instead, they are predictions about historical realities.

If we use this type of analysis to, say, estimate a population of in a particular area, at a particular time, we are making a prediction about a thing that has a definitive answer.

---

[50] Osamu Saito, "Historical Demography: Achievements and Prospects," *Population Studies* 50, no. 3 (November 1996): 537–53, https://doi.org/10.1080/0032472031000149606.

The area in question did indeed have a specific population and even if that fact is ultimately unknowable due to historical circumstance, it is an established fact.[51] The predictions created through the use of statistical or algorithmic investigation do not actually say anything about that time; they speak to our time, representing our understanding in the present and utilizing the set of information that is available to us in our present. The discovery of new information would change our understanding and therefore update our understanding in that new present. It, importantly, would have no impact on the existence of the moment in the past. Because this type of analysis becomes unmoored from the past, it doesn't matter why the statistical tools used for population enumeration are used. Whether one is interested in the population of the late Roman empire or the early Americas is irrelevant for the statistical mechanisms. While the data themselves must be historical objects, the statistical mechanism must bring them into the present, a temporal shift that Orit Halpern calls "a constant redefinition of the temporal lags between collecting, analyzing, displaying and using."[52] This shows us that the "raw" information—the aspects that are being used to understand these facts—has no historical meaning. The aspects are devoid of context, devoid of the past, existing perpetually at the moment of analysis regardless of when they were originally collected. To put it another

---

[51] I admit that I am glossing over a complex definitional question of a thing like populations, but even if we define this idea incredibly narrowly, bounding it by very strict geographic and temporal restrictions, the point remains that there is an answer to this question, however unknowable it may ultimately be. Most usages of this in history are focused on genomics, looking at the interrelation of populations as they migrate and intermix, but again a simplified example is more illustrative. See: Oscar Lao et al., "Correlation between Genetic and Geographic Structure in Europe," *Current Biology: CB* 18, no. 16 (August 26, 2008): 1241–48, https://doi.org/10.1016/j.cub.2008.07.049.

[52] *Beautiful Data*, 22.

way, data only obtains meaning through analysis, and analysis must only exist in the present.

However, living in the perpetual present means that all of the contextual framing and historical experiences are lost when we turn to data. When we engage in this sort of statistical practice, we bring the past into the present with us and recognize it as a part of our current existences. Therefore, the obvious injustices or problems that occurred in the past must be explained away and justified today or else we risk adopting these injustices ourselves. We do this by stripping the data of all context. By approaching data as merely aspects, we can leave the messy contexts behind, preventing us from grappling with the legacy of any harm. This is reminiscent of what Mbembe describes as the move from a society that mythologizes logic to a society focused on belief, saying that "zealous belief is no longer considered antithetical to rational knowledge".[53] Mbembe traces how the Enlightenment puts forward a society of logic as the ultimate ideal of a society. To be run by reason and logic is to complete the project of the Enlightenment and is the goal that governments and populations should work toward. However, this has changed, and Mbembe identifies a new trend toward orienting out societies by belief rather than logic. This society of belief requires not only an understanding of progress as the process of identifying errors and fixing them (as the logic-driven society dictates), but by coming to an understanding of the supposed ideals of the past and then believing in them as immutable.

---

[53] Mbembe, *Necropolitics*, 51.

We can see this play out in the controversies surrounding statues of Confederate soldiers. In the most abstract sense, it seems like tearing down or changing these statues should be simple. They represent an abhorrent faction in American history and were often erected by another abhorrent faction in American history for the purpose of terrifying Black individuals into submission in the early 20th century.[54] Why would the removal of such objects of racism and injustice be controversial? And yet, much consternation, protest, and legislation continue to be motivated in support of maintaining these statues. Understanding this situation as a result of the society of belief motivated by the existence of the perpetual present can help. The statues do not represent a long bygone era, with values no longer applicable to modern society. Instead, they are a physical manifestation of a core aspect that is tied up in a complicated network of belief and self-identity. A referendum on Confederate statutes is understood to be a referendum on the aspect of being "Southern." Because these aspects can only exist in the perpetual present, any critique of the aspect is not and indeed cannot be fully realized as something in the past. It is a part of the present, impacting belief and self-identity. Therefore, to critique this aspect by removing its physical symbols is to critique those who hold that associated aspect as a core part of their self-identity. The historical nature, and indeed the complicated, racist story behind the Confederacy and Confederate monuments, exist

---

[54] "Whose Heritage? Public Symbols of the Confederacy," Southern Poverty Law Center, accessed September 21, 2020, https://www.splcenter.org/20190201/whose-heritage-public-symbols-confederacy.

inside this perpetual present, impacting the identities of those who hold these aspects today and existing as a core part of their society of belief.

These elements of the past are irrelevant to the subatomic person. The subatomic person becomes the object of belief. The society of belief requires a focus to direct this belief. A focus on the aspect of being "Southern" brings the past into the present. The context becomes irrelevant. We then are identified in the present by our aspects, as an American, or (perhaps more revealingly) as a "Southerner"[55] or someone with an affinity for the American South. This identification is not a historical one, where a person might recognize their own ancestral legacy and then undertake a period of self-examination, attempting to understand how their ancestral legacy impacts their existence in the world today. Instead, this becomes operationalized as a belief system. Being a "Southerner" means there a number of aspects that are objects of faith that become immutably associated with this identity, including the myth of the "Lost Cause" and the idea that the Civil War was not primarily about the preservation of slavery as well as forms of political conservatism. The fact that all of these aspects live in the present means that any attack on these aspects, even if they are directed toward historical figures, is a direct attack on the aspect that exists in the present and represents a fundamental part of the belief system that makes up the core element of identity and meaningful existence.

---

[55] Importantly, this should be understood as being a white Southerner. Being a Black Southerner, or any other nonwhite self-identification, acts as a different aspect.

The purpose of this diversion is to help explain how the subatomic person is the focus of big data. It contributes to the functional destruction of the past, as all relevant data gets dragged into the perpetual present. This complicates the formation and maintenance of identity, which, when coupled with what Mbembe identifies as the focus on belief as the foundational mythology of our society, changes what it means to be an individual in this context. We rely on "mythoreligious logic" where a form of the divine[56] is an "imminent and immediate force" pushing us away from our Enlightenment foundation and toward an animist understanding of data where the "truth" derived from data becomes more important than our understandings of ourselves.[57]

The Future

Similarly, the idea of a transformative future, or an expectation of substantive future progress, has been undercut by this development of the subatomic person. This is visible in two ways. The first is through the lack of meaningful technological progress. The second is the need for a static concept of the present to make sense of statistical prediction. Those who are interested or invested in a technoutopian vision assure us that the development of new forms of technology and new innovations will allow us to transcend to a postscarcity existence and live in an imagined utopia. However, the actual trajectory of technological progress seems to undermine the potential for a transformative

---

[56] For Mbembe this is the market, capital, or the political; for us, data analytics.

[57] Mbembe, *Necropolitics*, 51.

future, at least with current hegemonic systems remaining in place.[58] The subatomic person destroys the capacity for imagining a transformative future. The existence of the perpetual present also requires that any understanding of the future is continually rooted in the understanding of the present and is understood as merely a present to come rather than a true future.

Resisting this view of the future is based on Marcuse's *One-Dimensional Man* where the future is an object of transcendence that allows us to move beyond the imposed limitations placed on our cognition by the existent political rationality.[59] If we take this as our definition, then the existence of the perpetual present as created by the subatomic person is antithetical to such a development. The idea of the future is curtailed by the present. This is what Wendy Hui Kyong Chun calls "programmable visions," or the idea that the future "is linked intimately to the past, to computers as capable of being the future because, based on past data, they shape and predict it."[60] It is "a future—based on the past" that undercuts Marcuse's vision of transcendence.

The destruction of the future that is caused by the development of the subatomic person originates from what we might call the false promise of progress. This is the

---

[58] Tyler Cowen, *The Great Stagnation: How America Ate All the Low-Hanging Fruit of Modern History, Got Sick, and Will (Eventually) Feel Better* (Dutton; Eventually Edition, 2011).

[59] Marcuse, *One-Dimensional Man*.

[60] Wendy Hui Kyong Chun, *Programmed Visions: Software and Memory* (MIT Press, 2011), 9.

promise of technofuturism and the expectation of revolution. This promise continually

claims that the next fully "disruptive" technological revolution is just around the corner,

resulting in an upheaval of modern society and the solution to many of our current

problems.[61] Perhaps the most visible figure in this mold is Elon Musk, whose continual

announcements of new "revolutionary" products and projects, along with their nearly

inevitable disappointments, show both the optimism of this type of technofuturism and its

limitations.[62] Despite all of the promises by tech "visionaries" and Silicon Valley

"disruptors," commercial technological progress is essentially in the same place as it was

more than a decade ago. The last great technological revolution, arguably traceable to the

development of the smartphone and the popularization of laptop computers as the default

home computing solution, which can be roughly triangulated by the release date of the

first Apple iPhone (June 2007), is concurrent with the beginning of the rise of big data

technology. From this point, consumer technology has been essentially stagnant, with

companies happily making incremental improvements on the same technological base or

conforming their products to a standard model. Again, the development of the iPhone is a

good example. At the time of its release, the idea of a smartphone was relevant only for

professionals and politicians, embodied in the once-ubiquitous Blackberry. But in the

next decade, the Blackberry form factor would be replaced by the iPhone, and Apple

would become content to merely iterate on what is essentially the same product. The idea

---

[61] Daub, *What Tech Calls Thinking*.

[62] A number of places have documented Musk's habitual overpromising (Ungarino n.d.). The most amusing of them has to be elonmusk.today, which tracks more than 50 unfulfilled promises or commitments, largely by tracking his Twitter.

of a smartphone market for the average consumer was created in the iPhone's image. Now, after more than a decade, little has changed. But why is this the case? How do we explain the stagnation of our moment? This is where the connection between big data and the development of the subatomic person becomes crucial. It is not just that the development of the smartphone allowed for a more granular form of data collection from the individual, as now, with an iPhone in one's pocket, tracing a consumer in physical space became possible, although this certainly was the case. Instead, big data and neoliberalism prioritized the knowable and the predictable over the new and truly revolutionary, what Chun calls "habitual media."[63] The main product is no longer consumer technology, but rather the data extracted.[64] There is no incentive to innovate on this form if it is not the main product or focus of the industry. This means we get 13 variations of the iPhone that are basically identical, with only small upgrades that distinguish them, like better or more cameras, or more biometric sensors, but lacking in a truly transcendent technical revolution.

How does this relate to the destruction of the future? The combination of this prioritization of data collection and a reliance on predictive metrics makes this a limited present. Statistical projection requires the continual existence of the present, as all projection requires the current conditions to be maintained or be at least predictable. This means any transformation or revolution is antithetical to big data as it undermines their

---

[63] *Updating to Remain the Same: Habitual New Media* (MIT Press, 2017).

[64] Zuboff, *The Age of Surveillance Capitalism*.

very existence. If big data is faced with a truly transformative scenario, it cannot use its collected data to make valid predictions about the future. If this happens, the entire existence of big data becomes untenable. A statistical projection or prediction requires a set of assumptions that remain constant throughout time. Any fundamental or unexpected change in these constants renders the statistical predictions useless. Therefore, the existence of big data and the corporations that utilize these forms of data for capitalistic purposes must, consciously or subconsciously, resist this form of change. This data must be used to both predict and manage the behavior of individuals. This is the entire point of collecting big data. To understand, predict, and manage a population in perpetuity means understanding the core set of assumptions as a thing that exists in perpetuity.

Depoliticizing the Subatomic Person

The depoliticizing force of big data is a force of pacification, alienation, and domination; a smooth, frictionless force that attaches us to platforms, turns us into data, and inch by inch transforms our view of society into one we have little control over. This relies on a conception of politics that, while not fully synonymous with democracy, shares important elements. While de-democratization occurs in important ways within the form of big data, I use the term depoliticization to account for a broader conception of politics and allow for political alternatives outside of what might be considered traditionally democratic institutions. The subatomic person is a depoliticized person. It creates an existence where this new class of digital person is the only thing relevant for big data. Stripping the individual of all contextual and interpretive features, the subatomic person

becomes the sole target of the interventions of big data. This depoliticized subatomic person nevertheless has carryover effects into our liberal, empirical lives.

The initial idea of what this depoliticization looks like comes from Wendy Brown who describes the forms of depoliticizing elements in her study of emergent neoliberalism. For Brown, the rise of neoliberalism means the decline of *homo politicus*, man as the political animal; "the creature who rules itself and rules as part of the demos." When the existence of *homo politicus* is undercut, "no longer is there an open question of how to craft the self or what paths to travel in life." [65] From this we can take an initial definitional inspiration for the form of politics that is undercut by hegemony of big data. The primary political harm of neoliberalism, for Brown, is the determining of options. The crucial political actions of crafting the self, or determining what paths to travel in life are undercut by neoliberal machinations which constrain human thought and action to only those paths that allow for the maximization of human capital. Therefore, we can say that a necessary aspect of the political is the ability to define one's own path, or craft the self according to one's own judgement. Failure to do so leads to a "limited form of human existence that Aristotle and later Hannah Arendt designated as 'mere life.'" [66] This invocation of Arendt allows us to understand these political forms as a way of separating the *vita active* from the unthinking constraints of *animal laborans* and *homo*

---

[65] Brown, *Undoing the Demos*, 41.

[66] Brown, 43.

160

faber.[67] Or put another way, the depoliticizing move is a way of replacing Arendt's concept of acting or working to create a collective social whole. "This attempt to replace acting with making is manifest in the whole body of argument against 'democracy,' which, the more consistently and better reasoned it is, will turn into an argument against the essentials of politics."[68] In this way, replacing acting with making not only undermines the development of democracy but harms the very form of politics itself.

For the technological form of big data, the move from acting to making can be seen in a number of distinct ways. The first is apparent in what Julie Cohen describes as the "stickiness" of platforms.[69] This stickiness means that as we interact with and invest our time or effort into a particular digital platform, be it a social network like Facebook or a larger ecosystem like the Google suite, it becomes difficult if not impossible to extract ourselves from that situation. This is also an active process of "sticking" as the platforms themselves work to keep us attached through manipulating our attention and algorithmically curating what we see or do. The connection between the subatomic person and the digital platform creates a residual stickiness for our empirical, liberal selves. As platforms collect more and more data on us, they are able to use this data to make it more difficult for us to disconnect from their services. We connect with more people on Facebook, migrate more of our work to the Google app suite, and find

---

[67] Arendt, Canovan, and Allen, *The Human Condition*.

[68] Arendt, Canovan, and Allen, 220.

[69] Julie E. Cohen, *Between Truth and Power* (Oxford University Press, 2019).

ourselves unable to conceive of alternatives. The subatomic person gets increasingly captured by these platforms, tying our empirical selves to these forms as well.

This supplements the lack of exit created by the forms of biopolitical control described in the last chapter. This stickiness also contributes to a lack of exit and is a form of making rather than acting, as we are removed from the ability to actively shape the platforms around us or meaningfully design the forms of our own democracy. Importantly, this is not necessarily an intrinsic feature of the platforms. They can be designed with this political, democratic form of action in mind, as Jennifer Forestal argues, but instead they are formed with neoliberal profit motives at their core, refusing any democratic from of self-making.[70] As a continuation of this we should pay special attention to the way in which the depoliticizing forms of big data act as a way of limiting our conceptual horizons, limiting what we conceive as the possible or actionable within our society. This is the primary harm that Marcuse sees with technological rationality, a "flattening" of our view of the future, and even a logical extension of the Enlightenment form that is criticized by Horkheimer and Adorno.[71] This loss of a conceptually distinct future is one of the primary concerns of the critical theorists and provides us with a useful metric for understanding why a critical theory of technology is so crucial for understanding the forms of domination at work within our present moment. Even Habermas decries the "scientism" of the modern era, and the conceptualization of the

---

[70] Jennifer Forestal, *Designing for Democracy: How to Build Community in Digital Environments* (Oxford University Press, 2021).

[71] Marcuse, *One-Dimensional Man*; Horkheimer and Adorno, *Dialectic of Enlightenment*.

moderns as a set of problems to be solved with logical formalism, or proper application of the scientific method.[72]

The main mechanism of this control or stickiness is the move from targeting the empirical person to the targeting of the subatomic person. As mentioned earlier, the subatomic person is the depoliticized subperson that becomes the exclusive target of big data. Focusing on the subatomic removes ideas or structures from the realm of political contestation and instead relegates them to elite control. In general, elite control can mean many things, from political elites whose connections and capacity for fundraising make them powerful in the American electoral system, to economic elites whose control over vast amounts of capital mean that their individual voices are amplified by their wealth. While there are certainly overlaps between the different typologies (Elon Musk and Mark Zuckerberg come easily to mind), for my purposes, elite control represents a technopolistic control, where the capture of technological resources leads to outsized political control.[73] The reasons for this may be many. It may be a naked grab for governmental power, as we see on display when we turn to biopolitics, or it may be the rise of the epistemological qualities of big data, claiming that through big data's unique connection to truth or real knowledge, those who have control or managing power over big data then are able to tap into the associated governing power. In these ways, big data becomes a form of political pacification, rendering individuals unable or unwilling to act

[72] Thomas McCarthy, *The Critical Theory of Jürgen Habermas* (MIT Press, 1981).

[73] Feenberg, *Questioning Technology*.

politically. The use of big data takes the form of a dominating power, removing political

considerations and pacifying empirical individuals into compliance through the use of

conveniences or social advantages drawn from their connection with subatomic persons.

This happens despite common knowledge of this in action, further reflecting the

complex relation between the empiric individual and the subatomic individual. We know

that Facebook takes our data, uses it in mysterious and complex ways, and relies on the

insights it gains from our data to both serve us advertisements and manipulate our formal

political environment. The knowledge of this action, however, does not seem to galvanize

action against it. Instead, the technological nature of this control renders us meek in the

face of overarching technological power. How often do we hear the refrain that we all

know that Google and Facebook have control over our data, but that there isn't anything

we can do about it? Or, more concerning, that individuals don't care about the usage of

their data as long as they see some benefit from its usage? This is because we don't see

these companies' actions as being against us as empirical persons. There is an intentional

disconnect between the subatomic person and what we conceive of as our empirical

persons.

But the true extent of this influence is unknown, and the extent of the capture of

the subatomic person is vigorously protected. As recent reporting has shown, Facebook is

more than happy to take extreme, exclusionary measures to protect what it views as its

most valuable proprietary information—individual data about it that can be used to drive

advertising and provide fodder for its budgetary model.[74] It punishes researchers who are

investigating its advertising mechanisms, specifically surrounding elections. Individual

researchers have had their personal Facebook pages removed or banned for participating

in a research agenda that investigated what political candidates used as identifying

markers for their ad targeting.[75] Facebook claims that this violated its terms of service

and that it offers aggregated information about advertising spending to journalists and

academics, but the researchers contend that this data is too aggregated to be useful and

that Facebook isn't trustworthy enough to provide unbiased data.

Here we see an interesting convergence of two aspects of big data ideology that

are in temporary conflict with each other. Researchers are claiming, based on the

assumption of natural data, that they need access to the data the Facebook has on its user

population, to understand how political advertising operates withing the Facebook sphere

of influence. Facebook, on the other hand, claims that it releases enough data and that any

further intrusion into its business practices is an unfair violation and against its terms of

service. It is therefore justified in terminating the Facebook pages of the individual

researchers.

---

[74] Kurt Wagner and Naomi Nix, "Facebook Disables Accounts Tied to NYU Research Project," *Bloomberg.Com*, August 3, 2021, https://www.bloomberg.com/news/articles/2021-08-03/facebook-disables-accounts-tied-to-nyu-research-project.

[75] "Researchers, NYU, Knight Institute Condemn Facebook's Effort to Squelch Independent Research About…," Press Release, Cybersecurity for Democracy, August 4, 2021, https://medium.com/cybersecurity-for-democracy/researchers-nyu-knight-institute-condemn-facebooks-effort-to-squelch-independent-research-about-59cec0793939.

This dilemma illustrates the alienation at the core of the subatomic person. When Facebook denies the use of data to researchers, it is claiming an exclusive control over the subatomic person. We are not only determined by the capture of the aspects of the subatomic person, which may be defined without our consent or understanding, but we are even denied access to this part of ourselves. Facebook defines the subatomic person through its collection of aspects, and then denies access to that person to the individuals upon which it is based. Therefore, because the subatomic person is the subject of Facebook's technological investment, denying us access to this self is denying us access to the element of ourselves that is subject to the power of big data, further depoliticizing us. The subatomic person exists as a specter; a collection of aspects that is aggregated into big data and then acted upon by technology companies. This action produces a "stickiness" that ties the subatomic person to specific platforms, like Facebook or Google, further entrenching the problem of exit discussed earlier. This stickiness makes the subatomic person the subject of a world that is not of its own making. It is reduced to mere life. But then, as this subatomic person becomes the primary object of analysis, it also denies this form of world-making to the empirical subject as well. This alienates the self, from the self, as has been shown above. But additionally, when a direct form of power is utilized to prevent access to the subatomic person, it creates another layer of separation and alienation from the self. Not only are we not able to determine the individual makeup of the subatomic person, we are also denied access to even see what that makeup or determination is.

What Facebook sells to potential ad clients is the ability to reach a clearly defined, managed population of users receptive to the advertising message of the client; in short, access to the subatomic person.[76] By obfuscating this classification from the individuals being classified, Facebook's alienating power over individuals is properly seen as the core of its business model. It trades in the hidden subatomic person. This could be undermined if the exact metrics by which these numerous classifications are derived is made public. Similarly, there is an ideological dimension to this. Facebook implicitly argues, through punitive action, that it has cornered a particular market on truth or knowledge. Therefore, the subatomic person naturally leads to an investigation of the epistemological aspects of big data. If knowledge of the subatomic person is useful enough for Facebook to defend it this strongly, it must be understood as knowledge. There must be an epistemological claim at the core of the creation of the subatomic person. Facebook's control over this data is justified by an appeal to an epistemological form that understands big data as a useful source of proprietary knowledge. Giving up this unique hold to researchers who want to investigate and uncover Facebook's motives would sacrifice not only its competitive advantage, but also the idea that with its particular form of knowledge comes a justified form of power. I take up this idea in the following chapter.

The End of Atomic History?

---

[76] Nancy Watzman, "The Political Ads Facebook Won't Show You," *Cybersecurity for Democracy* (blog), May 12, 2021, https://medium.com/cybersecurity-for-democracy/the-political-ads-facebook-wont-show-you-e0d6181bca25.

It may be useful to return to Derrida and view the impact of the subatomic person in light of the way that Derrida both understands and critiques Francis Fukuyama's *End of History and the Last Man*.[77] In Derrida's interpretation of Fukuyama, the end of history represents, simultaneously and contradictorily, both an ideal to be achieved and a reality surrounding us. This is analogous to the understanding of a progressive future under the hegemony of big data. On one hand, the idea of a technologically advanced future is something that big data must constantly promise as an ideal. This is the legitimation of its hegemonic power and the core of its neoliberalized existence. By constantly promising a form of technofuturism, where the new, "disruptive" innovation is just around the corner and will change all of our lives for the better, big data can capture the need for a future that is better than today and mold it into a device of its own creation. However, big data must also simultaneously claim that we are experiencing this future; that each new incremental progression is in fact revolutionary. Taken together, both these things are self-reinforcing delusions. Technical progressivism is not interested in drastic revolution, but a maintenance of the status quo, both because it legitimates corporations' own power and because it makes up the technical underpinnings of their existence. This results in a static present where the future is predictable, always just around the corner, while also being with us right now.

This is the essence of the subatomic person: the depoliticized focus of big data, with no past or future. When this subatomic person comes up against the atomic

---

[77] Derrida, *Specters of Marx*.

individual who has expectations for a future and is bound up with history, the atomic

individual becomes alienated from themselves. Their own hopes and dreams are deemed

useless for their own technological existence. When the atomic individual is rendered in a

subatomic form, they do not lose their ability to act politically in the empirical world.

Instead, these elements become no longer relevant to their digital form. This reformulates

their ontological existence, creating a new class of subindividuals who are merely subject

to the whims of the technological mechanisms. The harm occurs when these

technological mechanisms become hegemonic and begin impacting the structure and

direction of society. These institutions begin to make decisions based on their interactions

with the subatomic person, while the outcomes of those decisions impact atomic

individuals or larger communities.

In the end, the subatomic person is a marker for how big data comes to exert more

control over our lives, impacting our existence. Through the form of this specter, the

subatomic person becomes a new form of the individual, stripped of all meaningful

context and history, existing only as a mechanism for data analytics. This removal of

context leads to the creation of what I have called the aspect, the single unit of data that is

the focus of data collection metrics. As this single unit must exist outside of all context

and history, it creates the idea of a perpetual present; a form of existence that places the

individual in an apolitical, ahistorical existence determined only by statistical projection.

This necessarily involves the destruction of the past and the elimination of the possibility

of a transcendent future. This perpetual present, then, is an apolitical existence, as any

concept of politics involves contestation and opposition to the goal of shaping the form of the future. The development of big data works against this goal, cutting off possibilities.

Subatomic status is a status of alienation and irrelevance. It is true that the status of individuals, even the status of being human, has been systematically denied to specific persons on account of phenotypical characteristics. However, the difference with the subatomic individual is that it represents a totalizing view of individuals independent of direct human interaction. Previously, depersonalization needed to occur on the social and political field of contestation. We then see a series of historical heroes of equality, or at least heroes of resistance, pushing back against the forms of dehumanization and depoliticization. No such contestation occurs in the veiled discourse of the subatomic person. The discourse instead focuses on mechanistic tendencies, ideas of surveillance, and the specific requirements of ethics. The role of such a critical theory of technology, as has been developed here, is to reorient our understandings and clearly see the true nature of harm. Rendering us less than persons under a regime of necessary alienation and domination is the truth of this new form of technological hegemony.

Subatomic status is a status of alienation and irrelevance. It is true that the status of individuals, even the status of being human, has been systematically denied to specific persons on account of phenotypical characteristics. However, the difference with the subatomic individual is that it represents a totalizing view of individuals independent of direct human interaction. Previously, depersonalization needed to occur on the social and

political field of contestation. We then see a series of historical heroes of equality, or at least heroes of resistance, pushing back against the forms of dehumanization and depoliticization. No such contestation occurs in the veiled discourse of the subatomic person. The discourse instead focuses on mechanistic tendencies, ideas of surveillance, and the specific requirements of ethics. The role of such a critical theory of technology, as has been developed here, is to reorient our understandings and clearly see the true nature of harm. Rendering us less than persons under a regime of necessary alienation and domination is the truth of this new form of technological hegemony.

Chapter 4: Technoplatonism: The Epistemology of Data

At this point, we have seen how the dominating power of big data comes to not only impact our political existences, replicating the biopolitical power of the state, but also works to reframe the ontological idea of the self. It is worthwhile to ask why these developments have been so easily accepted by society at large. It is my contention that this mass acceptance is driven by the development of a persistent mythology of big data that popularizes a specific epistemological position: that big data contains a privileged form of truth. This means that those who have access to this form, or can understand it, gain access to a privileged knowledge not accessible by the population at large.

One of the prime examples of the mobilization of this mythology this can be found in the portrayal of Zuckerberg presented by Steven Levy.[1] Levy, a journalist who had access to Facebook's inner workings and interviewed Zuckerberg numerous times over a three-year period describes his self-understanding as a combination of a tech-whiz engineer and the Roman Senator Cato the Younger. Levy quotes Zuckerberg as quipping "These are my people" and "I'm an engineer, like a lot of you guys" regarding a group of young tech entrepreneurs in Nigeria while simultaneously quoting the *Aeneid* to inspire the Facebook workforce.[2] He combines this mentality with a desire to conquer the world that originated in strategy video games.

---

[1] *Facebook: The Inside Story* (Penguin, 2020).
[2] Levy, 3,5.

From the very beginning, when it was merely thefacebook, the idea of Facebook was to use data to amplify connections between people. It is this data and the knowledge of how to access that data, as well as the knowledge that access to this data bestows, that legitimates Zuckerberg's power. These are connections that Zuckerberg and other early employees insist were already there, out in the world, but ephemeral. Zuckerberg argues that Facebook itself is merely discovering and quantifying existing relationships, mapping the existing social world, not creating something fully new. Facebook merely takes these existing things and encodes them into data. For Zuckerberg, connecting the world is an unmitigated good, and the problems of Cambridge Analytica, or of hate speech, or even the live-streamed Christchurch mass murder are all minor setbacks, paling in comparison to the good of Facebook. And the good of Facebook rests on its ability to use and exploit data. These are connections between people that Facebook imagines stretching out like a web, needing only to be discovered and mapped through the power of data.

This position leads to a persistent, undemocratic technofuturism where policy positions and concerns over public goods are seen as technologic problems to be solved, rather than legitimate, democratic contestations. This leads to technologists like Zuckerberg and Musk claiming outsized influence over the creation and management of public goods and governmental action. These corporations and individuals view themselves as being unduly constrained by governmental power while they have access

to information and knowledge that should privilege their action over the action of states or other actors. Freed by regulatory capture and empowered by the social acceptance of their power, we risk losing effective representative control over our public institutions. When we have been convinced that data represents a futuristic hammer, everything begins to appear as a nail.

This all results from the fact that we live in a world of data with vast amounts of information collected, categorized, and used to do everything from advancing scientific knowledge to a constant stream of targeted advertisements following us across the internet. Corporations, academic institutions, and states increasingly collect more and more data into ever larger data sets that are then used for specific purposes. This ranges from delivering search results and advertising to the development of scientific knowledge. I argue that the core of this power dynamic is an epistemological mythology unique to big data. This mythology is a set of stories about data and knowledge used to legitimate undemocratic political power. These stories take popular forms, visible in both marketing statements and in media, from Google's appeal to omnipotence within its Google Search algorithm to the idea that an app will "know you better than you know yourself."[3]

This mythology is the driver of the power of big data but is also, circularly, the result of it. That is, the epistemological mythology arises out of the usage of big data to

---

[3] Levy, *In The Plex*.

achieve societal ends—corporate, academic, and political—but also drives the desire to engage with these technical commitments in the first place. This makes up what I call *technoplatonism*, using Plato's metaphysics as described in *The Republic* as a structural metaphor for understanding the question of big data and knowledge. By understanding big data as the material that contains Platonic "forms" and seeing algorithmic or analytical technological tools as a mechanism for obtaining these forms we can begin to see big data's epistemological claims. The result of this is a form of epistemological mythmaking that prioritizes specific knowers, granting them political preference and denying this form of knowledge to others. From this observation, I investigate technoplatonism and its component parts: the immateriality of truth, specialized knowledge, and the governing mandate. Ultimately, technoplatonism is a form of mythmaking, developing an epistemological form as a pervasive mythology of data used to legitimate the political and social power of data. This myth of data—that it confers a unique and immaterial, noncorporeal knowledge on those who can corral it—is the core of the power of data and leads to outsized political influence for those who wield it.

This chapter is structured in three sections, each describing a feature of the contemporary phenomenon that I call *technoplatonism.* Each feature represents a connection between an aspect from Plato's political thought and modern technologic epistemology. First is the immateriality of truth. For both Plato and modern technologists, truth exists as an ephemeral thing that cannot be accessed through normal human means. Only the data, and the algorithms that process it can grant us access to these truths. Data,

especially collected into the form called "data," exists outside of the limits of human perception, and the correlations that make up this form of truth are only accessible through advanced computational means. This leads in to the second element: that the discovery of truth requires specialized knowledge and skills or *technê*. In Plato, this skill is the careful work of the philosopher who uncovers the forms; in data, this is the work of curating the data and designing analytical algorithms to produce results. Third, the access to the specialized knowledge and skills results in a governing mandate. For Plato this is the philosopher-king, whose access to the form of the good and understanding of justice means they are the proper rulers for the ideal city. In contemporary society, this results in a technopoly or the "submission of all forms of cultural life to the sovereignty of technique and technology," where the access to the truth found in big data means that corporations or skilled individuals assume a governing mandate.[4] Ultimately this is problematic for several reasons. As an epistemological form, it creates a class of privileged "knowers" whose access to technical mechanisms means their understanding is counted as "more true" than other forms. The governing mandate works against democratic institutions, fostering an elite control of politics.

I wish to engage with the question of data in a practical way. There are historical ways of understanding data, but for our contemporary purposes we should understand data as the collection, analysis, and deployment of data about both individuals and

---

[4] Neil Postman, *Technopoly: The Surrender of Culture to Technology* (Knopf Doubleday Publishing Group, 2011), 52.

society. Importantly, this definition also needs to include the power structures, epistemological forms, and mythologies that surround this usage. The vast power structures that emerge around corporations that make data the core of their enterprise must also be considered when attempting to understand data, including the algorithmic mechanisms used to analyze and collect vast stores of data. Here I build on Colin Koopman's work in aiming to move beyond the algorithm, focusing on the larger questions that surround the entire ecosystem of data in our contemporary lives.[5] I focus on how data operates in our contemporary society, focusing on it not merely as a methodology, but also as a broader term encompassing the usage of data in society and, importantly, the way we think about and mythologize the usage of data and data-driven technologies that act as the cornerstone to our modern lives. Focusing on data rather than on a narrower category like algorithmic bias allows us to broaden our investigation beyond specific algorithmic systems and investigate the larger, more structural forms of power that occur. The scope of this project includes the algorithmic mechanisms that make up the analysis and deployment of data.

Ultimately, this epistemology is problematic, relying on outmoded methods of thought and reliant on the structures of power it creates as a legitimating force of its own existence. Big data makes this claim to truth because it is the only truth available to those invested in the collection and deployment of big data. It is the only accessible claim to truth for this methodology and therefore it must be true. Essentially, this idea of truth at

---

[5] Colin Koopman, "The Political Theory of Data: Institutions, Algorithms, & Formats in Racial Redlining," *Political Theory* 50, no. 2 (April 1, 2022): 337–61, https://doi.org/10.1177/00905917211027835.

the core of big data exists not because of some well-developed epistemological investigation, or even the common-sense understanding of what is true or correct in our everyday lives, but it is rendered true because it must be true if the specific commitments of tech companies are to be accepted and facilitated.

Technoplatonism

The epistemological character of data has been commented on in the existing literature surrounding data and technology. Koopman discusses the development of a data episteme that emphasizes data as the default mode of argumentation, even among potential critics.[6] Orit Halpern investigates the behavioralism at the core of the emergence of "cybernetics" during the mid-20th century, while Sarah Igo traces the development of privacy and the way individuals have become "known" through the development of data.[7] Sun-Ha Hong also investigates the epistemology of data, but focuses on the paranoid (but rational) epistemology created by the ubiquity of surveillance and other forms of data collection.[8] Less discussion has been undertaken to make a more comprehensive, critical understanding of the epistemology at work within the form itself.

---

[6] Koopman, *How We Became Our Data*, 2019.

[7] Halpern, *Beautiful Data*; Sarah Igo, *The Known Citizen: A History of Privacy in Modern America*, 1st ed. (Cambridge, Massachusetts: Harvard University Press, 2018).

[8] Hong, *Technologies of Speculation*.

One of the most overtly presented noncritical description of this new ideological

form is found in Chris Anderson's 2008 piece for Wired Magazine, where he proclaims

the end of theory, claiming that computational power has made older forms of hypothesis

testing and scientific inquiry obsolete.[9] While this article is not cutting-edge philosophy

of science, it does provide an interesting lens into the epistemological claims that are tied

up in questions of data. The most striking claim in this piece is the implication that

Google's success in delivering targeted advertising is somehow equivalent to scientific

discovery, on the level of Einstein's discovery of relativity. Anderson argues that older

models of causation-based understanding are as outdated as Newtonian physics.

Causation-based empirics are perhaps useful for some operations, but not the cutting-

edge descriptions that help us understand how the universe actually exists. This

revelation is the development of mass-correlation metrics that use advanced

computational processes to sift through data and find patterns of correlation. This is

different from the forms of causal inference that rely on preanalysis theory building to

predict what aspects would cause an outcome of interest. Instead of developing and

testing a theory, using hypothesis testing and other methods of scientific empirics, data

can simply present all possible correlations, or connections between variables.

The boldness of this claim is not lost on Bernard Harcourt, who uses this

argument to trace the genealogy of data-based epistemology, beginning first with the

---

[9] Chris Anderson, "The End of Theory: The Data Deluge Makes the Scientific Method Obsolete," *Wired*, June 23, 2008.

population sampling present in actuarial tables and other forms of early insurance calculations.[10] This evolves into the correlational modeling most commonly used at academic institutions where researchers do not have easy access to the vast stores of data that are available to private entities. Despite their anachronism, Harcourt predicts that within a few years, the drive toward data will upend the traditional, quantitative approach of many scholars, and this new, atheoretical form will take its place. This represents a change in the epistemological character of the sciences, as truth ceases to be found through experimentation, or observable phenomenon, but instead is in previously unreachable correlations hidden within petabytes of data. Even Anderson's description of this new scientific process belies a form of technoplatonism, using the technology to ascend to a higher plane of understanding by uncovering a previously unknown truth. Anderson explains how a new form of gene sequencing has allowed J. Craig Venter to mass sample entire ecosystems, scouring collected DNA fragments for statistical anomalies that must represent new species. This is a new form of scientific epistemology that was not only inaccessible but inconceivable in a time before data. By this logic, human intervention only slows down scientific progress, and by scouring massive collections of samples, we are able to "rise" to a higher plane of understanding and discover hitherto-unforeseen truths. But there are unacknowledged political impacts of such an epistemological turn. By focusing on these Platonist elements, this new epistemology centers the technology and renders those who have access to it a privileged knower, implicitly denying that status to anyone who does not have such access.

---

[10] Harcourt, *Exposed*.

Plato and Data

Overall, there are several important takeaways from Plato's thought that are relevant for big data. The first is the insistence on the immateriality of the knowledge at the core of data, which nevertheless must still be discovered. For Plato, truth is a thing to be discovered, even the abstract forms; the purest ideations of empirical objects are not just constructs of the mind but also exist immaterially outside of the individual.[11] Work must be done to ascend to the level of abstraction necessary for comprehension. This is crucial for big data because its epistemological character requires the discovery of truth within the data set. Importantly, the analysis only reveals what is already there rather than creating anything new. The level of abstraction required can only be provided by computers that have computational powers beyond human conception. Additionally, the crucial aspect of discovering truth is that it is an elite activity requiring a specific skill set or *technê*—only the philosopher is constituted to understand the forms, and only the gifted programmer can write the algorithms that draw the truth out of data sets. For Plato, this is the requirement that the individual possess the right soul and a specific love of learning. This is true for technoplatonism as well, as the "unique everyman" possessing nothing but their natural talents is the one to discover this new technological form that leads them to success and wealth.[12] The final element of this is oft overlooked: that this unique skillset comes with a governing mandate. Plato's philosopher must return to the

---

[11] Gail Fine, *Plato on Knowledge and Forms: Selected Essays* (Clarendon Press, 2003).

[12] We see this mythology in Mark Zuckerberg, Jeff Bezos, Bill Gates, Elon Musk, and many others.

cave, after comprehending the just and the good, and instruct his fellows on how to escape themselves, and dedicate himself to their education even to their own detriment. We see this as the one interpretation of Socrates' trial and execution. The philosopher must rule, even if they may be killed in the process. Plato says that the philosopher is the only one who can set up the just city, precisely because he does not want to be put in a position to rule. This logic is mirrored in this form of technoplatonism, where the technical expertise of those who control data translate into assumed mandates for governance. This combination of a desire for elite control, coupled with an ingrained victim complex, makes up the persistent pathology of Silicon Valley today.[13]

The Immateriality of Truth

The Platonic discussion of the forms can clarify both the content and the consequences of this epistemological position. Plato argues for an epistemology that would lead the philosopher toward the ultimate form of good. To access this ultimate form, one must complete a long and arduous philosophical journey, moving painstakingly from mere objects of the imagination through to the direct conception of the good. An initial understand of Plato's understanding of the forms is found in Book VI of *The Republic*. In this section he develops the metaphor of the divided line, where he imagines all concepts and ideas as a set of two divided lines, one for the sensory world and one for the world of the mind. The goal of this exercise is to distinguish between "many fair things, many good things, and so on" and "a fair itself, a good itself," which is the idea or

---

[13] Daub, *What Tech Calls Thinking.*

form of the good.[14] The idea or form of the good is important because it is "the cause of knowledge and truth," so being able to grasp the idea of the good is the mechanism for understanding truth.[15] This form is immaterial and separate from even forms of logic that tie it to sensible objects.[16] Contrasting this idea of the form with the knowledge of mathematics present in "the men who work in geometry," the form is "free from hypothesis at the beginning of the whole."[17] Mathematics requires investigations, which necessarily rely on hypothesis, and therefore are bound by these initial considerations and "does not go to a beginning because it is unable to step out above the hypothesis." However, those interested in understanding the purely intelligible forms must proceed by the manner of the dialectic, and therefore are able to use hypothesis as "steppingstones and springboards," ultimately surpassing them and achieving real intelligible understandings of the immaterial forms.[18] Already we can begin to see the connections between the Platonic dialectical investigations, as big data too abandons hypothesis testing to attain an immaterial knowledge; correlations existing outside of human perception.

---

[14] Plato, *The Republic of Plato: Second Edition*, trans. Allan Bloom (Basic Books, 1991), 187.

[15] Plato, 189.

[16] Norman Gulley, *Plato's Theory of Knowledge (Routledge Revivals)* (London: Routledge, 2012), https://doi.org/10.4324/9780203085905.

[17] Plato, *The Republic of Plato*, 190–91.

[18] Plato, 191.

The epistemology of data mimics this argument. We can see this most evident within Google Search. Search embeds an epistemological argument within its basic function. The assumption is that any query typed into Google Search has a true answer, the correct page or item that the searcher is looking for. Many scholars have discussed the emergence of the epistemological form of big data, but there has not been a comprehensive critique of the form itself. Additionally, there have been decades of debate and contestation within philosophy of science that aims to grapple with and contest the assumed objectivity of scientific endeavors and additional debates that occur within the social sciences. This history of debate came to a head in the 1970s, with the postmodern and poststructural theorists engaging in a robust dialogue with the emerging statistical positivism that came as new modes of data collection and computational analysis emerged within the social sciences. The debates in this period are multifaceted, as the general positivistic tendencies of the immediate postwar era were beginning to be challenged on all sides by forms of critical theory and the initial development of interpretive methods. From this we get Marcuse's charge of "radical empiricism" and his arguments against the "scientism" of analytical philosophy, providing a succinct demonstration of this period's continental/analytic divide.[19] Preceding Marcuse, the seeds of technoplatonism can also be read into the ultimate end of the totalitarianism of reason that makes up the central critique of the *Dialectic of Enlightenment*.[20] Horkheimer and Adorno argue that the Enlightenment-driven need to develop a unitary science that

---

[19] Marcuse, *One-Dimensional Man*.

[20] Horkheimer and Adorno, *Dialectic of Enlightenment*.

masters nature requires a schema that makes the world calculable, rationalizing everything, including myth and eventually enlightenment itself. One result of this is that anything that cannot be turned into calculable numbers becomes an illusion. Sheldon Wolin's interpretation of this work points out the centrality of the claim that "theoretical reason is drawn towards total power," to the critical project that Horkheimer and Adorno undertake.[21] The ultimate end of this is a society in which all elements of life are "prearranged by reason." This is the necessary outcome, as theorized by Horkheimer and Adorno, of the full development of technical reason and we see the direct connection between this framing of reason and the "totalitarianism" of technological rationality in Marcuse. Big data's epistemological commitments make this not only possible, but the desired outcome of technical elites.

Social science reflects this debate during this period reckoning with the legacy of Max Weber while also integrating hermeneutics into the classical liberal tradition, leading to intriguing discussions between major thinkers, as Gadamer and Habermas debate the role of power and epistemology with modern social science.[22] Adding to this, Foucault, Derrida, and others (to boldly group many divergent thinkers together haphazardly) seek to radically question and investigate the very structures of society and how they impact what we consider worth knowing. This discussion then gets brought into

---

[21] Sheldon S. Wolin, ed., "Reason in Exile: Critical Theory and Technological Society," in *Technology in the Western Political Tradition* (Cornell University Press, 1993), 162–89.

[22] Fred R. Dallmayr and Thomas A. McCarthy, *Understanding and Social Inquiry*, First Edition edition (Notre Dame, Ind: Univ of Notre Dame Pr, 1977).

21st-century social science as qualitative scholars debate positivism and constructivism with a comparative context.[23] The purpose of this very brief intellectual history is not to claim that there is one definitive answer to these broad, epistemological questions but to establish the existence of such a debate and its rich historical legacy. It is all the more jarring, then, to see how the rise of quantitative methodology and the epistemology of big data denies the very existence of this discussion and claims the mantle of truth through statistical analysis. Big data sidelines this discussion, refusing to engage in any form of positive theory building, instead implicitly making the argument for expediency, framing its dominance on its ease of use. It simply rejects the premise on behalf of expediency.

I again return to Google Search as an example of how the argument for expediency undercuts our epistemological debates. Google Search presents us with a classification scheme for us, without any options. We don't know what argument we want to make or what sort of classification scheme we want to engage with, but Google does. The implicit argument that Google makes is that its hyperlink page ranking system is an objectively better metric for making classifications and presenting information about the world. In this way, it claims to uncover truth. But this argument contains its own logic of power. As Safiya Noble identifies, the logic behind Google Search is a bibliographic logic.[24] Google argues that the best results are those that are linked the most by other sources, and if a lot of other websites are pointing to one website, then the

---

[23] Kanchan Chandra, *Constructivist Theories of Ethnic Politics* (Oxford University Press, 2012).
[24] Noble, *Algorithms of Oppression*, 2018.

assumption is that the website must be important. Noble likens this to the academic

citation process, where the worth of a scholarly work is often determined by the number

of citations that it has.[25] However, this choice, both in academic citations and in the

development of Google Search, represents an active epistemological choice. This is a

method of determining importance and truth. The true answer to a search query, for

Google, is an answer that was useful for another set of users. But there is a power

dynamic at work in this, as defining relevance as interconnectedness privileges older,

more established entities over new ones while also making no claims on the quality of the

content itself. This is an epistemological debate about how to understand what the truest

or most accurate answer to a query is.

     Google Search is often framed as a definitive form of knowing. There is a

pervasive mythology surrounding Google. This can be summarized in the phrase quipped

by one of Google's founders, "if you've Googled it, you've researched it, and otherwise

you haven't."[26] This privileges Google as a methodology for obtaining, if not truth, then a

reliable source of knowledge.[27] This is separate from the fact that Google is not an

independent provider of information and privileges its own capitalistic business practices

---

[25] The use of Altmetric, a self-described "Data Science Company" and the tracking of a journal's "impact factor" based on citations follows this same logic.

[26] Levy, *In The Plex*. The development of a popular lexicon reinforce this discussion. We see this in the advent of Google as a verb, something that has remarkable range across language families, appearing in English as "to Google" but also across Germanic, Romantic, and Slavic language groups as well as appearing in written Chinese and Hindi. To Google something is to find out a definitive form of knowledge about it.

[27] Vaidhyanathan, *The Googlization of Everything*.

over the ideals of pure knowledge. The fact that Google uses its access to personal data to change search results for individuals is well known.[28] But more recently, Google came under fire by U.S. regulators who alleged that Google's manipulation of search results to prioritize its own products was a violation of antitrust law.[29]

A disconnect between Google's public mythology and its corporate action lead to antitrust complaints made by the United States government against Google and Google Search.[30] The myth of Google is that it desires to be seen simply as the best search function and to capitalize on the broad utility of its function to drive its market capitalization.[31] However, the fact of the myth is belied by Google's own action. If the myth were true, it would have no need to engage in actions that are categorized by the government as being antitrust or monopolistic. It would not need to overpower or undercut competitors or buy them out to prevent them from bringing a product to market. Google would simply be better.

[28] Julia Angwin, "On Google, a Political Mystery That's All Numbers," *Wall Street Journal*, November 4, 2012, sec. Tech, https://online.wsj.com/article/SB10001424052970203347104578099122530080836.html; "Measuring the Filter Bubble: How Google Is Influencing What You Click," *Spread Privacy* (blog), December 4, 2018, https://spreadprivacy.com/google-filter-bubble-study/.

[29] An individual searching for "email" would be first directed to Google's Gmail service before any other result, as an example. Romm, "Nearly 40 States Sue Google Alleging Search Manipulation, Marking the Third Antitrust Salvo against the Tech Giant," *Washington Post*, December 17, 2020, sec. Tech Policy, https://www.washingtonpost.com/technology/2020/12/17/google-search-antitrust-lawsuit/.

[30] Romm; House Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary, "Investigation of Competition in Digital Markets" (114th Cong. 2nd sess, 2020).

[31] Levy, *In The Plex*.

Google is then faced with a unique mythological dilemma. Search must be seen to be objective and real to its user population, thus solidifying the idea that Google provides truth, but it also must undermine this position to sell advertising and manipulate the public into believing that its advertising is organic, thus the antitrust complaints.[32] The use of this positivistic language is seen even in how we frame our critique. When we push back against Google Search as the definitive form of knowing, we still in a way frame the discussion around data as being a privileged source of this type of knowledge. This discourse posits that the problem with Google is not in the fundamental mechanisms of uncovering truth through search algorithms but through Google's manipulation of the search algorithm to prioritize its own products or in some way corrupt the pure form of knowledge granted to us by a well-developed search algorithm. It remains a core assumption that there is a true or real answer to any particular search question and that it is the job of Google or any search provider to not only uncover what this truth is but also present it to us in an unbiased way. The objective nonobjectivity, or the projection of objectivity presented by Google and other search providers, only disguises the fact that all information is contextual; that it derives its meaning from our lived human experiences.

This commitment to a unique form of access to immaterial truth is also traced through the intellectual history of Silicon Valley, exemplified by the education of Peter

---

[32] Hwang, *Subprime Attention Crisis*.

Thiel, the conservative technologist and venture capitalist. As described by Adrian Daub, while at Stanford Thiel came under the spell of René Girard, whose mimetic theory showed "how disturbingly herdlike people become," when they don't have access to the "mystical knowledge" that Thiel thinks data can provide.[33] In this way, Thiel positions himself, as Daub concludes, a Jesus-like figure, but we might also easily see a Socratic impulse at its core. From the access to this mythical knowledge to the desire to rule and the inevitable prosecution that comes along with it, Thiel embodies the myth of a modern-day Socrates, alienated and persecuted for his unique knowledge, all the while knowing that he deserves to rule over the "herdlike" population.

Yet, as we see with both Google and Thiel, these epistemological mythologies are problematic for two reasons. First, this assumption of truth is an unsupported epistemological claim. The purveyors of big data do not engage with other options, merely adopting a technological truth by default. This replicates a patten within big data, a silencing effect placed on other alternatives. We see this myth working with the subatomic ontology and the biopolitical power previously discussed. Big data requires the assumption that no other alternative exists and therefore focuses exclusively on expediency. This is apparent in the quasiscientific nature of this epistemology, embracing the replication model of experimentation but abandoning the hypothesis testing and peer-review requirements that characterize contemporary scientific discourse. Alternative viewpoints, or ways to understand the world outside of data simply do not register as

---

[33] Daub, *What Tech Calls Thinking*, 103–4.

relevant.[34] It is primarily a problem-solving mindset, and as such, one that does not view other epistemic alternatives as having much merit.

However, these mythologic claims are based on a fundamental falsehood. Pushing aside this robust debate and claiming that data leads to a positivistic truth is problematic because it simply isn't true. Technoplatonism is based on the claim that through advanced analytics we can take raw data that exists out in the world and process it with capabilities that are beyond human capabilities and achieve a higher form of truth. However, this is not true. It is a fiction, or a myth developed and promoted by those who would benefit both materially and politically. We see through the work of numerous scholars that the requirements of human labor are necessary for the collection and processing of this data.[35] The act of taking collected data and turning it into usable forms or forms that can be easily analyzed is a form of labor that is both racially and gender coded to be that of custodial or janitorial staff, or akin to a housekeeper who is cleaning something up for the use of the singular genius programmer who is able to gain access to this higher truth.[36] Even at its most basic level, there is a form of human labor baked into data, but it is a form of labor that we tend to reject as having real value. Raw data is an oxymoron, and this data cannot contain a naturalistic truth because it was never naturalistic to begin

---

[34] Daub, *What Tech Calls Thinking*.

[35] D'Ignazio and Klein, *Data Feminism*; Rosenberg, "Data Before The Fact."

[36] D'Ignazio and Klein, *Data Feminism*.

191

with.[37] This is what underwrites the myth of technoplatonism, a reliance on human labor with a veneer of naturalism. But the epistemological and marketing principles rely on this idea of "pure" and inaccessible knowledge. The knowledge sought at the core of data is always there, allowing the human labor that makes this knowledge possible to be pushed aside and the data to be seen as fully naturalistic. Data thus serves to entrench existing hierarchies power structures and biases that exist in society, not provide us with a naturalistic view at some form of objective truth.

This view of technoplatonism is particularly evident with the breathless coverage with which major media outlets cover "advances" in A.I. and other data-driven computing fields.[38] In an article by the New York Times covering the potential for A.I. driven applications, we see this technoplatonism at work. In describing the potential capacities of this platform, experts are quoted as saying that the A.I "could extract features that can be meaningful that even the human ear can't pick up on," noting the limitations of human perception and the assumed superiority of this undeveloped, hypothetical A.I.[39] The existing apps too have a layer of assumed objectivity associated with them, the same expert continues pointing to the "biological or more objective indicators" that the A.I. would be able to provide. Adding to this, the reporter explains

---

[37] Gitelman, *"Raw Data" Is an Oxymoron*; D'Ignazio and Klein, *Data Feminism*.

[38] I am indebted to Emily Bender, whose Twitter analysis first brought this to my attention. (@emilymbender)

[39] Ingrid K. Williams, "Can A.I.-Driven Voice Analysis Help Identify Mental Disorders?," *The New York Times*, April 5, 2022, sec. Technology, https://www.nytimes.com/2022/04/05/technology/ai-voice-analysis-mental-health.html.

how the A.I. would rank "mental health on a scale of 1 to 100," returning a score of 52. Reducing a complex measure of a person's mental health and well-being to an objective-seeming numeric scale, based on measures that are assumed to be "more objective," is nothing more than the mythology of technoplatonism. The usage of real-seeming numbers to lend an assumption of objectivity to a subjective enterprise has been long discussed as one of the dangers of relying on data to make specific judgements.[40] A clear numerical readout leverages the mythology of technoplatonism to seem more objective than it really is. However, the scholarship in library science shows us that search and categorization is fundamentally a contestable thing that defies easy answers.[41] Knowing what you're looking for and anticipating the sort of arguments that you are going to get is a contextual process that Google seeks to hide. The contextual processes are laid bare when we investigate an older form of knowledge classification, the card catalog. The card catalog is unique in that its physical existence makes an argument about classification; that there are willful human decisions to be made about classification, about the particular associations of topics and materials. Those decisions are present in the physical structure of the card catalog itself. It is reminiscent of Foucault's argument in the *Order of Things* that any form of classification is itself a reflection of the priorities of society and is not

---

[40] Hong, *Technologies of Speculation*.

[41] Pauline Rafferty, "The Representation of Knowledge in Library Classification Schemes," 2001, 12; Umi Asma' Mokhtar and Zawiyah M. Yusof, "Classification: The Understudied Concept," *International Journal of Information Management* 35, no. 2 (April 2015): 176–82, https://doi.org/10.1016/j.ijinfomgt.2014.12.002.

inherently better or worse than any other.[42] There are classification schemes that are only ranked or ordered based on their utility for a particular task. They are arguments made about the world. A graduate student in a library looking to uncover research might find the categorization system in a card catalog useful for exploratory research. This might be less useful for somebody who is seeking a very specific factual answer to a particular question, who would then have to use the card catalog to look up a series of books that may or may not contain the answers they are looking for. However, what is important is how this argument is embodied in the physical form of the card catalog or within the library organizational system. The physical embodiment makes the argument apparent; one only needs to browse a poorly organized used bookstore to appreciate the necessity of such a categorizable system and recognize its existence. But with big data these classification schemes are hidden behind the veil of technology, obscuring the human decisions required for classification.

We can extrapolate these connections out to big data as a whole. The mythology of big data posits that a form of abstract objective knowledge is found in mass collections of data. By analyzing this large, collected form of data we can uncover this truth through statistical analysis. We see this in the oft-repeated claim for data objectivity in the idea that it is "just math"; simply mathematical analytics being done to the data and therefore the outcomes or operations of this mathematical enterprise are beyond critique.

---

[42] Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences*, Reissue edition (New York NY: Vintage, 1994).

It is not merely that data is assumed to be objective, but that the very definition of what is "objective" gets reformed to match our assumptions about big data. It is not merely that big data impacts how we obtain truth, but that it changes how we understand truth itself. This is the full epistemology of big data. It is epistemological in its determining a methodology for finding truth, but also in its determinations about what truth itself is. If knowledge and truth are to be found in data, then that data must be, by definition, an objective form or an objective collection. If big data is this privileged source of truth, if it provides better access to truthful and real knowledge, then it must be objective. Idealism is built into the epistemology of big data. It's also why I described this form as being technoplatonist. A technoplatonistic understanding claims that big data leads us to the forms or an abstract view of objective, scientific form of truth. We can see here the intersecting questions of objectivity, knowledge, truth, and science that all get bound up in this question of big data and its relationship to our collective epistemological understandings.

These assumptions are present in academic work as well; academic statistics too seeks to explain connections that "exist" out in the world. The development of correlative statistics based on data (that might not be "big" in the sense the way that it applies to data brokers or Google and Facebook, but it still follows the same mythological structure) focuses on an uncovering of the world, finding more and more accurate ways of measuring what exists. This can be seen in the instructional literature around theory

building and other methodological practices. The focus is on finding and recognizing "true" connections or meanings in the world—connections that might be intuited, but cannot be proven without the use of data. In the mechanism of proof, real knowledge is at hand. At least colloquially, especially careful scholars will insist that they are identifying percentages and that there is always room for doubt or error in their calculations. However, the language of proof and certainty that accompanies the everyday use of statistics points to a larger conceptual and epistemological framework. There is a "true" answer to an academic question out in the world, even if statistical inference can only be 95% confident that the scholar has arrived at it. Confidence intervals, p-values, and all the other standard markers of statistical investigation always point at an existent truth and certainty, even while their own methodology professes skepticism. This is the positivist probability at the core of the knowledge-creation mechanism within academia. Academic social science relies on probabilistic measures, but discusses these measures in positivistic ways, claiming that a 95% probability represents the real existence of a phenomenon or conclusion.[43]

This is particularly true within the social sciences including political, science where the rise of quantitative scholarship and a focus on generalizability has led to the embrace of this epistemological form. Within these academic contexts the focus on the

---

[43] A 95% confidence interval means that 1 in 20 statistical inferences will be wrong, the equivalent of rolling a "natural 1" on a 20-sided die, while playing a role-playing game like Dungeons & Dragons. Yet no player of these games would reject the possibility of rolling a 1 in the way that social scientists reject the 5% probability of being incorrect.

development of generalizability has led to an embrace of this epistemology in form, if not in name.[44] The focus on developing rigorous or robust methodology that embraces the ideals of big data epistemology has becomes a stable of political science education, with the core texts reflecting these ideological commitments.[45] Within this framework comes the "folk notions of science," a term for the ideas that unreflectively assert how modern social science should be done. These folk notions come with the ideal of generalizability as the highest good of social science research. This is the claim that the best or most valuable insights are ones that are derived from quantitatively obtained data and are generalizable. That is, ideas or insights derived from statistical inference on a sample population, and then applied to a population at large are the most reliable mechanism for the development of knowledge. While careful social scientists rarely use the terms "truth" or "knowledge" to describe their findings, the ideology remains. The best or most applicable results come from statistical inference on sample populations. Big data epistemology works within the academy, and power relations exist within the academy too. Prioritizing generalizability and statistical methodology entrenches existing divides within society and further privileges the forms of knowledge making that are only available to the elite. Large-scale data collection, advanced methods training, and

---

[44] Bernard Harcourt may dispute this characterization, as he defines the new era of big data as being methodologically separate from the earlier forms of statistical interpretation including causal analysis, which he rightfully points out is still the dominant quantitative methodological form in use by the social sciences in general, and political science specifically. However, I think that the ideological commitments held by the social sciences warrant its inclusion in this critique.

[45] Gary King, Robert O. Keohane, and Sidney Verba, *Designing Social Inquiry: Scientific Inference in Qualitative Research* (Princeton University Press, 1994); Henry E. Brady and David Collier, *Rethinking Social Inquiry: Diverse Tools, Shared Standards* (Rowman & Littlefield Publishers, 2010). It seems that nearly every first year graduate student must sit through at least one course covering the "canon" of quantitative political science, inheriting the ideology of KKV.

custom-designed survey research are only available to privileged academics, usually at elite institutions, thus further gatekeeping the knowledge creation process. This then creates of a form of knowing available only to those with prestigious grants, large research budgets, or independent funding sources denying it to those without elite connections.

Specialized Knowledge

The second major feature of technoplatonism is the idea that access to truth requires a specialized skill or knowledge, what Plato calls *technê.* The reliance on a specialized skill means that the knowledge produced is seen as inherently more valuable than other epistemological forms. For Plato, these features are elaborated in Book VI of *The Republic* with the example of the ship captain, as well as in Book VII, within the famous parable of the cave. Plato's use of *technê* as a skill relating to technology has been remarked on by other contemporary scholars of technology. Langdon Winner recounts the allure of *technê* for Plato, identifying that it is both a specialized skill and that it provides a model for politics, anticipating the third feature of technoplatonism.[46] While Winner rightfully points out that Plato was deeply skeptical of *technê* as a model for governance, the philosopher is also described in these terms, as analogous to a captain of a ship, the one with the skill and the correct disposition to guide the ship by the light of

---

[46] Winner, *The Whale and the Reactor*, 41.

the stars. This example, along with the parable of the cave provides a guideline for action. The philosopher freed from their bounds in the cave and allowed to wander out into the outside world is not allowed to remain in the world of intellectual abstraction but is instead forced to return to the cave to help free others. Even though there isn't "any other life that despises political offices other than that of true philosophy […] men who aren't lovers of ruling must go to it."[47]

These elements are replicated with data. To access the truth of data, one needs to develop a specific *technê* or set of skills in both programing and data analytics. This need for the development of skills is reflected in the neoliberal tendencies for major tech companies to tie early success directly to the prowess of the early founders. Thus, we see discussions of the work ethic and unique geniuses of Mark Zuckerberg, or Sergey Brin and Larry Page. The persistent personal myth of a company or innovation begun in a garage with only a singular genius toiling to bring their creation into being abounds. Emphasized in these accounts are the specific abilities these founders had that allowed them to access something unique and then leverage it into financial success. This myth is so prevalent that it is the central premise to be lampooned in the satirical "Silicon Valley" television show. However, the emphasis of the specific skill of the founders is reliant on the undercurrent of specific assumptions about the nature of data.[48] The first is that data

---

[47] Plato, *The Republic of Plato*, 199.

[48] This focus on skill and *technê* remains, even if the founder was not specifically tied to data. Zuckerberg's skill was not originally in leveraging large amounts of data, but in seeing a relatable niche in the world of social networks and pursuing it. Nevertheless, the lionization of the specific skills of the founders of these corporations underlines the focus on skill as a mechanism of this epistemology.

requires an assumption of truth within the data set itself. This is the idea that when you analyze data you obtain something that is otherwise inaccessible; that big data gives us access to something that we are not able to get with any other epistemological methodology. This is the claim of uniqueness within data and the core of the *technê*. The mythology of data requires that this truth is only accessible to those who are skilled enough to recognize its potential and work to extract it. This is what sets the epistemology of data apart from other sources of knowledge. It is a unique form of knowledge reliant upon specifics skills and therefore its analysis and outcomes are uniquely valuable.

There is an important corollary to this development. Gaining access to this previously inaccessible analysis makes big data more valuable or more true than other forms of knowledge gathering. That is what causes such a focus on individual skill or *technê*. The skill is in uncovering a truth that is not only unique, but more valuable or more true than the alternatives. The thing that sets big data apart and enables this specific epistemological methodology is the mythology of big data itself. In an almost circular fashion, the incomprehensibility of the expansion of big data into "big data" contained in massive, unthinkable data sets that cannot be accessed and viewed by human eyes with any sort of comprehension leads to the creation of the big data myth. At the core of this incomprehensibility must be something comprehensible, something more true because of its status outside of human comprehension.

The effects of tying this epistemological form to a specific skill is to create a form of injustice directed at those who are excluded from the knowledge creation process. The epistemology of big data creates a form of injustice by privileging certain types of knowers over others, data creates a form of epistemic injustice similar to the form originally described by Miranda Fricker. Her feminist work, when applied to the theme of big data, allows us to see how privileged forms of knowledge identify specific individuals as privileged "knowers" and thus deny that capability to others.[49] Doing this creates a form of hermeneutic injustice that is useful in evaluating the impacts of this particular form of epistemology. When big data is a privileged form of knowledge, this privilege must be bestowed on someone, leaving those who don't have access to the analytic capacities of big data without epistemic status. Privileging one form of knowing and discounting another is a form of injustice.

This means that data, and tech generally, is run by elites who determine what counts as worth knowing. However, the crucial element that sets up this development as an injustice is the recognition that this form of gatekeeping is fundamentally based on a fiction. It is based on the idea that big data confers some sort of social power based on technical expertise that justifies the exclusion of those who do not understand the mechanics of big data from the status of knowers. This is a form of epistemic injustice,

---

[49] Miranda Fricker, *Epistemic Injustice: Power and the Ethics of Knowing*, 1st edition (Oxford: Oxford University Press, USA, 2009).

more commonly found in the field of feminist theory, used to describe women who are not fully recognized as having the capacity to be knowers by men.

Technology and big data expand this form of injustice, going further toward delegitimizing the status of those left out. If big data is understood as a privileged site of knowledge and is therefore able to determine what is worth knowing, then access to big data is a prerequisite for holding status as a knower. In *Epistemic Injustice,* Fricker discusses the power that exists in being a "knower" or someone who is capable of having knowledge.[50] She points out that women are frequently and unjustly denied the positionality of being knowers. This situation happens when a man consciously or unconsciously refuses to admit that women also have epistemic power, or the power to know things. When this happens, a unique form of injustice is created, an epistemic injustice. Women are denied the legitimation of knowledge that they have. It is in her discussion of this positionality that her thought can be useful for understanding how data creates a class of privileged knowers. In her account, men have a positionality of privileged knowledge. Male knowledge is seen as more valuable or more true. This leads to the denial of other forms of knowledge, thus creating the injustice. Fricker's argument is generally focused on interpersonal relationships, so her conception focuses on developing recognition of individuals who may be denied the status of "knower," and

---

[50] *Fricker.*

therefore argues that the main issue is the loss of credibility and the objectification that comes along with being denied the full status as a person.

For data, this injustice comes when those to have access to the privileged form of knowledge use it to deny that other forms of knowledge or truth can exist. This is a structural from of the testimonial injustice Fricker describes. For Fricker, this testimonial injustice comes when the speaker is not recognized as being able to give testimony and are therefore unable to be perceived as being able to tell truths. With big data, the focus is less on the individual as a person who is attempting to testify and is being denied, but instead on the existence of this denial because the type of knowledge created by big data. And since we as individuals cannot have access to this knowledge except when mediated through statistical or analytical mechanisms, we are, by default, denied the status of "knower." This is a structural form of injustice, when combined with the argument that the privileged form of knowledge does not actually qualify as an objective form of knowledge in the first place. This turns into merely another way to legitimate elite rule based on technocratic values.

Governing Mandate

The final element of technoplatonism is the governing mandate within the mythology of data. Access to a unique form of truth confers undemocratic political power. At the core of tis persistent mythology is a governing mandate that confers outsized political power to those with the knowledge and skill that are valued by the mythological standards.

This governing mandate is the essence of Plato's philosopher-king. Within the parable of the cave, the philosopher is required to return to society after seeing the true nature of existence to inform and guide the people. Even though they would rather be practicing abstract philosophy, their unique access to knowledge requires them to return to the depth of the cave and rule. In this way, Plato's discussion is incredibly relevant to data. The correlation or analysis "inside" the data is roughly analogous to a form, which means it becomes a privileged sort of knowledge, where a more true or a more correct form of knowledge, truth, or the good exists. From this point, it seems that the development of a philosopher-king based on data is a logical conclusion. If data holds the key to this higher form of truth and only a select few individuals are able to develop the specialized skill or have access to the type of understanding required to utilize this data, it makes sense that they should act as philosopher-kings. Their outsized influence on society seems justified based on their access to knowledge. This is a problem, as it justifies plutocratic, nondemocratic control over society.

Essentially, the truth claims at the core of big data grants political power, or at least the assumption of political power. If data is able to provide answers or solutions to political and social problems that are more true that other solutions, then it is clear that these are solutions that we should adopt for our society. We should solve political problems. Then, the exclusivity and inaccessibility of these truths require us to rely on the

individuals who have access to this privileged form of truth, thus they are granted political power.

There are antidemocratic consequences for such a position. The Western democratic project claims that popular sovereignty is the core of representation, that individuals should get a say in the making of their own society, as argued by Hanna Pitkin.[51] Data does not have a legitimating presence, it is not a form of representation, and access to big data does not and should not confer political power. However, the epistemological elements of big data have a technocratic nature implying the conveyance of a form of political power. This is easily seen by looking at the actions of both tech companies and the statements of individuals that run these corporations. Google leadership has commented that they believe their technology is so advanced, they shouldn't be subject to major laws or regulation, because it is impossible for a legislative body to understand what they are doing enough to properly regulate it.[52]

Understanding data as a privileged place of knowledge helps explain the policy and political motivation of these technology companies. As demonstrated in the previous chapters we see that tech companies begin to take on more biopolitical developments when they manage populations in ways similar to states. Now, some of this is classical capitalism. It clearly follows from a neoliberal form when we understand, as Foucault

---

[51] Hanna F. Pitkin, *The Concept of Representation* (Berkeley: University of California Press, 1972).

[52] Levy, *In The Plex*.

points out, that markets are sites of truth as well.[53] We can easily see the crossover

between data-driven analytics and neoliberal market-focused ideology. The crossover

between markets and data is clear. If markets are sites of truth and the ultimate form of

truth in society, and data is the mechanism for obtaining truth and a privileged

methodology for truth, we should use big data to gain access to the truth of the market

and then use that truth to inform society. We can begin to see this with the development

of large investment firms that take a societywide view of market capital. Firms like

Vanguard and Blackrock analyze society as a way of managing market returns but also

maximizing market returns by managing society.[54] They are not passive investors, but

actively use their control of the investment market to manage society as well. Blackrock

investing is chaired by an ex-Obama appointee who views the role of the multibillion-

dollar investment company as advancing a liberal agenda through investing, using its

control over the market to achieve political ends.[55] Through this lens of data, the goals of

a progressive society and the goals on an investor elite converge within the medium of

big data. The result of this is an elite-focused ideology, where those who have access to

these insights and the political will to utilize them are responsible for nearly single-

handedly guiding society toward their desired outcomes. This a profound undermining of

---

[53] Foucault, *The Birth of Biopolitics*.

[54] Franco Ordoñez, "Biden Names BlackRock's Brian Deese As His Top Economic Aide," *NPR*, December 3, 2020, sec. Biden Transition Updates, https://www.npr.org/sections/biden-transition-updates/2020/12/03/942205555/biden-names-blackrocks-brian-deese-as-his-top-economic-aide; "Finding Big Data in Big Alpha - Equities," BlackRock, accessed August 5, 2021, https://www.blackrock.com/institutions/en-axj/insights/finding-big-alpha-in-big-data.

[55] Investor's Business Daily, "Is Investing Giant BlackRock Trying To Push Companies To Be More Liberal? | Stock News & Stock Market Analysis - IBD," Investor's Business Daily, January 16, 2018, https://www.investors.com/politics/editorials/blackrock-letter-ceo-corporate-social-responsibility/.

democratic decision making and the role of politics in everyday life. Blackrock is an investment company so powerful that it can guide society through targeted investment, led by the ideology of a small cadre of executives.

Even if these technoplatonistic understandings were a true form of knowledge, there are still depoliticizing impacts as well as major implications for the formation of power. Even if we take the assumption that big data is a particularly useful or a nearly objective way of coming to conclusions or scientific truths about the world, the question of merit remains. Those with access and ability to do the sort of big data analytics that are required to access this privileged form of truth legitimate their elite control of politics. If we accept the epistemological premise that there is an objective form of data and that there is a form of truth or knowledge that can be found in this data that is better or closer to truth than knowledge obtained in other ways, say through deliberation or representation, then it is easy to see what follows. Either we legitimate the elite control of politics, as those with access to this form of truth have a better claim to rule or accept the claim that the algorithms or data mechanisms themselves should rule as sovereign and therefore make decisions about the polity, for the good of the polity, based on their data analytic capabilities. Either option leads us down a dangerously antidemocratic rabbit hole wherein collective decision-making power is replaced by the technocratic elite using the decision-making power afforded to them by their connection to an access to vast reams of data, which allow them to make more true claims about the world around them.

This is depoliticizing fundamentally as these people who make these decisions are and remain nondemocratic elites.

This elite-centered plutocracy has a similar form to Plato's philosopher-king. Data allows technological elites to become both philosopher and king, having direct access to knowledge and then leveraging that access to objective knowledge into legitimated political power and control. While we do not see Elon Musk, Mark Zuckerberg, or Jeff Bezos running for government office based on their access to data, more subtle forms of elite control are the necessary logical outcome of such understandings. If big data is a privileged source of knowledge, then we also must accept that it has an oversized role in determining governing structures.

What proves to be important about this form of data is how removed it is from the general public. When truth is defined as a derivative of data is removed from public consumption, requiring a tech elite or academic to access these new truth forms. Data as a privileged source of knowledge is inaccessible to the general public. Collecting, analyzing, and deploying the insights of data requires vast resources that are only available as a major corporation, a state government, or an exceptionally lucky academic researcher. These sorts of big data analytics require specialized knowledge and access to physical infrastructure such as server space and technical knowledge that is not readily available to the general public. Big data is necessarily gatekept behind this inaccessibility.

We see that tech companies, elites, and academics gain special access to this this privileged form of truth, and correspondingly seek outsized influence in society. Their technical proficiency sets them apart and gives them access to the knowledge that is required to rule. By virtue of their access to this special form of knowledge, the philosopher-king is not merely allowed to rule but is required to rule. Returning to Plato, we see that the philosopher-king is a semitragic figure. The philosopher king is a philosopher who would much rather dwell in the abstract realm of the forms and of philosophy but is required to enter back into society and work to guide society toward its ultimate end. Similarly, we can see the tragic mythos of the tech genius who while would rather spend their days privately coding or solving technical problems are sort of drawn into societal problems. Zuckerberg expresses regret (his near-constant apologizing is pointed out by Levy) when Facebook creates real social and political problems.[56] All he wanted to do, he repeats over and over, was connect the world. And yet he does much more than that—his company and other big data corporations petition governments, draft laws, and engage directly with policy. There is a real interplay between the world of tech and governance. Harcourt even goes so far as to suggest that we might redefine the idea of the state in light of the growing public/private overlap that occurs as governments increasingly rely on private tech companies for both data collection and analysis.[57]

[56] Levy, *Facebook*.

[57] Harcourt, *Exposed*.

The Power of Data

The power of data rests upon a particular epistemology that I identify as technoplatonism. This epistemological form requires an assumption of immaterial truth within data, the claim that this truth can only be accessed by specific individuals with a specialized skillset, and that possession of this knowledge grants political power. Within this framework digital technology, specifically technology associated with the collection and analysis of big data, is viewed as analogous to Plato's idea of the forms. This is the view that through this particular methodology we can come to an understanding of truth that is not available through other means. This form of truth is more abstract and originally inaccessible to human intellect. Only the technological prowess of big data allows us to develop this understanding. This ideological commitment results in a number of depoliticizing elements, culminating in the logical requirement of technological philosopher-kings, where political power is necessarily bestowed upon these elite actions based on their access to this form of data. I expanded on these themes in the form of a philosophical critique, arguing that this viewpoint ignores or rejects alternative methods of understanding the world, even rejecting alternative views that would be compatible with the use of data. This supplements the critiques developed and supports my claim that big data acts as a depoliticizing force on society.

Conclusion: Technology, Despair, and a Critical Theory of Technology

This dissertation has been an extended project of unmasking and demythologizing aimed at peering behind the "silicon curtain" to expose the power that big data holds in society. In doing so I aim to both show the power wielded by big data, as well as undertake a deep investigation of the political impacts of such a development. I have traced these political impacts across three different arenas. In the biopolitical arena, the power of big data works to duplicate the power of the state, creating forms of power that impact how we exist in the world. Here I argue that the power of big data, as it impacts our extant lives directly, is best understood as a biopolitical power, aimed at managing user populations. This new formulation of biopolitics moves beyond understanding biopolitics as a formation of power tied to health policy, or the state, and shows how the unique technical apparatus of big data allows for biopolitical power that was once the purview of the state to be duplicated by large corporations and control and manage populations in a new way. This form of biopolitics has a stifling effect on political action as it limits our capabilities for both exit and voice, we are not able to escape the control of big data, nor does our voice lead to meaningful control. This renders us pacified populational subjects under the hegemony of data.

This power continues further and moves beyond impacting our social and empirical lives to changing our ontological existence. When big data develops its biopolitical control over our lives it does not aim its structural power at ourselves in the way that we commonly conceptualize. Instead, big data focuses on our subatomic selves,

the selves created by data itself. In aggregating aspects, or discrete forms of data, into larger wholes, which can be tracked and managed across the digital realm, we are rendered as subatomic persons. Less than the Enlightenment ideal of atomic individuals, subatomic persons are an alienating ontology that further separates us from the basic building blocks of our identity. Big data works to both determine our identity for us, using our digital actions to assign us specific identities and then act upon those created identities, selling advertising and managing the ways in which we interact with others online. This is an alienating form, removing our control over the formation of our identity. This thus alienates the self, from the self and complicates the relationship between our curated identities in the empirical realm and our assigned identities in the digital one. It also further undercuts our ability to act politically, as the impact of big data targets only this subatomic person and not any form of our empirical selves.

These forms of power, the biopolitical power of big data and the creation and management of the subatomic person are both made possible by the epistemological characteristics of big data. Big data's epistemological form, technoplatonism, ties these elements of power together. Technoplatonism is the epistemological commitment found within big data, that holds useful similarities to Platonic metaphysics. At the core of the power of big data is an implicit claim that big data contains a mechanism for accessing truth. This is required by the very collection of data. If one is not able to understand some form of truth or come to a higher understanding through the usage of data, then there would be no point to collecting this data. This epistemology, based on an understanding

of the immateriality of the knowledge at the core of data, and specialized skills required to access it, has a clear political outcome. Access to this form of knowledge at the core of data comes with an assumed governing mandate. This then legitimates elite control over politics and justifies all of the other forms of power. Without access to truth, there could be no biopolitical control, as there would be nothing to base that control on. The subatomic person would not be useful for data collection and analysis without a claim to some form of knowledge at the core of the analytic. Taken together, these three forms represent a collective power to reframe society in data's image.

These understandings are key for a number of reasons. First, this dissertation has played a descriptive role. There is an unveiling or unmasking at the core of this project. This power shift is happening in our society, and we need to understand what exactly is happening, and how. Incomplete or misleading understandings lead only to misplaced attempts at solutions, as evidenced by the current governmental approaches, detailed below. It has become imperative that we develop a clear view of what is happening in the world so that we can properly understand it and act accordingly. The power of big data is an emerging phenomenon, happening regardless of our engagement with it. This engagement has been lacking within political theory and political science more broadly. A new critical theory of technology is badly needed to help us understand the structural forms of our new present, and political theory is uniquely suited to undertake such a task. This dissertation has begun to chart this course and develop such a theory. But any attempt at developing such a critical approach requires a subtle and sophisticated

understanding of the problem at hand. You cannot change anything if you don't know anything. This is especially relevant within the field of technology where prevailing winds push toward technofuturism and techno-optimism, increasingly putting our eggs in the basket of further technological innovations. A properly situated critical theory of technology works to push back against these impulses and reorient ourselves toward actual solutions and policies that work toward a future free of technological domination. However, this move is still very much a countercurrent to the modern attitude toward technology, one that is promoted and emphasized by the tech companies themselves.

Technological Despair

The goal of this dissertation has been to take inspiration from Robin Marasco and engage in a ruthless critique of the present. Our present is defined by technology. From the advent of social networks, the development of online search and commerce, to the very structures by which states project power, technology has become a fundamental and inescapable part of our lives. This technology has developed into a digital form unheard of in previous eras and as such requires a new line of inquiry. My goal in this work has not been the advocacy of a complete dismantling of technology in all of its forms. Instead, I am calling for sober reflection upon the ways in which technology and technical forms impact our lives and change our politics. These are ways that we might not anticipate and impact how we exist in our modern society. This is reflected in the question of the role for critical theory. As Marasco points out, "the challenge for contemporary critical theory is to inhabit this no man's land between the prevailing order

of things and a more just and humane world."[1] This dissertation has aimed to inhabit this particular space and argue that the prevailing technologic order of things is working actively to prevent a more just and humane world from coming about. It does this in many ways, from the management of our existences to elite control over our politics. But at the end of this discussion, it seems clear to me that the solution is not to deny technology at all costs or to insist upon the single-minded management or regulation of technical progress such that it might exist. Instead, I look to a broader more comprehensive future in which we can push back against the deleterious effects of technology and secure a future free from domination. It is worth recognizing the difficulty or even futility of such a task. Marasco calls this the "cultivated misrelation to the present that comes with the work of the negative."[2] To truly investigate the present and shed light on the ways in which the present falls short of our ideals and what we might want it to be requires a disjointed relationship with our own existence. To be set apart or to be put in a particular formation or loci of critique is to exist in this particular form of misrelation. But again, we need to engage in "the ruthless critique of everything existing" if we are to conceptualize a future that is free of domination and more fully democratic.

In the face of vast corporate and state power despair seems like a reasonable reaction to the technological existence that we find ourselves in. How are we to operate in

---

[1] Marasco, *The Highway of Despair*.

[2] Marasco.

the world when we really don't have the power to react or change the course of events? The problem with an investigation into the operation of structural power in modern society is that the conclusion inevitably undercuts individual action to solve these problems. When we look at the questions of big data and the problems that arise, what is most striking is the fact that the problems and depoliticizing developments are out of the control of the general population. The general population cannot and indeed should not have to give up their technological autonomy in pursuit of a truly free and democratic existence. I am not arguing that we should never have a social network like Facebook or a form of search like Google or an online commerce system like Amazon, but instead we should look to the ways in which these forms and structures can be rendered as supplementing and advancing our capacity as fully established democratic individuals. They should not be undercutting these goals and creating new ontologies and new forms of power that only work toward demolishing the present and attempting to leverage it for financial gain.

In the face of all of these structural forms of power and seemingly incomprehensible forms of understanding despair creeps in as a logical outcome. How is one individual supposed to make meaningful change in a world that's determined by skill sets that are far beyond the understanding of the average person engaging with an entirely new culture and existence that is born out of elite universities and is incubated within the Silicon Valley bubble. There doesn't seem to be a major way for individuals to successfully push back against these forms, hence the development of despair. However,

Marasco argues for the political salience of despair; that we can use despair as a motivating tool for political action, not succumbing to it, but using it to motivate us. Ultimately, using this despair productively requires us to reevaluate the current strategies for regulation and management and seek new forms of technological governance.

Questions of Governance

By understanding technology through the lens of critical theory we can begin to understand the fundamental problem, or question surrounding technology. The problem of power must be solved to have a democratic development of technology. Technological developments necessarily create new forms of power within society, from the direct coercive power that comes from the development of weapons technology to the Foucauldian forms of power that comes through the development of new forms of knowledge. We even see forms of power baked into the very forms of digital infrastructures themselves.

Unfortunately, most attempts at managing or regulating form of technology, especially within the United States, sidestep the considerations of power and instead focus their regulatory strategies on monopoly regulation or the protections of individual rights, like privacy. Within the framework of the United States, much regulatory action is focused on proving or identifying and managing what are seen to be monopolistic tendencies of tech companies, primarily focused on the acquisition of smaller companies, or varying attempts to carve out economic fiefdoms by developing unique and exclusive

app stores. The U.S. Congress and the FTC have spent much time investigating Facebook's purchase of Instagram, or acquisitions of companies by Google or Amazon, arguing (and largely failing) that these moves represent monopolistic consolidations of firms, akin to the robber barons of the Gilded Age. A different strand of regulation, usually more focused on the efforts of the EU in pursuing the GDPR, or legal challenges in the United States, are focused on the protection of individual rights, specifically privacy or "the right to be forgotten". While these attempts are laudable, and to a degree, necessary, a clear critical theory of technology shows us that they also miss the major harms and developments that these new forms of technology post. In short, they miss the question of power, and the specific forms of power at work with these technological advances.

While monopolistic and rights-based concerns are valid and worth pursing, an exclusive focus on these metrics as the primary solution only leads to missing the mark. Instead, we need to think of this regulatory requirement closer to the regulations desired or enforced on other extractive industries. Big data and the technology and power surrounding it are, at their core, extractive industries, mining for individual aspects rather than for coal or oil. However, current governance strategies are focused on this threat of monopolization. A recent congressional report describes these big data companies as "prone to monopolization" and seeks to review antitrust laws as a way to push back against this tendency. Similarly, the FTC's recent complaint to the U.S. District Court claims that Facebook "implemented and anticompetitive scheme" by purchasing or

otherwise acquiring firms that had the potential to become rivals, and in doing so "suppresses meaningful competition for the sale of advertising."[3] Interestingly, this complaint goes on to criticize Facebook's business acumen, arguing that Facebook could not compete, or innovate, to the degree that its competitors could and therefore resorted to the anticompetitive practice of simply acquiring any potential rivals.

What is notable about these two governmental actions is that at no point in either of the process does the actual practice of Facebook come up as a harmful, or critical question that needs to be investigated. Both the FTC and the U.S. Congress focus on what they perceive to be the monopolistic or anticompetitive framework of Facebook (and by extension, other tech companies), while missing the depoliticizing nature of the actual practice. The solution to Facebook's political power and control is not to create a dozen other Facebooks, as those who advocate for breaking up big tech suggest. To reuse an earlier metaphor, the problem of an antidemocratic polity is not solved by moving from a dictatorship to an oligarchy. The political landscape may have changed, but it remains an antidemocratic landscape nonetheless. What these questions of governance miss is how the concentration of power into the hands of technological elites creates an oligarchic technopoly, where political influence is tied to the control of private technological systems. This oligarchic form will not be eradicated by simply increasing the number of

---

[3] An earlier complaint, filed in 2019, was thrown out by the court, which also allowed the FTC to refile an amended complaint.

individual oligarchs. We need a more comprehensive view of how to remedy our technological forms.

<u>Final Takeaways: Data and Technology</u>

At the end of the day, technology is an inescapable part of our lives, and it should be. The opportunities, entertainments, scholarly pursuits, and personal enrichments provided by technological development are not to be discounted. There is a possibility for a future that engages with technology and technological development in a way that does not succumb to either overly optimistic technofuturism, oligarchic control of politics and society, or the erosion of personal autonomy and privacy. Yet if we are to have a chance at seizing this future, we must be clear-eyed about our present. The defining facet of modern technology is data. The identification, collection, analysis, and deployment of data makes up the defining innovation of our contemporary age. Even applications as disparate as social media networks, retail purchasing, and financial instruments all lean on the usage of big data to motivate their business. But despite this pervasiveness, we as a society do not have a full grasp on the depth in which this datafication of our entire existences serves to undercut our most cherished values. If we are to seek out a vision of a just society, free from domination (a promise yet unfulfilled), we must grapple with the present forces that work against this vision. We must engage in a ruthless critique of the present and turn our despair into productive political energies. The vision for a future where technology serves our vision of a just society must not be abandoned in the face of corporate malfeasance or state indifference. There is much work still to be done.

Bibliography

Acar, Güneş, Brendan Van Alsenoy, Frank Piessens, Claudia Diaz, and Bart Preneel. "Facebook Tracking Through Social Plug-Ins." Belgian Privacy Commission, June 24, 2015.

Agamben, Giorgio. *Homo Sacer: Sovereign Power and Bare Life*. Translated by Daniel Heller-Roazen. 1 edition. Stanford, Calif: Stanford University Press, 1998.

———. *State of Exception*. Translated by Kevin Attell. 1 edition. Chicago: University of Chicago Press, 2005.

Aguiar, Luis, Christian Peukert, Maximilian Schäfer, and Hannes Ullrich. "Facebook Shadow Profiles." SSRN Scholarly Paper. Rochester, NY: Social Science Research Network, February 1, 2022. https://doi.org/10.2139/ssrn.4032514.

Aide, A. House Democratic. "Inside the Congressional Staff Meeting About Libra." The American Prospect, July 2, 2019. https://prospect.org/api/content/4e27bc4e-d0f4-5500-bb2e-d780b0cad137/.

Albrecht, Katherine. "Supremarket Cards: The Tip of the Retail Surveillance Iceberg." *Denver University Law Review* 79, no. 4 (2002 2001): 534–39.

Alvarez León, Luis F. "Property Regimes and the Commodification of Geographic Information: An Examination of Google Street View." *Big Data & Society* 3, no. 2 (December 2016): 205395171663788. https://doi.org/10.1177/2053951716637885.

"An Introduction to Libra." White Paper. Libra, July 23, 2019. https://libra.org/en-US/white-paper/.

Anderson, Chris. "The End of Theory: The Data Deluge Makes the Scientific Method Obsolete." *Wired*, June 23, 2008.

Anderson, Elizabeth. *Private Government: How Employers Rule Our Lives*. Reprint edition. Princeton University Press, 2019.

Angwin, Julia. "On Google, a Political Mystery That's All Numbers." *Wall Street Journal*, November 4, 2012, sec. Tech. https://online.wsj.com/article/SB10001424052970203347104578099122530080836.html.

Arendt, Hannah, Margaret Canovan, and Danielle Allen. *The Human Condition: Second Edition*. Second Edition, Enlarged edition. Chicago ; London: University of Chicago Press, 2018.

Ayers, D. Franklin. "Neoliberal Ideology in Community College Mission Statements: A Critical Discourse Analysis." *The Review of Higher Education* 28, no. 4 (2005): 527–49. https://doi.org/10.1353/rhe.2005.0033.

Ball, Kirstie, and Frank Webster, eds. *The Intensification of Surveillance: Crime, Terrorism and Warfare in the Information Age*. London ; Sterling, VA: Pluto Press, 2003.

Bell, Franziska, and Slawek Smyl. "Forecasting at Uber: An Introduction." *Uber Engineering Blog* (blog), September 6, 2018. https://eng.uber.com/forecasting-introduction/.

Bellin, Eva. "Reconsidering the Robustness of Authoritarianism in the Middle East: Lessons from the Arab Spring." *Comparative Politics* 44, no. 2 (2012): 127–49.

Benjamin, Ruha. *Race After Technology: Abolitionist Tools for the New Jim Code*. John Wiley & Sons, 2019.

Biebricher, Thomas. *The Political Theory of Neoliberalism*. 1 edition. Stanford, California: Stanford University Press, 2019.

Bliss, Laura. "Meet the Jane Jacobs of the 21st Century." CityLab, December 21, 2018. https://www.citylab.com/life/2018/12/bianca-wylie-interview-toronto-quayside-protest-criticism/574477/.

Bond, Robert M., Christopher J. Fariss, Jason J. Jones, Adam D. I. Kramer, Cameron Marlow, Jaime E. Settle, and James H. Fowler. "A 61-Million-Person Experiment in Social Influence and Political Mobilization." *Nature* 489, no. 7415 (September 2012): 295–98. https://doi.org/10.1038/nature11421.

Bouk, Dan. *How Our Days Became Numbered: Risk and the Rise of the Statistical Individual*. University of Chicago Press, 2018.

Bowker, Geoffrey C. "Data Flakes: An Afterword to 'Raw Data' Is an Oxymoron." In *"Raw Data" Is an Oxymoron*, 169–71. Infrastructures Series. Cambridge, Massachusetts: The MIT Press, 2013.

Bowker, Geoffrey C., and Susan Leigh Star. *Sorting Things Out: Classification and Its Consequences*. MIT Press, 2000.

boyd, danah, and Kate Crawford. "Critical Questions for Big Data: Provocations for a Cultural, Technological, and Scholarly Phenomenon." *Information, Communication & Society* 15, no. 5 (June 2012): 662–79. https://doi.org/10.1080/1369118X.2012.678878.

Brady, Henry E., and David Collier. *Rethinking Social Inquiry: Diverse Tools, Shared Standards*. Rowman & Littlefield Publishers, 2010.

Brandom, Russell. "Why so Many Companies Bailed on Facebook's Libra Project at Once." The Verge, October 11, 2019. https://www.theverge.com/2019/10/11/20910453/libra-association-facebook-visa-mastercard-stripe-leaving.

Brayne, Sarah. *Predict and Surveil: Data, Discretion, and the Future of Policing*. Oxford University Press, 2020.

Brown, Wendy. *In the Ruins of Neoliberalism: The Rise of Antidemocratic Politics in the West*. New York: Columbia University Press, 2019.

———. *Undoing the Demos: Neoliberalism's Stealth Revolution*. New York: Zone Books, 2015.

Browne, Simone. *Dark Matters: On the Surveillance of Blackness*. Duke University Press, 2015.

Bucher, Taina. *If … Then: Algorithmic Power and Politics*. Oxford Studies in Digital Politics. New York: Oxford University Press, 2018.

Bursztynsky, Jessica. "TikTok Says 1 Billion People Use the App Each Month." CNBC, September 27, 2021. https://www.cnbc.com/2021/09/27/tiktok-reaches-1-billion-monthly-users.html.

"California State Payroll Taxes – AB 5 – Employment Status | California EDD," December 28, 2021. https://edd.ca.gov/Payroll_Taxes/ab-5.htm.

Calo, Ryan. "Robotics and the Lessons of Cyberlaw." *California Law Review* 103, no. 3 (2015): 513–63.

Chandra, Kanchan. *Constructivist Theories of Ethnic Politics*. Oxford University Press, 2012.

Chandrasekharan, Eshwar, Umashanthi Pavalanathan, Anirudh Srinivasan, Adam Glynn, Jacob Eisenstein, and Eric Gilbert. "You Can't Stay Here: The Efficacy of Reddit's 2015 Ban Examined Through Hate Speech." *Proceedings of the ACM on*

Human-Computer Interaction 1, no. CSCW (December 6, 2017): 1–22. https://doi.org/10.1145/3134666.

Cheney-Lippold, John. "A New Algorithmic Identity: Soft Biopolitics and the Modulation of Control." *Theory, Culture & Society* 28, no. 6 (November 2011): 164–81. https://doi.org/10.1177/0263276411424420.

———. *We Are Data: Algorithms and the Making of Our Digital Selves*. New York: NYU Press, 2017.

Chun, Wendy Hui Kyong. *Programmed Visions: Software and Memory*. MIT Press, 2011.

———. *Updating to Remain the Same: Habitual New Media*. MIT Press, 2017.
Cisney, Vernon W., and Nicolae Morar. *Biopower: Foucault and Beyond*. University of Chicago Press, 2015.

Clark, William Roberts, Matt Golder, and Sona N. Golder. "The British Academy Brian Barry Prize Essay: An Exit, Voice and Loyalty Model of Politics." *British Journal of Political Science* 47, no. 4 (October 2017): 719–48. https://doi.org/10.1017/S0007123416000442.

Classen, Jiska, Daniel Wegemer, Paul Patras, Tom Spink, and Matthias Hollick. "Anatomy of a Vulnerable Fitness Tracking System: Dissecting the Fitbit Cloud, App, and Firmware." *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies* 2, no. 1 (March 26, 2018): 5:1-5:24. https://doi.org/10.1145/3191737.

Claytor, W Graham, and Roger S Bagnall. "The Beginnings of the Roman Provincial Census: A New Declaration from 3 BCE," 2015, 17.

Cohen, Julie E. *Between Truth and Power*. Oxford University Press, 2019.

Cole, David. "'We Kill People Based on Metadata.'" *The New York Review of Books* (blog), May 10, 2014. https://www.nybooks.com/daily/2014/05/10/we-kill-people-based-metadata/.

Comiskey, Brian. "Toyota Is Weaving a Future of Smart City Living - CES 2022." *Consumer Entertainment Expo* (blog), March 15, 2021. https://www.ces.tech/Articles/2021/March/Toyota-Is-Weaving-a-Future-of-Smart-City-Living.aspx.

Coren, Anna, Julia Hollingsworth, Sandi Sidhu, and Zachary Cohen. "US Military Admits It Killed 10 Civilians and Targeted Wrong Vehicle in Kabul Airstrike."

CNN, September 17, 2021. https://www.cnn.com/2021/09/17/politics/kabul-drone-strike-us-military-intl-hnk/index.html.

Cowen, Tyler. *The Great Stagnation: How America Ate All the Low-Hanging Fruit of Modern History, Got Sick, and Will (Eventually) Feel Better*. Dutton; Eventually Edition, 2011.

Crawford, Kate. "Can an Algorithm Be Agonistic? Ten Scenes from Life in Calculated Publics." *Science, Technology, & Human Values* 41, no. 1 (January 2016): 77–92. https://doi.org/10.1177/0162243915589635.

———. *The Atlas of AI*. Yale University Press, 2021.

Daily, Investor's Business. "Is Investing Giant BlackRock Trying To Push Companies To Be More Liberal? | Stock News & Stock Market Analysis - IBD." Investor's Business Daily, January 16, 2018. https://www.investors.com/politics/editorials/blackrock-letter-ceo-corporate-social-responsibility/.

Dallmayr, Fred R., and Thomas A. McCarthy. *Understanding and Social Inquiry*. First Edition edition. Notre Dame, Ind: Univ of Notre Dame Pr, 1977.

D'Anastasio, Cecilia. "The Creators Of Pokémon Go Mapped The World. Now They're Mapping You." Kotaku, October 16, 2019. https://kotaku.com/the-creators-of-pokemon-go-mapped-the-world-now-theyre-1838974714.

"Data, n." In *OED Online*. Oxford University Press. Accessed September 23, 2019. https://www.oed.com/view/Entry/296948.

Daub, Adrian. *What Tech Calls Thinking: An Inquiry into the Intellectual Bedrock of Silicon Valley*. Farrar, Straus and Giroux, 2020.

Davidson, Helen. "TikTok: Why It Is Being Sold and Who Will Own It." *The Guardian*, September 22, 2020, sec. Technology. https://www.theguardian.com/technology/2020/sep/22/tiktok-sale-the-reasons-behind-it-and-the-new-deal.

Dean, Mitchell, and Daniel Zamora. *The Last Man Takes LSD: Foucault and the End of Revolution*. Verso Books, 2021.

Deleuze, Gilles. "Postscript on the Societies of Control." *October* 59, no. Winter (1992): 3–7. https://doi.org/10.4324/9781315242002.

Derrida, Jacques. *Echographies of Television: Filmed Interviews*. Cambridge UK;Malden MA: Polity Press;Blackwell Publishers, 2002.

———. *Specters of Marx: The State of the Debt, The Work of Mourning & the New International*. 1 edition. New York: Routledge, 2006.

Descartes, Rene. *The Philosophical Writings of Descartes*. Translated by John Cottingham. Cambridge Cambridgeshire ; New York: Cambridge University Press, 1985.

Diebold, Francis X. "A Personal Perspective on the Origin(s) and Development of 'Big Data': The Phenomenon, the Term, and the Discipline, Second Version." *SSRN Electronic Journal*, 2012. https://doi.org/10.2139/ssrn.2202843.

D'Ignazio, Catherine, and Lauren F. Klein. *Data Feminism*. MIT Press, 2020.

Doctoroff, Daniel. "Sidewalk Labs | Reimagining Cities from the Internet Up." *Sidewalk Labs* (blog), November 30, 2016. https://www.sidewalklabs.com/blog/reimagining-cities-from-the-internet-up/.

Douglas, Nick. "What Happened at the Congressional Hearing on Facebook and Libra?" Lifehacker, October 14, 2019. https://lifehacker.com/what-happened-at-the-congressional-hearing-on-facebook-1839307832.

Ericson, Richard V., and Kevin D. Haggerty. *The New Politics of Surveillance and Visibility*. University of Toronto Press, 2006.

Eubanks, Virginia. *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor*. New York, NY: St. Martin's Press, 2018.

Feenberg, Andrew. *Questioning Technology*. 1 edition. London ; New York: Routledge, 1999.

———. *Transforming Technology: A Critical Theory Revisited*. Oxford University Press, 2002.

BlackRock. "Finding Big Data in Big Alpha - Equities." Accessed August 5, 2021. https://www.blackrock.com/institutions/en-axj/insights/finding-big-alpha-in-big-data.

Fine, Gail. *Plato on Knowledge and Forms: Selected Essays*. Clarendon Press, 2003.

Forestal, Jennifer. "Constructing Digital Democracies: Facebook, Arendt, and the Politics of Design." *Political Studies* 69, no. 1 (February 1, 2021): 26–44. https://doi.org/10.1177/0032321719890807.

———. *Designing for Democracy: How to Build Community in Digital Environments*. Oxford University Press, 2021.

Foucault, Michel. *Discipline & Punish: The Birth of the Prison*. Translated by Alan Sheridan. 2nd edition. New York: Vintage Books, 1995.

———. *Power/Knowledge: Selected Interviews and Other Writings, 1972-1977*. Edited by Colin Gordon. 1st American Ed edition. New York: Vintage, 1980.

———. *"Society Must Be Defended": Lectures at the Collège de France, 1975-1976*. Translated by David Macey. First edition. New York: Picador, 2003.

———. *The Birth of Biopolitics: Lectures at the Collège de France, 1978--1979*. Reprint edition. Basingstoke England; New York: Picador, 2010.

———. *The History of Sexuality, Vol. 1: An Introduction*. Reissue edition. New York: Vintage, 1990.

———. *The Order of Things: An Archaeology of the Human Sciences*. Reissue edition. New York NY: Vintage, 1994.

Fricker, Miranda. *Epistemic Injustice: Power and the Ethics of Knowing*. 1 edition. Oxford: Oxford University Press, USA, 2009.

Galloway, Alexander R., and Eugene Thacker. *The Exploit: A Theory of Networks*. U of Minnesota Press, 2013.

Gitelman, Lisa. *"Raw Data" Is an Oxymoron*. Infrastructures Series. Cambridge, Massachusetts: The MIT Press, 2013.

Griffith, Erin, and Nathaniel Popper. "Facebook's Libra Cryptocurrency Faces Exodus of Partners." *The New York Times*, October 11, 2019, sec. Technology. https://www.nytimes.com/2019/10/11/technology/facebook-libra-partners.html.

Gros, Frédéric. "The Fourth Age of Security." In *The Government of Life: Foucault, Biopolitics, and Neoliberalism*, 17–28. Fordham Univ Press, 2014.

Gulley, Norman. *Plato's Theory of Knowledge (Routledge Revivals)*. London: Routledge, 2012. https://doi.org/10.4324/9780203085905.

Hague, Rod, and Martin Harrop. *Comparative Government and Politics: An Introduction*. Palgrave Macmillan, 2013.

Halpern, Orit. *Beautiful Data: A History of Vision and Reason since 1945*. Duke
   University Press, 2015.

Harcourt, Bernard E. *Exposed: Desire and Disobedience in the Digital Age*. Harvard
   University Press, 2015.

Hardt, Michael, and Antonio Negri. *Empire*. Cambridge, Mass.: Harvard University
   Press, 2001.

Harrison, Stephen. "A New Documentary Highlights Why Yelp Feels Unfair." Slate
   Magazine, June 6, 2019. https://slate.com/technology/2019/06/billion-dollar-
   bully-documentary-yelp.html.

Hartwell, Drew. "Colleges Are Turning Students' Phones into Surveillance Machines,
   Tracking the Locations of Hundreds of Thousands." Washington Post. Accessed
   February 13, 2020.
   https://www.washingtonpost.com/technology/2019/12/24/colleges-are-turning-
   students-phones-into-surveillance-machines-tracking-locations-hundreds-
   thousands/.

Harvey, David. *A Brief History of Neoliberalism*. Oxford: Oxford University Press, 2007.
Hawkins, Andrew J. "Alphabet's Sidewalk Labs Shuts down Toronto Smart City
   Project." The Verge, May 7, 2020.
   https://www.theverge.com/2020/5/7/21250594/alphabet-sidewalk-labs-toronto-
   quayside-shutting-down.

Heidegger, Martin. *The Question Concerning Technology, and Other Essays*.
   HarperCollins, 2013.

Helft, Miguel. "Google's Buses Help Its Workers Beat the Rush." *The New York Times*,
   March 10, 2007, sec. Technology.
   https://www.nytimes.com/2007/03/10/technology/10google.html.

Hirschman, Albert O. *Exit, Voice, and Loyalty: Responses to Decline in Firms,
   Organizations, and States*. Harvard University Press, 1970.

Hoffman, Sharona, and Andy Podgurski. "Big Bad Data: Law, Public Health, and
   Biomedical Databases." *The Journal of Law, Medicine & Ethics* 41, no. 1_suppl
   (April 2013): 56–60. https://doi.org/10.1111/jlme.12040.

Hong, Sun-ha. *Technologies of Speculation: The Limits of Knowledge in a Data-Driven
   Society*. NYU Press, 2020.

Horkheimer, Max. *Critical Theory: Selected Essays*. New York: Continuum Pub. Corp, 1982.

Horkheimer, Max, and Theodor W. Adorno. *Dialectic of Enlightenment*. Edited by Gunzelin Schmid Noerr. Translated by Edmund Jephcott. 1 edition. Stanford, Calif: Stanford University Press, 2007.

House Subcommittee on Antitrust, Commercial and Administrative Law of the Committee on the Judiciary. "Investigation of Competition in Digital Markets." 114th Cong. 2nd sess, 2020.

Hu, Tung-Hui. *A Prehistory of the Cloud*. MIT Press, 2016.

Hull, Gordon. "Biopolitics Is Not (Primarily) About Life: On Biopolitics, Neoliberalism, and Families." *The Journal of Speculative Philosophy* 27, no. 3 (2013): 322–35. https://doi.org/10.5325/jspecphil.27.3.0322.

Hwang, Tim. *Subprime Attention Crisis: Advertising and the Time Bomb at the Heart of the Internet*. Farrar, Straus and Giroux, 2020.

Igo, Sarah. *The Known Citizen: A History of Privacy in Modern America*. 1st ed. Cambridge, Massachusetts: Harvard University Press, 2018.

Isaac, Mike, and Nick Corasaniti. "Facebook Said to Consider Banning Political Ads." *The New York Times*, July 10, 2020, sec. Technology. https://www.nytimes.com/2020/07/10/technology/facebook-politcal-ads-ban.html.

Jamieson, Alastair. "Google Will Carry on with Camera Cars despite Privacy Complaints over Street Views," April 9, 2009, sec. Technology. https://www.telegraph.co.uk/technology/google/5130068/Google-will-carry-on-with-camera-cars-despite-privacy-complaints-over-street-views.html.

Jefferson, Brian Jordan. *Digitize and Punish: Racial Criminalization in the Digital Age*. University of Minnesota Press, 2020.

Johnson, Pete Schroeder, Katanga. "Facebook Vows Libra Currency Will Wait for Approval as U.S. Airs Worries." *Reuters*, July 16, 2019. https://www.reuters.com/article/us-usa-facebook-libra-idUSKCN1UA1PF.

Kayyali, Randa. "US Census Classifications and Arab Americans: Contestations and Definitions of Identity Markers." *Journal of Ethnic and Migration Studies* 39, no. 8 (September 2013): 1299–1318. https://doi.org/10.1080/1369183X.2013.778150.

Kelly, Makena. "House Lawmakers Officially Ask Facebook to Put Libra Cryptocurrency Project on Hold." The Verge, July 2, 2019. https://www.theverge.com/2019/7/2/20680230/facebook-libra-calibra-crypto-maxine-waters-congress-regulation-investigation-halt.

———. "Top Democrat Calls for Facebook to Halt Cryptocurrency Plans until Congress Investigates." The Verge, June 18, 2019. https://www.theverge.com/2019/6/18/18684268/facebook-libra-cryptocurrency-stop-congress-house-democrat-maxine-waters-regulation.

———. "Watch Mark Zuckerberg's Libra Congressional Testimony Here." The Verge, October 23, 2019. https://www.theverge.com/2019/10/23/20928558/zuckerbergs-hearings-watch-live-stream-how-to-libra-congressional-testimony-facebook.

King, Gary, Robert O. Keohane, and Sidney Verba. *Designing Social Inquiry: Scientific Inference in Qualitative Research*. Princeton University Press, 1994.

Koopman, Colin. *How We Became Our Data: A Genealogy of the Informational Person*. Chicago: The University of Chicago Press, 2019.

———. *How We Became Our Data: A Genealogy of the Informational Person*. First edition. Chicago: University of Chicago Press, 2019.

———. "The Political Theory of Data: Institutions, Algorithms, & Formats in Racial Redlining." *Political Theory* 50, no. 2 (April 1, 2022): 337–61. https://doi.org/10.1177/00905917211027835.

Kymlicka, Will. "Liberal Multiculturalism as a Political Theory of State–Minority Relations." *Political Theory* 46, no. 1 (February 1, 2018): 81–91. https://doi.org/10.1177/0090591717696021.

———. *Multicultural Citizenship: A Liberal Theory of Minority Rights*. Clarendon Press, 1996.

Lake, Robert W. "Big Data, Urban Governance, and the Ontological Politics of Hyperindividualism." *Big Data & Society* 4, no. 1 (June 2017): 205395171668253. https://doi.org/10.1177/2053951716682537.

Lao, Oscar, Timothy T. Lu, Michael Nothnagel, Olaf Junge, Sandra Freitag-Wolf, Amke Caliebe, Miroslava Balascakova, et al. "Correlation between Genetic and Geographic Structure in Europe." *Current Biology: CB* 18, no. 16 (August 26, 2008): 1241–48. https://doi.org/10.1016/j.cub.2008.07.049.

Lecher, Colin. "Facebook's Libra Association Has Now Lost a Quarter of Its Original Members." The Verge, October 14, 2019. https://www.theverge.com/2019/10/14/20914269/facebook-libra-association-founders-paypal-visa-mastercard-stripe-ebay.

Lee, Timothy B. "Visa, Mastercard, Stripe, and EBay All Quit Facebook's Libra in One Day." Ars Technica, October 12, 2019. https://arstechnica.com/tech-policy/2019/10/visa-mastercard-stripe-and-ebay-all-quit-facebooks-libra-in-one-day/.

Lemke, Thomas. *Biopolitics: An Advanced Introduction*. Translated by Eric Frederick Trump. 1 edition. New York: NYU Press, 2011.

Levitsky, Steven, and Lucan Way. "The Rise of Competitive Authoritarianism." *Journal of Democracy* 13, no. 2 (2002): 51–65. https://doi.org/10.1353/jod.2002.0026.

Levy, Steven. *Facebook: The Inside Story*. Penguin, 2020.

———. *In The Plex: How Google Thinks, Works, and Shapes Our Lives*. 1st Edition edition. New York: Simon & Schuster, 2011.

Lewis, Tyson. "Biopolitical Utopianism in Educational Theory." *Educational Philosophy and Theory* 39, no. 7 (January 2007): 683–702. https://doi.org/10.1111/j.1469-5812.2007.00316.x.

Lindzon, Jared. "How Toronto Locals Soured on Alphabet's Neighborhood of the Future." Fast Company, September 6, 2019. https://www.fastcompany.com/90390377/alphabet-wants-to-turn-toronto-into-a-digital-city-locals-arent-so-sure.

Ling, Lisa, and Cian Westmoreland. "The Kill Cloud: Real World Implications of Network Centric Warfare." In *Whistleblowing for Change: Exposing Systems of Power and Injustice*, 300 Pages. transcript publishing, 2021.

Locke, John. *Locke: Two Treatises of Government Student Edition*. Edited by Peter Laslett. Student edition. Cambridge England ; New York: Cambridge University Press, 1988.

Lohr, Steve. "How Big Data Became So Big - Unboxed." *The New York Times*, August 11, 2012, sec. Business Day. https://www.nytimes.com/2012/08/12/business/how-big-data-became-so-big-unboxed.html.

Lupton, Deborah. "'Not the Real Me': Social Imaginaries of Personal Data Profiling." *Cultural Sociology* 15, no. 1 (March 1, 2021): 3–21. https://doi.org/10.1177/1749975520939779.

———. *The Quantified Self*. John Wiley & Sons, 2016.

Lyon, David, ed. *Surveillance as Social Sorting: Privacy, Risk and Automated Discrimination*. 1 edition. London ; New York: Routledge, 2002.

Madrigal, Alexis C. "The Radical Optimism of Eric Schmidt." The Atlantic, June 29, 2012. https://www.theatlantic.com/technology/archive/2012/06/the-radical-optimism-of-eric-schmidt/259235/.

Manokha, Ivan. "Surveillance: The DNA of Platform Capital—The Case of Cambridge Analytica Put into Perspective." *Theory & Event* 21, no. 4 (October 2018): 24.

Manovitch, Lev. "Trending: The Promises and the Challenges of Big Social Data." In *Debates in the Digital Humanities*, 2012 Print Edition. Minnesota Press, 2012. http://dhdebates.gc.cuny.edu/debates/text/2.

Marasco, Robyn. *The Highway of Despair: Critical Theory After Hegel*. Columbia University Press, 2015.

Marcuse, Herbert. *An Essay on Liberation*. Beacon Press, 1971.

———. *One-Dimensional Man: Studies in the Ideology of Advanced Industrial Society*. 2nd edition. Beacon Press, 2012.

Marshall, Aarian. "Alphabet's Sidewalk Labs Scraps Its Ambitious Toronto Project." *Wired*, May 7, 2020. https://www.wired.com/story/alphabets-sidewalk-labs-scraps-ambitious-toronto-project/.

Marx, Karl, and Friedrich Engels. *German Ideology, Part 1 and Selections from Parts 2 and 3*. Edited by Christopher John Arthur. New York: International Publishers, 2004.

Mbembe, Achille. *Necropolitics*. Durham: Duke University Press Books, 2019.

McCarthy, Thomas. *The Critical Theory of Jürgen Habermas*. MIT Press, 1981.

McGregor, Jena. "Employers Are Adding High-Tech Solutions to Solve a Low-Tech Problem: Getting More Sleep." Washington Post, February 14, 2020. https://www.washingtonpost.com/business/2020/02/14/sleep-wellness-employer-oura/.

Spread Privacy. "Measuring the Filter Bubble: How Google Is Influencing What You Click," December 4, 2018. https://spreadprivacy.com/google-filter-bubble-study/.

Medearis, John. *Why Democracy Is Oppositional*. Cambridge, Massachusetts: Harvard University Press, 2015.

Mills, Catherine. "Biopolitics and the Concept of Life." In *Biopower: Foucault and Beyond*, 82–101. University of Chicago Press, 2015.

Mokhtar, Umi Asma', and Zawiyah M. Yusof. "Classification: The Understudied Concept." *International Journal of Information Management* 35, no. 2 (April 2015): 176–82. https://doi.org/10.1016/j.ijinfomgt.2014.12.002.

Nield, David. "All the Ways Facebook Tracks You—and How to Limit It." *Wired*, January 12, 2021. https://www.wired.com/story/ways-facebook-tracks-you-limit-it/.

Noble, Safiya. *Algorithms of Oppression: How Search Engines Reinforce Racism*. 1 edition. New York: NYU Press, 2018.

———. *Algorithms of Oppression: How Search Engines Reinforce Racism*. 1 edition. New York: NYU Press, 2018.

Omi, Michael, and Howard Winant. *Racial Formation in the United States*. Third edition. New York: Routledge/Taylor & Francis Group, 2015.

O'Neil, Cathy. *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Reprint edition. New York: Broadway Books, 2017.

Ordoñez, Franco. "Biden Names BlackRock's Brian Deese As His Top Economic Aide." *NPR*, December 3, 2020, sec. Biden Transition Updates. https://www.npr.org/sections/biden-transition-updates/2020/12/03/942205555/biden-names-blackrocks-brian-deese-as-his-top-economic-aide.

Panagia, Davide. "On the Possibilities of a Political Theory of Algorithms." *Political Theory* 49, no. 1 (February 2021): 109–33. https://doi.org/10.1177/0090591720959853.

Pasquale, Frank. *The Black Box Society: The Secret Algorithms That Control Money and Information*. Reprint edition. Cambridge, Massachusetts London, England: Harvard University Press, 2016.

Pateman, Carole, and Charles Mills. *The Contract and Domination*. 1 edition. Cambridge: Polity, 2007.

Patten, Alan. "Liberalism, Culture, and Recognition: A Reply to Critics." *Political Theory* 46, no. 1 (February 1, 2018): 131–41. https://doi.org/10.1177/0090591717696025.

Peters, Adele. "Google's New Urban Innovation Incubator Just Made Its First Investment, To Bring Public Wi-Fi To Cities." Fast Company, June 23, 2015. https://www.fastcompany.com/3047773/googles-new-urban-innovation-incubator-just-made-its-first-investment-to-bring-public-wi-fi-.

Phillips, Anne. "What Makes Culture Special?" *Political Theory* 46, no. 1 (February 1, 2018): 92–98. https://doi.org/10.1177/0090591717696023.

Pitkin, Hanna F. *The Concept of Representation*. Berkeley: University of California Press, 1972.

Plato. *The Republic of Plato: Second Edition*. Translated by Allan Bloom. Basic Books, 1991.

Postman, Neil. *Technopoly: The Surrender of Culture to Technology*. Vintage Books, 1993.

Rabinow, Paul, and Nikolas Rose. "Biopower Today." In *Biopower: Foucault and Beyond*, 297–325. University of Chicago Press, 2015.

Rafanelli, Lucia M. "Justice, Injustice, and Artificial Intelligence: Lessons from Political Theory and Philosophy." *Big Data & Society* 9, no. 1 (January 2022): 205395172210806. https://doi.org/10.1177/20539517221080676.

Rafferty, Pauline. "The Representation of Knowledge in Library Classification Schemes," 2001, 12.

Raley, Rita. "Dataveillance and Countervailance." In *"Raw Data" Is an Oxymoron*, 134–45. Infrastructures Series. Cambridge, Massachusetts: The MIT Press, 2013.

Ravichandran, Divya Babu, and Varun Verma. "How Data Shapes the Uber Rider App." *Uber Engineering* (blog), August 21, 2021. https://eng.uber.com/how-data-shapes-the-uber-rider-app/.

Rawls, John. *A Theory of Justice*. Oxford University Press, 1999.

Cybersecurity for Democracy. "Researchers, NYU, Knight Institute Condemn Facebook's Effort to Squelch Independent Research About…." Press Release, August 4, 2021. https://medium.com/cybersecurity-for-democracy/researchers-

nyu-knight-institute-condemn-facebooks-effort-to-squelch-independent-research-about-59cec0793939.

Ribeiro, Manoel Horta, Raphael Ottoni, Robert West, Virgílio A. F. Almeida, and Wagner Meira. "Auditing Radicalization Pathways on YouTube." *ArXiv:1908.08313 [Cs]*, December 4, 2019. http://arxiv.org/abs/1908.08313.

Roberts, Sarah T. *Behind the Screen: Content Moderation in the Shadows of Social Media*. Yale University Press, 2019.

Robins, Kevin, and Frank Webster. *Times of the Technoculture: From the Information Society to the Virtual Life*. Routledge, 2003.

Romm. "Nearly 40 States Sue Google Alleging Search Manipulation, Marking the Third Antitrust Salvo against the Tech Giant." *Washington Post*, December 17, 2020, sec. Tech Policy. https://www.washingtonpost.com/technology/2020/12/17/google-search-antitrust-lawsuit/.

Roose, Kevin, Mike Isaac, and Sheera Frenkel. "Roiled by Election, Facebook Struggles to Balance Civility and Growth." *The New York Times*, November 24, 2020, sec. Technology. https://www.nytimes.com/2020/11/24/technology/facebook-election-misinformation.html.

Roosevelt, Margot, and Suhauna Hussain. "Prop. 22 Is Ruled Unconstitutional, a Blow to California Gig Economy Law." *Los Angeles Times*, August 21, 2021, sec. Business. https://www.latimes.com/business/story/2021-08-20/prop-22-unconstitutional.

Rosenberg, Daniel. "Data Before The Fact." In *"Raw Data" Is an Oxymoron*, 15–40. Cambridge, Mass: The MIT Press, 2012.

Ryan, Fergus, Audrey Fritz, and Daria Impiombato. "TikTok and WeChat: Curating and Controlling Global Information Flows." TikTok and WeChat. Australian Strategic Policy Institute, September 2020.

Saito, Osamu. "Historical Demography: Achievements and Prospects." *Population Studies* 50, no. 3 (November 1996): 537–53. https://doi.org/10.1080/0032472031000149606.

Schmidt, Eric, and Jonathan Rosenberg. *How Google Works*. New York: Grand Central Publishing, 2014.

Seglow, Jonathan. "Reassessing Recognition." *Political Theory* 46, no. 1 (February 1, 2018): 123–30. https://doi.org/10.1177/0090591717696024.

Shapiro, Aaron. *Design, Control, Predict: Logistical Governance in the Smart City*. University of Minnesota Press, 2020.

Shiftehfar, Reza. "Uber's Big Data Platform: 100+ Petabytes with Minute Latency - Uber Engineering Blog." *Uber Engineering Blog* (blog), October 17, 2018. https://eng.uber.com/uber-big-data-platform/.

Siddiqui, Faiz. "Uber, Other Gig Companies Spend Nearly $200 Million to Knock down an Employment Law They Don't like — and It Might Work." *Washington Post*, October 26, 2021, sec. Technology. https://www.washingtonpost.com/technology/2020/10/09/prop22-uber-doordash/.

Solon, Olivia. "'It's Digital Colonialism': How Facebook's Free Internet Service Has Failed Its Users." *The Guardian*, July 27, 2017, sec. Technology. https://www.theguardian.com/technology/2017/jul/27/facebook-free-basics-developing-markets.

Statt, Nick. "Facebook Confirms It Will Launch a Cryptocurrency Called Libra in 2020." The Verge, June 18, 2019. https://www.theverge.com/2019/6/18/18682290/facebook-libra-cryptocurrency-visa-mastercard-digital-currency-calibra-wallet-announce.

Streitfeld, David. "Google Admits Street View Project Violated Privacy - The New York Times." New York Times, March 12, 2013. https://www.nytimes.com/2013/03/13/technology/google-pays-fine-over-street-view-privacy-breach.html.

Taylor, Charles. *Philosophical Arguments*. N Second printing edition. Cambridge, Mass.: Harvard University Press, 1997.

Thorsen, Dag Einar. "Neoliberal Challenge-What Is Neoliberalism, The." *Contemp. Readings L. & Soc. Just.* 2 (2010): 188.

Tourangeau, Roger, Lance J. Rips, and Kenneth Rasinski. *The Psychology of Survey Response*. Cambridge University Press, 2000.

Tufekci, Zeynep. "YouTube's Recommendation Algorithm Has a Dark Side." Scientific American, April 1, 2019. https://doi.org/10.1038/scientificamerican0419-77.

Vaidhyanathan, Siva. *Antisocial Media: How Facebook Disconnects Us and Undermines Democracy*. New York, NY, United States of America: Oxford University Press, 2018.

———. *The Googlization of Everything: (And Why We Should Worry)*. University of California Press, 2012.

Varian, Hal R. "Online Ad Auctions." *American Economic Review* 99, no. 2 (April 2009): 430–34. https://doi.org/10.1257/aer.99.2.430.

Vatter, Miguel. "Foucault and Hayek: Republican Law and Civil Society." In *The Government of Life: Foucault, Biopolitics, and Neoliberalism*, 163–84. Fordham Univ Press, 2014.

Vincent, Donovan. "Sidewalk Labs' Urban Data Trust Is 'Problematic,' Says Ontario Privacy Commissioner | The Star." thestar.com, September 26, 2019. https://www.thestar.com/news/gta/2019/09/26/sidewalk-labs-urban-data-trust-is-problematic-says-ontario-privacy-commissioner.html.

Vynck, Gerrit De, Cat Zakrzewski, Elizabeth Dwoskin, and Rachel Lerman. "Big Tech CEOs Face Lawmakers in House Hearing on Social Media's Role in Extremism, Misinformation." *Washington Post*, March 25, 2021. https://www.washingtonpost.com/technology/2021/03/25/facebook-google-twitter-house-hearing-live-updates/.

Wagner, Kurt, and Naomi Nix. "Facebook Disables Accounts Tied to NYU Research Project." *Bloomberg.Com*, August 3, 2021. https://www.bloomberg.com/news/articles/2021-08-03/facebook-disables-accounts-tied-to-nyu-research-project.

Watzman, Nancy. "The Political Ads Facebook Won't Show You." *Cybersecurity for Democracy* (blog), May 12, 2021. https://medium.com/cybersecurity-for-democracy/the-political-ads-facebook-wont-show-you-e0d6181bca25.

Statista. "WeChat: Active Users Worldwide." Accessed February 9, 2022. https://www.statista.com/statistics/255778/number-of-active-wechat-messenger-accounts/.

Wernimont, Jacqueline. *Numbered Lives: Life and Death in Quantum Media*. MIT Press, 2019.

Southern Poverty Law Center. "Whose Heritage? Public Symbols of the Confederacy." Accessed September 21, 2020. https://www.splcenter.org/20190201/whose-heritage-public-symbols-confederacy.

Williams, Ingrid K. "Can A.I.-Driven Voice Analysis Help Identify Mental Disorders?" *The New York Times*, April 5, 2022, sec. Technology. https://www.nytimes.com/2022/04/05/technology/ai-voice-analysis-mental-health.html.

Winner, Langdon. *The Whale and the Reactor: A Search for Limits in an Age of High Technology, Second Edition*. University of Chicago Press, 2020.

Wolin, Sheldon S., ed. "Reason in Exile: Critical Theory and Technological Society." In *Technology in the Western Political Tradition*, 162–89. Cornell University Press, 1993.

Zuboff, Shoshana. *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. 1 edition. New York: PublicAffairs, 2019.

Zuckerberg, Mark. "CNN Interview after Cambridge Analytica." *Zuckerberg Transcripts*, March 21, 2018, 10.

Zureik, Elia, Lynda Harling Stalker, and Emily Smith. *Surveillance, Privacy, and the Globalization of Personal Information: International Comparisons*. Montréal Québec ; Ithaca [N.Y.]: McGill-Queen's University Press, 2010.